



Research Paper

# Personal Factors as Determinants of Knowledge Retention among Selected ICT Firms in Nigeria

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**Abstract:** In today's knowledge-driven economy, the retention of critical employee knowledge has become a strategic priority for organisations, particularly in the fast-evolving Information and Communication Technology (ICT) sector. In Nigeria, ICT firms face increasing challenges in this regard due to growing competition, global talent mobility, and internal structural gaps. While organisational practices such as leadership and compensation are known to influence retention, personal factors, the individual-level drivers behind why employees choose to stay and share knowledge remain underexplored in the Nigerian context. Employees' knowledge, skills, and commitment are key internal assets often more pivotal than physical infrastructure in a knowledge-intensive industry such as ICT. This study examines personal factors such as access to quality education, career development prospects, and employee loyalty as determinants of knowledge retention among selected ICT firms in Nigeria. These factors are essential in understanding employee motivation and long-term engagement, directly affecting whether valuable knowledge is retained or lost. The study adopts a quantitative method with a population of 350, a sample size of 187 and a 93% response rate to the questionnaire. The impact of these determinants is tested individually and as a group to establish their respective effect on knowledge retention using correlation and regression analysis. The study established a strong relationship between all three determinants and knowledge retention among professionals in ICT industries. According to the study, access to quality education and career development prospects will encourage knowledge retention by motivating employees to stay or encouraging knowledge sharing among professionals. Access to quality education and good career prospects in an organisation will foster employee loyalty, reduce turnover, and enhance knowledge retention. The paper recommends that ICT firms implement a cloud-based knowledge base, treat employee knowledge as a strategic organisational resource and invest in them. They have and communicate a clear promotion and professional career path for key roles to enhance knowledge retention among professionals in ICT industries.

**Keywords:** Cloud-based knowledge base, knowledge retention, determinants, knowledge management, knowledge loss

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## I. INTRODUCTION

Nigeria's rapidly growing tech industry often contends with brain drain – talented employees leaving for opportunities abroad or in other sectors (Agbai, & Okechukwu, 2024). Studies indicate that this talent flight is exacerbated by insufficient local career opportunities and inadequate support for skill development (Elegbe, 2016; Shahriar, 2025). For example, limited prospects for career advancement in domestic firms and the lure of better overseas prospects have been identified as key reasons IT professionals consider leaving. Providing clear

promotion and professional growth paths can help Nigerian ICT companies retain their valuable human capital (Agbai, & Okechukwu, 2024). Indeed, researchers have advocated that firms adopt policies to incentivise skilled professionals to remain in Nigeria, which includes creating more advancement opportunities and challenging roles locally.

Employee loyalty and engagement are equally critical in Nigeria's ICT firms (Yinusa, & Ogoun, 2024). The presence of multinational tech companies in the local market means employees have alternatives, intensifying competition for talent. In such an environment, cultivating loyalty can be a deciding factor in retention. Nigerian studies have noted that a positive organisational culture that values employee well-being, recognises contributions, and fosters collaboration can enhance commitment and reduce turnover intentions (Akinsowon, 2020). This corresponds to creating an environment where employees develop an emotional attachment and sense of loyalty to the firm. A highly loyal workforce ensures that these employees' knowledge and innovative capacity stay within the company rather than being lost to competitors or foreign firms (Serenko, 2023). In sum, access to quality education, career development, and loyalty are not abstract ideas but concrete factors that Nigerian ICT firms must manage to retain knowledge (Mukaro, Deka, & Rukani, 2023).

Knowledge represents a critical resource that an organisation must leverage to gain a competitive advantage in today's global and fast-changing business environments (Bashir, Farooq, & Naqshbandi, 2024). Knowledge is defined as an intellectual asset that employees and organisations rely upon to carry out specified organisational functions, tasks & duties (Al-Tit, Al-Ayed, Alhammadi, Hunitie, Alsarayreh, & Albassam, 2022). It is also considered an asset that can be aggregated and transferred at the organisation level from one generation to another (Alvino, Di Vaio, Hassan, & Palladino, 2021).

Different authors have identified the role of effective knowledge management as the key to developing superior innovation abilities that make it possible for organisations to differentiate themselves in the competitive landscape (Mahdi, Almsafir, & Yao, 2011; Ahmed, Salloum, & Shaalan, 2021). Knowledge management (KM) refers to processes employed by organisations to manage their intellectual capital (Garcia-Perez, Ghio, Occhipinti, & Verona, 2020). Three phases involved in Knowledge management include knowledge creation, knowledge retention, and knowledge reuse (Galan, 2023). Creation speaks to developing an organisational knowledge base, while retention, which is our focus in this paper, speaks to acquiring, storing, and retrieving knowledge, aiming to increase knowledge reuse (Asiedu, Abah, & Dei, 2022).

Knowledge Management (KM) is not novel in organisations (Barnes, 2022). There also exist many KM methodologies, both in academic research and in business situations (Levett, & Guenov, 2000; Massaro, Handley, Bagnoli, & Dumay, 2016; Gómez-Marín, Cara-Jiménez, Bernardo-Sánchez, Álvarez-de-Prado, & Ortega-Fernández, 2022).

Knowledge retention, on the other hand, is not fully covered in both academic research and published business case studies (Ensslin, Carneiro Mussi, Rolim Ensslin, Dutra, & Pereira Bez Fontana, 2020). Knowledge retention, also called knowledge continuity, focuses on challenges such as quick aid, which are required to package employees' immediate knowledge for transference to others in the organization (Levallet, & Chan, 2019; Lohse, 2020). Most classic KM solutions focus on an enduring structured environment that encourages people to share their ongoing knowledge rather than creating an environment that retains knowledge (Valeri, 2021). For knowledge retention, the goal is to ensure that an expert's most valuable knowledge becomes an organisational asset in a limited period.

Since knowledge is resident in individuals, retaining knowledge in an organisation is largely a function of retaining the individuals with such knowledge (Levallet, & Chan, 2019). Hence, a high turnover of ICT experts can only result in knowledge loss by the organisation. By implication, all the factors that could enhance the retention of such experts will also lead to knowledge retention either by ensuring they remain in the organisation with their knowledge or motivating them to share such knowledge should they have to expatriate.

Empirical and theoretical findings (Bawa, Attah, Agougil, & El Harch, 2023) acknowledge the importance of knowledge management to firms but fail to consider the determinants of knowledge retention of professionals in ICT firms. Therefore, it is apt for this article to investigate the organisational factors determining knowledge retention among professionals in selected ICT firms in Nigeria when most of the brightest ICT professionals are leaving the country with their vast knowledge.

## **II. OVERVIEW OF THE NIGERIAN ICT INDUSTRY**

The ICT sector is knowledge-intensive and rapidly evolving, relying heavily on skilled human capital for software development, network engineering, data analysis, and other specialised roles (Cheshmehzangi, 2022). In recent years, Nigerian ICT firms have faced high turnover and "brain drain" as skilled professionals are highly marketable and often enticed by global opportunities or competitive local startups (Agbai, & Okechukwu, 2024).

Nigeria's ICT industry is one of the largest in Africa and a significant contributor to the economy (around 10% of GDP) (David & Grobler, 2020), and it spans several key subsectors that drive the country's digital transformation. The sector comprises telecommunications, the core information technology of software &

IT services, fintech, e-commerce, cybersecurity, digital media, and emerging technologies. Nigeria is widely regarded as Africa's largest ICT market, with a huge base of consumers and users (Soetan, Mogaji, & Nguyen, 2021). Over half of Nigeria's 220+ million people now have access to mobile phones, and internet usage has surged – Nigeria alone accounts for roughly 29% of all internet usage in Africa (Irielle, 2024). As of mid-2022, there were around 85 million broadband subscriptions (44% penetration) in the country, and total internet users (including mobile internet on any network) are well over 100 million and growing (Godlovitch, Martins, Gries, Knips, & Wernick, 2023). In the early 2000s, telecom and IT contributed under 1% to Nigeria's GDP. Still, by 2022, the ICT sector accounted for 18.44% of GDP in Q2 2022 – a dramatic increase that surpassed the contribution of oil in that quarter (Osanebi, & Odeke, 2025). In terms of market value, the Nigerian ICT sector is a multi-billion-dollar industry (Ladagu, 2020), and estimates indicate the market size will reach about \$32.8 billion by 2025 and continue growing at double-digit rates (projected to more than double to \$76 billion by 2030).

For Nigerian ICT firms, the strategic importance of knowledge retention is even more pronounced, given the sector's role in economic development and global competition (Ladagu, 2020). Every time a skilled programmer or network engineer leaves without knowledge handover, the firm risks project delays or loss of client trust (Ishak, Islam, & Sumardi, 2023). However, firms protect their business continuity by retaining key personnel or at least their critical knowledge (through documentation and knowledge-sharing before departure). Over time, organisations that build a reputation for valuing and retaining knowledge attract top talent, creating a virtuous cycle that further enhances their human capital. This ultimately supports sustainability – companies can maintain performance even as individual employees cycle in and out because the collective organisational knowledge endures.

Despite impressive progress and opportunities, Nigeria's ICT industry faces challenges that constrain its full potential. One major issue is infrastructural: an unreliable power supply and inadequate supporting infrastructure increase operating costs (Lebepe, & Mathaba, 2024). Security challenges in rural areas, multiple taxation, policy shifts or government intervention are among the industry's challenges. Another growing challenge is cybersecurity and fraud. With more Nigerians online and using digital services, cyber threats have increased – it's estimated that Nigerian businesses and financial institutions lose around \$500 million annually to cybercrime (Kalu, Chidi-Kalu, Okidi, & Usiedo, 2020). Lastly, the industry grapples with a skills gap and brain drain. While Nigeria produces many graduates, there is a shortage of highly skilled ICT professionals (many skilled tech workers emigrate or are hired abroad), which can limit local capacity (Adhikari, Clemens, Dempster, & Ekeator, 2021). These challenges must be addressed to sustain the sector's growth and take advantage of the potential. This, among others, is what necessitates this study.

### **III. THE RATIONALE OF THE STUDY**

Nigeria's Information and Communication Technology (ICT) sector has recently been bedevilled with the emigration of skilled professionals, commonly known as the brain drain syndrome (Egbule, 2023). This has resulted in an enormous loss of knowledge in the sector as most emigrated professionals' knowledge and skills have not been domesticated within the organisation where they previously worked. These movements of skilled labour from Nigeria to greener pastures can have significant implications for economic development, particularly in emerging markets like Nigeria.

The knowledge retention crisis described above manifests in several ways, affecting various sectors of the economy. This crisis has manifested in low productivity and efficiency, skill shortages that are difficult to replace, the sector's inability to innovate and expand, and increased reliance on foreign expertise, resulting in higher operational costs and slower response time to technological issues within the tech industry (Horbach, & Rammer, 2022). All these are posing a significant barrier to the country's digital transformation efforts and have further exacerbated the country's low innovation and technological development.

The dynamics of knowledge retention within the ICT sector are complex and multifaceted, influenced by a culture that encourages collaboration, openness, and a commitment to learning (Znagui, 2024). These cultures will be greatly hindered when the push factors that encourage talent expatriation are present in an organisation. The absence of such culture in many ICT organisations in Nigeria leads to the challenge of tech knowledge being siloed or lost when a professional leaves the organisation. However, the presence of these cultures and practices in the organisation is not sufficient for knowledge sharing by staff as the same push factors that determine their expatriation decision also encourage knowledge hoarding that inhibits knowledge retention.

Given the centrality of human capital in the ICT sector, understanding how these personal attributes influence knowledge retention can provide firms with practical insights into improving retention strategies, reducing brain drain, and strengthening internal capacity for innovation and continuity (Papa, Dezi, Gregori, Mueller, & Miglietta, 2020). This research is therefore both timely and significant, as it addresses a critical gap in literature by focusing on the human side of knowledge management in a high-growth, knowledge-intensive

industry. The findings aim to inform both academic understanding and organizational policy within Nigeria's ICT ecosystem.

#### **IV. LITERATURE REVIEW**

In recent years, the migration patterns of ICT professionals from Nigeria have become increasingly prominent, driven by a complex interplay of push and pull factors (Ogbanga, 2024). Existing literature highlights that factors such as economic opportunities, professional development, socio-political stability, and personal aspirations play crucial roles in influencing the migration decisions of skilled workers (Mihăilă, 2019; Kwilinski, Lyulyov, Pimonenko, Dzwigol, Abazov, & Pudryk, 2022). Retaining employee knowledge is not just an HR concern, it is a strategic imperative for organisational performance and long-term sustainability (Mujtaba, & Mubarik, 2022). In today's knowledge-driven economy, many firms recognise that knowledge has become perhaps the most important resource, even more critical than physical assets or financial capital, for achieving a competitive advantage (Stehr, Adolf, & Mast, 2020).

This article is anchored on Resource Base View Theory (RBV), which posits a firm's internal resources and capabilities as the key drivers of sustainable competitive advantage. Resource Base View Theory (RBV) originating from the early 1959 and later Wernerfelt (1984) and Barney (1991) argued that firms are heterogeneous because they possess unique bundles of resources (Miller, 2019). In essence, if a firm controls resources difficult for competitors to acquire or imitate, it can achieve sustained superior performance. These resources can be tangible or intangible assets, including human skills, knowledge, and organisational processes effectively deployed to create value in ways competitors cannot easily replicate. RBV recognises knowledge as a critical strategic resource of the firm. The knowledge-based view (KBV), an extension of RBV, even contends that knowledge is the most strategically significant resource in modern organisations (Cooper, Pereira, Vrontis, & Liu, 2023). The ICT sector relies heavily on specialised knowledge and skills and thus aligns well with the RBV emphasis on intangible resources, thereby making this theory more apt for our discussion (Makhloufi, Azbiya Yaacob, Laghouag, Ali Sahli, & Belaid, 2021).

#### **V. RESOURCE-BASED VIEW THEORY**

The Resource-Based View (RBV) theory is a managerial framework that emphasises leveraging internal strengths and assets to exploit external opportunities and neutralise threats (Lubis, 2022). The theory proposes that an organisation that possesses valuable resources and competencies that are not easily copied and implemented by competitors will develop a competitive advantage (Kabue, & Kilika, 2016)). This position demands that for a firm to have a competitive edge, the organisation's resources must be valuable, rare, inimitable, and non-substitutable. This forms the criteria for strategic resources (often abbreviated as VRIN). These resources include all assets, capabilities, organisational processes, firm attributes, information, and knowledge controlled by a firm.

RBV thus shifts focus from external market positioning to internal resource endowment, emphasising that competitive advantage stems from leveraging what the firm already owns or can develop internally (Lubis, 2022). Importantly, RBV also distinguishes between resources (inputs that a firm uses) and capabilities (the firm's capacity to deploy resources effectively); both are considered part of the firm's strategic asset base. Overall, the core principle is that a firm's unique internal resources, if properly nurtured and protected, form the basis of strategy and long-term success (Lubis, 2022).

The Resource-Based View (RBV) theory can be extended to knowledge retention by focusing on the internal resources and capabilities that enable organisations to capture, store, and utilise knowledge effectively (Osobajo, & Bjeirmi, 2021). The RBV theory has been extended to a new perspective, the Knowledge-Based View (KBV) (Cooper *et al.*, 2023). The KBV perspective suggests that knowledge constitutes the most critical resource for organisations, and without knowledge, organisations cannot develop other resources or competencies, such as products or services. With the KBV, an organisation's primary purpose is to integrate knowledge. Organisational members are expected to be able to reuse knowledge and adapt it to their tasks at hand (Von Krogh, Nonaka, & Rechsteiner, 2012). This thus underscores the relevance of this theory to our discussion. Unlike physical assets, knowledge (especially tacit know-how residing in employees) is inherently intangible, socially complex, and often hard to imitate. This gives knowledge-based resources the VRIN qualities that RBV highlights. Indeed, scholars note that knowledge resources are typically difficult to imitate and socially complex and that heterogeneity in firms' knowledge bases is a major determinant of sustained competitive advantage (Omerzel, & Gulev, 2011; Teece, 2015; Davis, & Aggarwal, 2020).

From an RBV perspective, the knowledge that employees carry is part of the firm's internal asset but can only remain so for as long as it remains accessible to the firm. Knowledge retention, which refers to the firm's ability to preserve and keep valuable know-how within the organisation so that it is not lost when individuals leave, becomes crucial. In RBV terms, retaining knowledge ensures that the firm continues to own and control this valuable resource (Galan, 2023). A significant portion of organisational knowledge resides in

employees' minds (tacit knowledge); therefore, firms must use "soft" mechanisms like incentives, engagement, and a positive work environment to retain employees and their know-how (Al-Suraihi, Samikon, Al-Suraihi, & Ibrahim, 2021). In other words, keeping key personnel (or at least capturing their expertise in organisational memory) is essential to safeguard the knowledge resource. Thus, an ICT firm failing to retain critical knowledge through talent expatriation erodes its internal resources that competitors might gain. Conversely, by cultivating an environment where knowledge is shared and stays within the company, a firm can continually "reuse" and build on that knowledge, enhancing efficiency, innovation, and future capabilities. Thus, RBV positions knowledge not just as data or information but as an invaluable organisational resource that must be accumulated and retained to drive sustainable competitive advantage (Nayak, Bhattacharyya, & Krishnamoorthy, 2023).

Applying RBV to the human element of organisations highlights that employees and their attributes are core internal resources (Gerhart, & Feng, 2021). Personal factors such as education, career development, and loyalty directly affect the value and retention of an organisation's knowledge base (Mahadi, Woo, Baskaran, & Yaakop, 2020). In the context of knowledge retention, these factors determine whether key knowledge remains within the firm. From an RBV lens, one can argue that enhancing these personal factors increases the VRIN qualities of the firm's human capital resources. For example, employees' level of education and access to continuous training influence the stock of knowledge they bring to and develop within a firm. Well-educated employees constitute a form of human capital that is valuable and unique. Under RBV, a firm that attracts or develops individuals with high-quality education and skills effectively boosts its internal knowledge resources (Mohamed, Ari, Al-Sada, & Koç, 2021). Moreover, providing ongoing training and learning opportunities (i.e. ensuring access to skill development) can be viewed as investing in and enriching an internal resource (Sairmaly, 2023). This not only increases the value of the knowledge (through up-to-date technical skills, innovative ideas, etc.) but also can improve retention – employees are more likely to stay if they feel they are growing their competencies. For instance, industry analyses in Nigeria's IT sector have emphasised bridging skill gaps through targeted education and training programs as a strategy to combat knowledge loss from employee turnover. Insufficient investment in education and training has been cited as a driver of skilled employees leaving (a "brain drain"), whereas strengthening employees' skills through quality education can make them both more effective and more inclined to remain (Gavonel, Adger, de Campos, Boyd, Carr, Fábos, & Siddiqui, 2021). In RBV terms, facilitating quality education ensures the firm continues to possess a high-calibre knowledge resource embedded in its people rather than losing such resources to competitors or other industries.

Opportunities for career advancement and professional growth within the firm are also powerful motivators for employees to stay, thereby aiding knowledge retention (Urme, 2023). From the RBV perspective, a firm that offers clear career development paths is essentially developing and preserving its human assets. As employees climb in their careers, they accumulate firm-specific experience and knowledge, becoming even more valuable resources to the organisation. If such prospects are lacking, employees with valuable knowledge may seek growth elsewhere, resulting in losing that knowledge asset. Research in the Nigerian ICT industry shows that limited career advancement opportunities are a major factor driving talent to leave for better prospects. Conversely, companies that offer robust career growth and development opportunities manage to retain top talent despite competition, as noted by (Urme, 2023). By promoting career development, firms keep the knowledge carriers engaged and internal: employees are more likely to stay long-term and continue contributing their expertise. Indeed, creating an internal labour market where personnel can progress satisfies employees' ambitions and builds their commitment. Studies have found that offering career advancement (along with other commitment-based HR practices) leads to higher employee loyalty and lower turnover. In summary, career development prospects enhance the retention of knowledgeable employees, which means the firm maintains ownership of their skills and know-how – aligning with RBV's mandate to nurture and protect valuable internal resources (Åhman, & Nyberg, 2022).

Loyalty represents employees' attachment and dedication to the organisation. In RBV terms, employee loyalty can be considered an intangible resource, one that adds value by ensuring the stability of the workforce and continuity of knowledge (Udoh Augustine, 2020). Loyal employees are inclined to remain with the company, reducing the risk of losing their accumulated experience. Loyalty is also socially complex (stemming from trust, culture, and relationships) and thus difficult for competitors to imitate, which gives it a strategic significance. Scholars have explicitly described employee loyalty as a "valuable strategic resource" that is rare and hard to substitute. High loyalty often reflects a strong alignment between the individual and organisational goals, leading to behaviours like knowledge sharing, mentoring, and going the extra mile (all of which enhance the organisation's collective knowledge base) (El-Farr, & Hosseingholizadeh, 2019). Crucially, loyalty directly supports knowledge retention because a loyal employee is less likely to exit and take their tacit knowledge elsewhere. Empirical research suggests that when organisations foster loyalty, such as recognising contributions and maintaining a supportive culture, turnover intentions are reduced. In Nigeria, as in many contexts, companies look at improving organisational commitment and loyalty through positive workplace practices precisely because loyal employees stay and help the firm preserve critical expertise (Adeoye, & Hope, 2020).

Under RBV, cultivating employee loyalty means the firm is protecting a human resource attribute that underpins sustained competitive advantage (since a committed, long-tenured workforce can continually improve processes, innovate, and maintain client relationships in ways that outsiders cannot easily replicate)

Interestingly, the three personal factors considered as determinants of knowledge retention in this article reinforce each other in promoting knowledge retention. Access to education increases employees' skill value; career development opportunities signal a future with the firm, and loyalty grows when employees feel valued and see a long-term career. RBV would view the combination of a highly skilled, continuously developing, and loyal employee base as a robust internal resource pool that competitors would find extremely difficult to duplicate. Managing these factors is essentially a way of managing the firm's knowledge assets: ensuring they are valuable (through education and development), deployed in the firm (through career growth within the company), and secured against loss (through loyalty and retention).

In conclusion, RBV theory illuminates why and how personal factors matter for knowledge retention in ICT firms (Haughton, 2021). By treating knowledge as a strategic resource and employees as carriers of that resource, RBV provides a theoretical foundation for investing in people-oriented strategies. Access to quality education enriches knowledge resources, career development prospects ensure knowledge is continually renewed and kept in-house, and employee loyalty secures knowledge against loss. For ICT firms in Nigeria, embracing these principles is particularly pertinent to stem the brain drain and build world-class capabilities domestically. Ultimately, a firm that leverages its internal human assets in line with RBV is not only retaining knowledge but also building an inimitable asset that drives sustainable competitive advantage in the knowledge economy.

## **VI. OBJECTIVES AND HYPOTHESIS.**

The study strives to achieve the following objectives:

- i. Identify if access to quality education significantly defines knowledge retention among selected ICT firms in Nigeria.
- ii. Establish how strongly career development prospects determine knowledge retention among selected ICT firms in Nigeria.
- iii. Establish how strongly employee loyalty determines knowledge retention among selected ICT firms in Nigeria.
- iv. Determine how strongly personal factors determine knowledge retention among selected ICT firms in Nigeria.

The study examined various determinants of knowledge retention through empirical research. To achieve the above objectives, the following hypotheses were drawn:

- Ho<sub>1</sub>: Access to quality education does not significantly affect knowledge retention among selected ICT firms in Nigeria.
- Ho<sub>2</sub>: Career development prospects does not significantly affect knowledge retention among selected ICT firms in Nigeria.
- Ho<sub>3</sub>: Employee loyalty does not significantly affect knowledge retention among selected ICT firms in Nigeria.
- Ho<sub>4</sub>: Personal Factors (access to quality education, career development prospects, employee loyalty) do not significantly affect knowledge retention among selected ICT firms in Nigeria.

## **VII. METHODOLOGY**

The study uses a quantitative approach. A set of questionnaires was administered among the ICT experts in the selected ICT firms in Nigeria. The target population for this study comprises ICT professionals currently working in selected ICT firms in Nigeria. Five ICT firms with branches across Nigeria are used for the study. The sample includes individuals from the selected core ICT firms with a specialisation in system integration (hardware, software, network, security integration) based on NITDA classification and a total population of 350 staff.

Given the population structure, a stratified random sampling technique is employed to ensure representation from different sub-sectors and organisational sizes. This method enhances the generalizability of the findings by capturing the perspectives of a diverse group of ICT professionals (Saunders, Lewis, & Thornhill, 2016).

The questionnaire was shared with the 350 staff members of the selected company, and 174 responses were obtained. Using the Taro Yamane formula, the ideal sample size is expected to be 187, as shown in the calculation below. The response of 174, therefore, amounts to a 93% response rate.

$n = N/(1+N(e)^2)$  where:  $n$ = sample size,  $N$ = Population size and  $e$ = margin of error.

Hence, for the study, below is our ideal sample size:

$N = 350, e = 0.05$  Sample size ( $n$ ) =  $350/1+350(0.05)^2$   $n = 187$

Three standardised questionnaires were employed to measure the relationship between the organisational factors and knowledge retention. Data is collected through an online survey platform. Participants receive email invitations with a study overview, confidentiality assurances, and a survey link. The survey is open for ten days, with reminders to encourage participation. This method allows data collection from a widely dispersed population, improving reach and efficiency. (Dillman, Smyth, & Christian, 2014).

The gathered data is analysed using statistical software to summarise demographic characteristics and survey responses (Axinn, Link, & Groves, 2011). Inferential statistics, including correlation and multiple regression analysis, are used to investigate connections between variables (Darlington, & Hayes, 2016).

## VIII. FINDINGS AND DISCUSSIONS

The questionnaire was analysed in two parts. The first is the demographic analysis of the respondents. The second is the analysis of the four (4) research hypotheses formulated for the study using correlation and regression analysis.

Table 1.1 Demographic Profile of Respondents

Variable	Response Label	Frequency	Percentage
Gender	Male	96	55.2
	Female	78	44.8
	<b>Total</b>	<b>174</b>	<b>100</b>
Age	Below 21 years	24	13.8
	21-29 years	56	32.2
	30-39 years	49	28.2
	40-49 years	28	16.1
	Above 50 years	17	9.8
	<b>Total</b>	<b>174</b>	<b>100</b>
Marital status	Single	64	36.8
	Married	85	48.9
	Divorced	25	14.4
	<b>Total</b>	<b>174</b>	<b>100</b>
Educational qualification	HND/Bsc/BA	61	35.1
	Msc/MBA	79	45.4
	OND/NCE	34	19.5
	<b>Total</b>	<b>174</b>	<b>100</b>
Length of service	1-5 years	36	20.7
	6-10 years	59	33.9
	11-15 years	52	29.9
	16 years and above	27	15.5
	<b>Total</b>	<b>174</b>	<b>100</b>
Staff level	Management	31	17.8
	Senior staff	68	39.1
	Junior staff	75	43.1
	<b>Total</b>	<b>174</b>	<b>100</b>
Average monthly salary	Less than 500k	64	36.8
	Between 500k-1m	56	32.2
	Between 1m-2m	37	21.3
	Between 2m-4m	12	6.9
	Above 5m	5	2.9
	<b>Total</b>	<b>174</b>	<b>100</b>
Work location	Lagos	61	35.1
	Abuja	58	33.3
	Port Harcourt	55	31.6
	<b>Total</b>	<b>174</b>	<b>100</b>
Specialization	Hardware	21	12.1
	Software	79	45.4
	Network	42	24.1
	Security	32	18.4
	<b>Total</b>	<b>174</b>	<b>100</b>
Propensity to share my knowledge with my colleague	Very high	37	21.3
	High	55	31.6
	Low	51	29.3
	Very low	31	17.8
	<b>Total</b>	<b>174</b>	<b>100</b>
ICT skill level	Beginner	31	17.8
	Intermediate	49	28.2
	Expert	52	29.9
	Expert & multi skilled	42	24.1
	<b>Total</b>	<b>174</b>	<b>100</b>

Source: Field Survey, 2024.

The study employed multiple linear regression analysis (Grégoire, 2014) to test hypotheses at a 5% significance level, aiming to establish the relationship between organisational factors and knowledge retention among selected ICT firms in Nigeria.

The study's decision rule states that if the probability value calculated is greater than the critical level of significance, i.e.  $0.00 > 0.05$ , then the null hypothesis is accepted, and the alternative hypothesis is rejected. However, if the probability value is less than the critical value, i.e.,  $0.00 < 0.05$ , the null hypothesis is rejected, and the alternative is accepted.

Ho<sub>1</sub>: Access to quality education does not significantly affect knowledge retention among selected ICT firms in Nigeria.

Table 2.1: Regression Analysis of Access to Quality Education and Knowledge Retention

Model Summary						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.681 <sup>a</sup>	.464	.461	.4789		
a. Predictors: (Constant), Access to quality Education						
ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	34.164	1	34.164	148.952	.000 <sup>b</sup>
	Residual	39.451	172	.229		
	Total	73.618	173			
a. Dependent Variable: Knowledge Retention						
b. Predictors: (Constant), Access to quality Education						
Coefficients <sup>a</sup>						
		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.334	.250		5.342	.000
	Access to quality Education	.697	.057	.681	12.205	.000
a. Dependent Variable: Knowledge Retention						

Source: Field Survey 2024

The correlation coefficient equals 0.681, indicating a strong positive effect between access to quality education and knowledge Retention. This simply implies that about 46.4% of the total variation in the measure of knowledge Retention is explained by the variations in access to quality education. The regression coefficient ( $\beta=0.681$ ) of the above equation for the model implies that a unit change inaccess to quality education will positively affect knowledge Retention. Also the p-value of (0.000) which is less than the level of significant at the 0.05 level (2-tailed) indicate that the result is statistically significant; therefore, the null hypothesis is rejected, and it can be concluded that access to quality education has significant positive effect on knowledge Retention among selected ICT firms in Nigeria.

The analysis showed a significant model summary:  $F_{(1,2)} = 148.952$ ,  $P < 0.05$ ,  $R = 0.681$ ,  $R^2 = 0.464$ , indicating a strong relationship between access to quality education and knowledge retention among ICT professionals in Nigeria. The p-value of (0.000) 2-tailed indicates statistical significance; therefore, the null hypothesis is rejected, and it can be concluded that access to quality education has a significant positive effect on knowledge retention among ICT professionals in Nigeria.

Ho<sub>2</sub>: Career development prospects does not significantly affect knowledge retention among selected ICT firms in Nigeria.

Table 2.2: Regression Analysis of Career Development Prospects and Knowledge Retention

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.622 <sup>a</sup>	.387	.384	.5121
a. Predictors: (Constant), Management support				



ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	28.515	1	28.515	108.749	.000 <sup>b</sup>
	Residual	45.100	172	.262		
	Total	73.615	173			
a. Dependent Variable: Knowledge Retention						
b. Predictors: (Constant), Management support						
Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.000	.229		8.734	.000
	Management support	.539	.052	.622	10.428	.000
a. Dependent Variable: Knowledge Retention						

Source: Field Survey, 2024.

To analyse the hypothesis, the linear regression was employed at 5% significance level. The analysis showed a significant model summary:  $F_{(1,2)} = 108.749$ ,  $P < 0.05$ ,  $R = 0.622$ ,  $R^2 = 0.387$ . The analysis showed that career development has a significant positive effect on knowledge Retention among ICT professionals in Nigeria. With an R-squared of 0.387 and an adjusted R-squared of 0.384, the model in this regression analysis shows statistical significance ( $p < 0.05$ ). The regression analysis model that is being presented fits the data well and accounts for approximately 38.7% of the variance in knowledge Retention, and the remaining 61.3% is due to other factors that are not captured in the regression equation. Also the p-value of (0.000) which is less than the level of significant at the 0.05 level (2-tailed), indicates that the result is statistically significant; therefore, the null hypothesis is rejected and it can be concluded that career development prospects have significant effect on knowledge Retention among selected ICT firms in Nigeria.

The analysis showed a significant model summary:  $F_{(1,2)} = 108.749$ ,  $P < 0.05$ ,  $R = 0.622$ ,  $R^2 = 0.387$ , indicating a strong relationship between career development prospects and knowledge Retention among ICT professionals in Nigeria. The p-value of (0.000) 2-tailed indicates statistical significance; therefore, the null hypothesis is rejected, and it can be concluded that career development prospects have a significant effect on knowledge retention among ICT professionals in Nigeria.

H<sub>03</sub>: Employee loyalty does not significantly affect knowledge retention among selected ICT firms in Nigeria.

Table 2:3: Regression Analysis of Employee Loyalty and Knowledge Retention

Table 2.5. Regression Analysis of Employee Loyalty and Knowledge Retention						
Model Summary						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.553 <sup>a</sup>	.305	.301	.5453		
a. Predictors: (Constant), Employee loyalty						
ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	22.477	1	22.477	75.601	.000 <sup>b</sup>
	Residual	51.138	172	.297		
	Total	73.615	173			
a. Dependent Variable: Knowledge Retention						
b. Predictors: (Constant), Employee loyalty						
Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.089	.217		7.943	.000

Employee loyalty	.523	.060	.553	8.695	.000
a. Dependent Variable: Knowledge Retention					

Source: Field Survey 2024

Table 2.4: Personal Factors vs. Knowledge Retention

Model Summary						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.665 <sup>a</sup>	.443	.433	.5053		
a. Predictors: (Constant), Access to Quality Education, Career Development, Employee Loyalty						
ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	34.454	3	11.485	44.978	.000 <sup>b</sup>
	Residual	43.408	170	.255		
	Total	77.862	173			
a. Dependent Variable: Knowledge Retention						
b. Predictors: (Constant), Access to Quality Education, Career Development, Employee Loyalty						
Coefficients <sup>a</sup>						
		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.846	.296		2.859	.004
	Access to quality education	.410	.081	.389	5.042	.000
	Career Development	.207	.060	.232	3.452	.001
	Employee loyalty	.167	.072	.171	2.301	.023
a. Dependent Variable: Knowledge Retention						

To analyse the hypothesis, the linear regression was employed at 5% significance level. The analysis showed a significant model summary:  $F_{(1,2)} = 75.601$ ,  $P < 0.05$ ,  $R = 0.553$ ,  $R^2 = 0.305$ . The correlation coefficient equals 0.553, indicating a strong positive relationship between employee loyalty and knowledge Retention among selected ICT firms in Nigeria. The model in this regression analysis also showed a statistical significance ( $p < 0.05$ ). The regression analysis model that is being presented fits the data well and accounts for approximately 30.5% of the variance in knowledge Retention, and the remaining 69.5% is due to other factors that are not captured in the multiple regression equation. Also the p-value of (0.000) which is less than the level of significant at the 0.05 level (2-tailed), indicates that the result is statistically significant; therefore, the null hypothesis is rejected and it can be concluded that employee loyalty has a significant effect on knowledge Retention among selected ICT firms in Nigeria.

The analysis showed a significant model summary:  $F_{(1,2)} = 75.601$ ,  $P < 0.05$ ,  $R = 0.553$ ,  $R^2 = 0.305$ , indicating a strong relationship between employee loyalty and knowledge Retention among ICT professionals in Nigeria. The p-value of (0.000) 2-tailed indicates statistical significance; therefore, the null hypothesis is rejected, and it can be concluded that employee loyalty significantly affects knowledge Retention among selected ICT firms in Nigeria.

Ho<sub>4</sub>: Personal Factors (access to quality education, career development prospects, employee loyalty) do not significantly affect knowledge retention among selected ICT firms in Nigeria.

To analyse the hypothesis, the multiple linear regression was employed at 5% significance level. The analysis showed a significant model summary:  $F_{(1,2)} = 44.978$ ,  $P < 0.05$ ,  $R = 0.665$ ,  $R^2 = 0.443$ . The analysis showed that personal factors (Access to quality education, career development, and employee loyalty) have a significant positive joint effect on knowledge retention. With an R-squared of 0.443 and an adjusted R-squared of 0.433, the model in this regression analysis shows statistical significance ( $p < 0.05$ ). The multiple regression analysis model that is being presented fits the data well and accounts for approximately 44.3% of the variance in Knowledge Retention, and the remaining 55.7% is due to other factors that are not captured in the multiple regression equation. The combined effect of the predictor variables on Knowledge Retention are significant, as shown by the overall F-statistic of 29.294 and the significant p-value (0.000). According to their corresponding coefficients, t-statistics, and p-values, Access to Quality Education, Career Development and employee loyalty are significant predictors. Therefore, the null hypothesis is rejected, and it can be concluded that personal factors (Access to Quality Education, Career Development and employee loyalty) significantly affect knowledge Retention among selected ICT firms in Nigeria.

The analysis showed a significant model summary:  $F_{(1,2)} = 44.978$ ,  $P < 0.05$ ,  $R = 0.665$ ,  $R^2 = 0.443$ , indicating that personal factors (Access to Quality Education, Career Development, Employee Loyalty) have a significant positive joint effect on knowledge retention. The combined effect of the predictor variables on knowledge retention is significant, as shown by the overall F-statistic of 29.294 and the significant p-value (0.000). Therefore, the null hypothesis is rejected. It can be concluded that personal factors (Access to quality education, career development, and employee loyalty) have a significant effect on knowledge retention among ICT professionals in Nigeria.

## IX. CONCLUSION

In the fast-evolving, knowledge-driven Information and Communication Technology (ICT) sector, retention of critical employee knowledge has become a strategic priority for organisations (Singh, 2024). This is required to preserve valuable skills, expertise, and institutional memory, especially in environments prone to high employee turnover. Nigerian ICT firms face these challenges due to growing competition, global talent mobility, and internal structural gaps, which are making them increasingly vulnerable (Agbai, & Okechukwu, 2024). Hence, this article has analysed some micro-level determinants of knowledge retention to ascertain their impacts on knowledge retention.

This study considers three organisational factors (access to quality education, career development prospects, and employee loyalty) and how they impact knowledge retention. Findings confirm that the trio of access to quality education, career development prospects, and employee loyalty have a significant positive effect on knowledge retention among ICT firms in Nigeria.

The study recommends that ICT firms treat employee knowledge as a strategic organisational resource and invest in it. To enhance knowledge retention among ICT professionals, a clear promotion and professional career path for key roles should be established and communicated. Implement a culture of cloud-based knowledge base, where professionals' knowledge is accessible anywhere in the world, to guarantee access to the knowledge base of emigrated professionals. A culture of openness and transparency, a flexible work mode, and alignment of individual goals with organisational goals to encourage professionals to stay in the organisation with their knowledge or at least share with their colleagues is also recommended.

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