

Digital Technology Adoption by Microenterprises: *Nigeria Report*

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Executive summary

Despite over 80% of surveyed microenterprises in Nigeria owning a mobile phone, only 13% use the internet for business activities, demonstrating that mobile phone ownership cannot be used as a proxy for digitalisation. The use of other devices such as landlines (5%), computers (4%) and printers (1%) is even lower. However, once they began actively using the internet and social media, respondents noted significant reductions in communication costs and faster access to, and sharing of, information.

This is just one of the insights from the 2023 After Access Survey of 718 microenterprises in Nigeria, which provides policymakers with a better understanding of very small and largely informal businesses by identifying the challenges they face in accessing and using digital technologies. It provides evidence for the development of policies that can help integrate microenterprises — a business that has ten or fewer employees — into the digital economy.

Modelling of the data also revealed that a microenterprise that experiences only a 1% increase in its profits is 3% more likely to own a mobile phone and 7% more likely to own a smartphone. It is also 3% more likely to use the internet in the business, assuming all other factors remain constant. The owner's primary education does not significantly affect the probability of digital technology adoption. However, there is a significant increase of the probability of the small business owners owning a mobile phone (13%) or a smartphone (15%) if the owner has a secondary education. The probability of using the internet in the business increases by 10%.

Despite its significant prospects, the digitalisation of microenterprises in Nigeria is being negatively impacted by several factors, the most important of which are limited access to electricity, limited smartphone usage and limited digital skills. Only 48% of the surveyed microenterprises have access to electricity at their business premises and this is as low as 40% for businesses operating out of their homes. Though there is an increasing uptake of mobile phones in Nigeria — a major opportunity for the digitalisation of microenterprises — the survey shows that most microenterprises which have a mobile phone have only a basic mobile phone. Smartphone penetration of 28% amongst microenterprises is more than twice as high as the 13% which use the internet. This suggests that there are a significant number of microenterprises that have the means to use the internet but are not using it at present. If all the microenterprises with a smartphone were convinced to make use of online tools and services, internet access in the Nigerian microenterprise sector would more than double based on this survey sample.

The primary obstacle to accessing digital technology for 32% of microenterprises is the high cost of smartphones. This issue is more pronounced for female-owned microenterprises than male-owned ones. While Nigerian microenterprises generally are aware of digital technologies, 37% of them say they lack the necessary skills to use the internet productively for their business. This is due to either the complexity of digital devices (9%) or the lack of proficiency in using them (28%), which correlates with level of education. Over 90% of respondents stated that neither they nor their employees have ever received any digital skills training in areas such as computer proficiency, social media marketing, webpage creation, digital productivity tools, database management, inventory control, Point-of-Sale (POS) and accounting software or cybersecurity.

Lowering the cost of mobile data and increasing the availability of internet services would significantly increase usage for microenterprises that are already online. Although mobile data in Nigeria is relatively cheap compared to other countries and falls within the affordable access range of less than 2% of Gross National Income (GNI) per capita proposed by the International Telecommunication Union's Broadband Commission (2023), it still represents a significant expense for microenterprises that operate on limited financial resources and low profit margins in the country. Therefore, providing public internet infrastructure, low data consuming business products and services tailored for microenterprises, or offering tax or other financial incentives for using mobile data could help improve the situation.

Digital inequalities are gradually decreasing, but there are still significant gaps that must be addressed. Microenterprises owned by men tend to have higher mobile phone ownership rates than those owned by women. In addition, mobile phone ownership is higher in urban areas and among formal enterprises compared to rural areas

and informal businesses. Moreover, female-owned microenterprises are 7% less likely to use the internet than male-owned enterprises. The lack of internet coverage is a more significant barrier to internet access for microenterprises located in rural areas than in urban areas. Rural microenterprises also face more obstacles when it comes to accessing digital technologies. Urban microenterprises, on the other hand, find the cost of mobile data to be a greater obstacle to internet access. In addition, while 64% of surveyed microenterprises are owned by women, they make up only 16% of formal microenterprises. Those at the intersections of multiple inequalities, including gender and physical location, are likely to be most marginalised. Furthermore, many microenterprises are hesitant to adopt digital technologies because their suppliers and customers are not yet digitalised, emphasising the need for policies that identify new ways of progressing towards universal access and use.

Nigeria's Agenda 2050 is a strategic plan aimed at making the country a globally competitive and diversified economy by 2050. The plan recognises the crucial role played by microenterprises in the Nigerian economy and emphasises the need to provide these businesses with appropriate financial services and capacity-building support. To promote and develop this sector, the Nigerian government has initiated various programmes, such as the Small and Medium Enterprises Development Agency of Nigeria (SMEDAN) Establishment Act of 2003, which established SMEDAN as the apex agency responsible for coordinating and promoting the growth of small and medium-sized enterprises (SMEs). However, there is not much evidence demonstrating the impact of these national policies and microenterprise development strategies on the digitalisation of Nigerian microenterprises. Only a negligible number of microenterprises (less than 1%) reported using government platforms for business advice, largely because these platforms are generally unavailable or inaccessible.

One other way by which Nigerian microenterprises can digitalise is through value chain integration. Empirical evidence shows that microenterprises benefit from market relationships with big firms that interact with global lead firms; integrating firms into global value chains aids them to compete effectively (Reji, 2013). By interacting with large firms, microenterprises can access knowledge and technology, which presents significant opportunities to improve their business practices. Unfortunately, only 9% of microenterprises in the sample report having any interaction with large formal businesses. This lack of interaction hinders technology diffusion and digital upskilling, which is essential for business growth.

Nigeria has one of the most sophisticated digital financial services ecosystems in Africa, with a robust bank-led payment system and innovative fintech sector. Despite this, and some improvements since 2012 when 81% of microenterprises did not have access to financial services, 63% of microenterprises in Nigeria still do not have access to financial services. This is due to various limiting factors, including the lack of knowledge on how to productively use internet banking, the high cost of smartphones and computers and the lack of demonstration of its economic benefits. While 37% of microenterprises being financially included (driven by 36% owning a bank account) is a positive development, more effort is needed to include the significant majority who are still excluded from financial and value-added services due to their reliance on cash transactions. The informal nature of microenterprises, coupled with their low resource endowments, makes it difficult for many to open a bank account. To promote the development of microenterprises in Nigeria, it is crucial to increase their access to financial services and affordable credit. This will require significant effort and investment, including education and awareness campaigns to help microenterprises understand the benefits of digital financial services, as well as initiatives to make these services more affordable and accessible to all.

It is evident that the lack of affordable devices and data, as well as access to reliable electricity, are significant obstacles to digitalisation in Nigeria. However, alongside these issues, it is essential to help microenterprises acquire the necessary skills and knowledge to use digital technologies for their business activities. Educating them about the available digital tools and services, as well as their potential benefits, can stimulate the adoption of digitalisation in the Nigerian microenterprise sector.

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1 Introduction

1.1 Microenterprises, informality, and sustainable development

Microenterprises play a vital role in economic development and poverty alleviation efforts around the world (Harvie, 2019). In developing economies, they are promoted as drivers of innovation and competition. They are the main livelihood source for most households in the developing world and play a crucial role in efforts to implement the 2030 Agenda for Sustainable Development and achieve the Sustainable Development Goals (United Nations, 2015). Microenterprises encompass a wide range of business activities, from local artisans producing agricultural tools for the village market to local food vendors, traders running convenience shops and mobile money agents, as well as tradespeople such as carpenters, plumbers and electricians (Cusmano et al., 2018).

Most microenterprises in the developing world are informal, making them particularly vulnerable to economic shocks such as those caused by the COVID-19 pandemic. The informal sector is a source of livelihood for millions of people internationally, estimated to account for around a quarter of global Gross Domestic Product (GDP) (Schneider et al., 2010) and around 70% of employment in the developing world (Loayza, 2018). In Africa where the formal economy fails to serve most individuals, the informal sector is a critical livelihood source accounting for 83% of jobs overall (85% in Sub-Saharan Africa) and absorbing many of the continent's youthful employment seekers.

The high level of informality makes the microenterprise sector difficult to analyse and monitor as there is very little data readily available on the activities of microenterprises (Williams, 2006). Moreover, the diverse and evolving nature of informal activities, coupled with their fluidity and heterogeneity, further complicates measurement efforts (International Labour Organization, 2015). Formalisation of firms would improve the visibility of firms and their workers to the state which would provide the government with the data crucial for resource mobility and to provide support which meets the specific needs of microenterprises (Benhassine et al., 2018; Campos et al., 2018), however there is often a reluctance on behalf of microenterprise to become more "visible" (Schneider & Enste, 2000). Whilst formalised microenterprises should benefit from greater social protection, improved resilience to shocks and better access to finance, it also comes with additional compliance costs to the firm which may deter microenterprises who generally operate on small and fragile profit margins (Djankov et al., 2002). Evidence on the nexus between formalisation and business performance is mixed. For instance, a randomised controlled trial in Benin conducted by Benhassine et al. (2018) resulted in increased formality but formalising did not result in higher profits or sales for firms which formalised. On the other hand, Campos et al. (2018) found that provision of bank information parallel to registration assistance increased business registration which enhanced the use of financial services and boosted profits in Malawi.

Various regulatory interventions that have been implemented in African economies, including Nigeria, such as establishing one-stop-shops for business registration and separating business registration with tax registration have had limited success in inducing firms to formalise. As a result, most microenterprises remain informal and capturing the true extent and nature of the informal economy remains an ongoing methodological and conceptual challenge which constrains the ability of policymakers to identify initiatives which will best support microenterprise development. This highlights the value of surveys which can capture the characteristics and activities of this important sector.

1.2 Digitalisation in the African microenterprise sector

Digitalisation is no longer restricted to affluent communities in the developed world but has spread to all corners of the world and to individuals of all walks of life, including low-income communities in Sub-Saharan Africa where it has begun to accelerate at a rapid pace. A key driver has been the increasing availability and affordability of mobile phones, with recent projections suggesting that there will be almost 700 million mobile subscribers in Sub-Saharan Africa by the end of 2030, with about 30% of these being from Nigeria and Ethiopia. The cost of smartphones has improved, leading to increased smartphone adoption in the region. By 2030, smartphones will dominate mobile connections, expected to constitute 88% of total connections. Smartphone adoption, in particular in Nigeria, is

expected to reach 94% in 2030. Mobile technologies and services accounted for 8.1% of GDP in Sub-Saharan Africa in 2022, significantly impacting productivity and job creation in the region (GSMA, 2023).

Despite the noted progress, research on demand-side data in Africa shows that significant inequalities are evident both between different countries and across different population segments within countries (Gillwad & Partridge, 2022). The main factors which drive digitalisation are the same factors which drive economic access, specifically income and education (Aguilar et al., 2020; Chair et al., 2016). Given that microenterprise activity is particularly utilised as a livelihood source for individuals marginalised from the mainstream economy, it stands to reason they would also be faced with unequal access to digital technologies.

Evidence does show increasing adoption of digital technologies amongst microenterprises in Africa and there are more efforts to harness these developments to allow microenterprises to access international markets and benefit from the African Continental Free Trade Area (AfCFTA). However, despite the some progress, it is acknowledged that developments are occurring slower than the rest of the world and there is a serious risk that without interventions, African microenterprises will be left behind in terms of digitalisation trends and as a result will be further marginalised from the global economy (UNECA, 2023).

Whilst the need is clear, the arising policy challenges are more complex and go to the need to redress the structural aspect of digital inequality – education, employment (income) and access to finance – factors that cannot be swiftly transformed. The fact that many African microenterprises do not have any digital footprint makes them invisible in digital databases which are increasingly being used by policymakers and development agencies to derive digitalisation strategies. The fact that these enterprises operate largely informally does not provide other means of obtaining critical information on their activities or their interaction with the digital world aside from demand-side surveys.

1.3 Objectives and main research question

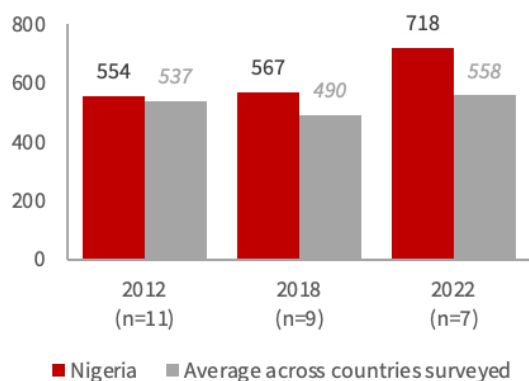
This study aims to provide a better understanding of microenterprises in order to identify the challenges faced in terms of digital access and use, and to provide an evidence base which can be harnessed to develop policies which will equip and allow microenterprises to integrate into the digital economy to improve their own potential and boost sustainable development in Nigeria.

1.4 Data and methodology

The study uses Research ICT Africa's (RIA) microenterprise surveys collected in seven African countries as part of the After Access project. Surveyed microenterprises were asked questions on the ways in which they use ICTs within their businesses through face-to-face interviews with fieldwork teams conducted at their business premises. A detailed description of the survey and the sampling methodology is provided in Appendix A1 to this report.

For the purposes of this survey, a microenterprise is defined as a business with ten or less employees. Businesses which are part of a franchise were also excluded from the survey. A total of 718 interviews were completed between July and August 2022. The data was collected through computer-assisted personal interviews. For a detailed description of the sampling procedure, see Appendix A1 to this report, which looks more comprehensively at the methodology and the evolution of the survey over the past decade and a half.

As Figure 1 shows, the most recent round of the survey incorporated a larger number of Nigerian firms than in previous rounds, as well as the greatest difference from the average across other countries surveyed. This is in recognition of the vastness of the Nigerian microenterprise sector and the need to work with a larger sample size.

Figure 1: Number of microenterprises surveyed in After Access, 2012-2022

Source: RIA (2012, 2018, 2022b)

The survey collected a rich set of data on the characteristics of microenterprises, the characteristics of managers and owners, and on the adoption and use of digital technologies. This included hurdles and constraints that microenterprises are confronted with regarding the adoption and optimal use of digital technologies, the use of efficiency and productivity-enhancing online and offline tools, measuring digital skills and identifying areas for digital skills investment, assessing the impact of COVID-19, and measuring their business performance and contributions to job and wealth creation.

1.5 Analytical framework

The analytical framework for the analysis is grounded in the theory of change outlined in Figure 2 below. The first point of inquiry is to identify the key characteristics of the microenterprises included in the survey. This is important firstly because the capacity to access digital technologies, the benefits to be realised from doing so, and the effectiveness of different policy interventions will be different for different types of firms. Therefore, it is important to establish the characteristics of microenterprises in each particular context. Secondly, as the survey is indicative rather than nationally representative, it is important to establish what the sample looks like to see how, and to what extent, the sample differs from the national microenterprise sector.

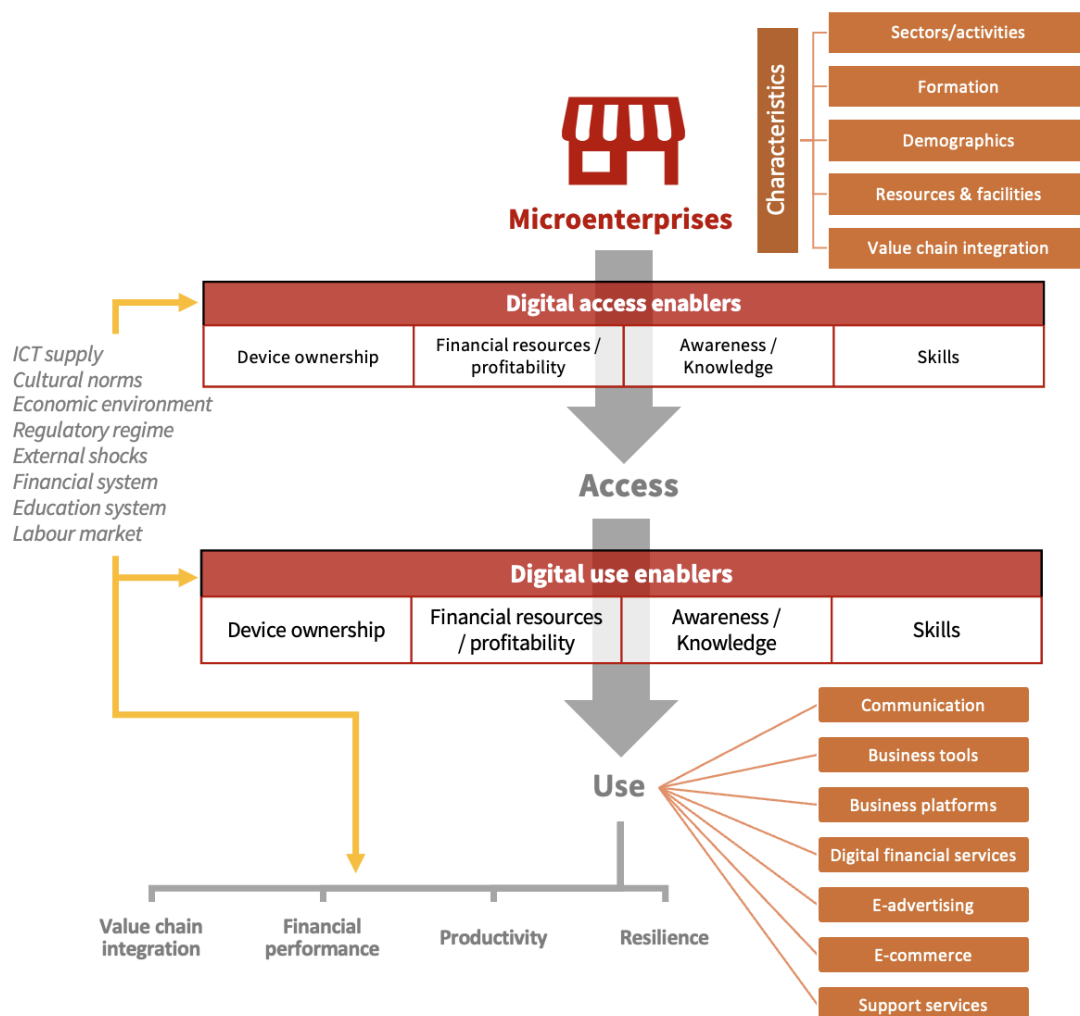
The first step in adopting digital technologies is access, defined as more than the availability of digital technologies to encompass the availability of appropriate equipment, the regularity and intensity of use, the skills and knowledge required and the appropriateness in terms of aspects like language and user interfaces (United Nations, 2021). The ability of microenterprises to access digital technology is determined by the ownership of an appropriate device, the financial resources of the firm, awareness of digital technologies and the possession of the required skills.

Access alone is not sufficient to reap the benefits of digitalisation for microenterprises. It is critical that policies also ensure that once connectivity has been achieved that microenterprises are able to use digital technologies in a way which is appropriate and leads to material gain. The enablers of use are essentially the same as for access, however, the nature of the enablers, and the way and extent with which they impact on use will be very different to how they enable access. Seven key uses of digital technology in microenterprises are for communication with customers and suppliers, the use of business tools to perform business operations, accessing platforms which link businesses with each other and with individual customers, using digital financial services for making and accepting payments and other transactions, advertising through online channels, buying and selling through e-commerce platforms, and accessing both public and private support services.

The use of digital technologies can lead to numerous benefits for microenterprises which can help them become more profitable and grow. Broadly speaking, use can lead to better access to value chains, which reduces transaction costs and allows for more certainty with regards to supplies and sales. It can increase financial performance allowing operations to work at a larger scale, it can increase productivity allowing microenterprises to

do more with the resources at their disposal and reap greater returns from their activities, and it can help to build resilience to protect firms against negative shocks.

Figure 2: Analytical framework for demand-side analysis of digital technology adoption by microenterprises



Source: Andrew Partridge

These demand-side factors are themselves influenced by a range of external factors relating to the ICT supply landscape, including: cultural factors and societal norms, the economic environment, the regulations which microenterprises as well as their customers and suppliers need to adhere to, various external shocks such as the recent COVID-19 pandemic, the financial system developed in the country, the country's education system and the level of skills of microenterprises, their customers and suppliers, and the state of the labour market. These factors influence the link between enablers, access and use, as well as the extent to which microenterprises can derive benefits from digital technology use.

1.6 Report outline

The next section of this report provides the background country context for this study on Nigeria. This is followed by an overview of the microenterprise survey and the characteristics of the enterprises interviewed in the survey. This is followed by three sections that look at the underlying enablers of digitalisation, the infrastructure available at the business facility, equipment and devices, and human capital (skills). The report then looks at the level of internet access and use amongst microenterprises, highlighting some key inequalities in both access and use. The following section provides a deeper look into the specific platforms and applications used as well as the business tools and services adopted. This is followed by a performance assessment of Nigerian microenterprises, highlighting any key

differences across population segments and also highlighting some key data challenges in accurately representing this. The remaining three chapters focus on formality and visibility, value chain integration and state support. Policy recommendations are made in the final chapter.

2 Background

2.1 The Nigerian microenterprise sector

Nigeria is the most populous country in Africa, with a population of around 200 million people. It is also currently the second largest economy in Sub-Saharan Africa, behind South Africa (International Monetary Fund, 2023). By leveraging its position as one of the early leaders in ICTs, and its ability to achieve scale through its large and youthful population, Nigeria will be able to unlock new opportunities, bridge the current digital divide and even establish itself as a leading player in the global digital landscape.

No universally accepted definition of microenterprises exists; however, they are generally categorised based on various criteria such as turnover, number of employees and asset endowments. Nigeria's *National Policy on Micro, Small and Medium Enterprises*, 2021-2025, defines microenterprises as having less than ten employees and with assets less than ₦10 million, excluding land and buildings (SMEDAN, 2021). The 2021 Micro, Small and Medium Enterprise (MSME) Survey Report in Nigeria reveals a total of 40 million¹ MSMEs in the country, employing almost 60 million² individuals, or 76.5 % of the national workforce, and contributing around 50% to the national GDP. Microenterprises make up 97%³ of MSMEs in Nigeria and are hence of particular importance to the Nigerian economy and for the livelihoods of the Nigerian population (SMEDAN and National Bureau of Statistics, 2021).

Despite their significance, microenterprises in Nigeria face numerous challenges including limited access to finance, inadequate infrastructure, inconsistent power supply, bureaucratic hurdles and corruption (Effiom et al., 2022; World Bank, 2014). The microenterprise sector has a very high level of female representation, making it a promising channel through which to reduce gender inequalities. However, women have also been noted to encounter gender-specific challenges including barriers to entry in financial markets, skills gaps, institutional conditions that affect motivations, social constraints and cultural norms (Mohanty & Mishra, 2020; OECD & European Commission, 2021).

2.2 Microenterprise governance and support

Nigeria's Agenda 2050, a strategic plan designed to position the country as a globally competitive and diversified economy by 2050, emphasises the pivotal role played by microenterprises in the Nigerian economy (Federal Ministry of Budget and Economic Planning, 2023). The vision recognises the significance of addressing the informal economy by implementing measures that enhance productivity, increase income for business owners, boost public revenues and foster job creation, inclusive growth and economic diversification. Agenda 2050 acknowledges the necessity of building capacities and providing appropriate financial services to support MSMEs, alongside proposals for establishing industrial parks dedicated to Small and Medium Enterprises (SMEs). By offering the requisite policy and institutional support, the vision aims to foster and augment the growth of MSMEs as an integral component of Nigeria's economic transformation.

Nigeria's National Policy on MSMEs dates back to its first release in 2007 with the objective of promoting the MSME sector in the country (SMEDAN, 2007). A revised policy was developed and released in 2015, extensively integrating recommendations from the United Nations Conference on Trade and Development's (UNCTAD) Entrepreneurship Policy Framework (EPF) (UNCTAD, 2012). The revised policy encompasses various programmatic areas such as finance, the legal and regulatory framework, human resources development, technology, research and development, marketing, infrastructure, and awareness and networking. In addition, it outlines an institutional framework with the Small and Medium Enterprise Development Agency of Nigeria (SMEDAN) as the primarily responsible body and establishes the National Council on SMEs. The policy also includes an action plan and specific measures targeting priority groups such as women, the youth and physically challenged individuals, aligning with UNCTAD's suggestions (SMEDAN, 2015). A second revision was released in 2021, identifying and addressing the

¹ 39 654 385

² 59 647 954

³ 38 413 120

barriers which constrained progress on the objectives of the policy, as well as addressing emerging issues including the impact of COVID-19 and global digitalisation trends (SMEDAN, 2021).

The government has undertaken various initiatives to support the growth of the SME subsector within the Nigerian economy. One such measure is the 2003 Small and Medium Enterprises Development Agency of Nigeria (SMEDAN) Establishment Act, which established SMEDAN as the apex or coordinating agency responsible for promoting and developing this crucial sector. Entrepreneurship development programmes which have been implemented include the One Local Government, One Product (OLOP) initiative, a Conditional Grant Scheme (CGS), the GEMS Project, and YOU-WIN programme (SMEDAN and National Bureau of Statistics, 2021).

In May 2019, the Development Bank of Nigeria facilitated a credit line to participating financial institutions (PFIs), amounting to USD 244 million, allocated explicitly for lending to MSMEs. This funding supported about 50 000 borrowers, 70% of beneficiaries being women. The credit line was made available through seven banks and ten microfinance banks (World Bank, 2020b).

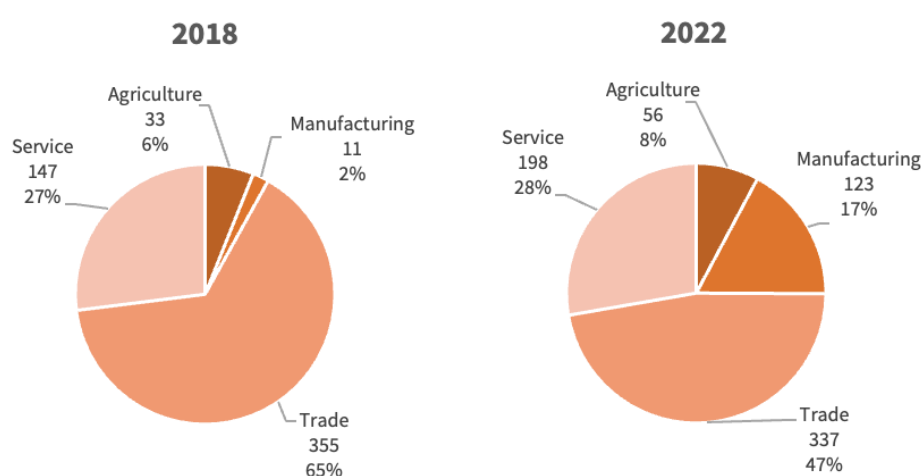
There is not much evidence to demonstrate the impact of these national policies and microenterprise development strategies. In addition, it has been argued that government policies tend to favour the formal sector (Alter Chen, 2005), whilst neglecting and sometimes even harassing informal enterprises (Mughal et al., 2021). As a result, businesses and individuals operating within this sector primarily operate independently from government regulations and benefits, leaving them marginalised from access to formal credit institutions and significant sources of technology transfer.

3 Microenterprise characteristics

3.1 Main activities of microenterprises

The primary activities of microenterprises in Nigeria can be broadly classified as agriculture, manufacturing, trade and services. Figure 3 provides the breakdown of microenterprises by sector for the 2018 After Access survey compared with the 2022 survey, as well as the breakdown of each sector in terms of the specific activities included. The most common activity observed amongst surveyed microenterprises in 2022 was wholesale and retail trade, accounting for 47% of enterprises. Services and manufacturing were also prominent activities accounting for 24% and 21% respectively, whilst only 8% were primarily involved in agricultural activities. Whilst the ordinal differences between the different activities remained relatively similar to 2018 there were notable differences. In particular, the 2018 survey had an even higher concentration of traders and a much lower concentration of enterprises which manufactured products.

Figure 3: Main sector in which microenterprises operate



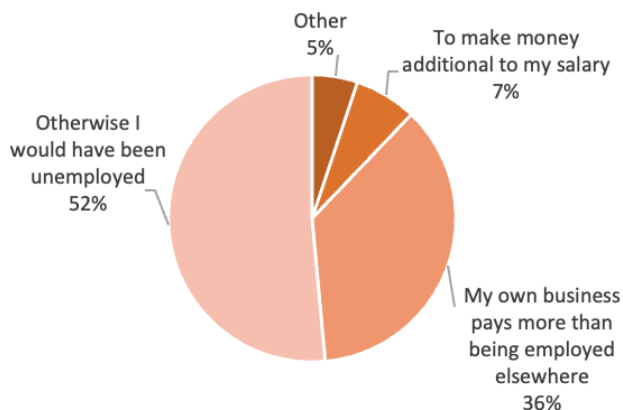
2022 Breakdown of sectors by specific business activities

Agriculture		Manufacturing	
Agriculture (except livestock)	61%	Food processing	46%
Livestock	32%	Wearing apparel	43%
Fishing	7%	Leather goods	2%
		Other manufacturing	8%
Trade		Services	
Wholesale, retail, vendor, trading	100%	Construction	12%
		Transportation and storage	3%
		Accommodation	2%
		Food services	31%
		Financial activities	3%
		Education	3%
		ICT/digital	6%
		Health	10%
		Media	1%
		Entertainment	2%
		Hair and beauty	11%
		Other services	18%

Source: RIA (2018, 2022b)

The main reasons for starting a business are given in Figure 4 below. Most microenterprises are started as the owners feel they would be unable to find employment in the labour market, hence microenterprise activity is a necessity in order to earn a livelihood. There is also a significant share of microenterprises that are started as the owner feels the returns from microenterprise activity are greater than what they would earn in wage employment. Only a few microenterprises are started as an additional income source conducted in addition to a main job.

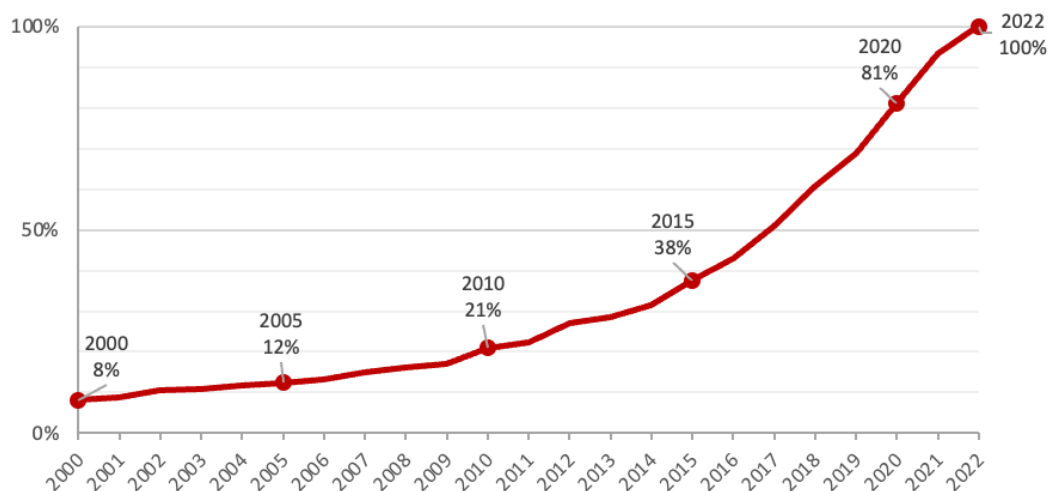
Figure 4: Main reason for starting a business



Source: RIA (2022b)

Most of the businesses surveyed were relatively new with around half established in the previous five years. Figure 5 provides a timeline of the cumulative sample of businesses. Whilst the oldest business in the sample had been operating since 1967, only 8% were operating before the turn of the 21st Century.

Figure 5: Cumulative timeline of establishment of businesses included in the sample



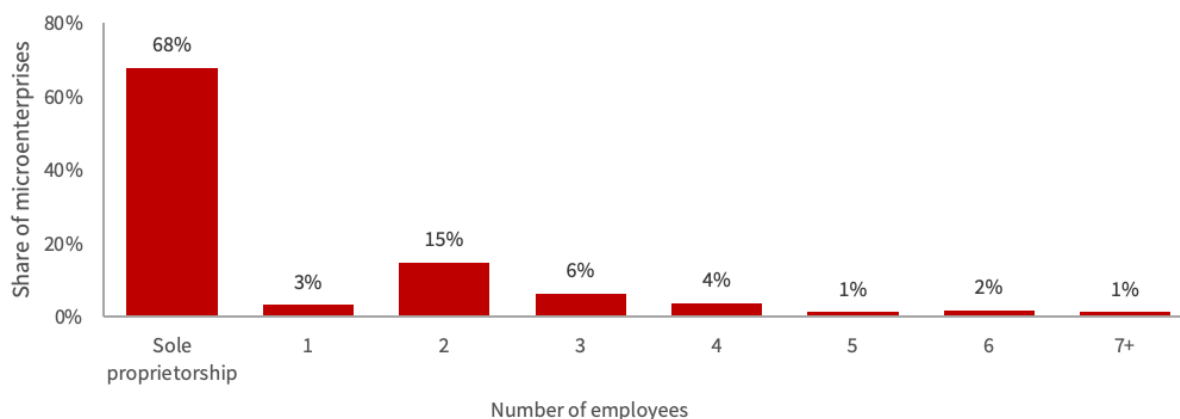
Source: RIA (2022b)

The sampled microenterprises are a diverse group in terms of the activities being undertaken and the amount of time the businesses have been in operation. There does appear to be some consistency in the motivation for starting businesses with most owners starting their businesses because of a lack of employment in the labour market, or at least a lack of sufficient remuneration for the available labour work. To understand more about the nature of the microenterprises and where there are commonalities and distinct differences, the next section discusses what the microenterprises in the sample look like in terms of their employment structures and levels of formalisation.

3.2 Microenterprise formations

Figure 6 below shows the distribution of firms according to the number of employees excluding unpaid family members.⁴ Owners are only included if they were actually involved in business activities. Where there is only one employee, a distinction is made between microenterprises where the owner is the one and only employee, labelled as “sole proprietorships”, and microenterprises where the owner does not work for the business and only employs one person to run the business, labelled as “1”. The majority of microenterprises (68%) fall into the former sole proprietorship classification.

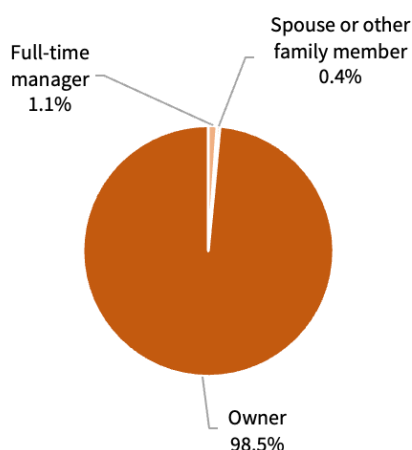
Figure 6: Distribution of microbusinesses based on the number of employees



Source: RIA (2022b)

For most microenterprises, the owner is responsible for the running of the business. As Figure 7 shows, only a small number of microenterprises have a full-time manager appointed as the most senior decision-maker to run the business instead of the owner.

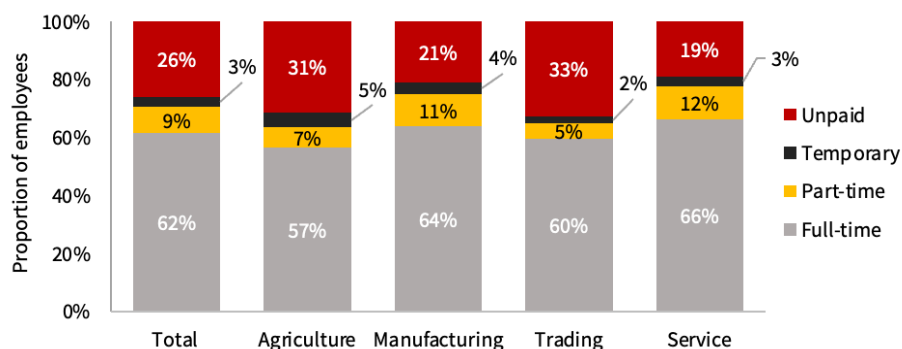
Figure 7: Most senior decision maker in microenterprises



Source: RIA (2022b)

Looking overall at all the individuals involved in microenterprise activities in Figure 8, including unpaid family members and owners who are actually involved in business operations, 62% of individuals work on a full-time basis. A noticeable share of these individuals are unpaid family members, but this share varies across the different business sectors and is particularly high in agricultural and trading enterprises. Part-time work and temporary employment are rarer among microenterprise workers with only 9% and 3% of employees being on a part-time and temporary basis respectively.

⁴ Number of employees is defined as: Number of full-time workers + Number of temporary workers + (0.5 * Number of part-time workers). The total is rounded up.

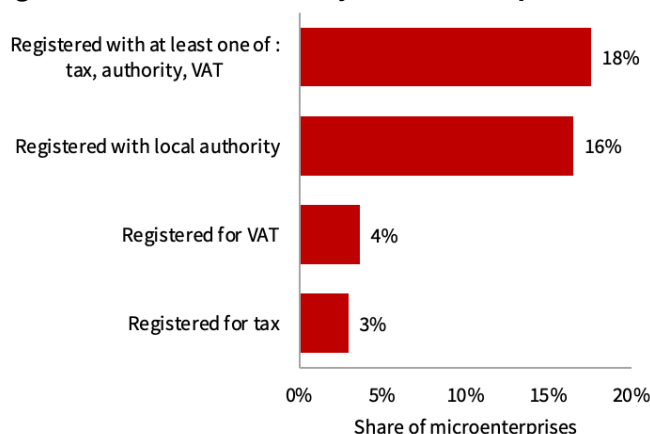
Figure 8: Breakdown of sectoral employees by contractual type

Source: RIA (2022b)

According to the World Bank, informality refers to economic activities and employment relationships outside the government's legal and regulatory frameworks. Informality is typically seen to encompass businesses that are not formally registered, that is, not licensed by a local authority such as a municipality, or are not registered to pay tax (World Bank, 2020a). In this way informality should be viewed through a broader lens than typical measurements which focus purely on paying taxes. In order to see the implications of different informality definitions, four definitions of informality are measured:

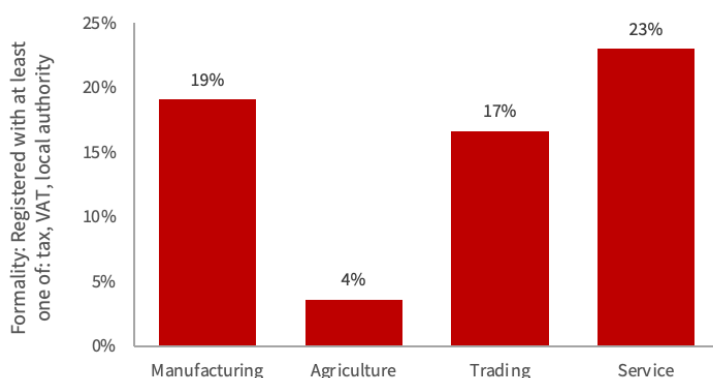
1. Registered for tax with the local revenue authority;
2. Registered for value-added tax (VAT);
3. Registered with any local authority or municipality; and
4. Registered with at least one of the following: (i) the local revenue authority for tax; (ii) for VAT; and/or (iii) at any local authority or municipality.

The rate of informality under each definition is provided in Figure 9 below. The responses are not mutually exclusive as an enterprise may not be classified as formal under any of the definitions and may also be classified as formal under multiple, or even all of the definitions. There will be at least some overlap, as by definition all businesses classified as formal under definition 4 will also be classified as formal under at least one of the definitions listed from 1 through to three. The most common form of business registration is registration with local authorities or municipalities – over 16% of firms in the sample are licensed with local authorities. Very few firms (4% of the surveyed microenterprises) report VAT registration. Even fewer firms (3%) in the sample are registered for corporate income tax. On the other hand, most businesses in the data set regard their operations as formal, primarily identifying as a sole proprietorship. The fact that many businesses are registered with the local authority despite not being tax-registered highlights the importance of taking a broader view of formality. For the rest of this study, formality is thus defined as “registered with at least one of: for tax, for VAT, and/or at a local authority”. Around 18% of the participants are formalised as per this definition.

Figure 9: The level of formality of microenterprises

Source: RIA (2022b)

There are notable differences in the level of formality across the different business sectors in Figure 10. The propensity of being formalised is highest among firms engaged in service provision where 23% of microenterprises are classified as formal. On the other hand, formalisation is very low amongst agricultural microenterprises with only 4% being classified as formal. The level of formality amongst manufacturers and traders is relatively similar and close to the sample average of 18%. A relevant policy question beyond the scope of this survey is whether firms face barriers to formalisation, or if instead they prefer to operate informally to avoid compliance costs or other concerns relating to being visible to the state.

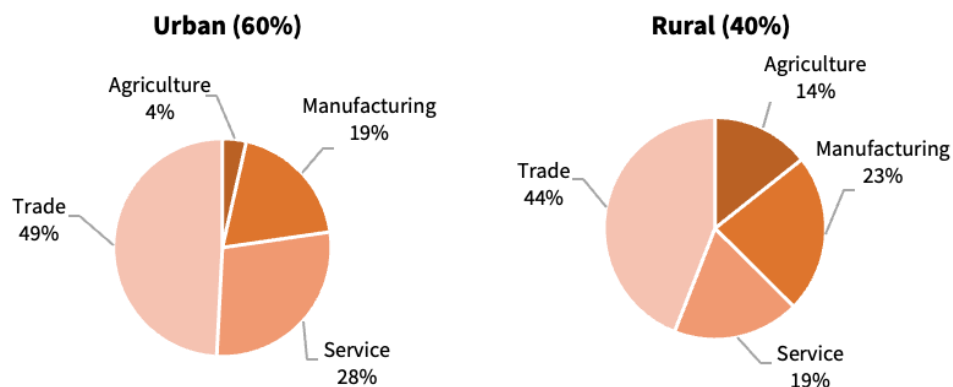
Figure 10: The level of formality disaggregated by sector

Source: RIA (2022b)

In summary, microenterprises in Nigeria that participated in the survey are mainly sole proprietorships with a significant number also making use of unpaid family members to assist in the running of the business. Enterprises are predominantly informal and where formalisation has occurred it is mostly through registration with the local government authority rather than with the national revenue authority. The next section looks at some key demographic characteristics of the microenterprises included in the sample.

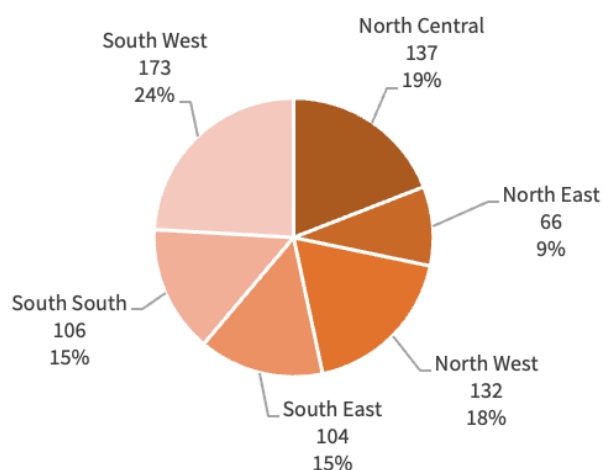
3.3 Demographic composition

In total, 60% of the surveyed microenterprises are located in urban areas. Figure 11 below illustrates the sectoral composition of microenterprises in urban and rural areas. Around 49% and 28% of microenterprises in urban areas are in the trade and services sectors respectively. These proportions respectively decline slightly to 44% and 19% amongst microenterprises established in rural areas where manufacturing and agricultural enterprises are relatively more common than in urban areas.

Figure 11: Sectoral group breakdown of urban and rural microenterprises in Nigeria

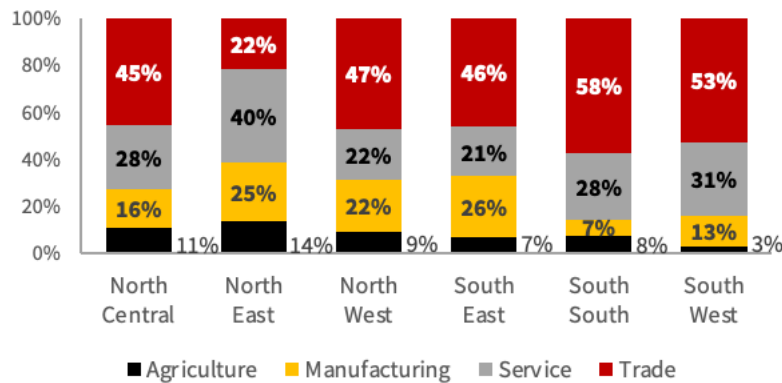
Source: RIA (2022b)

The microenterprises provide a relatively balanced distribution across Nigeria's six geopolitical zones in Figure 12, with at least 66 microenterprises (9%) interviewed in each geopolitical zone, and with 173 interviews (24%) being completed in the South West.

Figure 12: Distribution of surveyed microenterprises across geopolitical zones

Source: RIA (2022b)

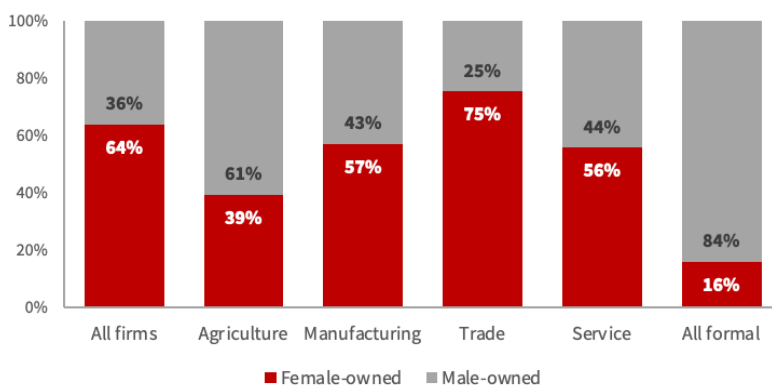
The predominant types of businesses also differ across geopolitical zones. As Figure 13 shows, traders dominate the microenterprise landscape in the South South and South West. Although trading is the most popular activity in all other zones aside from the North East, it is to a lesser degree and there are higher levels of manufacturing activity in other zones. In the North East, the most popular activity is the provision of services. Manufacturing is also the highest in the North East and is even higher than trading amongst microenterprises in that zone.

Figure 13: Breakdown of microenterprise types by geopolitical zones

Source: RIA (2022b)

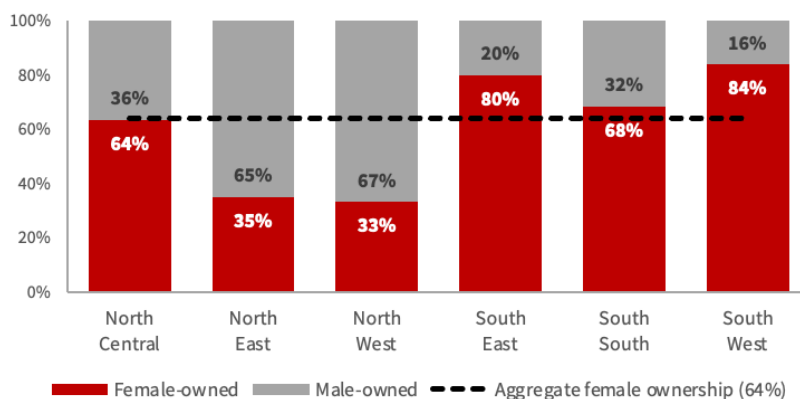
Overall, 64% of the surveyed microenterprises are female-owned.⁵ As can be seen from Figure 14 below, microenterprises in the agriculture sector are the least likely to be female-owned. Female ownership is highest in trading and almost equally spread between the manufacturing sector and service sector. Despite female-owned enterprises making up the bulk of microenterprise activity in Nigeria, they account for only 16% of formal microenterprises. Female-owned microenterprises are therefore missing out on the purported benefits of formalisation. More research is needed to understand the factors leading to low formalisation rates among microenterprises, particularly female-owned enterprises.

The level of female representation also differs across the different geopolitical zones. As evident in Figure 15, female representation is higher in the South of Nigeria where for all three zones it is higher than the sample average. In contrast it is lower for the Northern zones, in particular in the North East and North West.

Figure 14: Female ownership of microenterprises, by main sector group

Source: RIA (2022b)

⁵ Female ownership is defined as 50% or more of the business owners being female.

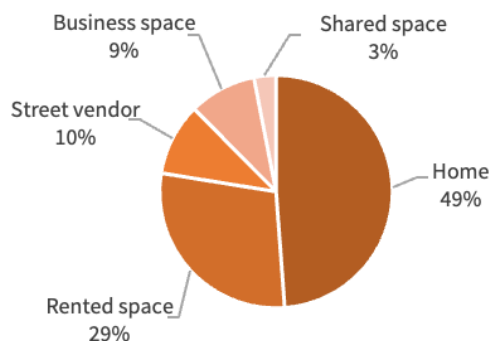
Figure 15: Female ownership of microenterprises, by geopolitical zone

Source: RIA (2022b)

Although there are clear differences in business characteristics across population segments, there are also some clear consistencies. In particular, across gender ownership, geographic location and level of formality, most businesses are started in order to escape unemployment, most are sole proprietorships and most are relatively young in terms of the time since business establishment.

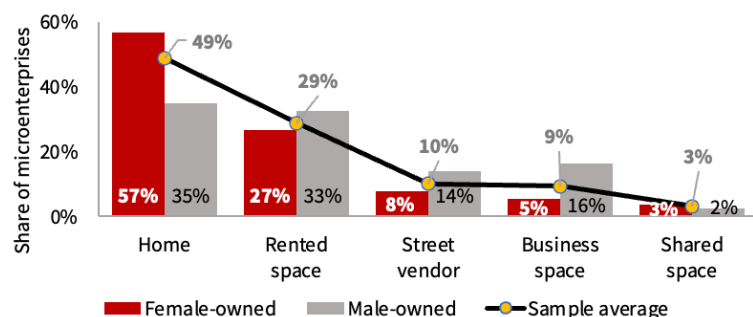
3.4 Facilities and resources

As the breakdown by business premises in Figure 16 shows, almost half (49%) of microenterprises surveyed operate out of their homes. A further 29% were observed to be operating from a rented space. About 10% of the surveyed microenterprises are street vendors operating in a public space and 9% reported having their own business premises.

Figure 16: Business premises

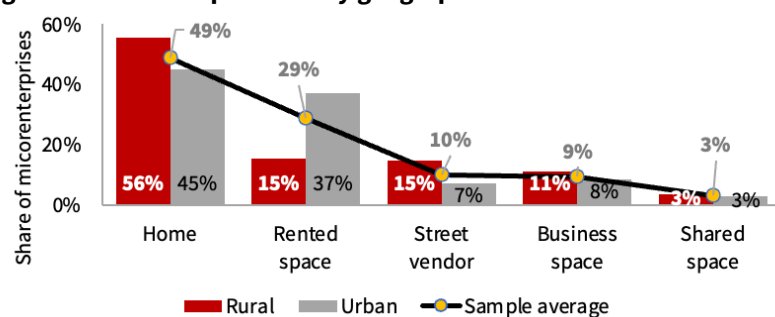
Source: RIA (2022b)

As the gender breakdown in Figure 17 shows, female-owned microenterprises have a relatively higher probability of operating out of the owner's home when compared to male-owned microenterprises. Conversely, male-owned microenterprises are more likely to have their own or rented business space, suggesting potential discrimination in obtaining a business space.

Figure 17: Business premises by gender ownership

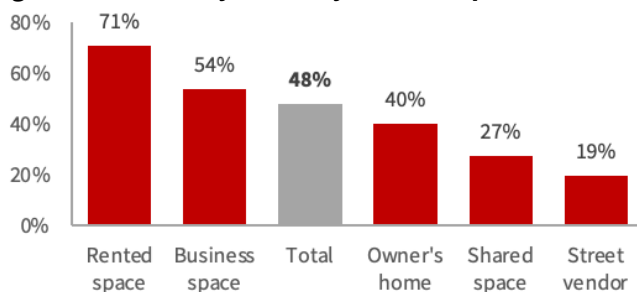
Source: RIA (2022b)

Microenterprises located in rural areas have a relatively higher probability of operating out of the owner's home when compared to male-owned and urban microenterprises (Figure 18). Rural enterprises are also more likely to operate out of a public space as a street vendor and slightly more likely to operate out of their own business space. Urban microenterprises on the other hand are far more likely to be operating out of a rented space.

Figure 18: Business premises by geographic location

Source: RIA (2022b)

Access to electricity is necessary for the adoption and use of most ICTs. Empirical evidence shows that internet uptake and use are positively associated with access to electricity (Armey & Hosman, 2016). The evidence presented in Figure 19 below shows that only 48% of the surveyed microenterprises have access to electricity at their business premises. Electricity access is more common amongst enterprises operating from actual business premises, particularly from rented spaces. It is as low as 40% for businesses operating out of their homes. As this is where most businesses have been shown to operate from, it is important that Nigeria addresses the low level of residential electricity access in order to enable digitalisation amongst microenterprises.

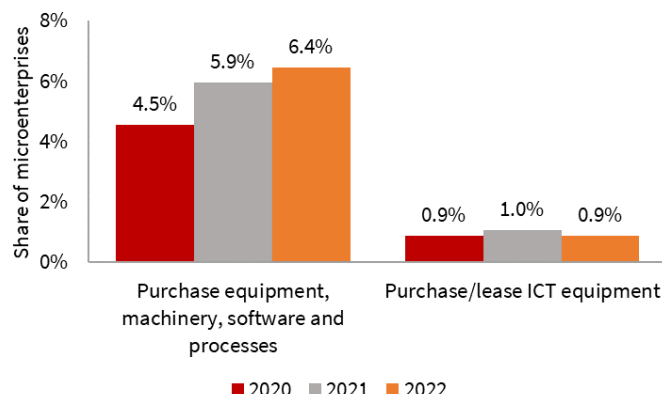
Figure 19: Electricity access by business space

Source: RIA (2022b)

In their premises, microenterprises generally have low endowments of equipment, machinery and software. Although Figure 20 shows that there was an increase in the share of microenterprises purchasing equipment, machinery and software each year between 2020 and 2022, the share remained very low, reaching only about 6% in

2022. Moreover, the share for purchasing or leasing ICT equipment specifically was even lower and remained stagnant at around 1% over the three year period.

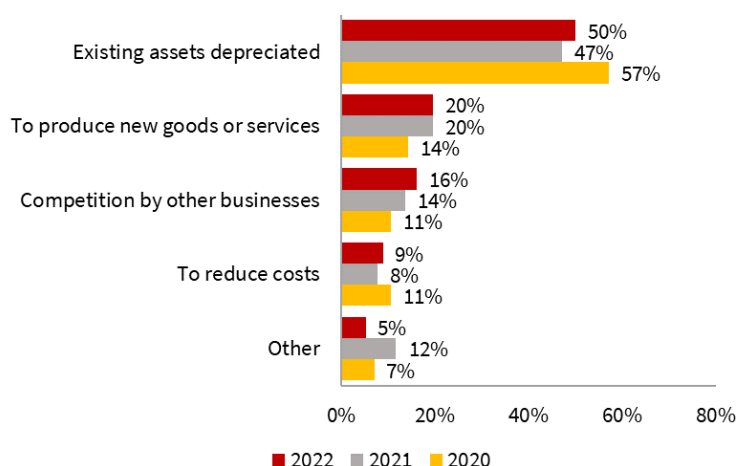
Figure 20: The share of businesses purchasing equipment, machinery and software



Source: RIA (2022b)

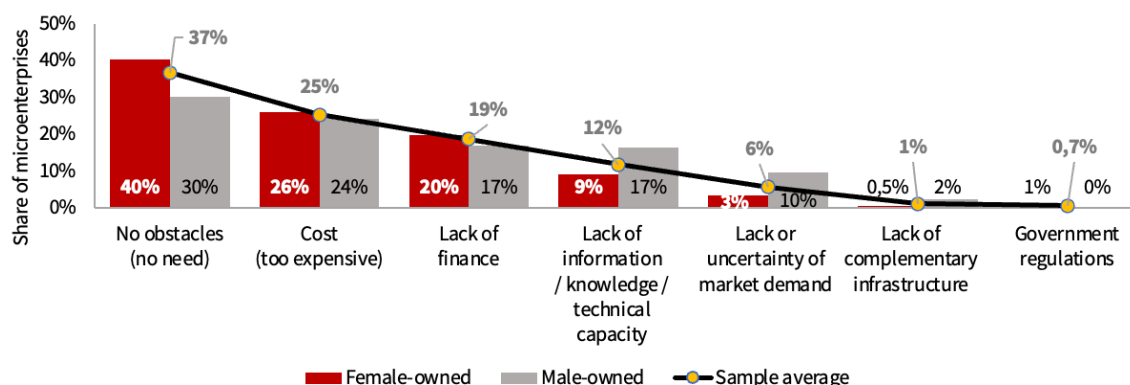
Figure 21 below presents the descriptive analysis of the key factors influencing the purchase of equipment, machinery and software between 2020 and 2022. The majority share of firms which did purchase these — around 50% in 2022 — acquired new equipment because their existing assets had depreciated, followed by the need to produce new goods or services (20%). It should be noted that although some confidence can be taken from the consistency across years, this breakdown is based on a very small subsample of firms.

Figure 21: The main reason for purchasing equipment, machinery and software



Source: RIA (2022b)

Although there was consistency in the main reason for not purchasing equipment, machinery and software across rural and urban locations, Figure 22 shows that there were differences across the gender of business ownership. Most microenterprises (37%) did not purchase equipment, machinery and software in any of the years as they did not consider these assets necessary for their business needs; however, this rose to 40% for female-owned microenterprises. The other most-mentioned reasons for not purchasing capital goods are related to financial constraints, with 25% and 19% respectively reporting high costs and lack of finance as their main barriers. These are slightly higher for female-owned microenterprises than male-owned microenterprises that are more likely to cite a lack of information, knowledge, or technical capacity, as well as a lack or uncertainty of market demand. Very few microenterprises cited supply-side issues relating to complementary infrastructure and government regulations as reasons for not purchasing equipment, machinery and software.

Figure 22: The main obstacle to purchasing equipment, machinery and software by business ownership gender

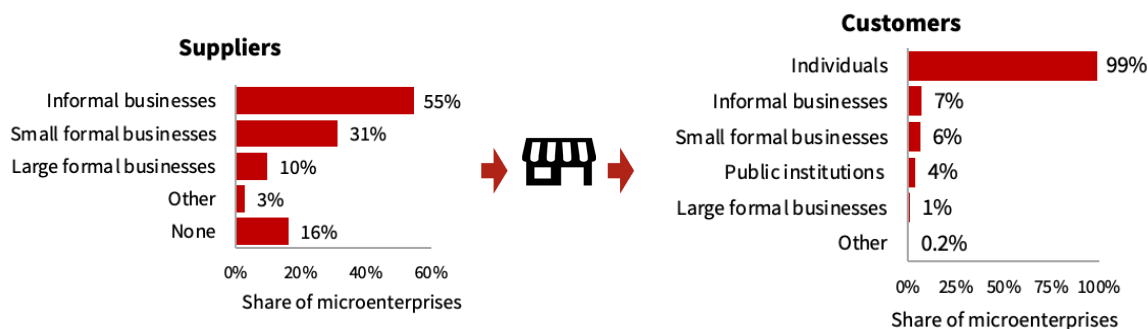
Source: RIA (2022b)

The lack of official premises, equipment and ICT resources constrains businesses from accessing supplies and markets. One way this can be overcome is through integration into value chains, which can also serve as an effective channel for the diffusion of technology and knowledge. The final subsection on microenterprise characteristics therefore looks at the level of integration with upstream suppliers and downstream customers in Nigerian value chains.

3.5 Value chain integration

Microenterprises should be considered in the broader economic systems in which they operate. Enterprises around the world are benefitting from integration into value chains, engaging with upstream suppliers and then fulfilling the role of supplier for downstream enterprises. Some enterprise operations do not require any suppliers and others have multiple suppliers of different types. Some businesses sell mainly to individuals, others mainly to other companies, and many frequently serve a range of different customers. The benefits of value chain integration is that it decreases transaction costs, instils certainty and trust, ensures reliability with regards to getting supplies and having a market to sell products and services to (Gereffi et al., 2005; Williamson, 2002). Value chains have also been shown to be an effective channel through which to drive digital technology adoption (Butollo et al., 2022). Value chain interventions for integrating microenterprises into high value markets in Uganda, Mali and India have shown success, resulting in greater access to markets for selling products and acquiring high quality inputs at lower costs, as well as improved management and technical skills which enhanced their competitiveness in global markets (Boffa et al., 2021; Reji, 2013).

Figure 23 below shows the share of microenterprises sourcing products from different types of upstream suppliers and selling products and services to different types of downstream buyers. As discussed, firms may have multiple suppliers of different types and may also sell to a variety of different customer types. Therefore the groups presented are not mutually exclusive. More than half of the firms in the sample (55%) acquire supplies from informal businesses and just over a third (31%) source from small formal businesses. A further 16% of the surveyed microenterprises do not require any suppliers. The propensity to have a large formal business as a supplier is relatively low at 10% of all microenterprises. The geographic area over which the surveyed microenterprises source supplies is very limited, with most businesses sourcing supplies locally (i.e. from surrounding towns and villages). Only 3% of the firms in the sample have suppliers located all over the country. Even fewer firms, less than 0.5%, import their inputs. A wider supply chain reach can benefit microenterprises through greater choice, allowing greater access to new business opportunities and improving bargaining power to obtain inputs at lower costs. International trade also facilitates knowledge and technology diffusion.

Figure 23: Upstream suppliers and downstream buyers of microenterprises

Source: RIA (2022b)

Almost all businesses sell their products and services to individuals. Only 6% and 7% of surveyed microenterprises respectively have small formal businesses and informal businesses as customers. This is even lower for public institutions and large formal businesses, serving as customers for only 4% and 1% respectively of the microenterprises in the sample. As with suppliers, the geographic reach to customers is also very limited. Most firms in the sample (99.7%) sell their products to local consumers, and only just over 1% claim to have customers located all over Nigeria. Export penetration is very low, with only 0.2% of the surveyed microenterprises claiming to have consumers outside Nigeria. There were no microenterprises who claimed to have customers outside of the African continent.

The reliance on informal businesses for supply, and on individuals for a customer base, is high across the board but is slightly more pronounced in rural-based microenterprises, female-owned microenterprises and those that operate informally. Whilst 31% of businesses source from small formal businesses, and 10% from large formal businesses, these shares fall to 27% and 8% for rural enterprises, 30% and 7% for female-owned microenterprises, and 31% and 6% for informal businesses. The selling of goods to customers other than individuals was very low all-round but was again even lower among female-owned, rural and informal enterprises.

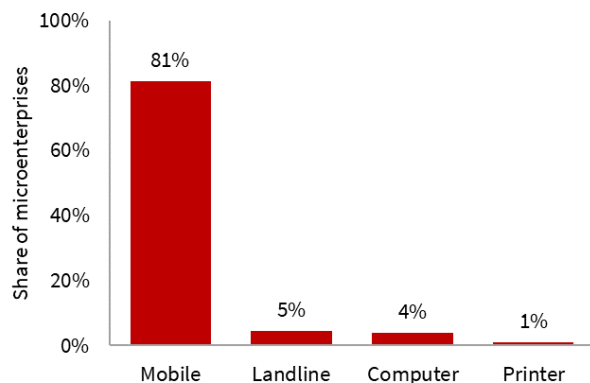
Overall there is clear evidence that integration of microenterprises into value chains in Nigeria is extremely low. Given their contribution to job creation and potential for economic growth, microenterprises need to be organised and empowered to better integrate into both local and international value chains. Much more attention is required to deliver on the national government's ambition of significantly increasing the integration of small-scale industrial and other enterprises into value chains and markets by 2050.

4 ICT access

4.1 Device ownership

Mobile phone ownership is high amongst surveyed microenterprises with 81% of surveyed enterprises claiming to have a mobile phone which is used for business activities. In contrast, the use of other devices such as landlines, computers and printers listed in Figure 24 is very low.

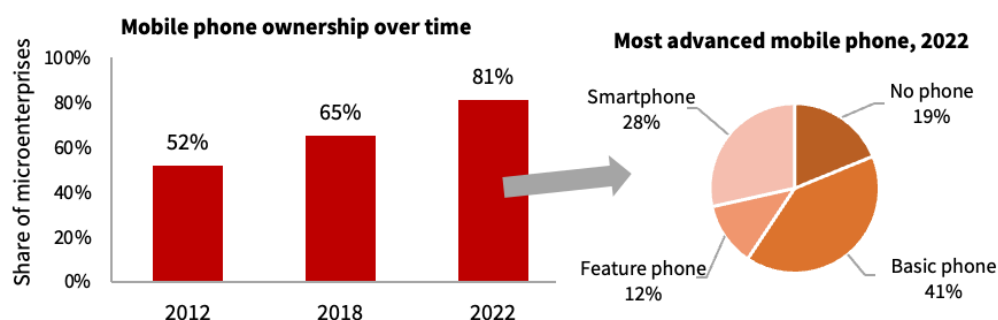
Figure 24: Access to digital devices



Source: RIA (2022b)

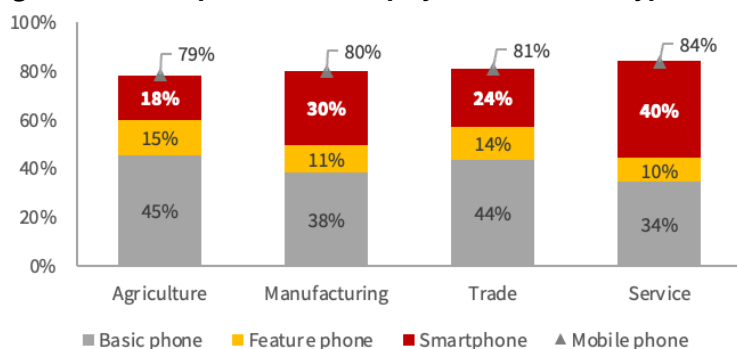
The high level of mobile phone ownership is a significant increase in adoption compared to previous rounds of the survey, illustrated in Figure 25. In the 2012 survey only just over half of microenterprises had a mobile phone which was being used in the business. Although this has now increased to over 80%, most of these rely on a basic mobile phone rather than a smartphone, which would enable full access to digital products and services available online. Only 28% of the enterprises surveyed in 2022 had access to smartphones, highlighting the need to make smartphones accessible to the majority of the population in order to enable greater digital technology adoption. The After Access household and individual surveys echo these sentiments, with smartphone adoption also estimated at 28% of the adult population at the individual level, trailing behind other countries such as Kenya (46%) and Ghana (54%). This is despite achieving overall mobile phone ownership of 76% of the population, highlighting the high reliance on basic mobile phones which do not provide access to most digital technologies (RIA, 2022a).

Figure 25: Mobile phone ownership between 2012, 2018 and 2022



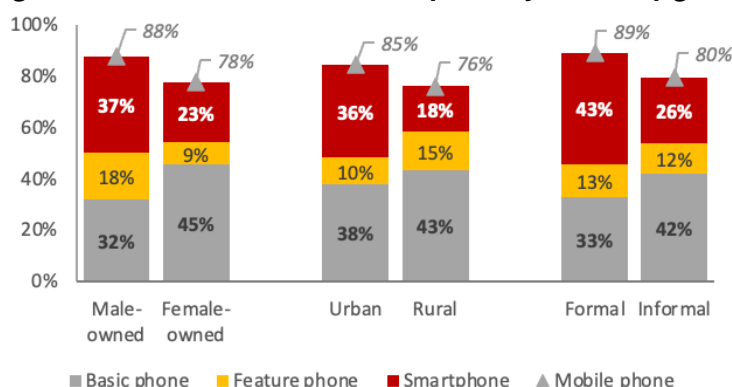
Source: RIA (2012, 2018, 2022b)

Ownership of mobile phones by type of phone is displayed in Figure 26 for each type of business. In terms of overall use, trade and service sectors have higher ownership levels. There are more stark differences, however, in the different mobile phone types. Basic phones, which are also the most common devices, are used more by traders and agricultural producers. On the other hand, smartphones are used more by microenterprises which manufacture products or offer services. The adoption of smartphones in the service sector is much higher than the other sectors and more than double the adoption level in the agriculture sector.

Figure 26: Mobile phone ownership by most advanced type of mobile phone, disaggregated by sector

Source: RIA (2022b)

Mobile phone ownership is higher amongst male-owned microenterprises than female-owned microenterprises, higher in urban areas compared to rural areas, and higher for formal enterprises compared to informal ones. As Figure 27 shows, for the instances where mobile phone ownership is lower, basic phone ownership is actually higher. This means that the ownership gaps⁶ are even more pronounced when looking specifically at smartphone ownership. In terms of gender, the gap in mobile phone ownership is 12% in favour of male-owned microenterprises. However, the smartphone ownership gap is much higher at 49%. Similarly, the location gap in mobile phone ownership is 11% in favour of urban areas, but the smartphone ownership gap is 65%. Finally, the informality gap in mobile phone ownership is 12% in favour of formal enterprises, but the smartphone ownership gap is 62%.

Figure 27: Access to advanced mobile phone by ownership gender, geographic location and formality

Source: RIA (2022b)

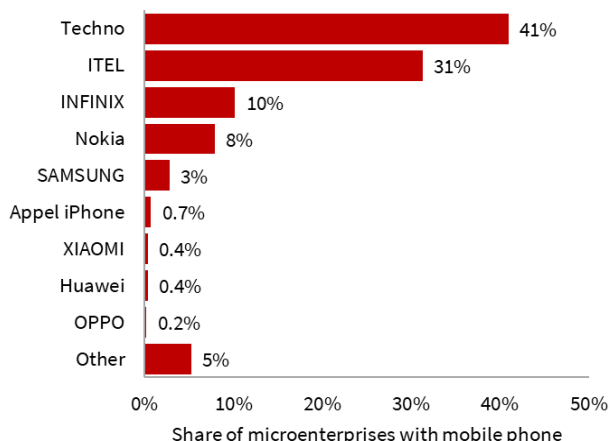
Some of the firms in the sample have more than one mobile phone. Multiple phone ownership is notably more common amongst microenterprises that own a smartphone compared to those that do not. Overall 31% of microenterprises that have a smartphone have more than one mobile phone. In contrast, among microenterprises with smartphones where the most advanced phone they have is only a basic or feature phone, only 9% own more than one mobile phone. Nearly 31% of the surveyed businesses with mobile phones indicate that their employees use their personal phones for business purposes. Around 58% of them state that they do not compensate employees for data or airtime used on personal phones for business purposes.

The most popular mobile phone brands amongst participants in the study are Techno and ITEL (Figure 28). This holds even when the data is disaggregated by feature phone ownership, smartphone ownership and the year in which the business was established. According to Device Pricing data collected by Alliance for Affordable Internet (A4AI) in 2021 and 2022, the cheapest smartphones in Nigeria were the ITEL models offered by AIRTEL and MTN (Alliance for Affordable Internet, 2021, 2022). Just like demand for other goods is not influenced solely by prices, it

⁶ The “gap” between two groups a and b , within a particular population p , on a variable x is calculated as: $gap_{ab}^x = (x_b - x_a) / x_p$

appears that there are other factors besides prices which determine the choice of brand as the cheapest brands are not predominantly the brands used.

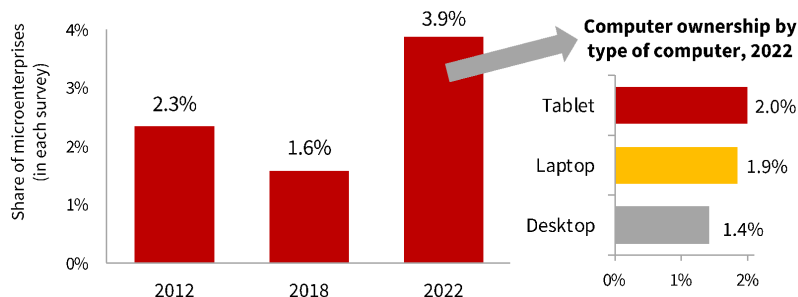
Figure 28: The most popular phone brands for microenterprises



Source: RIA (2022b)

Figure 29 shows that computer ownership is low among microenterprises in Nigeria with very little change occurring over the different rounds of the survey. In 2022, less than 4% of the surveyed microenterprises had a working computer which was used for business activities. Whilst laptops and tablets were slightly more common than desktop computers, this is based on a very small sample and it is therefore not possible to generate any robust inferences from this.

Figure 29: Computer ownership amongst microenterprises, 2012-2022



Source: RIA (2012, 2018, 2022b)

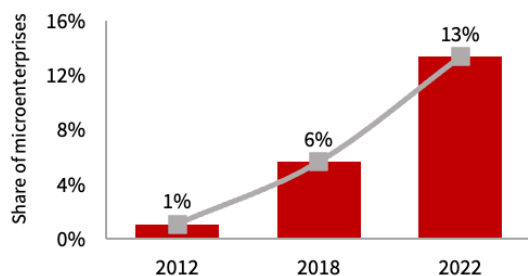
Having an appropriate access device is a necessary first step to access digital technologies. Whilst the increasing uptake of mobile phones in the developing world is a major opportunity for digitalisation amongst microenterprises, the survey shows that most microenterprises which have a mobile phone only have a basic mobile phone. If the mobile phone is to serve as a channel for microenterprises to begin to access and use digital technologies that can improve their business functions and allow them to access a wider range of business opportunities, then there is a need for initiatives which ensure the availability and affordability of smartphone devices for microenterprises. This gains added importance when it is noted that wide inequalities are currently evident in smartphone adoption, with vulnerable groups including female-owned microenterprises, those in rural areas, and those operating informally, having significantly lower levels of smartphone device ownership compared to the rest of the population.

4.2 Internet access

The recent COVID-19 pandemic accelerated digitalisation around the world through increased demand for contactless interactions due to social distancing measures imposed by governments and fear of catching the virus (LIRNEasia et al., 2023). Despite this, the results presented in Figure 30 show that internet adoption is low with only 13% of surveyed microenterprises in Nigeria claiming to use the internet for business activities. Although this is

significantly higher than the 2018 survey it means that the majority of microenterprises still do not use the internet in any way for their businesses.

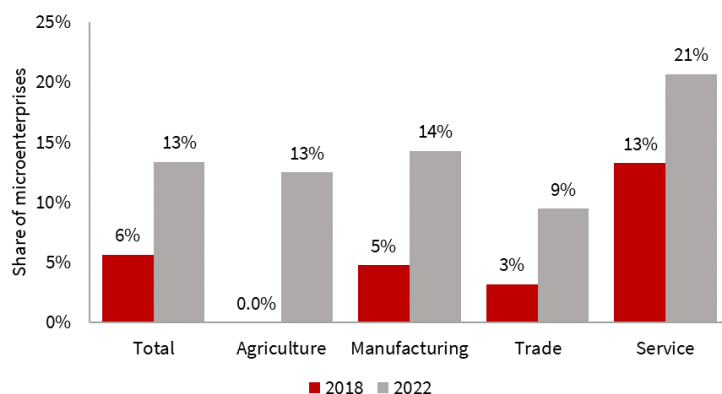
Figure 30: Internet usage amongst microenterprises, 2012-2022



Source: RIA (2012, 2018, 2022b)

The largest increase in internet uptake compared with the 2018 survey was by agricultural enterprises, followed by manufacturing and trade. As Figure 31 shows, in 2018 internet uptake was below average in all sectors except for the service sector in which internet penetration was more than double the market average. While this has improved in agriculture and manufacturing, the adoption of the internet by establishments in the trade sector, which encompasses the largest share of enterprises, remains below the market average. Although, not exhibiting the greatest increase in internet adoption, the service sector maintains the highest internet penetration, which is still nearly double the market average. These results are consistent with the findings on smartphone adoption, where microenterprises engaged in service provision are the prominent users of smartphones.

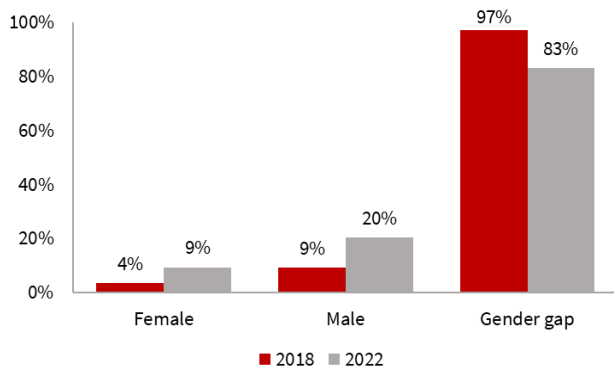
Figure 31: Share of businesses that use the internet for the business by sector, 2018 and 2022



Source: RIA (RIA, 2018, 2022b)

In the 2018 survey it was estimated that male-owned microenterprises were 97% more likely to use the internet for their business relative to their female-owned counterparts, albeit at an overall low level. Whilst Figure 32 shows that this internet access gap between female-owned and male-owned microbusinesses in Nigeria decreased slightly in 2022 compared to the 2018 survey, it remained high at 83%.

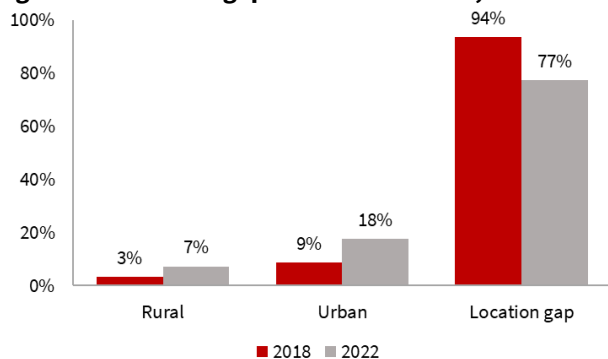
Figure 32: Gender gap in internet access, 2018 and 2022



Source: RIA (2022b)

Similar to the observations on gender disparities, despite a reduction in the gap between urban and rural areas, there remains a large gap in internet adoption between the two area types. Figure 33 shows that internet penetration increased in both rural and urban areas compared to the 2018 survey. However, the gap only decreased slightly from 94% to 77%. Hard work lies ahead for Nigeria to redress the existing digital divides and to prevent new gaps from emerging.

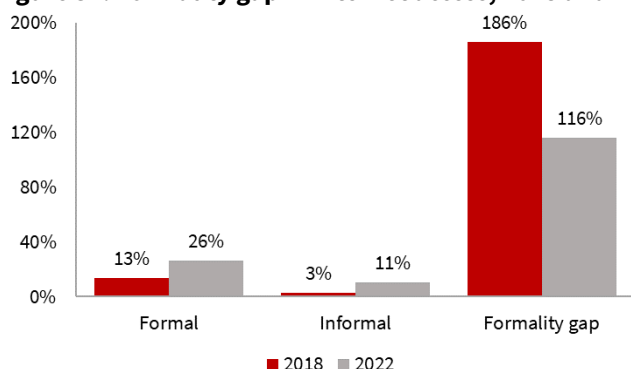
Figure 33: Location gap in internet access, 2018 and 2022



Source: RIA (2022b)

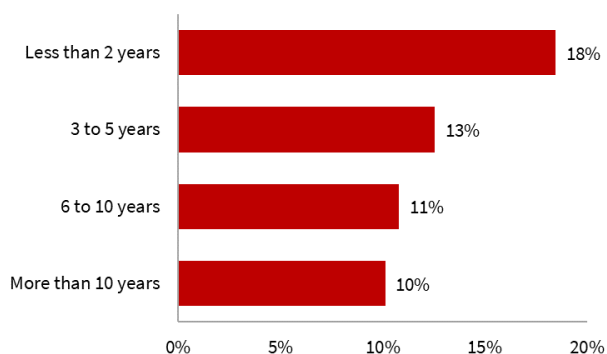
In each survey, compared to informal enterprises, formal enterprises were far more likely to use the internet for business activities. Figure 34 shows how internet access increased in both sectors between 2018 and 2022, with the increase in internet access more prominent in the informal sector. As a result, the formality gap in internet access narrowed. However, the internet access gap between informal and formal sectors remains very high.

Figure 34: Formality gap in internet access, 2018 and 2022



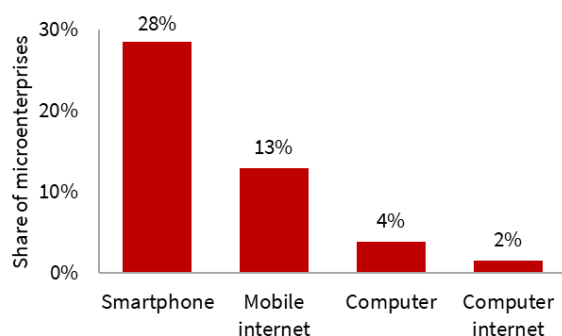
Source: RIA (2022b)

The estimates displayed in Figure 35 below suggest internet penetration is highest among new firms, and lowest among firms that have been in operation for more than 10 years. The new firms in the sample were established during and post-COVID-19. It should be noted that these firms have the highest share of service provision, where internet access is highest.

Figure 35: Internet penetration by business age

Source: RIA (2022b)

Conforming to expectations, Figure 36 shows that the internet is mostly accessed through a smartphone. Computers are relatively more expensive than smartphones, which likely explains the primacy of smartphones in accessing the internet. Around 13% of the surveyed microenterprises access the internet through a mobile phone, compared to 2% which access it through a computer. The fact that internet access through a smartphone is the same as overall internet access shows that microenterprises that do access the internet through a computer are also accessing it through a smartphone anyway.

Figure 36: Device adoption vs connectivity

Source: RIA (2022b)

It is worth noting that mobile internet access is much lower than smartphone ownership among microenterprises in the sample. Smartphone penetration of 28% is more than two times higher than the 13% of microenterprises that use mobile internet. This means that there is a significant number of microenterprises that have the means of using the internet in the form of an appropriate device that facilitates internet access, yet do not use the internet. Increased efforts at educating microenterprises about the available digital tools and services and their potential benefits, would appear a simple and effective way to stimulate digitalisation in the Nigerian microenterprise sector. If all the microenterprises with a smartphone were convinced to make use of online tools and services, internet access in the Nigerian microenterprise sector would more than double based on this survey sample.

To further understand the reasons why Nigerian microenterprises do not use online tools and services, microenterprises that do not use the internet were asked about the main barriers preventing them from doing so. These questions are extremely valuable as they provide insights into the situation for offline businesses, and for a sample that is largely informal and hence not visible through supply-side data or official statistics.

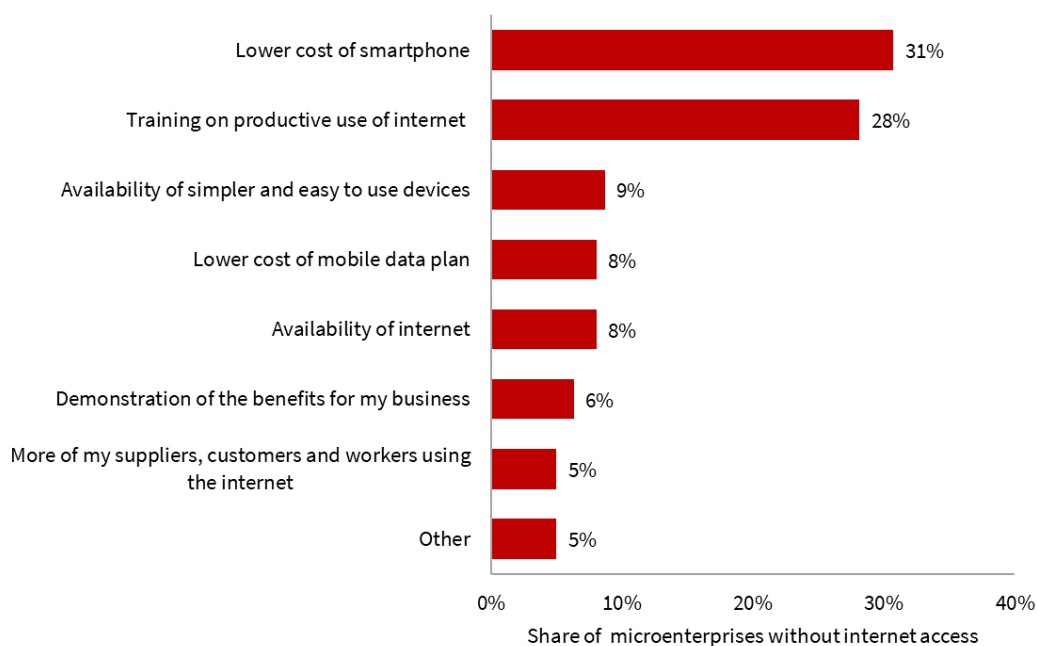
4.3 Access barriers

When asked what it would take for microenterprises to start using the internet, of the options listed in Figure 37, lower cost of smartphone devices was the most common response with 31% saying that this is the main barrier

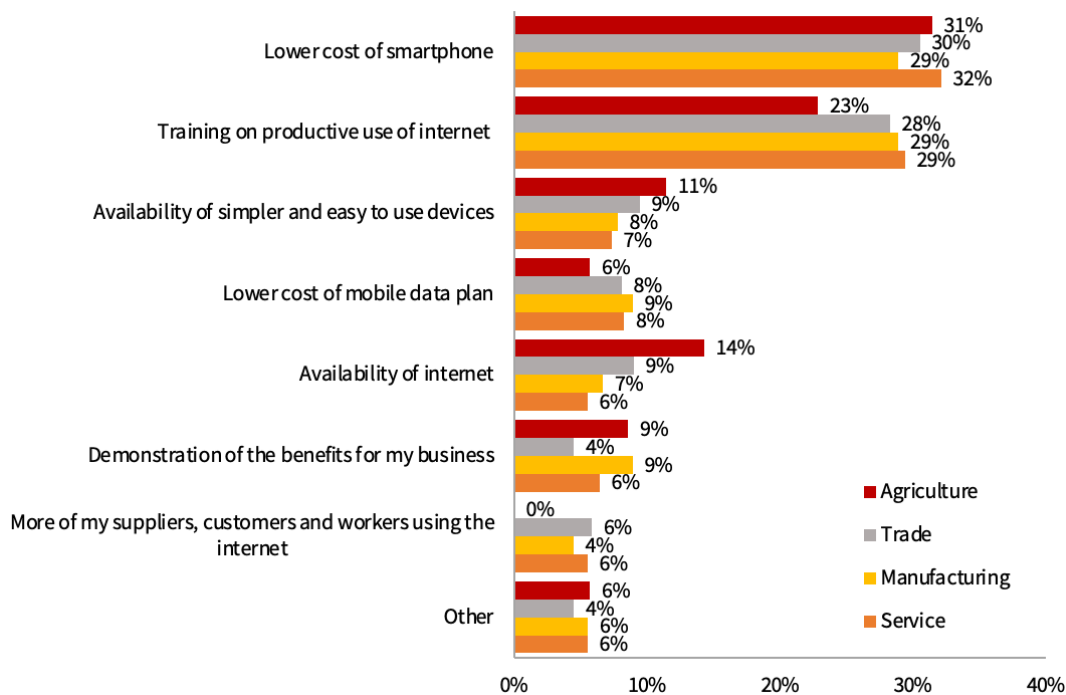
preventing access. However, the importance of education and training is also evident from the fact that, combined, 37% of microenterprises felt that either they lacked the necessary skills to use the internet productively for their business (28%) or that digital devices are too complicated for them to use (9%). That only 6% said they would need demonstration of the benefits for their business suggests that the Nigerian microenterprises that participated in the survey have a good level of awareness about digital technologies.

The main access barriers generally hold across the different business sectors, seen in Figure 38. Of the two main access barriers, the cost of smartphones appeared to be a relatively more pressing issue for microenterprises which provide a service, and slightly less of an issue for traders. The need for training appeared to be a relatively less pressing issue for agricultural microenterprises where the complexity of devices and the lack of mobile network coverage were seen as more pressing issues than in other sectors.

Figure 37: Factors necessary to enhance internet uptake

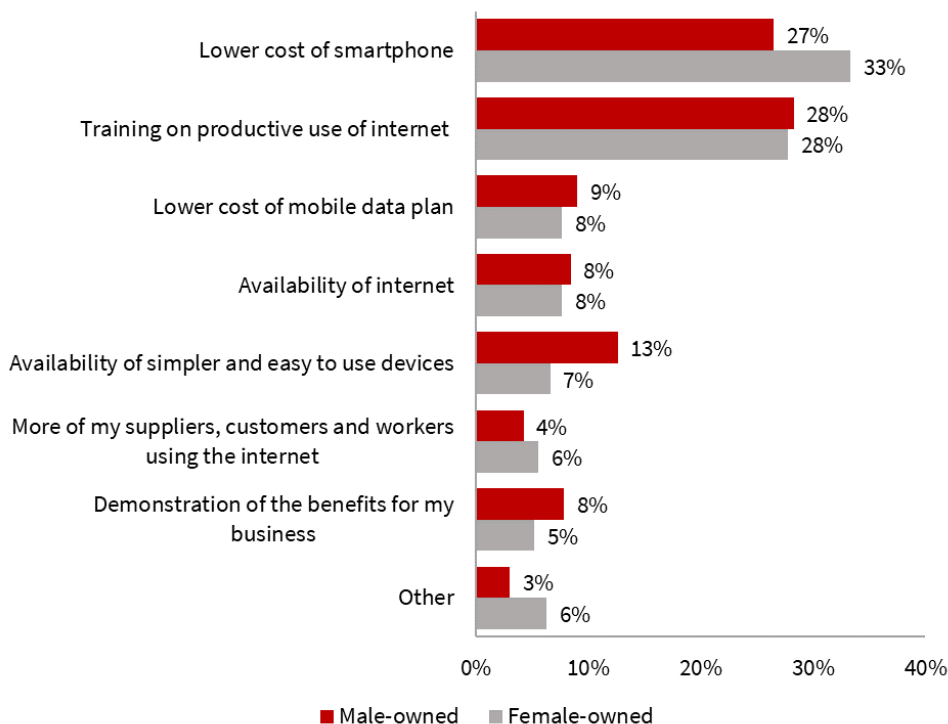


Source: RIA (2022b)

Figure 38: Factors necessary to enhance internet uptake segmented by business type

Source: RIA (2022b)

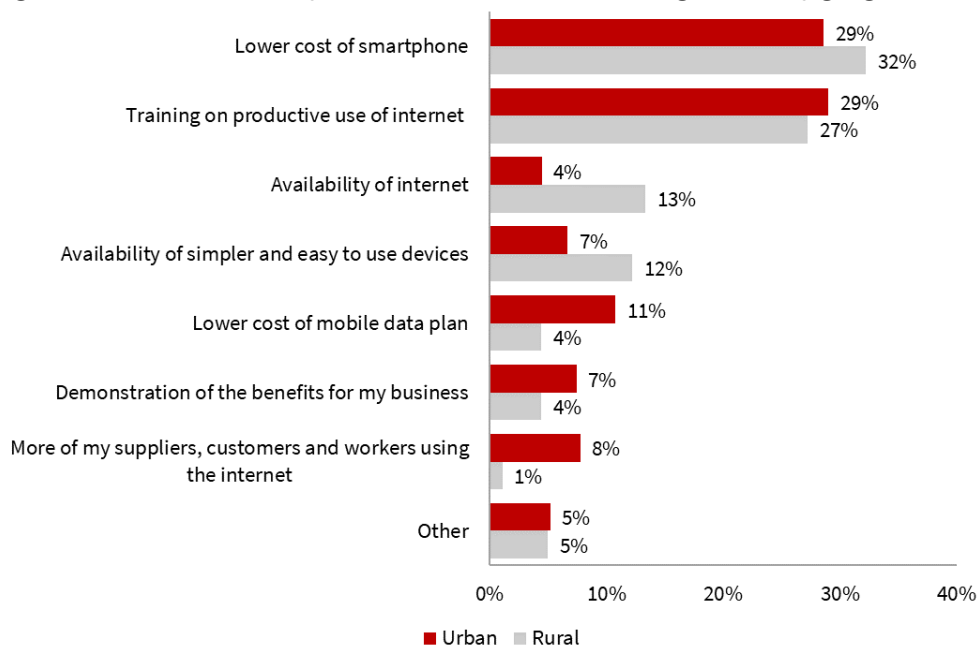
The cost of smartphones appeared to be a greater barrier for female-owned microenterprises compared to male-owned ones. The other major difference across gender ownership as seen in Figure 39 is that compared to female-owned microenterprises, those that are male-owned feel more hindered by the lack of more straightforward and easy-to-use devices. There are marginal differences across genders in other factors mentioned as barriers to internet access.

Figure 39: Factors necessary to enhance internet uptake segmented by gender ownership

Source: RIA (2022b)

Figure 40 shows that urban and rural enterprises are disproportionately affected by a lack of internet coverage. A lack of internet coverage as a barrier to internet access is more prominent among microenterprises located in rural areas compared to urban areas. Rural microenterprises also feel that the ease-of-use of mobile devices is a bigger constraint to access. For urban microenterprises, the cost of mobile data is a bigger access barrier. The fact that suppliers and customers are not digitalised also disincentivises the adoption of digital technologies for their own operations.

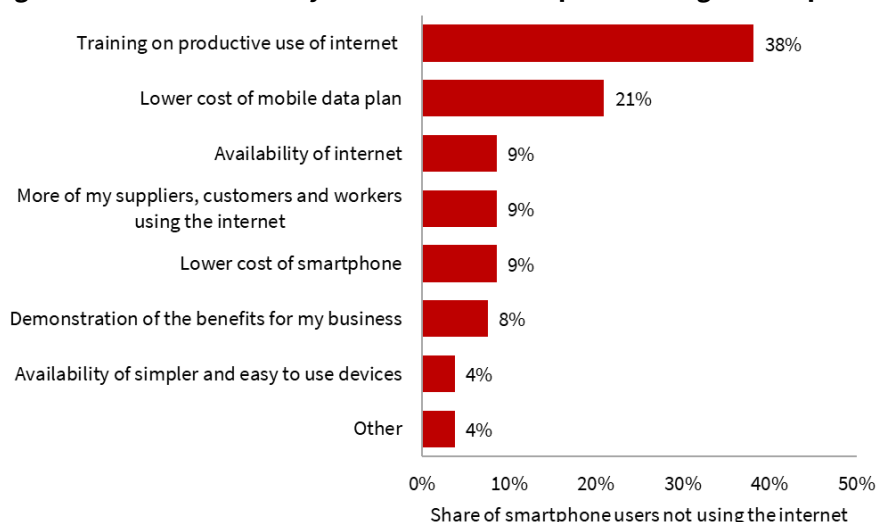
Figure 40: Factors necessary to enhance internet uptake segmented by geographic location



Source: RIA (2022b)

It was observed in the previous section that there is a large share of smartphone owners that do not use their smartphone to access the internet for their business functions. Figure 41 shows the main barriers preventing this group from using the internet, highlighting that the main barrier is the lack of skills on how to use digital technologies. The cost of mobile data also comes out strongly as a key access barrier.

Figure 41: Factors necessary to induce internet uptake amongst smartphone owners



Source: RIA (2022b)

It is clear that whilst device availability and affordability is a major barrier to digitalisation in Nigeria, a more basic condition that needs to be met is in assisting microenterprises to develop the necessary skills and know-how to be

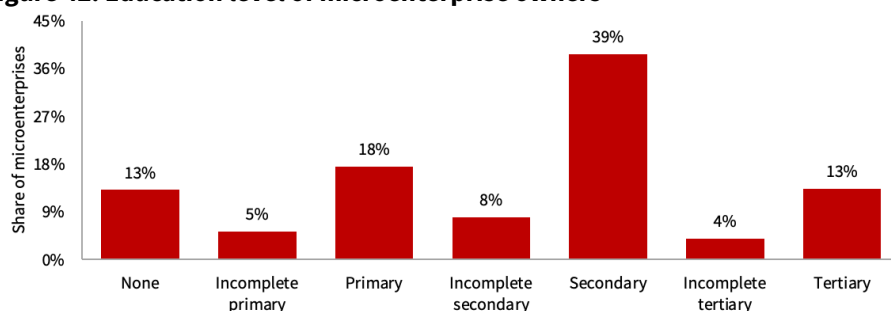
able to use digital technologies for their business activities. There will be no benefit in ensuring that more microenterprises have an appropriate mobile device, and that access is supported through appropriate infrastructure, if the individuals running microenterprises do not know how to productively use the technologies. The next section takes a deeper look into this issue by assessing the skills which microenterprises possess and the extent that systems are in place to develop these skills, with a particular focus on business management skills and digital skills.

4.4 Digital skills and advisory channels

The world is becoming increasingly digital, making digital skills in the information age of utmost relevance. Many businesses had to digitalise to remain in business during the recent COVID-19 pandemic. As a result, the demand for digital skills subsequently soared and the deficit in digital skills became apparent in most African economies, including Nigeria (International Finance Corporation, 2021). Digital literacy and skills are critical not just for productively using digital technologies but also for identifying authentic information and for safe and secure use of ICTs. The prevailing digital skills gap undermines the contribution of ICTs to economic growth and development in Nigeria and introduced additional consumer risks as more individuals engage in digital activities. As Nigeria has emerged as a digitalisation leader on the African continent, the domestic demand for digital skills is expected to grow. Foundational digital skills include those that will enable individuals to perform web searches, engage in mobile communication, online communication and e-learning, and access online government services and online banking. The projections by International Finance Corporation and World Bank suggest that 35% to 45% of jobs in the country will require digital skills by 2030 (International Finance Corporation, 2021).

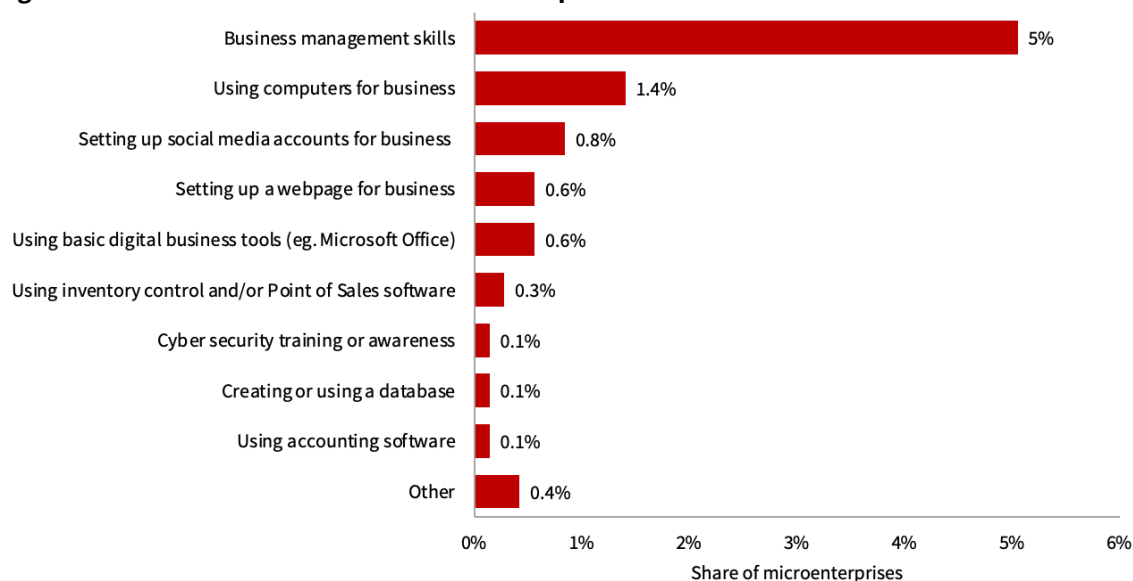
According to Figure 42, more than half of surveyed microenterprise owners (56%) had at least completed secondary school education, although the majority did not have any tertiary education. This represents a relatively high level of education considering that the average across the seven countries surveyed was 42% and Nigeria was one of only three countries to achieve a share greater than 50%, the other two being Kenya (60%) and South Africa (57%). In Uganda and Ethiopia this share was as low as 24% and 26% respectively. However, the findings also mean that almost half of microenterprise owners have not completed high school.

Figure 42: Education level of microenterprise owners



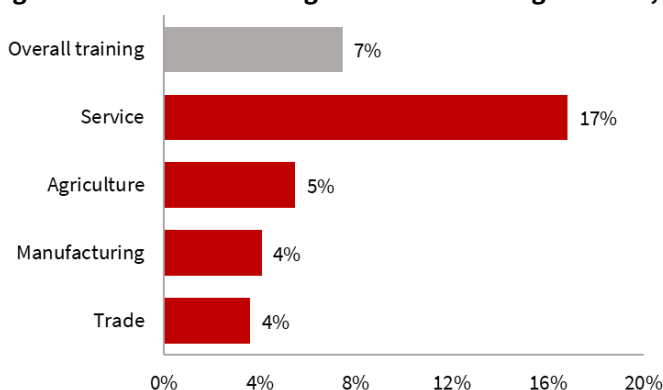
Source: RIA (2022b)

More than 90% of respondents stated that neither themselves nor any of their microenterprise employees have ever received any of the types of business or digital skills training listed in Figure 43. Of the firms where individuals have been trained, the most prominent skill being trained on was business management skills with about 5% of the surveyed microenterprises indicating that someone in the business has received this training. Only 1.4% of the firms in the sample received training on how to use computers for their business needs. For all the other skills listed, less than 1% of firms in the data had received training on these skills.

Figure 43: Skills endowments within microenterprises

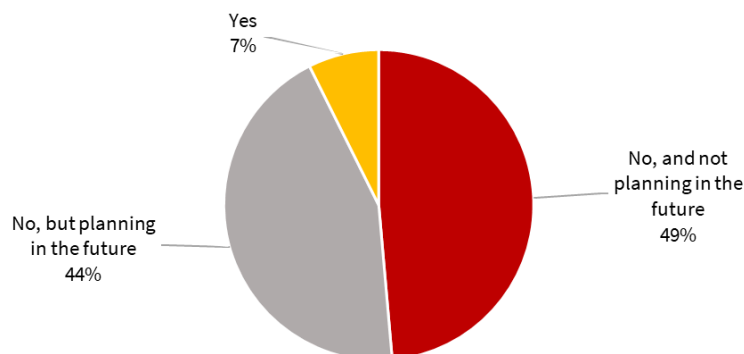
Source: RIA (2022b)

As Figure 44 shows, skills development also varies across business sectors. A larger proportion of firms operating in the service sector received some form of training to improve their skills (17%), a share more than four times higher than in manufacturing and trading sectors (both 4%).

Figure 44: Access to training in business and digital skills, disaggregated by sector

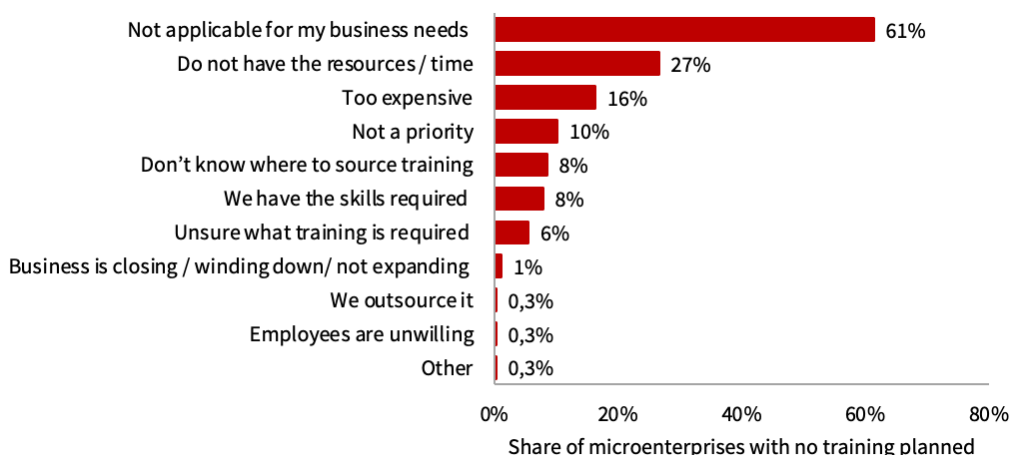
Source: RIA (2022b)

The 93% of microenterprises that did not receive training to improve their business and digital skills were asked about their current and future plans in this regard. Only 7% claimed to have actual planned interventions to improve these skills, with a further 44% claiming they were planning to have something in the future. Almost half of the firms that did not receive training were not planning to take any action to improve their business and digital skills in the future.

Figure 45: Current and future plans for business and digital skills training

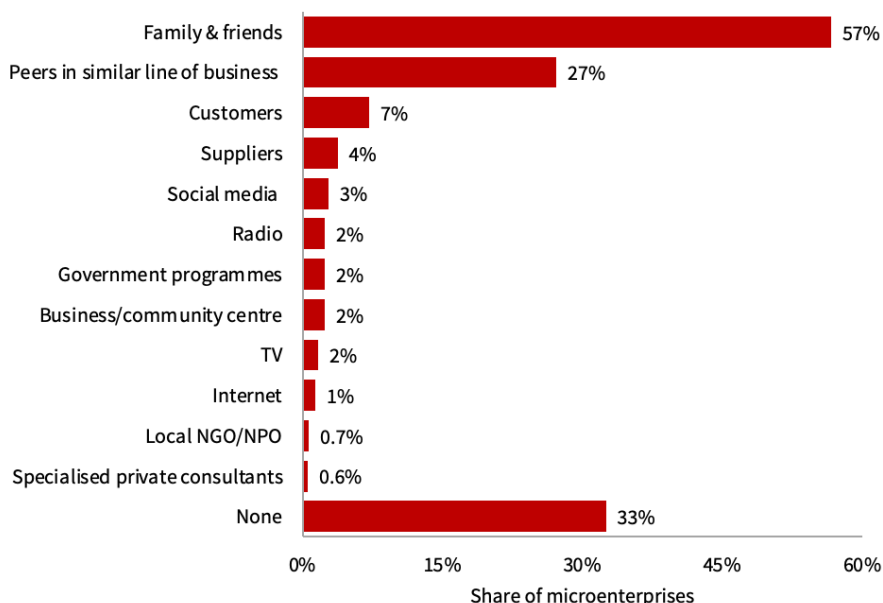
Source: RIA (2022b)

There are various factors contributing to the lack of demand for improving business and digital skills. Over 60% of firms with no current or future training planned indicated that these skills are not applicable for their business needs. This echoes the need to educate microenterprises about the potential benefits of digital technology adoption to improve business productivity, supply chain management and market access. A significant share of surveyed microenterprises also mention that they do not have any future plans to develop their skills because of a lack of required resources and inadequate financial resources. A very limited number of firms (8%) claim that they already have the skills listed (Figure 46).

Figure 46: Reasons for not having current or future training planned to develop business skills

Source: RIA (2022b)

In the absence of business and digital skills, microenterprises must turn to others outside the business for support and advice. As shown in Figure 47, 33% of the surveyed microenterprises claimed that they do not have anyone they can turn to in this regard. Even where advice can be accessed, most microenterprises rely on family and friends (57%) or peers in a similar line of business (27%), rather than formal channels such as government programmes, business centres or consultants. Customers and suppliers also play an important role in advising business owners, although to a lesser extent, which reinforces the need for integrating microenterprises into value chains. The use of government programmes and business centres for business advice is very low largely because they are generally unavailable or inaccessible. Given the importance of microenterprises for livelihoods in Nigeria, the government needs to do more in providing support and accessible channels for advice.

Figure 47: Who microenterprises consult for business advice

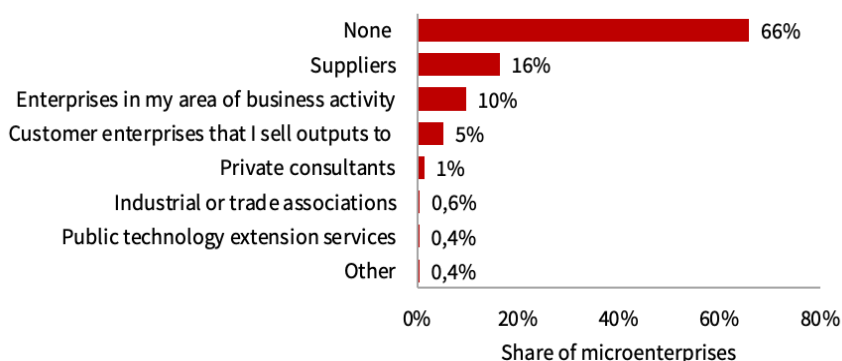
Source: RIA (2022b)

At the sector level, the agricultural sector had a significantly lower share of microenterprises that did not have anyone they could turn to for advice (25%). However this was mainly made up for by a higher share of businesses relying on advice from family and friends (69%). Government programmes, business centres and local NGOs are highly underutilised by microenterprises seeking advice across all sectors. The number of microenterprises seeking advice through business centres are also almost exclusively in the services sector. However, this still only accounts for 5% of service providers.

Since microenterprises in most cases have low resource endowments, they stand to benefit the most from knowledge and technology diffusion, which occurs through value chain integration. Empirical evidence suggests that microenterprises benefit from market relationships with big firms that interact with global lead firms, as integrating firms into global value chains aids them to compete more effectively (Reji, 2013). Interaction with large firms facilitates knowledge and technology diffusion which presents enormous opportunities for microenterprises to improve their business practices. In turn, adoption of productive and good business practices stimulates competitiveness and performance of a business. However, only 9% of microenterprises in the sample report had any interaction with large formal businesses, hindering the technology diffusion and digital skilling that is possible for microenterprises through this channel.

The lack of advice provided on key business decisions can be seen in the low number of businesses seeking advice before purchasing or leasing machinery, equipment, software or processes in Figure 48. Around 65% of the firms do not seek advice before making a purchasing decision. A limited number of firms consult their suppliers (16%) and other enterprises in similar lines of business (10%) to acquire information before buying or leasing machinery, equipment, software or processes. Public technology extension services, private consultants and industrial or trade associations are barely consulted.

Figure 48: Who microenterprises consult before purchasing or leasing machinery, equipment, software or processes



Source: RIA (2022b)

It is clear that skills are a key factor that needs to be addressed in microenterprises, particularly when looking to stimulate digital technology adoption. Initiatives aimed at improving digital skills can have ripple effects, as digital channels provide an effective means to reach businesses for further skills development and provide advisory channels that microenterprises can lean on.

4.5 The core drivers of digital technology adoption

Digital inequalities should not be considered in isolation of each other. Population segments based on factors like gender and location are not homogeneous. For example, although internet access was shown to be significantly higher for male-owned microenterprises (20%) than for those owned by females (9%), female-owned microenterprises in urban areas had access levels of 15%, higher than that of male-owned microenterprises in rural areas (14%). At an even deeper level, past research on individuals and household surveys has shown that gender and location inequalities in device ownership and internet access are themselves a reflection of gender and location inequalities in education and income, which are the core factors driving digital access (Chair et al., 2016; Gillwad & Partridge, 2022). This means that if equality was achieved in education and income, then digital equality would be a natural outcome. However, with the world becoming increasingly digital, the digital inequalities are themselves exacerbating the current education and income inequalities. Targeted interventions are therefore required to redress the underlying structural inequalities in society, whilst at the same time looking for ways to support marginalised groups to overcome their current access barriers.

From a microenterprise perspective, it is first important to establish what the core factors driving digital access are using a multivariate approach. A logit⁷ model was developed using three binary dependent variables listed below.

- y1. **Mobile phone ownership:** Takes on a value of 1 if the microenterprise has at least one mobile phone which is used in the business, 0 otherwise;
- y2. **Smartphone ownership:** Takes on a value of 1 if the microenterprise has at least smartphone which is used in the business, 0 otherwise; and
- y3. **Internet access:** Takes on a value of 1 if the microenterprise uses the internet for business activities, 0 otherwise.

The explanatory variables were based on digitalisation literature, as well as the findings from the survey. There are 12 explanatory variable groups in total listed below:

- x1. **Profit:** The log of typical monthly profits;
- x2. **Education:** Indicator⁸ variable for having completed primary, secondary or tertiary education;

⁷ A probit model was also developed but the logit model was selected for a better fit with the data (as determined through the outcomes on Hosmer-Lemeshow tests).

⁸ An indicator is a binary variable which takes on a value of 1 if true and 0 if not true.

- x3. **Female-owned:** Indicator for whether the business is female-owned or not;
- x4. **Formal:** An indicator for the business being formalised, defined as registered with at least one of: the national revenue authority (for tax), for VAT, and/or at a local government authority;
- x5. **Financially included:** An indicator for being financially included, defined as either having a bank account or a mobile money account;
- x6. **Size:** The number of employees in the business, calculated as the sum of full-time employees, temporary employees and ½ (part-time employees);
- x7. **Age of business:** The age in years since the business was established (at the time of the interview);
- x8. **Business premises:** Indicator for the business having a dedicated business space (either rented, owned or shared), as opposed to operating from the owner's home or a public space;
- x9. **Electricity:** An indicator for whether the business has electricity from where it operates;
- x10. **Rural:** Indicator for whether the business is located in a rural area;
- x11. **Geopolitical zone:** Indicator variables for each geopolitical zone (compared with the base of the South West); and
- x12. **Sector:** Indicator variables for sector, compared to the base of the trading sector.

The summarised findings from the econometric model are provided in Table 1 below. For the full model outputs see Appendix A2. The Hosmer-Lemeshow test statistics at the bottom of the table were done using 10 groups and indicate a good level of fit for all three models.

Table 1: The core drivers of digital technology adoption amongst microenterprises in Nigeria

Variable	Marginal effects		
	Mobile phone	Smartphone	Internet access
Profit (log)	0.0290***	0.0736***	0.0339***
Primary education	0.0925	0.0704	-0.00133
Secondary education	0.133**	0.150**	0.104**
Tertiary education	0.156**	0.354***	0.154***
Female-owned	-0.127***	-0.0719*	-0.0731***
Formal	-0.0386	-0.0209	0.0368
Financially included	0.132***	0.115***	0.0745***
Size (employees)	-0.0251**	-0.0209	-0.000179
Business age	0.00465*	-0.00489*	-0.00322
Business premises	0.0719**	-0.0185	-0.0427
Electricity	0.0613*	0.101***	0.0574*
Rural	-0.00888	-0.0936**	-0.0488
North Central	-0.0342	-0.109**	-0.108***
North East	-0.0315	0.0307	-0.0527
North West	-0.0877	-0.0649	-0.0795
South East	-0.0547	-0.0863	-0.151***
South South	-0.0902*	-0.0114	-0.103**
Agriculture	-0.0860	-0.0558	0.0138
Manufacturing	-0.0265	0.0690	0.0330
Service	-0.0344	0.0217	0.0338
Observations	523	521	524
Pseudo R2	0.1901	0.2857	0.2856
Hosmer-Lemeshow: Chi	4.58	4.51	3.73
Hosmer-Lemeshow: p-value	0.8015	0.8087	0.8803

*** p<0.01 (high significance), ** p<0.05 (moderate significance), * p<0.1 (low significance)

Profit was a highly significant determinant of all three dependent variables. A 1% increase in the microenterprise's profits increases the likelihood of the microenterprise having a mobile phone by 3%, increases the likelihood of having a smartphone by 7%, and increases the likelihood of using the internet in the business by 3%, holding all other factors equal.

The owner having a primary education did not significantly influence the probability of digital technology adoption. However, having a secondary education was significant, increasing the probability of the microenterprise having a mobile phone by 13%, increasing the probability of having a smartphone by 15%, and increasing the probability of using the internet for the business by 10%, all relative to having no educational achievement. Having a tertiary education was highly significant, increasing the probability of having a mobile phone by 16%, having a smartphone by 35% and internet access by 15%, all relative to having no educational achievement.

Even once controlling for all other variables, being female-owned was negatively associated with digital technology adoption. Relative to male-owned microenterprises, female-owned enterprises are 13% less likely to have a mobile phone, 7% less likely to have a smartphone, and 7% less likely to use the internet. The effect on mobile phone ownership and internet access was highly significant with smartphone ownership only slightly significant. The fact that smartphone ownership had lower marginal effects and lower significance than mobile phone ownership, despite the fact that the gender gap in smartphone ownership was much higher than the gender gap in mobile phone ownership, indicates the influence of other factors in driving inequalities in smartphone ownership. In particular, profit and education were strong determinants of smartphone ownership and therefore the gender gap in smartphone ownership may be driven largely by gender inequalities in terms of education and incomes.

Being formalised was not significant once other variables were controlled for, however, financial inclusion was highly significant across all digitalisation measures. Being financially included was estimated to increase the likelihood of mobile phone ownership by 13%, smartphone ownership by 12%, and internet access by 7%. The size of the business was only a significant determinant of mobile phone ownership, where each additional employee was actually estimated to decrease the likelihood of owning a mobile phone by 2.5%. The age of the business was insignificant in terms of internet access and only slightly significant in determining mobile phone and smartphone ownership. Each additional year the business had been in operation increased the probability of owning a mobile phone by 0.5% and decreased the probability of owning a smartphone by 0.5%.

The business having its own premises increased the probability of owning a mobile phone by 7% but was insignificant in determining smartphone ownership and internet access. Having electricity available in the place of operation was a highly significant determinant of smartphone ownership, increasing the likelihood of the microenterprise having a smartphone by 10%. Electricity access was only slightly significant in determining mobile phone ownership and internet access, increasing the likelihood by about 6% in both cases.

Microenterprises in rural areas were estimated to be 9% less likely to own a smartphone than those in urban areas. For mobile phone ownership and internet access, however, location was insignificant suggesting that location gaps are instead driven by other factors. In terms of the geopolitical zones, the main influence was on internet access where being in the North Central zone, South East zone and South South zone decreased the probability of internet access by 11%, 15% and 10% relative to being in the South West, respectively.

The multivariate analysis presented here highlights the strong relationship that digitalisation has with income (profit) and education. However, it also highlights that even controlling for these key determinants, female-owned microenterprises perform poorly compared to male-owned enterprises. At the same time it highlights the important role that financial inclusion can play in driving microenterprise digitalisation in Nigeria.

5 The use of ICTs by microenterprises

5.1 Main use cases and limitations

Access alone is not enough for microenterprises to benefit from digital technologies. Once access has been achieved there may be varying degrees in the extent and ways that it is used. The ensuing analysis therefore looks at how microenterprises are using digital technologies and the limitations that are holding them back from further use.

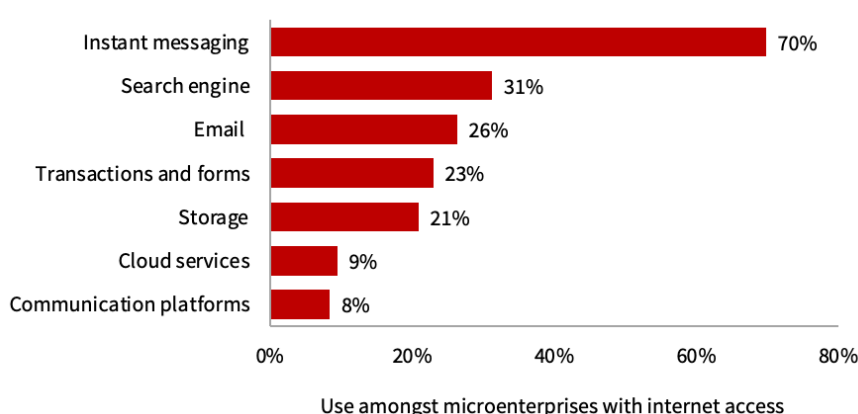
The survey identified seven key operational uses of digital technologies for a business, listed in Table 2 below.

Table 2: Business operations use cases for digital technologies

Use case	Task description
Email	Using email to communicate with workers, customers, suppliers and others
Instant messaging	Using instant messaging for exchanging messages with workers, customers, suppliers or others (e.g. WhatsApp, Slack, Line, Skype or Messenger)
Cloud services	Working with others using cloud services (e.g. Google Drive, OneDrive, or Dropbox)
Communication platforms	Communicating remotely with others over the internet using communications platforms (e.g. Zoom, Microsoft Teams, CISCO, Skype, Google Meet, etc.)
Search engines	Using an online search engine to find information (e.g. Google, Yahoo, Bing)
Storage	Using a system to save/store data, information and content in a hard drive/disk/server
Transactions and digital forms	Filling out digital forms and doing commercial transactions on the internet

The most popular use of the internet by microenterprises in 2022 was for instant messaging (Figure 49) which was a use adopted by 70% of businesses who had access. The other prominent online activities include the use of online search engines (31%), email communications (26%), filling out digital forms and facilitating digital transactions (23%), as well as storing data, information and content on a hard drive/disk or server (21%). The incidences of businesses harnessing the internet to utilise cloud services and to communicate remotely with others using platforms like zoom were relatively low.

Figure 49: Online activities of microenterprises with internet access



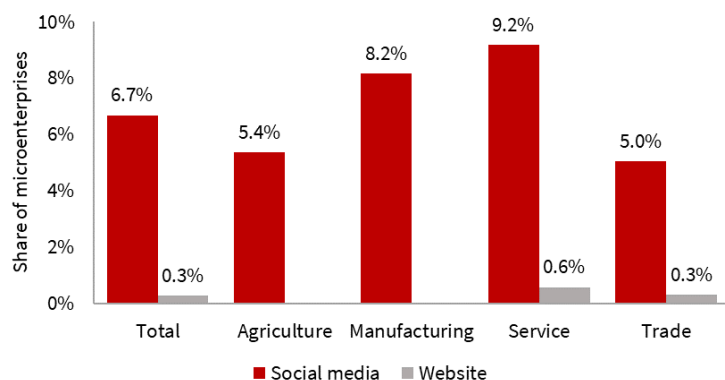
Source: RIA (2022b)

The proliferation of the internet and social media significantly lowered communication costs and increased the speed of information diffusion. Social media represents an opportunity for low-cost advertising and marketing for microenterprises, who in most cases have limited resources. Firms can share information about their products and services on social media and reach a wide audience rapidly at low cost. This will allow firms to access market

participants who would be unreachable offline, ultimately increasing the customer base. Furthermore, consumers in the information age rely on social media and online search engines for knowledge on reliable products. In light of this, creating review channels is an essential tool for getting valuable feedback from customers which firms can utilise to continuously improve their products and remain competitive (Ahmad et al., 2018). Firms can also use social media to gather data which can be used to analyse trends in consumers' preferences and tastes. This information can be used to improve the company's products and to expand into new markets (Ahmad et al., 2018). In addition, evidence from individual and household surveys in Nigeria suggests that almost all (98%) of internet users use social media, which further reinforces its potential for efficient and effective advertising (Odufuwa et al., 2024).

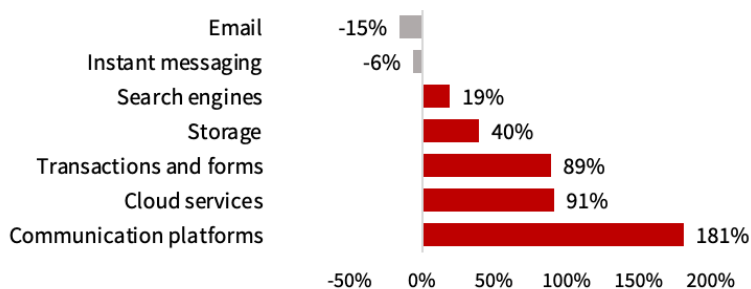
The importance of social media can be seen in Figure 50. Whilst only a negligible amount (0.3%) of microenterprises have their own website, a higher share (7%) have a social media presence. Although this is still a low percentage it encompasses the majority of firms that use the internet and would be expected to increase with improved digitalisation in the microenterprise sector. The probability of using social media is highest among firms in the service sector, and this is in line with the observed differentials in internet access.

Figure 50: Percentage of microenterprises that have their own website and social media presence by sector



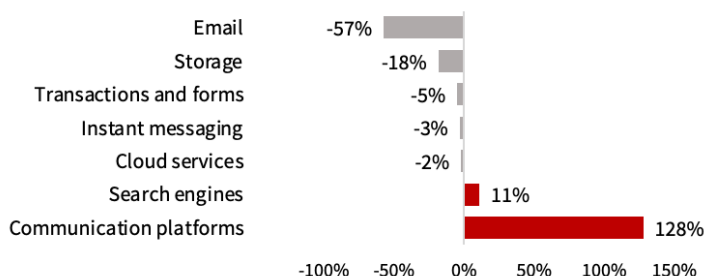
Source: RIA (2022b)

Use gaps in Figure 51 show differences in the use of the internet for specific tasks among microenterprises who have already achieved access. The gender use gap is highest in the use of communication platforms, as well as in the use of cloud services, transactions and forms, meaning that male-owned microenterprises that are using the internet are much more likely to use these digital services than female-owned enterprises. It is estimated that female-owned enterprises that use the internet are more likely to use email and instant messaging. However, the gaps in these use cases are very low relative to the cases where the gaps are in favour of male-owned enterprises. The fact that the use gaps are so strongly in favour of male-owned enterprises compounds the already significant access gaps. Female-owned enterprises are less likely to be online than male-owned enterprises, but even for those female-owned enterprises that are online, there are significant inequalities in terms of their ability to use a wider range of products and services. Hence, female-owned microenterprises face critical challenges in adoption and use of the internet which need to be addressed in order to achieve universal access to the internet and meaningful connectivity.

Figure 51: Gender gap in internet use

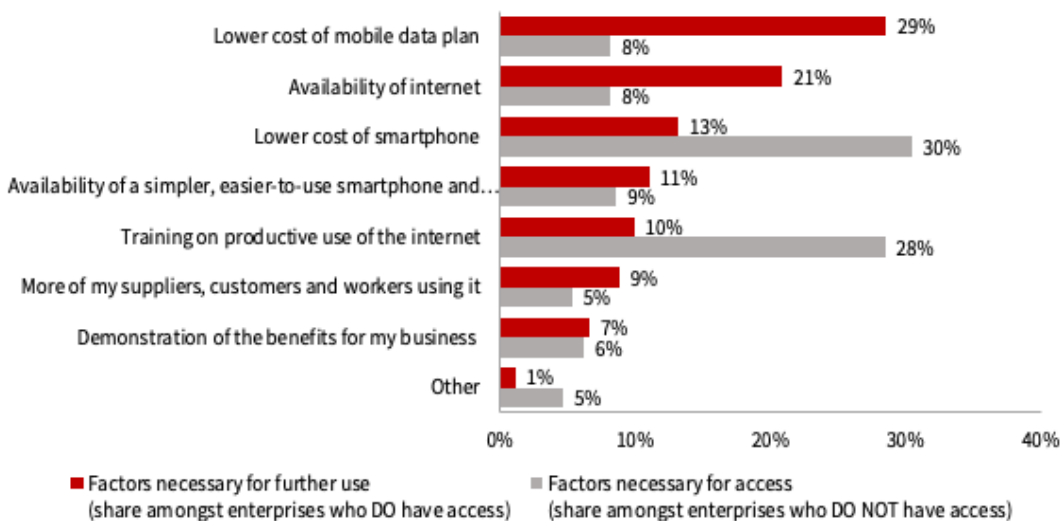
Source: RIA (2022b)

Interestingly, the significant divisions in internet access between geographic locations are reversed when considering use of the internet. Microenterprises located in urban areas are the most likely to utilise online search engines and communicate remotely with others using communication platforms like Zoom. On the other hand, according to estimates presented in Figure 52, firms operating in rural areas are the predominant users of email for communication, storage, cloud services, instant messaging and digital forms.

Figure 52: Location gap in internet use

Source: RIA (2022b)

According to Figure 53, the main thing that would result in microenterprises with access furthering their use of the internet is lower costs of mobile data, followed by greater availability of internet services. Limitations on internet use are contrasted with the barriers that microenterprises felt needed addressing to enable access to the internet. In particular, the cost of data and availability of internet services were not seen as major access barriers. Conversely, the main access barriers in the costs of smartphone devices and lack of digital skills, were not seen as major limitations holding back enterprises with access from using the internet more.

Figure 53: Comparison of what is needed to enhance internet access and more extensive use of the internet

Source: RIA (2022b)

Relative to other countries, mobile data in Nigeria is on the cheaper side. The Research ICT Africa Mobile Pricing (RAMP database) shows that for the third quarter of 2022, when the survey commenced, the cheapest cost for a 1GB data package was equivalent to USD 2.38 (through 9Mobile). Whilst this is significantly more than countries such as Ghana (USD 1.09) and Ethiopia (USD 1.15), Nigeria is the tenth cheapest of 42 African countries where data was available, where the average price was almost double that of Nigeria at USD 4.67. The highest price recorded is an exorbitant USD 18.19 in the Seychelles (RIA, 2024). The current price in Nigeria also falls within the affordable access range of less than 2% of Monthly Gross National Income (GNI) per capita proposed by the International Telecommunication Union's Broadband Commission (2023)⁹. It is therefore interesting to note that mobile data still comes out as such a pressing limitation highlighting the limited financial resources and small profit margins with which microenterprises operate. Although mobile data is cheap by international standards, the situation could be improved through the provision of public internet infrastructure, low data-intensity business products and services tailored for microenterprises, or through tax or other financial incentives for using mobile data.

5.2 Business tools and platforms

Business tools are used by businesses to perform standard operational activities. In the survey, microenterprises are asked about the application of digital technologies to their business tools. There are five core activities which are assessed in this regard:

- **Accounting** is how a business records, organises and understands its financial information. For example, this can be done by keeping a written record of money coming in and money going out in a notebook, by keeping track of income and expenses in a spreadsheet, or by using a specialised accounting software. Any form of record-keeping for financial transactions and information counts as accounting.
- **Planning** is how a business makes financial decisions. For example, whether to buy more or less stock, spend more money on materials, push for more sales etc.
- **Supplies** refers to supply chain management or procurement, and includes keeping track of suppliers, sourcing materials and finding service providers. Almost all businesses have to source materials or services before they can produce their own products or offer their own services. This includes businesses buying products to resell.
- **Sales** is how businesses sell some form of product or service in order to generate revenue. This could happen face to face, on a phone call, via an e-commerce platform accessed through a mobile phone, through the business's own website, or through other channels.
- **Marketing** is how a business promotes its products or services to its potential customers. Examples include telling people about the products or services in person, printing leaflets or posters, placing an advertisement in a newspaper or buying advertising space online. Any form of informing potential customers about product and service offering counts as marketing.

For each of these tools, a microenterprise has a range of channels available to them and may use a combination of different channels to perform the activity. In the data, there are five different types of tools which are listed below in increasing order of technicality (sophistication):

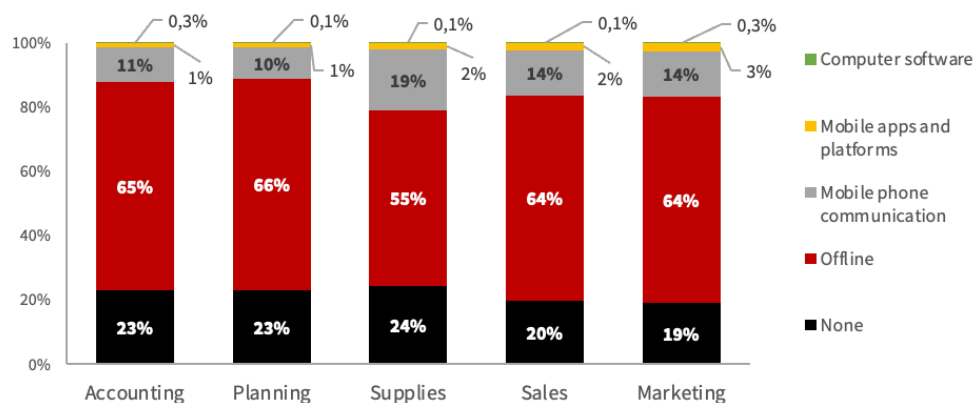
- i. **None:** Business does not perform the particular activity at all;
- ii. **Offline:** Doing it manually, or dealing with people face to face, or using paper without the help of phones or computers;
- iii. **Mobile phone communication:** Making phone calls, sending SMSes or messages;
- iv. **Mobile apps and platforms:** Using apps or online platforms on the phone other than making phone calls, sending SMSes or messages; and

⁹ Nigeria's Annual Gross National Income per capita for 2022 is estimated at USD2160 (World Bank, 2023), equating to USD180 per month. This means that 2% of monthly GNI per capita would equate to USD3.60

- v. **Computer software:** Using standard office, communication software or apps on a computer (e.g. word processor, spreadsheets, email), or using specialised software or apps on a computer developed for a specific business activity.

In Figure 54, businesses are classified according to the most sophisticated type of tool used. Depending on the activity, between 19% and 24% of the surveyed microenterprises indicate that neither offline nor online tools apply to their business activities. Where tools are used, most microenterprises claim to rely exclusively on offline tools to complete the five core activities. Although there appears to be greater use of digital technology for sales, the 21% of microenterprises that do utilise digital technologies do so mainly through communicating via mobile phone calls and SMS services with only 2% using the more advanced mobile applications and platforms. Only a negligible number of microenterprises use computer software for any of the activities analysed, corresponding with the low level of computer ownership among microenterprises.

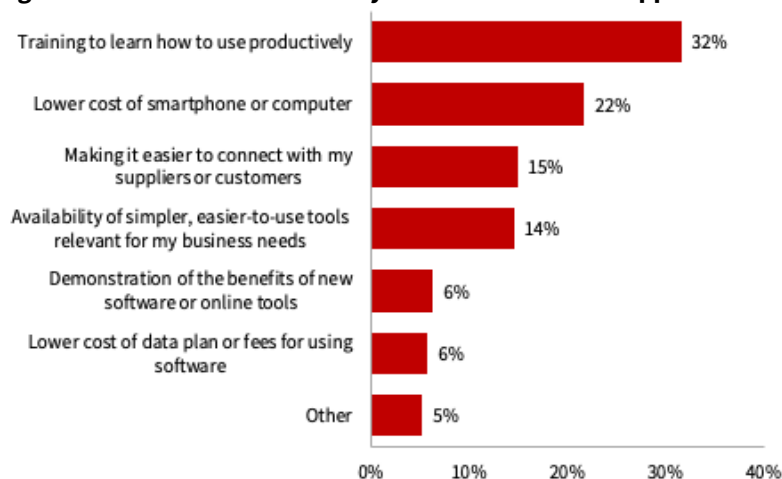
Figure 54: The use of business tools by level of sophistication



Source: RIA (2022b)

The fact that the extent of use of mobile apps and platforms is much lower than the extent of smartphone ownership, and even much lower than the use of the internet via a smartphone for microenterprises, highlights unrealised potential. This potential could be tapped by educating microenterprises about the available tools to perform these activities and the potential benefits of using them, as well as ensuring that microenterprises possess the necessary skills to use them and can use them based on the amount of mobile data that they can afford.

Lack of skill around capitalising from digital tools is the major factor preventing the use of software and applications for business activities. Efforts need to be made to advance digital skills, which is a crucial component for the safe and optimal use of new and innovative technologies. Also shown in Figure 55, the high cost of devices is the second most cited factor precluding the use of apps and software, followed by ease of use. The availability of simple and easier-to-use online tools will also aid in overcoming the skills barrier identified as the major obstacle for using online digital tools more.

Figure 55: Main factors necessary to enable the use of apps and software for business activities

Source: RIA (2022b)

There were some gender and location differences noted in the main barriers faced by microenterprises in using apps and platforms. In particular, the lower cost of smartphones was the major factor cited that would enable use for a higher share of female-owned microenterprises (26%) compared to those that are male-owned (15%). In contrast, male-owned microenterprises placed greater emphasis on the need for digital skills training (35% vs 30% for female-owned enterprises) and the ease of use of digital business tools (19% vs 12% for female-owned enterprises). Urban and rural-based enterprises had more similar outcomes. The most notable difference was a higher share of rural microenterprises claiming that the difficulty in using digital tools was the main barrier (18% vs 13%), and a lower share saying that the cost of data was the main barrier (2% vs 8%).

Business platforms are defined in the survey as digital platforms that bring buyers and sellers together to buy and sell goods or services. There are 14 different types of platforms identified in the survey questionnaire listed and described in Table 3.

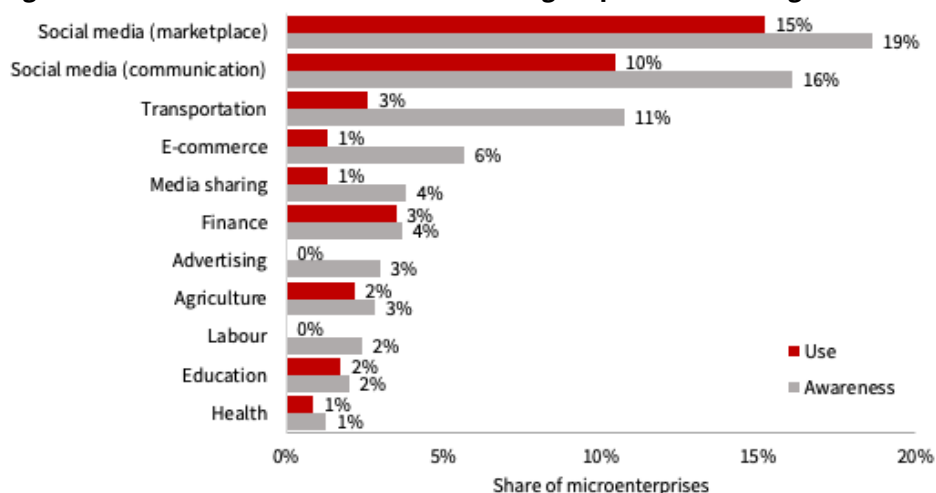
Table 3: Types of business platforms

Platform	Activity	Examples
E-commerce	Buy needed inputs and sell your outputs	Jumia, Konga, Bolt
Labour	Hire workers or work online, either full-time or part-time	Upwork, Indeed, Nosweat
Transportation	Enable you and your workers to travel for business	Uber, Bolt
Finance	Make payments, receive transfers and raise funding	PayPal, Thundafund
Agriculture	Rent farm equipment, purchase rural inputs and sell	HelloTractor, Khula
Tourism	Book local accommodation	AirBnB, Trivago
Advertising	Market the business' products	GoogleAds, Taboola
Social media (communication)	Communicate with suppliers and customers	Facebook, Instagram, WhatsApp
Social media (marketplace)	Buy and sell via social media platforms	Facebook, Instagram
Real estate	Find commercial premises	Nyumba
Education	Learn needed skills	Coursera, Reddit
Tradespeoples services	Home/tradespeople services	GeTOD
Health	Improve health of workers	WeDoctor, Discovery

Platform	Activity	Examples
Media sharing	Sharing videos and pictures about your business	YouTube, Pinterest

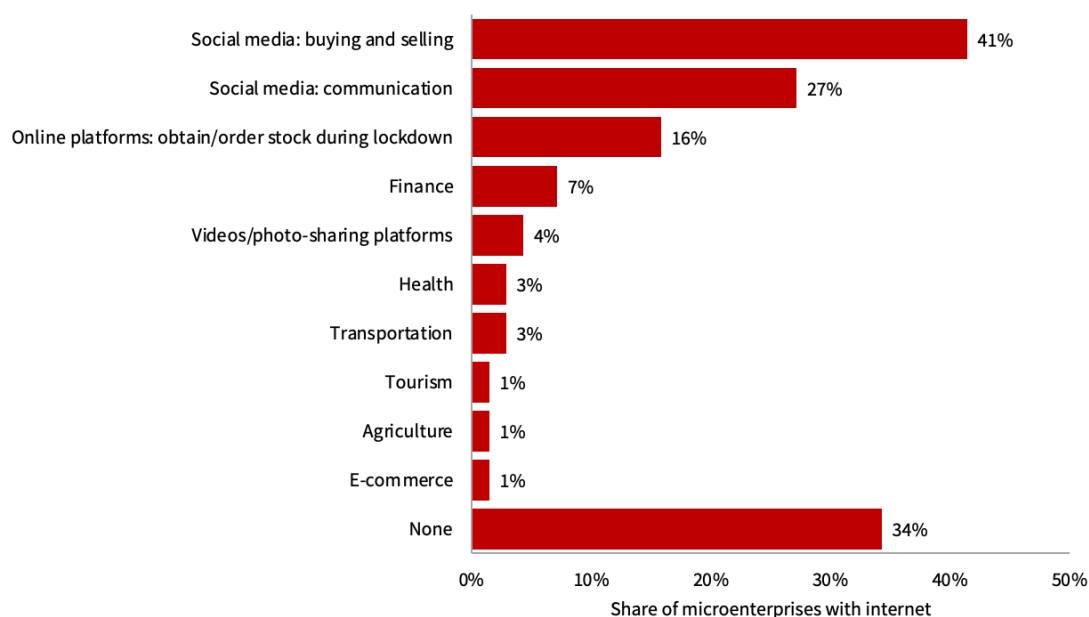
Most microenterprises participating in the survey (68%) are not even aware of the digital business platforms identified, highlighting that bridging the knowledge gap is a critical factor for achieving inclusive and meaningful connectivity. As such, only 30% of businesses claim to use any of the aforementioned platforms for their business. As Figure 56 shows, where these platforms are used, the main use is through social media. Where the gap between awareness and use is very small, it suggests a greater relevance for use in business activities for microenterprises. This would include finance, agriculture and education. Conversely there are a number of platforms that firms are aware of but do not feel the need to use, suggesting either less relevance or else the existence of barriers that prevent microenterprises from being able to use them. This would include the use of social media for commerce and communication, digital platforms for transportation, e-commerce, media sharing, advertising and labour needs.

Figure 56: The level of use and awareness of digital platforms amongst microenterprises



Source: RIA (2022b)

Even looking only at microenterprises that use the internet in their business, as in Figure 57, 34% do not make use of any digital platforms that bring buyers and sellers together. The most-used digital platform is social media for buying and selling, with 41% of microenterprises using social media to buy and sell and 27% of microenterprises with internet access in the sample using social media for business communications. These findings highlight the importance of social media as a vehicle for microenterprises to sell their products and services, compared to e-commerce platforms which are used by only very few microenterprises despite Nigeria having its own successful ecommerce platform, Jumia.

Figure 57: The use of digital platforms amongst microenterprises with internet access

Source: RIA (2022b)

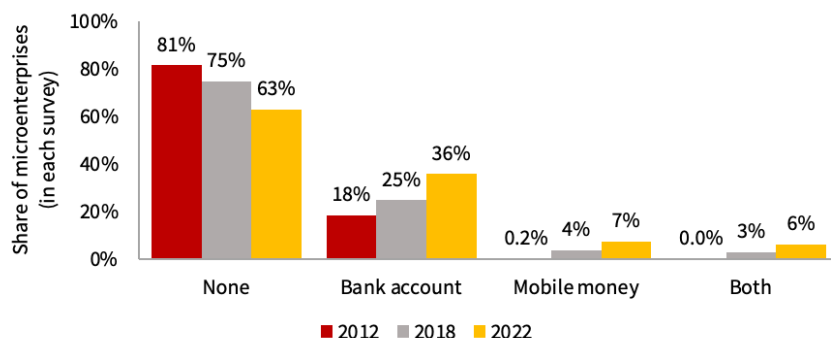
It is noted that the percentage of microenterprises that claim to use digital business platforms exceeded the percentage of microenterprises that claim to use the internet in their businesses. The nature of microenterprise operations is such that the business activities are often very intertwined with personal lives, hence activities may sometimes be performed online which are relevant for the business but done in the owner's personal capacity rather than as a business activity explicitly. This highlights the need to look deeper than simple questions on internet access, particularly highlighting the role of social media.

5.3 Digital financial services

Nigeria has one of the most sophisticated digital financial services ecosystems in Africa, with a robust bank-led payment system and innovative fintech sector. The Central Bank of Nigeria (CBN) has played a central role in providing the infrastructure and regulatory environment to promote financial inclusion through an inclusive instant payment system which is tailored to the needs of low-income consumers (AfricaNenda, 2022).

The African Development Bank has adopted the definition of financial inclusion developed by the Alliance for Financial Inclusion (AFI), which stipulates that formal regulated financial products and services are made available (access), are used by individuals and enterprises (usage), and are appropriately tailored to the needs of users (quality) (Triki & Faye, 2013). As the World Bank argues, the foundation for financial inclusion is a deposit or transaction account with a financial institution or mobile money provider capable of storing value as well as making and receiving payments (Demirguc-Kunt et al., 2017). Vast literature exists to show the benefits of financial inclusion for sustainable development.

The share of microenterprises without access to a bank account or mobile money in the 2022 survey was significantly lower than in 2012. However, Figure 58 shows that 63% of microenterprises are still excluded from financial services in Nigeria (compared to 81% in 2012). Unsurprisingly, given the bank-led nature of Nigeria's financial system, the main growth in financial account access amongst microenterprises has come through bank account ownership which was estimated at 36% for the 2022 survey. Given the informal nature of microenterprises and the low level of resource endowments which would typically be a major barrier for opening a bank account, reaching this level of bank account ownership should be viewed as a positive achievement. However, to support and promote the development of microenterprises in Nigeria, more effort should be focused on including the 63% who currently rely solely on cash transactions and are unable to access other financial and value-added services.

Figure 58: Financial inclusion, 2012, 2018 and 2022

Source: RIA (2012, 2018, 2022b)

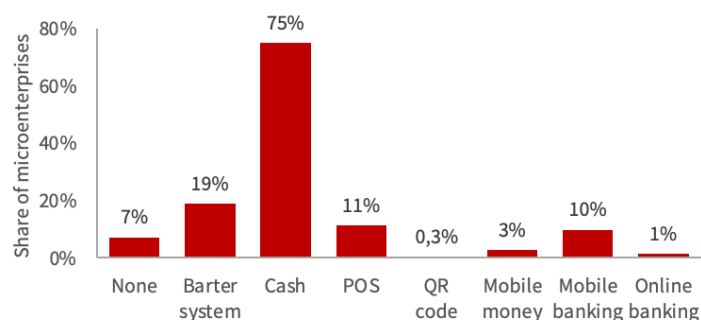
It should be noted that mobile money is measured in the survey as financial services provided through mobile network operators, as is the case with M-PESA in Kenya. Although the Nigerian payment system does now allow for mobile money operators to participate directly in the payment system, these services are nevertheless used by a small share of microenterprises (7%). Moreover, the share of microenterprises that use mobile money and own a bank account is almost as high as that of mobile money users. Around 6% of firms surveyed use mobile money and own a bank account, meaning that most of the microenterprises that use mobile money already own a bank account. However, Nigeria has a thriving fintech sector which offers a wide range of innovative mobile financial services, as well as other value-added services, working either directly or indirectly through the country's commercial banks. This has allowed the Nigerian financial sector to provide products and services that meet the needs of low-income consumers and achieve widespread uptake of digital payments and other digital financial services (USAID, 2019) .

The increasing financial inclusion has allowed some microenterprises to begin making and accepting digital payments. The payment methods identified in the survey are listed in Table 4 below. The methods are not mutually exclusive as enterprises can accept and receive payments via multiple different methods depending on what they are able to facilitate and what customers and suppliers are able to facilitate and prefer. It is expected that most microenterprises will still deal in cash to some extent. However, as the digital payment system becomes more inclusive, a positive result would be a higher number of microenterprises also accepting and making payments via digital channels.

Table 4: Methods of making and receiving payments

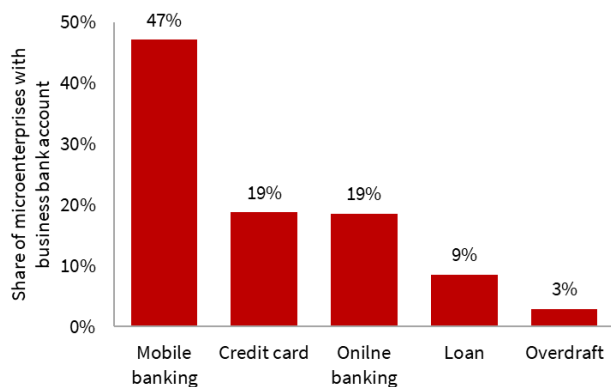
Method	Description
Barter system	The purchase of goods or services through the provision of other goods or services
Cash	Exchange in currency (bank notes or coins)
POS	Card payments using a Point-of-Sales (POS) machine
QR code	A type of two dimensional bar code used to link a payment transaction to a store value account
Mobile money	Payment services provided through a mobile network operator
Mobile banking	Bank transfer using a mobile phone
Online banking	Bank transfer using computer, tablet or laptop

Figure 59 shows the share of microenterprises which make and receive payments via different methods. Interestingly a large share of microenterprises accept and make payments through barter systems. Although cash is indeed prominent, there are a significant number of firms making and receiving payments via POS machines and through bank transfers via a mobile phone.

Figure 59: Methods of making and receiving payments by microenterprises

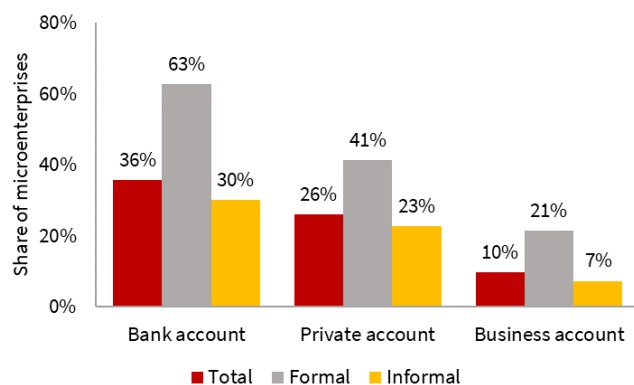
Source: RIA (2022b)

Although 36% of the surveyed microenterprises have a bank account, Figure 60 shows that most (26%) rely on a personal bank account with only 10% of microenterprises in the sample having a dedicated business bank account. Having a dedicated business bank account allows microenterprises to better monitor their finances separately from personal expenditure resulting in better financial management. It also allows microenterprises to access financial products specifically tailored for businesses and without the limitations that are placed on personal accounts, which can be a restriction to business activity. Of the firms with business bank accounts, only 3% have an overdraft and 9% a loan from the bank. Mobile banking is used by 47% of firms that have business accounts, highlighting the fact that mobile financial services are accessed through the banking sector rather than through mobile money as defined in the survey. Furthermore, the share of firms that have business bank accounts that claim to use online banking is the same as the share that report having access to a credit card (19%). The estimates presented here highlight that access to credit and financial inclusion among microenterprises remains a challenge in Nigeria. Thus, hard work lies ahead for the country to significantly increase microenterprises' access to financial services and affordable credit.

Figure 60: Access to financial services amongst microenterprises with business bank accounts

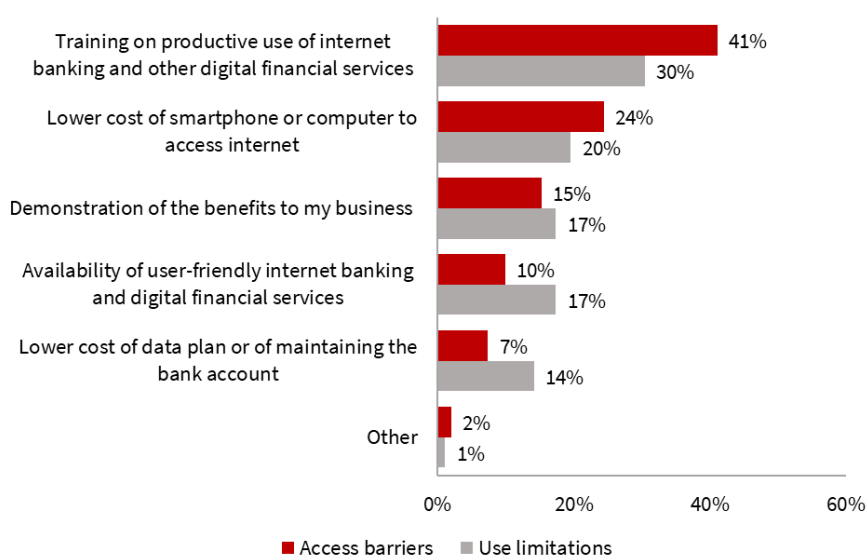
Source: RIA (2022b)

Formal microenterprises are generally more likely than informal ones to have a dedicated business bank account. Business bank account penetration is over two times higher among formal enterprises, reaching 21% (Figure 61). The use of a personal bank account for the business was also higher, although only slightly. As a result, bank account ownership amongst formal microenterprises almost reached two thirds of surveyed enterprises (63%). Limited access to business bank accounts, and a lack of collateral and accurate information on financial performance, make it difficult for banks to perform credit default risk assessments which results in limited access to finance for most microenterprises, particularly those operating in the informal sector. As a result, businesses have to depend on personal savings for their financial needs, which restricts their growth and development.

Figure 61: Access to bank account by formality

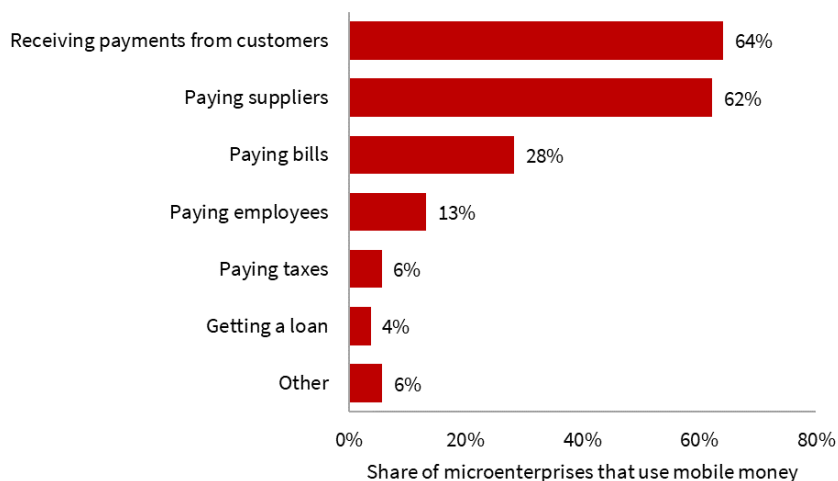
Source: RIA (2022b)

A clear understanding of factors inhibiting adoption and optimal use of internet banking and other digital financial services is crucial for promoting financial inclusion. A lack of knowledge on how to productively use internet banking and other digital financial services is the primary factor holding back both the adoption and optimal use of financial services in Nigeria. The high cost of smartphones and computers, and the lack of demonstration of the economic benefits, are the second and third most cited factors respectively, limiting both adoption and extensive use. The two greatest barriers are, however, were more pronounced in terms of adoption whereas the difficulty in using products and services, and the cost of data, were relatively more significant barriers for extensive use than is the case for adoption (Figure 62).

Figure 62: Factors necessary to enhance the adoption and extensive use of internet banking and other financial services

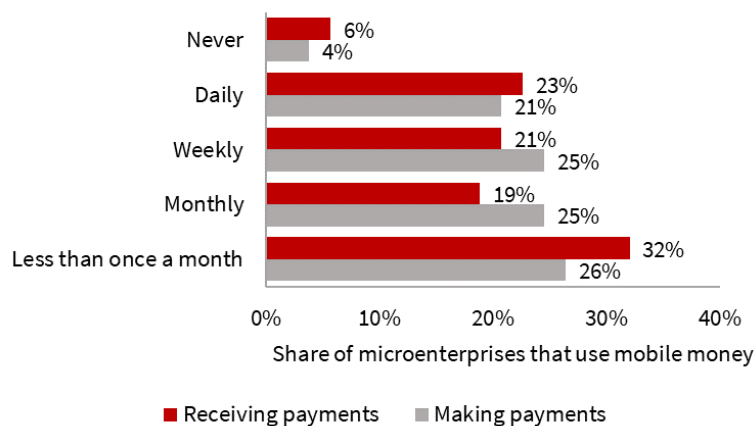
Source: RIA (2022b)

Of the 7% of participating microenterprises which use mobile money to send or receive money, the main use cases are receiving payments from customers (P2B) and making payments to suppliers (B2B). The former is performed by 64% of mobile money users while the latter is performed by 62%. In addition, 28% and 13% of mobile money users in the sample claim to use mobile money services for paying bills as well as remunerating their workers, respectively (Figure 63).

Figure 63: Specific uses of mobile money services by microenterprises in Nigeria

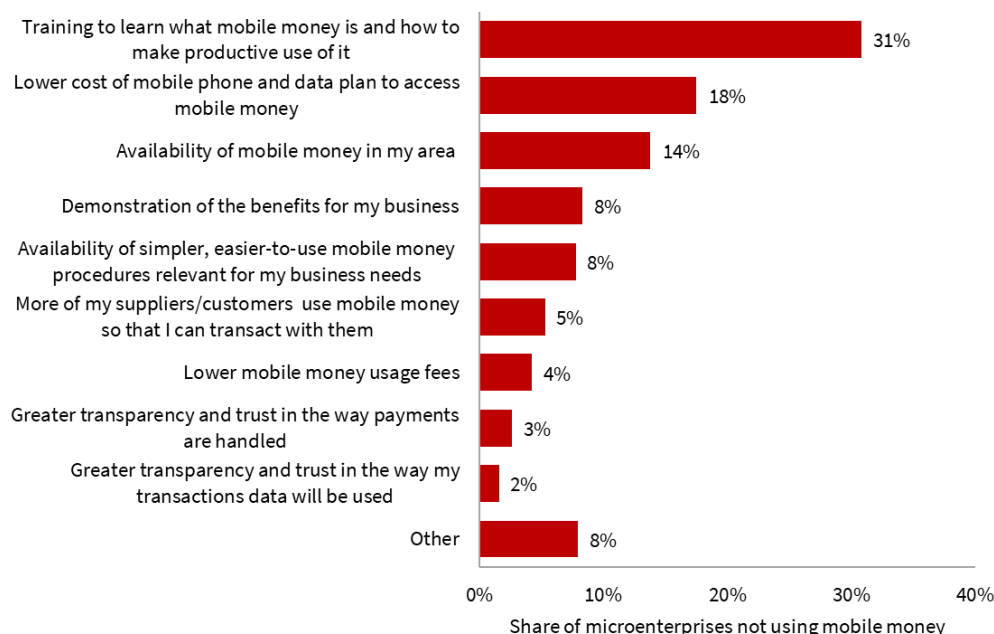
Source: RIA (2022b)

Figure 64 illustrates the intensity of use of mobile money for making and receiving payments among firms that claim to use mobile money. The frequency of use varies considerably across firms with some firms using it daily, some weekly, some monthly and some less frequently than that. There were more firms receiving payments through mobile money daily than making payments daily, but also more firms receiving payments less than once a month than making payments less than once a month. On the other hand more firms make payments weekly or monthly through mobile money than receive payments. Most microenterprises that use mobile money both receive and make payments, with making payments slightly more common. Only 6% of firms use mobile money for making payments but not receiving them, and only 4% of firms use mobile money for receiving payments but not making them.

Figure 64: The frequency of receiving and making payments using mobile money

Source: RIA (2022b)

The factors that microenterprises not using mobile money said would allow them to start using it are presented in Figure 65 below. The key factor preventing mobile money uptake by participating microenterprises is a lack of knowledge of what mobile money is and how to use it, with around 30% of non-users of mobile money reporting that they need training to learn what mobile money is and how they can productively use it to benefit their businesses in order to start using it. In addition, lower cost of mobile phones and data plans to access mobile money, as well as increased mobile money availability are cited as significant factors necessary for enhancing mobile money adoption in Nigeria.

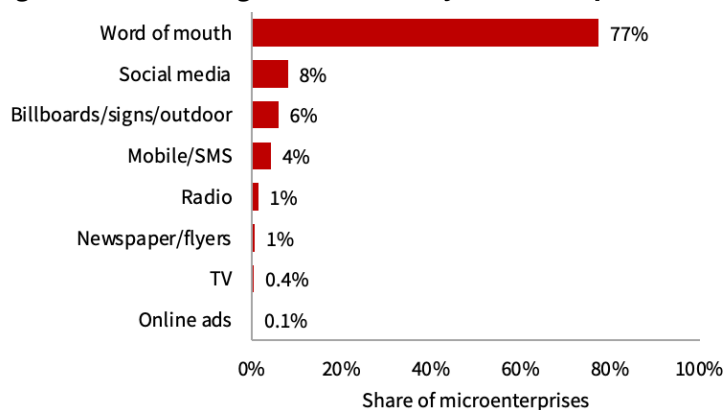
Figure 65: Factors necessary to enable mobile money adoption by microenterprises in Nigeria

Source: RIA (2022b)

The findings on digital financial services show good progress in terms of financial inclusion. However, as was the case when looking at using the internet, digging deeper reveals that where access has been achieved, microenterprises are generally not using financial services at a level that would allow them to realise the full potential benefits. In addition to the need to look at making it easier for microenterprises to obtain business bank accounts, education is again necessary in order to create awareness about how financial services can benefit microbusinesses and equip those running microbusinesses with the required skills and financial literacy to be able to use financial services.

5.4 E-advertising and e-commerce

Advertising is used by firms to increase demand for their products and expand their customer base. Information disseminated over the internet is able to reach a wide audience fast and at a lower cost (Dettling, 2017). However, Figure 66 shows that most microenterprises (77%) rely on word of mouth for marketing their products and services. Where firms do utilise online advertising, or “e-advertising”, the most common method is through social media, again highlighting the importance of social media as a channel for microenterprises to integrate into the digital economy. The other noted forms of advertising adopted are through signs and billboards, as well as through SMS services. Only a negligible amount of firms use online adverts to promote their products and services.

Figure 66: Advertising channels used by microenterprises

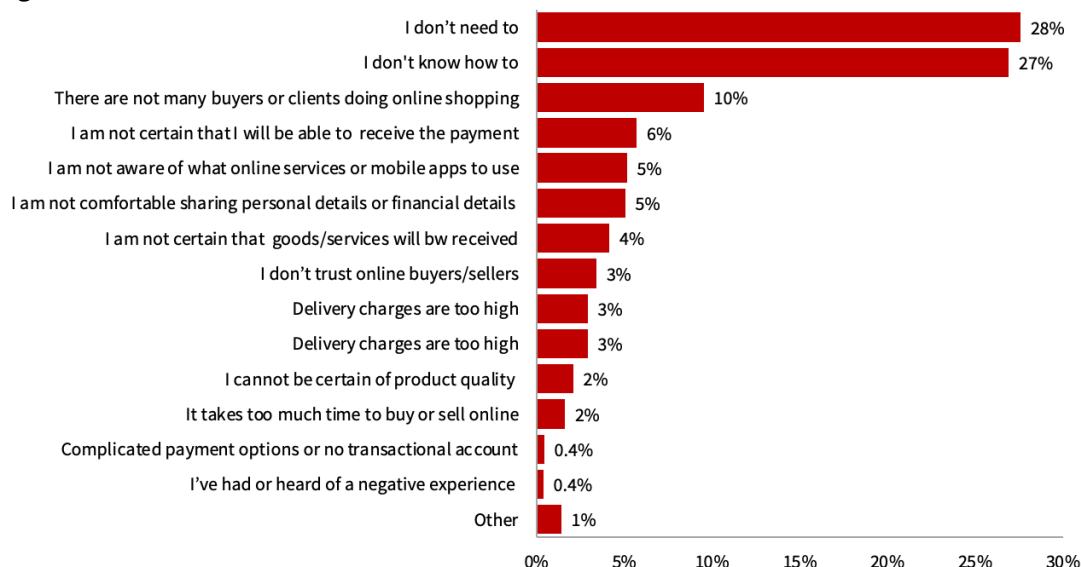
Source: RIA (2022b)

The use of e-commerce by microenterprises in Nigeria is very low with only 1% of microenterprises claiming to utilise online marketplaces for buying and selling goods and services. This is despite the fact that the country is well positioned to benefit from e-commerce with the current market estimated at USD 8.5 billion and expected to grow to USD 15 billion by 2019 (Mordor Intelligence, 2024). Jumia, referred to as the “Amazon of Africa”, was founded in Nigeria and has its headquarters in Lagos, with reach into eleven countries across the continent. In 2022, Jumia boasted an active user base of 8.4 million users, processing 39 million orders with a gross merchandise value (GMV) exceeding USD 1 billion (Jumia, 2023). The number of users accessing the Jumia platform each month is estimated to be more than three times larger than any other African-based e-commerce platform¹⁰, highlighting its economic potential. In response to a stagnation in growth, Jumia CEO Massimiliano Spalazzi recently outlined the company’s plans to increase accessibility in Nigeria’s expansive rural areas in a similar manner as Copia, which had notable success in reaching rural communities in Kenya and Uganda primarily through onboarding and working with small businesses operating in these communities (Nnamani, 2023).

The extremely low levels of e-commerce use by microenterprises (1%) suggests that there are multiple barriers holding back firms. To account for this potential multifacetedness, microenterprises were asked to provide not just the main barrier holding them back for e-commerce use but also the second and third most pressing barriers. This allows for a more comprehensive scoring across the barriers, accounting for the fact that microenterprises may face multiple barriers which impact on a firm’s decisions and opportunities to different degrees. For the detailed calculation of the scoring of barriers, see Appendix A3 to this report.

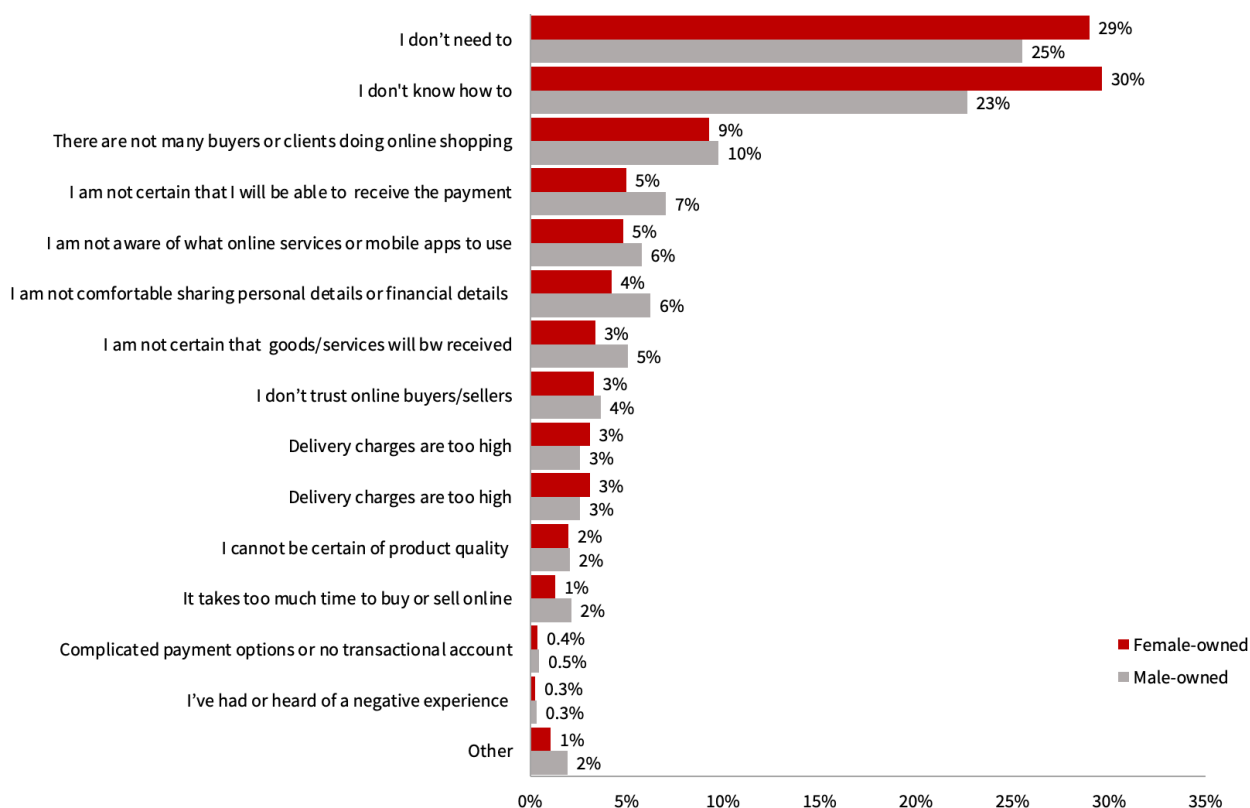
As Figure 67 shows, the main barrier is that individuals do not feel the need to use e-commerce as they are happy buying and selling products or services through face-to-face transactions. However, this is followed very closely by a lack of knowledge on how to use e-commerce platforms. Transactions require two parties and the use of e-commerce for buying or selling then requires suppliers and customers to use e-commerce platforms. The low usage of online transactions for buying and selling in Nigeria means that a significant share of microenterprises is also disincentivised by not believing they will be able to reach suppliers and customers in this way.

¹⁰ In 2021, Jumia was estimated to have an average of 32 million visits per month; the second and third were Takealot (South Africa) and Amazon subsidiary Souq (Egypt), both achieving only 10 million visits per month (Statista, 2022).

Figure 67: Main barriers to e-commerce use

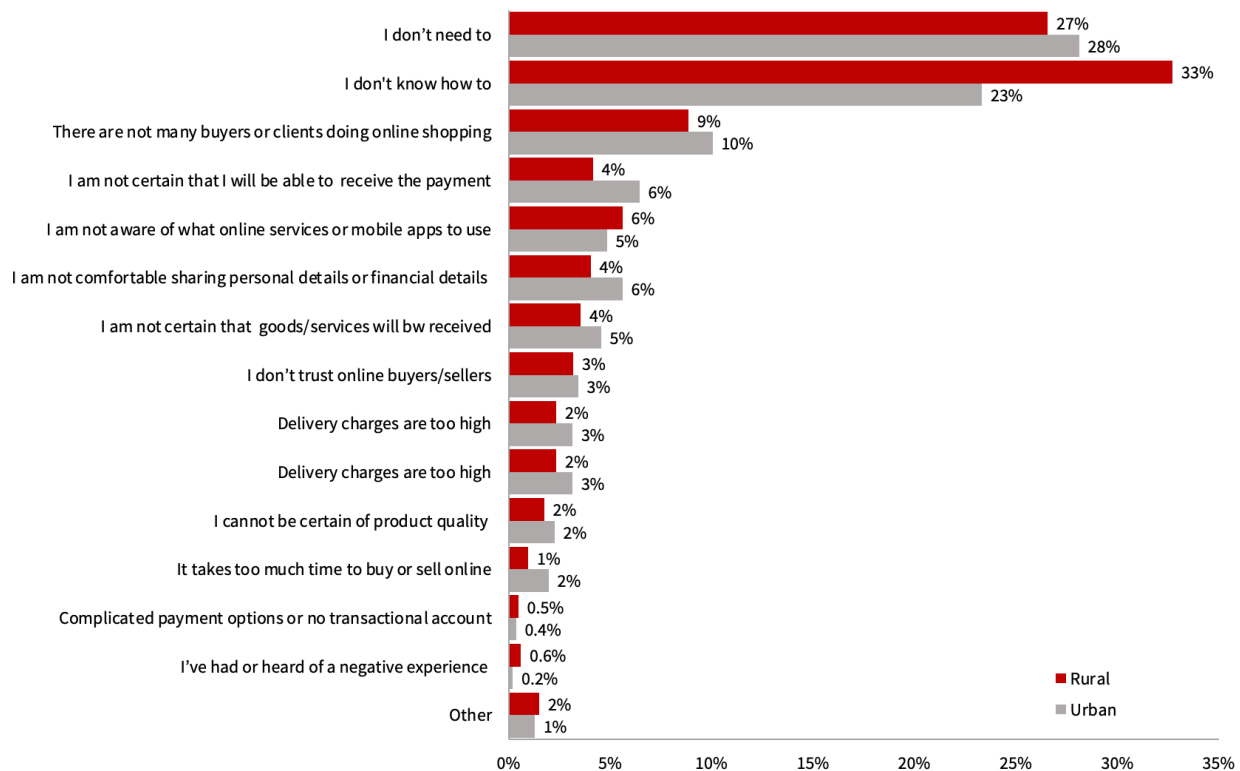
Source: RIA (2022b)

The main barriers to e-commerce use were more pronounced in female-owned microenterprises compared to male-owned microenterprises. As Figure 68 shows, there was a higher importance placed by male-owned microenterprises on fears around data privacy and issues of goods not being received in the expected quality. However, the ordinal importance of the identified barriers remains relatively consistent across gender.

Figure 68: Main barriers to e-commerce use, by gender of ownership

Source: RIA (2022b)

Similar to the gender breakdown, the relative importance of the identified barriers remains relatively consistent across location. As Figure 69 shows, the major difference was that rural microenterprises are far more likely to not know how to buy or sell goods through e-commerce platforms.

Figure 69: Main barriers to e-commerce use, by location

Source: RIA (2022b)

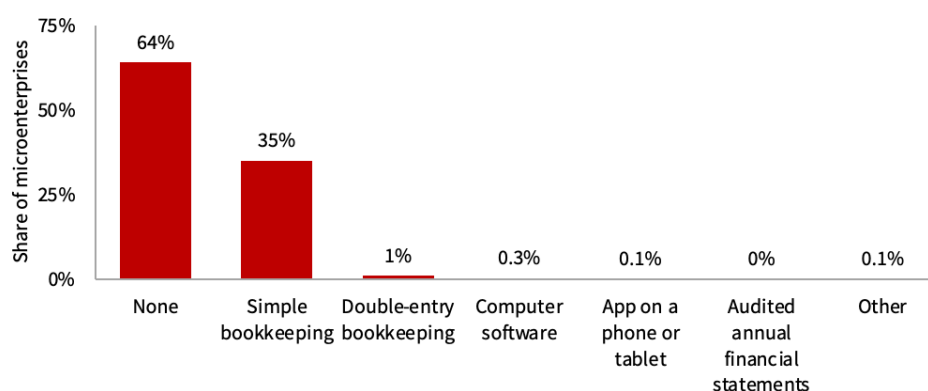
Although use of digital technologies amongst microenterprises in Nigeria is generally quite low, there are areas where there are signs of adoption and use. However, it is clear that microenterprises are not utilising these technologies to their full potential. This further emphasises the need for education and training on the use of digital technologies amongst microenterprises, not just to reduce this key access barrier but also to enable Nigerian microenterprises to make fuller use and derive maximum benefits from e-commerce transactions.

6 Firm performance

6.1 Financial performance

Most microenterprises in the sample do not keep financial records. As Figure 70 shows, even for the 36% of microenterprises that do keep financial records, this is almost entirely limited to simple bookkeeping with very little prevalence of double-entry bookkeeping and even less prevalence of utilising digital technology for financial recordkeeping. In the environment of low value, high frequency transactions in which microenterprises operate, bookkeeping can be a very time-consuming task. Digital technologies can provide a way to simplify the collection of financial transactions allowing easier and more accurate financial recordkeeping which would enable better financial planning for microenterprises. A major complication is that there is a tendency in the microenterprise sector for business transactions to be blended with personal expenditures, making it difficult to track actual business performance. Of the microenterprises in the survey, only 32% explicitly separate out business and personal financial flow.

Figure 70: Financial recordkeeping amongst microenterprises

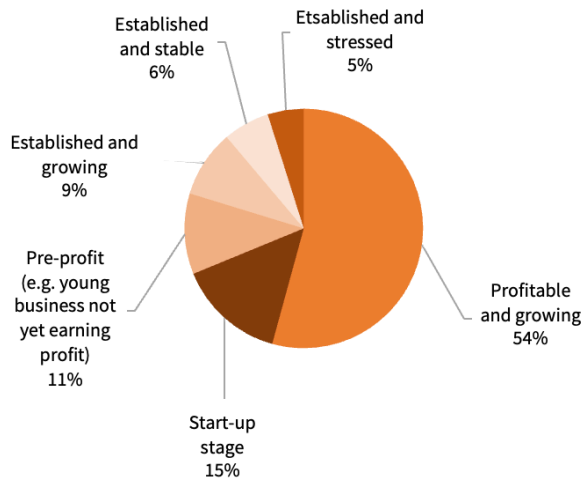


Source: RIA (2022b)

Despite the lack of recordkeeping, Nigeria microenterprises were generally able to provide answers to questions pertaining to their level of sales and profits, as well as to questions on some key operational expenses (rent, salaries, wages and inputs). For profit and sales figures, 86% and 83% of microenterprises were able to provide responses respectively, the highest response rate observed across the countries surveyed. For the key expenditure variables, Nigeria did not have the highest response rates but in all cases was close to the maximum observed and was equal to or higher than the average rate across the countries, ranging from 85% (inputs) to 90% (salaries and wages). For more details on the response rates on these questions, see Appendix A4 to this report.

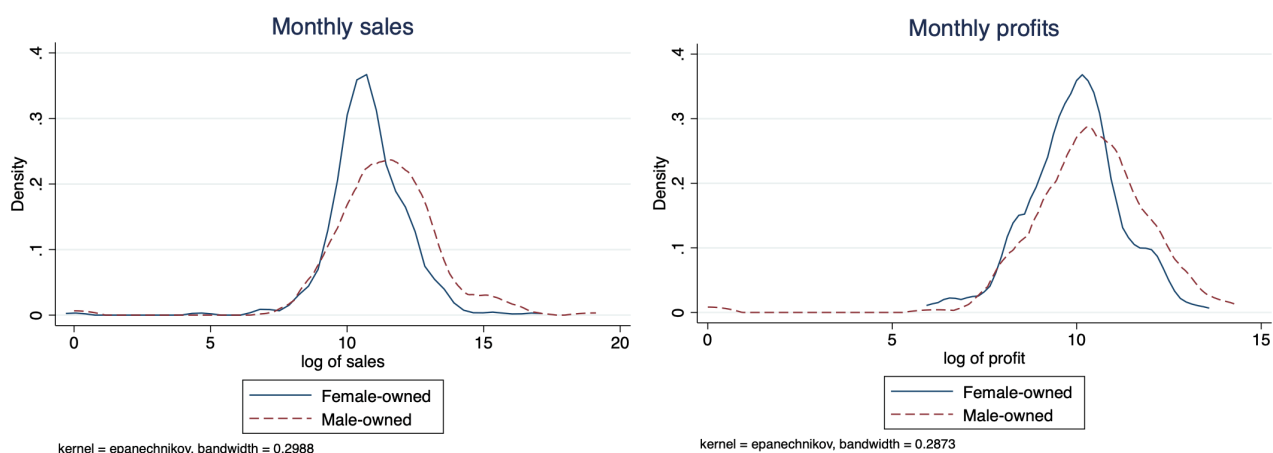
In terms of self-reported status, most microenterprises (54%) reported being “profitable”. As Figure 71 shows, a significant number of microenterprises also reported being in the early development stages with 15% and 11% of the surveyed microenterprises reporting being at the start-up and pre-profit stages, respectively. The proportion that indicated that they are established and growing (9%) is higher than the fraction that claimed to be established and stable (6%). Only 5% of microenterprises reported that they are established and stressed.

There were slight differences noted in the self-reported status of the businesses across gender, location and formality. Female-owned enterprises, on average, were slightly less likely to report being profitable than male-owned enterprises (50% vs 61%) and more likely to be in the early development stages (28% vs 19%). Rural microenterprises have a lower share of businesses, reporting being established and growing compared to urban microenterprises (6% vs 11%). Informal microenterprises were observed to be less likely to be profitable and growing than formal enterprises (53% vs 61%) and were more likely to be at the early development stages (27% vs 20%) or to be established and stressed (6% vs 2%) (RIA, 2022b).

Figure 71: The situation of the business during the interview

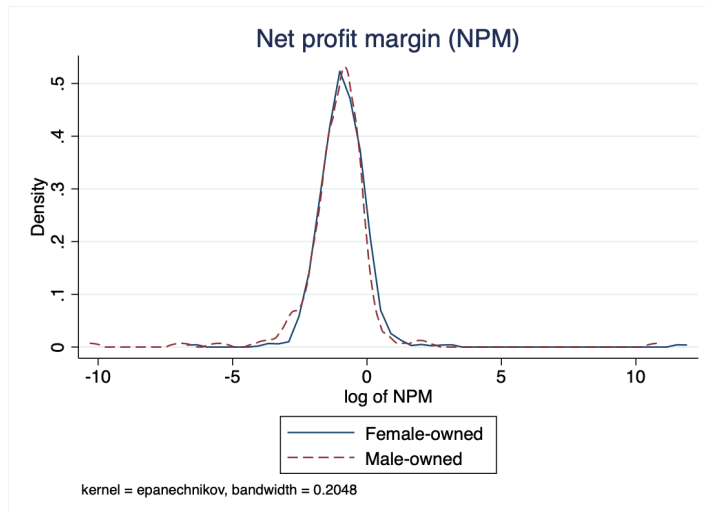
Source: RIA (2022b)

The distribution of log of profit (left panel) and log of sales (right panel) disaggregated by gender are reported in Figure 72. The distributions of male-owned microenterprises are to the right of female-owned microenterprises. These results suggest that relative to female-owned microenterprises, male-owned microenterprises generally generate more sales and yield more profits than their female-owned counterparts. Performance imbalances may be attributable to disparities in access to resources and digital inequalities discussed in previous sections. However, in each case there are large areas of overlap, highlighting that there are female-owned enterprises that are performing as well as male-owned enterprises.

Figure 72: The distribution of log of profit and log of sales disaggregated by gender

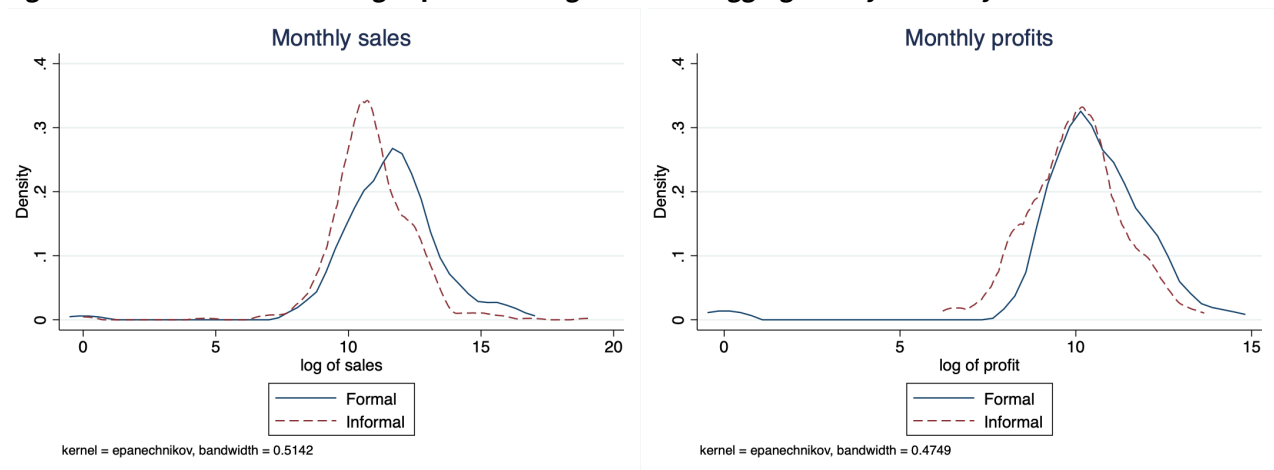
Source: RIA (2022b)

It would be expected that operating at a higher scale of revenue will generate higher levels of profit. Figure 73 compares the distribution of the log of Net Profit Margins (NPM), where NPM is calculated as profits as a percentage of total sales. The distributions are very similar, indicating that differences in profits are a result of differences in scale of operations and not due to differences in profitability. In general both graphs follow a very narrow distribution indicating that overall microenterprises tend to operate at similar levels of profitability.

Figure 73: The distribution of log of Net Profit Margins (NPM) by gender

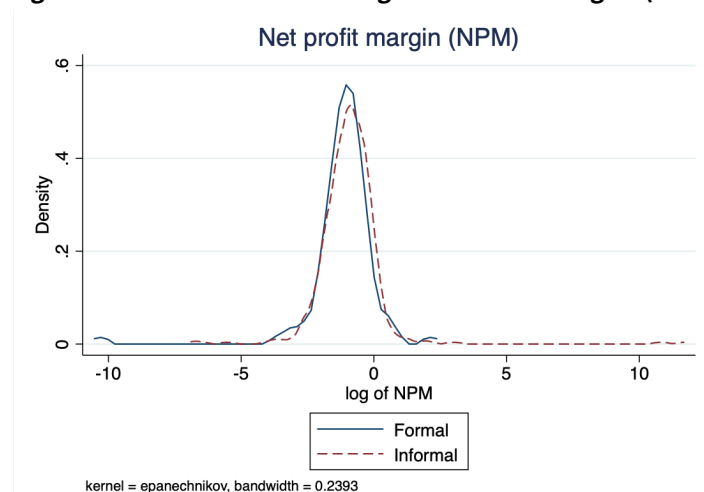
Source: RIA (2022b)

Formalised microenterprises generally operate at higher levels of sales and profits than informal microenterprises. However, it is interesting to note that with regards to profits, the two distributions have similar averages. The distribution for informal microenterprises is generally to the left of that of formal microenterprises in Figure 74, indicating lower profits. However, profits amongst informal microenterprises are always positive. The fact that the distribution of profits for formal enterprises extends to less than one indicates that there are some formal microenterprises that are earning negative profits (i.e. are losing money). This fits with logic as firstly formal microenterprises will be able to access more support and financial resources to continue operating at a loss. For informal microenterprises this is generally not an option as they usually need to generate positive profits to be able to continue operating. Secondly, being formalised comes with additional fixed compliance costs which are not tied directly to revenue and hence whilst expenditure for microenterprises in the informal sector will drop to close to zero if they are not generating revenues, for formalised enterprises this is less the case and they are thus more likely to ring up substantial expenses not matched by revenues being generated.

Figure 74: The distribution of log of profit and log of sales disaggregated by formality

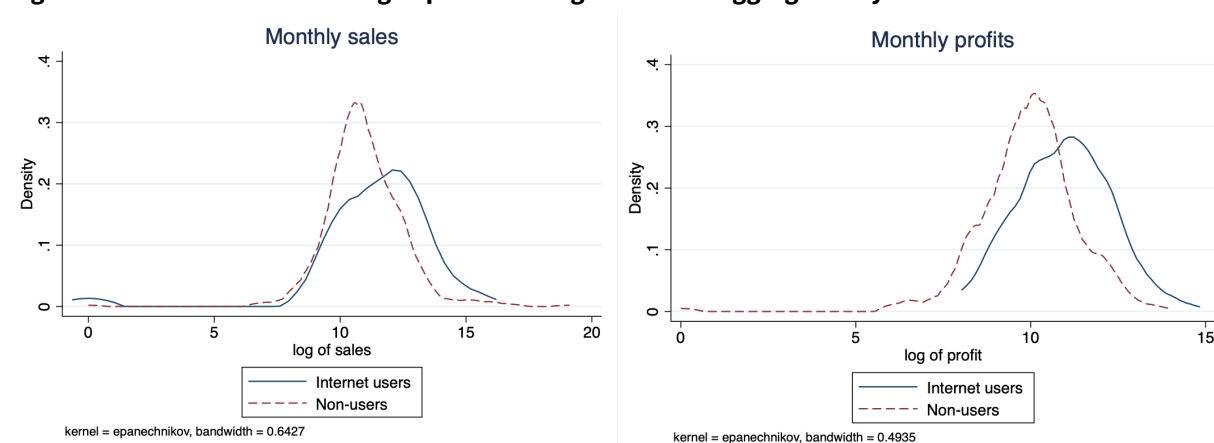
Source: RIA (2022b)

That formal microenterprises on average operate at a higher scale in terms of revenue, but that this does not translate into the same differences in profit, is further evidenced by the fact that the NPM distribution in Figure 75 shows slightly higher levels of profitability for informal microenterprises. It is also interesting to note that the distribution of informal microenterprises extends much further to the right (very high levels of profitability), whilst that of formal microenterprises extends much further to the left (very low levels of profitability).

Figure 75: The distribution of log of Net Profit Margins (NPM) by formality

Source: RIA (2022b)

The Kernel densities presented in Figure 76 indicate that, compared to microenterprises that do not use the internet, those with access tend to generate more sales and yield more profits. Again, in each case the distributions overlap, reflecting that some of the surveyed enterprises not using the internet are as successful at generating sales and making profits as those using the internet.

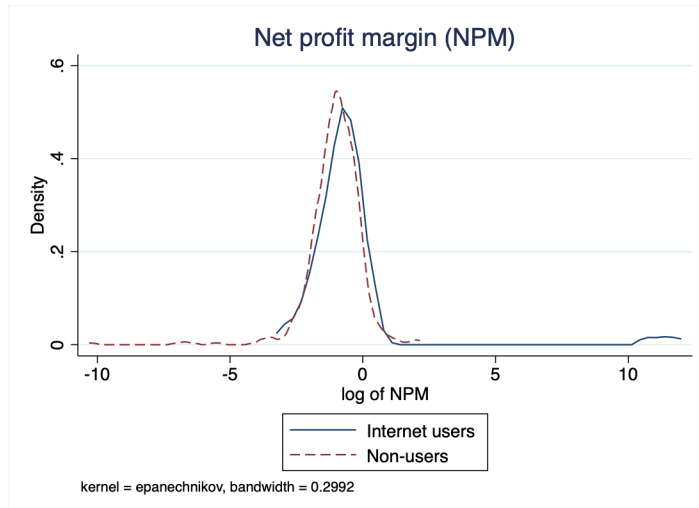
Figure 76: The distribution of log of profit and log of sales disaggregated by internet access

Source: RIA (2022b)

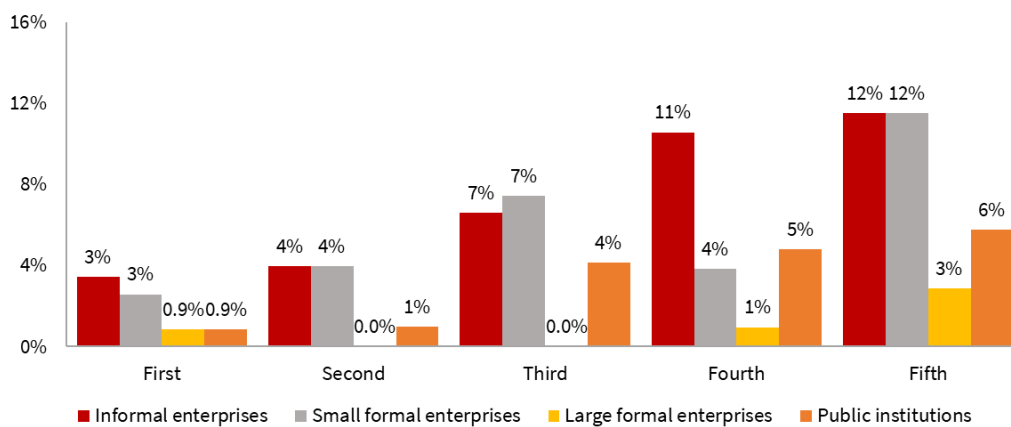
The patterns observed in distribution of log of sales are similar to those observed in the log of profit. This suggests again that differences are more due to differences in scale, rather than differences in profitability. In fact, microenterprises not using the internet are observed in Figure 77 to have, on average, higher levels of profitability compared to those using the internet. This may reflect the additional expenditure incurred to get online and the fact that microenterprises in general do not appear to be utilising the internet to its potential in terms of improving business functionality.

As observed, nearly all microenterprises sell their products and services to individuals and very few sell to other enterprises or public institutions. There does appear some correlation between the amount of revenue generated and the propensity to sell to customers beyond just individuals. The breakdown of main customers served by income quintiles¹¹ in Figure 78 shows that microenterprises in the lower revenue quintiles are almost entirely reliant on individual customers, and microenterprises at the top of the income pyramid are the most likely to have access to formal businesses (both small and large enterprises) as customers.

¹¹ Revenue quintiles are structured such that 1 represents the microenterprises with the lowest level of sales (the lowest 20%), and 5 represents the microenterprises with the highest level of sales (the highest 20%)

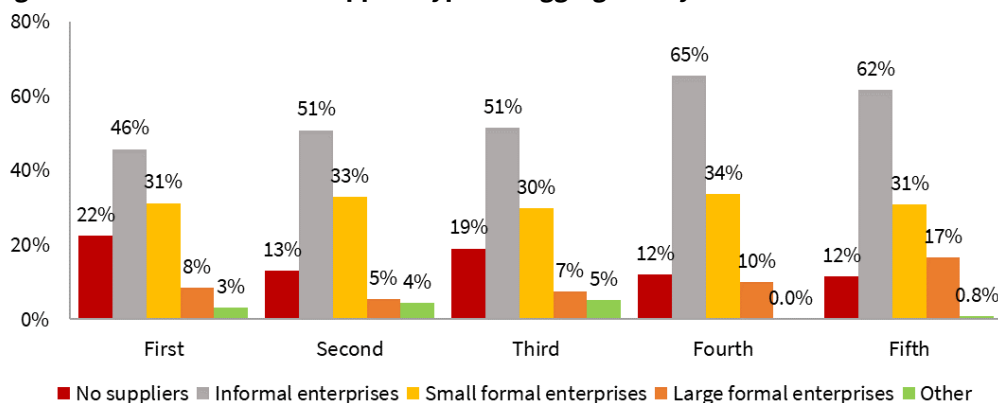
Figure 77: The distribution of log of Net Profit Margins (NPM) disaggregated by internet access

Source: RIA (2022b)

Figure 78: Access to various customer types disaggregated by revenue brackets

Source: RIA (2022b)

The relationship between levels of revenue and downstream supplier types in Figure 79 is less clear. For example, whilst firms in the first and third revenue brackets are the most likely to have no suppliers, this is almost balanced among firms in the other brackets. Microenterprises at the top of the income pyramid have higher probability of purchasing inputs from large formal firms, but also from informal enterprises. Income does not seem to be related to the sourcing of inputs from small formal enterprises.

Figure 79: Access to various supplier types disaggregated by revenue brackets

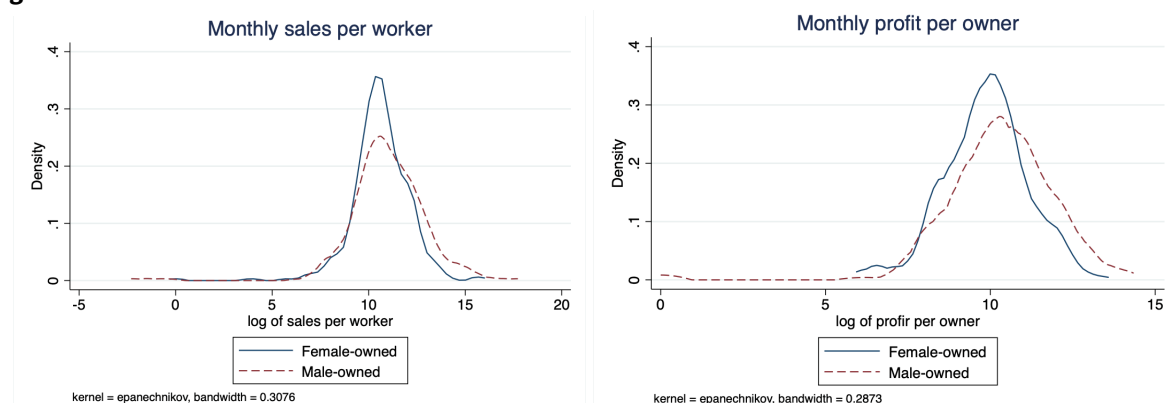
Source: RIA (2022b)

Financial performance is only one aspect of performance of interest. Whilst profitability reflects the capacity to generate revenue relative to the costs incurred in doing so, it is also interesting to note differences in productivity, or the amount of activity able to be generated based on resources utilised.

6.2 Productivity

To get a deeper view of the differentials in firm performance, Figure 80 below looks at two measures of productivity: the amount of sales generated per worker and the amount of profit generated per owner. Based on these two productivity measures, male-owned firms in the data are on average slightly more productive than their female-owned counterparts.

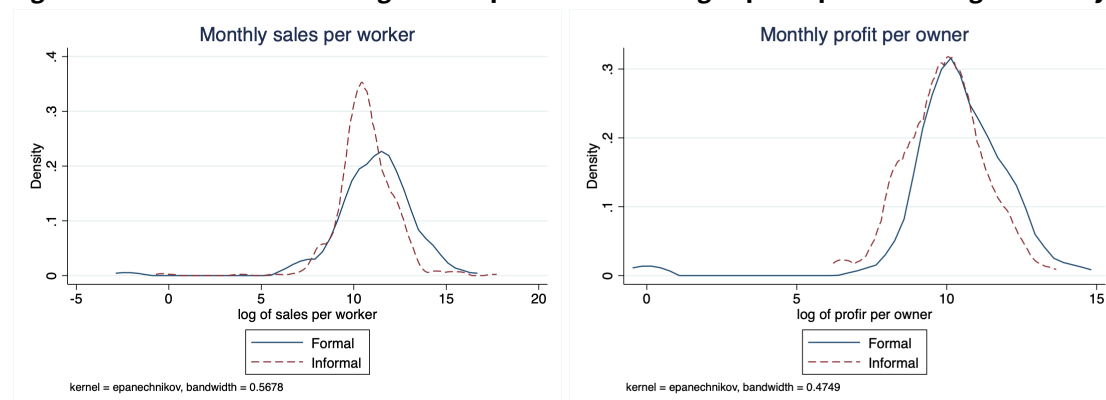
Figure 80: The distribution of log of sales per worker and log of profit per owner segmented by ownership gender



Source: RIA (2022b)

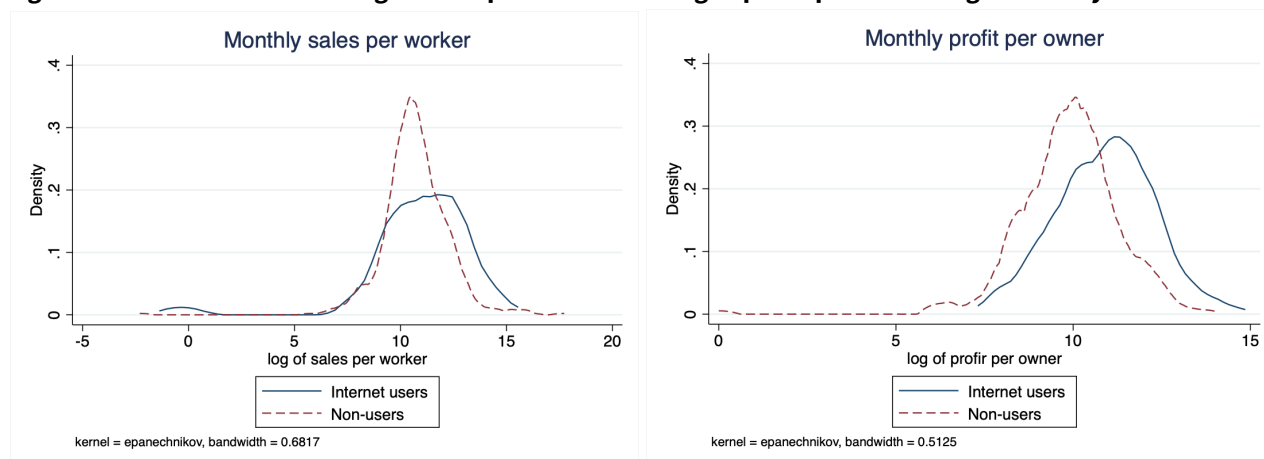
Figure 81 indicates that formal microenterprises on average are able to generate more sales per worker than informal enterprises. However, as was noted with financial performance, this does not translate into greater average levels of profit per owner.

Figure 81: The distribution of log of sales per worker and log of profit per owner segmented by formality



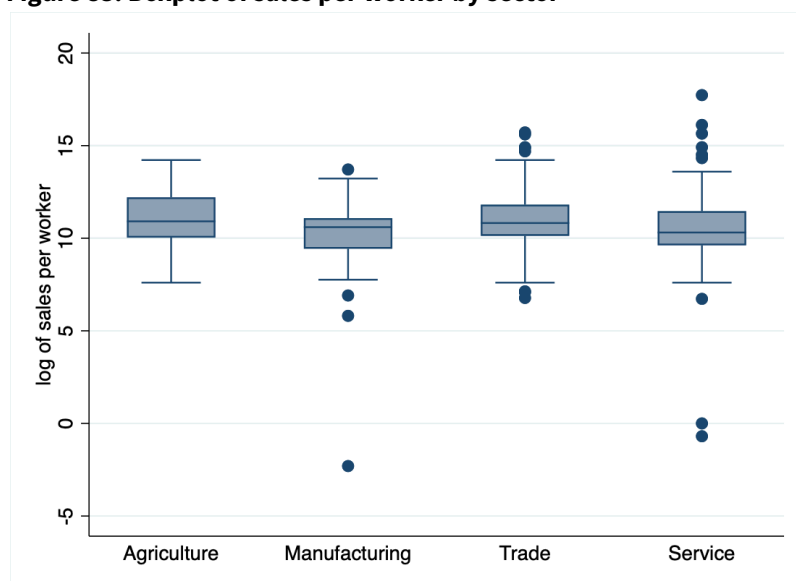
Source: RIA (2022b)

The level of sales per worker in Figure 82 was only slightly greater for microenterprises using the internet compared to those not using the internet. It is worth noting the flatter distribution, which reflects that it is not a situation with a few firms producing a lot more, but rather a large share of firms using the internet with slightly higher levels of productivity. It is interesting to note that the distribution of profits per owner is clearly higher for microenterprises using the internet, suggesting that while microenterprises are more likely to have multiple owners, those using the internet are more likely to be owned by one or a small number of individuals.

Figure 82: The distribution of log of sales per worker and log of profit per owner segmented by internet access

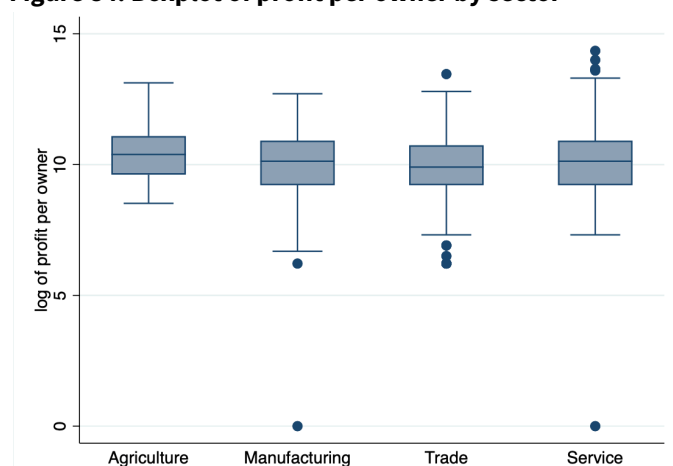
Source: RIA (2022b)

The average sales per worker in the service sector was ₦ 563 000, more than double the sample average of ₦ 244 000. The average sales per worker in other sectors is below the sample average, and in the manufacturing sector it is as low as ₦ 90 000. However, the box plots of the log of sales per worker in Figure 83 show that the high average in the services sector is mainly the result of some high values amongst a few firms, and the median value in the services sector is actually the lowest across sectors. Overall, the services sector had a much wider distribution of productivity reflecting more variation in the level of productivity across microenterprises.

Figure 83: Boxplot of sales per worker by sector

Source: RIA (2022b)

In terms of profit per owner, agricultural enterprises had the highest average value of around ₦ 74 000. Traders were the only sector to be below the sample average with an average profit per owner of ₦ 40 000 (sample average = ₦ 52 000). Again the distributions were, however, relatively similar with services exhibiting a wider distribution than the other sectors (Figure 84).

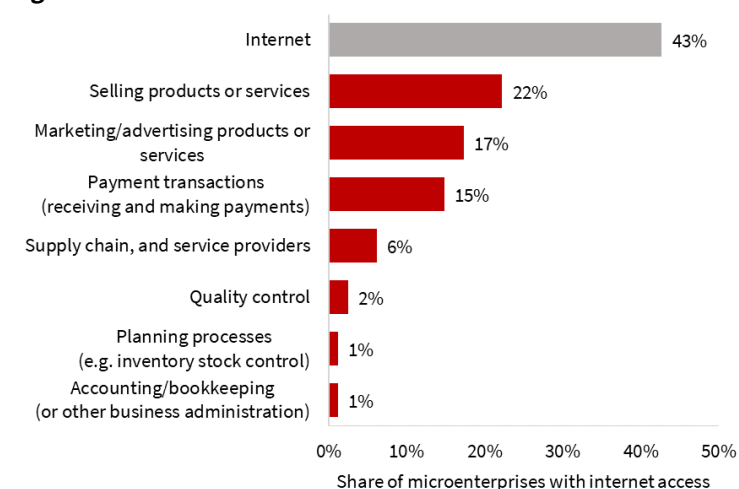
Figure 84: Boxplot of profit per owner by sector

Source: RIA (2022b)

As a final note, most microenterprises do not partake in formal performance monitoring and evaluation based on key performance indicators (KPIs). Overall, 87% of microenterprises do not have any KPIs and a further 12% only have one or two. This generally holds across demographic segmentations, although male-owned microenterprises are slightly more likely to have KPIs than female-owned enterprises (20% vs 9%). Interestingly, rural microenterprises are more likely to have KPIs than those in urban areas (17% vs 11%), and informal microenterprises are slightly more likely to have KPIs compared with formalised microenterprises (13% vs 11%) (RIA, 2022b).

6.3 COVID-19 impacts

As a result of the measures that were put in place to inhibit the COVID-19 infections, businesses had to move their operations online where possible (LIRNEasia et al., 2023). A significant share (43%) of microenterprises with internet access at the time of the survey indicated that they either adopted the internet or increased their intensity of internet usage following COVID-19 and the associated regulations. The most significant growth in internet use driven by COVID-19 was for selling products and services, marketing or advertising services and products, and facilitating transactions, with 22%, 17% and 15% of the firms in the sample claiming that they started or expanded their use of the internet for these use cases during the pandemic, respectively (Figure 85). For other use cases, less than 10% of microenterprises with internet access report adoption of the internet or intensified use.

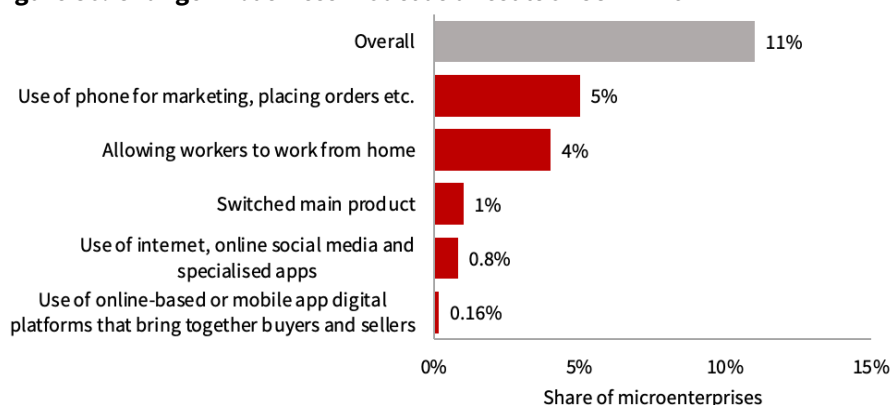
Figure 85: Increase in the use of online tools as a result of COVID-19

Source: RIA (2022b)

Of the 7% of microenterprises that have a social media presence, 96% joined social media during the COVID-19 pandemic. Although social media use is still relatively low, it does highlight how microenterprises may have been pushed into building a social media presence for their business by the pandemic and associated lockdown.

Figure 86 shows the proportion of businesses that changed their business model as a result of the COVID-19 pandemic and associated lockdowns in any way (“overall”), broken down into more specific adjustments undertaken. In general, only a few of the surveyed microenterprises (11%) adjusted their business models. Of the adjustments made, the most prevalent was the use of phones for marketing and placing orders (5% of participating businesses). Remote work followed second with 4% of the businesses adjusting their models indicating that they allowed workers to work from home. The other shifts to online activities such as changing the main product and use of social media and digital platforms, were rare.

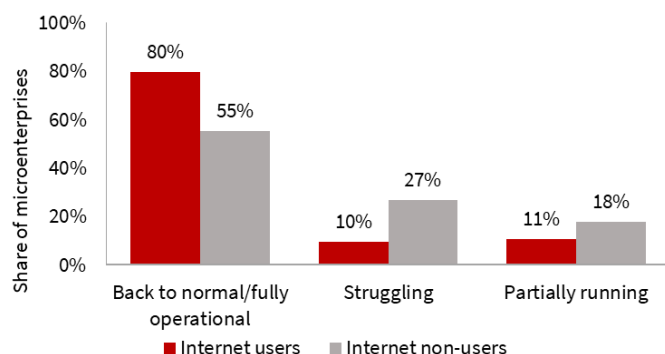
Figure 86: Change in business model as a result of COVID-19



Source: RIA (2022b)

In total, 33% of microenterprises were forced to close their operations as a result of the COVID-19 pandemic and the regulations put in place to curb the spread of the virus. The average closure period was just over four months. There was only a marginal difference in the probability of closure between male-owned and female-owned enterprises (31% vs 35%), but the likelihood of closure was notably greater in urban areas compared to rural areas (39% vs 24%) and more likely for formal microenterprises compared to informal microenterprises (50% vs 29%). The chance of closure was higher for firms that used the internet, compared with those that did not (41% vs 32%), but this likely reflects the fact that internet access is higher in urban areas and amongst formal enterprises, which were in turn more likely to be forced to close during the pandemic.

In respect of persistence of the effects of COVID-19, the businesses that did not have internet access and did not transition online appear to be disproportionately affected in Figure 87. Whilst around 80% of the surveyed businesses with internet access report being back to fully operational, only 55% of microenterprises without internet access recovered completely. Businesses that do not have access have higher shares of businesses that were partially running (18%) or struggling (27%) at the time the interview was conducted. Consistent with findings from individual and household surveys, the inability to digitally substitute exacerbated the adverse effects of COVID-19 on vulnerable groups (Odufuwa et al., 2024).

Figure 87: Current operational status for microenterprises compared to before COVID-19

Source: RIA (2022b)

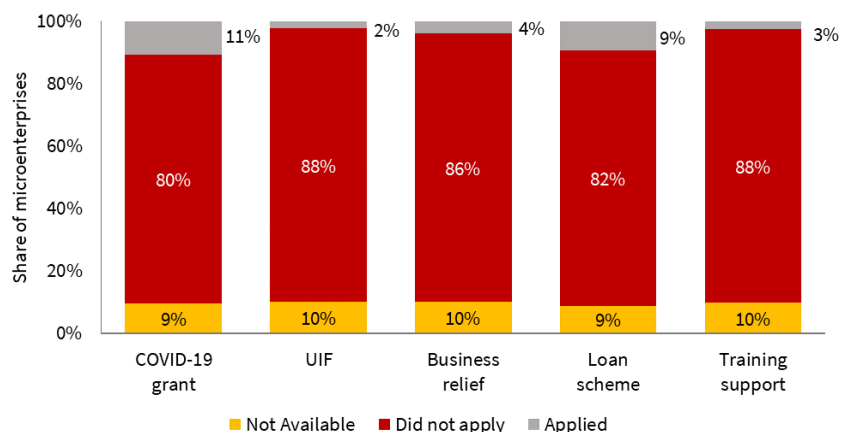
It is clear that microenterprises were impacted by COVID-19 and that many are still feeling the effects of these impacts. Whilst COVID-19 presents an extreme case, it is important to take learnings from the pandemic to put measures in place that will provide microenterprises with the resources to be able to cope with future shocks and to remain sustainable moving forward. Whilst there is evidence to suggest that digital tools can provide a means of coping with such shocks, there was limited digital substitution of activities among Nigerian microenterprises during the pandemic, even among those microenterprises that had digital access. This negatively impacted on the capacity to cope with the impacts and highlighted the need to not just improve access, but also improve the capabilities of Nigerian microenterprises to derive greater use of digital technologies.

6.4 State support

Only a negligible number of microenterprises surveyed (less than 1%) in the sample reported using government digital platforms in 2022. This estimate is very low compared to 13% internet penetration, implying that even the businesses that have access to the internet are not utilising online government services. Further efforts need to be made to understand the factors limiting the use of government digital platforms to ensure access for microenterprises and educate businesses about the benefits these platforms can bring to their businesses.

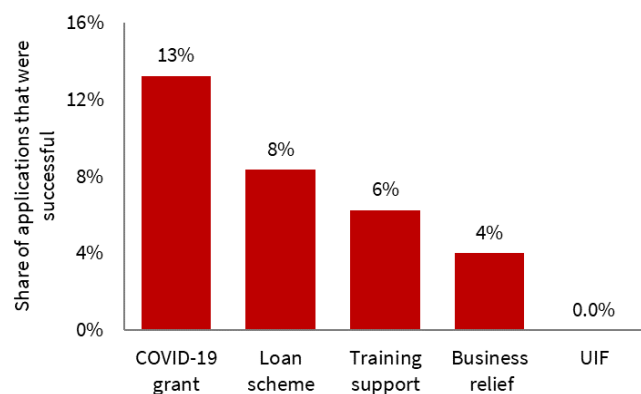
Similarly, only a negligible number (<1%) of microenterprises reported receiving the government's subsidy for the acquisition of new machinery and equipment. There are two sides to this. On the one hand only 16% of microenterprises said they were aware of the subsidy, highlighting the need for greater efforts at communicating government support available to microenterprises. On the other hand, the fact that there are almost zero incidences of receipt of the subsidy even though there are some firms who are aware of it, suggests that either this initiative is not appropriate for microenterprises or that there are pressing barriers preventing access. More research is therefore needed to better understand the reasons for the low uptake of the subsidy and how digital platforms could potentially help to address any shortcomings.

Despite the fact that most microenterprises were forced to close operations as a result of COVID-19, and a significant share of enterprises are still struggling as a result of the impacts of the pandemic, only 11% applied for the COVID-19 relief grant offered by the government. What is even more concerning is that Figure 88 shows that this share is higher than observed in all the other main forms of government support available to microenterprises. Whilst between 9% and 10% stated in all cases the support was not available, the majority (80%-88%) claimed to simply not have applied.

Figure 88: Social assistance applied for during COVID-19

Source: RIA (2022b)

Even among the share of firms that did apply for COVID-19 relief, only 13% claimed that their applications were successful. Again, while this is worryingly low, it is the highest success rate across the different forms of relief identified in Figure 89. The low application rates and correspondingly low success rates indicate that social protection reach is very low for microenterprises in Nigeria.

Figure 89: Success rate in application for social assistance during COVID-19 among microenterprises that applied

Source: RIA (2022b)

The success rate in applications for COVID-19 relief was slightly higher for male-owned microenterprises compared with female-owned microenterprises (13.8% vs 12.5%). However, for the only other grant with an application rate of above 5%, the loan scheme, the application rate was slightly higher for female-owned microenterprises (8.8% vs 7.7%). There was also evidence to suggest that being formal and being online was positively associated with success in grant application. For COVID-19 relief, the success rate for microenterprises with internet access was 17% compared to 13% for microenterprises without access. For the business loan scheme, the success rate for microenterprises with internet access was 27%, far higher than the success rate for those without access (4%). Formal microenterprises benefited from a success rate for COVID-19 relief of 27%, compared to only 9% of informal microenterprises benefitting. Interestingly the success rate for the business loan scheme was 9% for informal microenterprises, which is actually higher than that observed for formal microenterprises (7%).

The findings on state support show a concerning low reach for microenterprises in Nigeria. Despite the fact that the microenterprise sector is the backbone of the Nigerian economy, and provides the main livelihood source for the population, those working in this space are generally left to fend for themselves. This has negative implications for the growth prospects of the microenterprise sector, and hence for the Nigerian economy — growth that could potentially lift a massive segment of the Nigerian population out of poverty. The analysis also showed that this negatively impacts the capacity of the microenterprise sector to cope with external shocks and the persistent

impacts of these shocks as was observed in the COVID-19 pandemic. More efforts to support the microenterprise sector would allow for a more robust and sustainable sector, ensuring resilience and an upward trajectory for socio-economic development in the country. Digital channels provide a powerful tool to reach and support microenterprises. However, for this to be realised, more microenterprises need to gain access to the internet and have the capacity to comfortably use digital technologies.

7 Conclusions and policy recommendations

Despite Nigeria being a digitalisation leader on the African continent, progress has generally not reached the microenterprise sector. The livelihoods of most Nigerians are not benefitting from digitalisation and therefore most will not enjoy the potential benefits of the single digital market and digital economy envisaged for the African Continental Free Trade Area.

Although there are signs of the capabilities of microenterprises to harness digital technologies to aid their business activities, this was only evident for a small portion of the sample of surveyed microenterprises and in particular was low for marginalised groups including female-owned business, those in rural areas, and those operating informally. Moreover, even where access has been achieved, microenterprises are generally not utilising digital technologies to their full potential for their businesses, highlighting that initiatives need to not only address access barriers but also the limitations constraining optimal use.

The analysis highlighted in particular the need for education and training on the use of digital technologies for microenterprises. The current lack of awareness and digital skills came out strongly as a major barrier for access and a major limitation constraining use. Based on this, it is recommended that the Nigerian government should **develop and implement a National Microenterprises Digital Skills Policy to assist small businesses across the country acquire digital skills within the shortest time frame possible**. The government and policy bodies responsible for the development of sustainable microenterprises, particularly SMEDAN, should consolidate disparate digital skills policies, initiatives and programmes into a focused microenterprises digital skills strategy of which the actions below would be critical aspects :

- ❖ Launch a national **digital skills awareness campaign** to inform microenterprises and get their buy-in on the benefits and opportunities of using digital technologies for their businesses. This could include radio and TV advertisements, social media posts, flyers, and testimonials from successful digital entrepreneurs. The awareness campaign could involve **digital interpreters** — digital-savvy students or recent graduates — to help small business owners transition to the digital world. The campaign should specifically target marginalised groups.
- ❖ Offer free or subsidised physical and **online courses for microenterprises** in various domains such as digital literacy, business productivity tools, data analysis, web development and cybersecurity. This could be done through Digital Skills Nigeria, the skills empowerment arm of the Federal Ministry of Communications and the Digital Economy, potentially in partnership with local and international digital skills training providers.
- ❖ Develop a **digital skills toolkit for microenterprises** that covers the essential topics and skills they need to succeed in the digital economy. This could include modules on digital selling and marketing, e-commerce, online payments, customer management, data protection and digital innovation.
- ❖ Establish a **digital skills assessment and certification system** to grade and validate the digital competencies of microenterprises as a means of incentivising digital adoption.
- ❖ Integrate **digital skills education and training** into the formal and informal education systems to promote entrepreneurship. This could involve collaborating with schools, universities, vocational institutions and community centres, as well as offering digital skills courses and workshops for current and aspiring microentrepreneurs.
- ❖ Foster a **digital skills culture and ecosystem** for microenterprises that encourages continuous learning, adaptation and innovation. This could involve organising events, competitions, awards and festivals to showcase and celebrate the achievements and impact of digitising microenterprises.

Female-owned microenterprises were observed to be significantly worse off than male-owned microenterprises in their capacity to access digital technologies, even once the other key determinants that enable digital access were controlled for. It is critical that, in addition to attending to the causes of underlying structural gender inequalities in Nigerian society, efforts are made to better integrate female-owned microenterprises into the digital economy. It is

therefore recommended to **adopt a comprehensive and holistic approach to address the gender gap in digital skills and access for microenterprises in Nigeria**. Recognising that the lack of parity between men and women owned microenterprises stems from inequitable education outcomes for boys and girls, the systemic solution lies in ensuring girls have equal access to education and remain in school through to the completion of secondary schooling (the minimum level at which users of digital services and products are able to deploy them). The national government and responsible bodies, including the Federal Ministry of Women Affairs and Social Development, should take the necessary action towards bridging the gender gap in digital skills for microenterprises, including the following:

- ❖ Implement strategies for promoting **digital inclusion and the empowerment of women entrepreneurs** outlined in the National Digital Economy Policy and Strategy (NDEPS) by demonstrating the potential economic benefits that the digital economy can unlock, in collaboration with relevant stakeholders such as the private sector, civil society, academian and development partners.
- ❖ Provide **targeted support** to female-owned microenterprises in terms of digital infrastructure, devices, connectivity, platforms, services and content to reduce the cost and increase the availability and quality of digital access and usage of digital services.
- ❖ Design and deliver **gender-responsive digital skills training** for female-owned microenterprises covering basic, intermediate and advanced levels of digital literacy, as well as specific skills for digital entrepreneurship such as e-commerce, digital marketing, online payments and data protection skills.
- ❖ Monitor and evaluate the **impact and outcomes of the interventions** using gender-disaggregated data and indicators while establishing learning mechanisms to improve and scale up the initiatives.

Despite the strong progress in mobile phone penetration in Nigeria, the majority of microenterprises still rely on basic mobile phones, which restricts the capacity to utilise digital technologies for their businesses. Efforts are therefore needed to **empower microenterprises to access data and digital services by improving the availability and affordability of smartphones in Nigeria**. The following recommendations will help in achieving this goal:

- ❖ Encourage private investments in **digital infrastructure and connectivity** to improve the coverage and quality of mobile broadband services. This can increase the demand and utility of smartphones for microenterprises and enable them to access various digital platforms and services that can enhance their productivity and competitiveness.
- ❖ Implement policies and regulations that foster a **conducive environment for smartphone adoption** and use, such as reducing taxes and tariffs on smartphone imports, which is a proven mechanism to increase digitalisation within the local economy. This move would encourage innovation and competition in the smartphone market and the digital economy.
- ❖ Make **subsidised or financed smartphones** available to microenterprises by encouraging collaborations between telecom operators, smartphone manufacturers, financial institutions and corporate donors to lower the upfront cost of smartphones and enable small businesses to pay in instalments.
- ❖ Support the **local assembly of smartphones** in Nigeria, which can reduce the cost of production, eliminate custom duties (which are passed on to end-users) and create employment opportunities.

Although mobile data costs in Nigeria are low by comparison with other African countries, the cost of data is still a prohibiting factor that limits the use of digital technologies by enterprises who have access to the internet. To promote a deeper digital engagement, initiatives are needed to **unleash the digital potential of microenterprises in Nigeria by providing them with access to affordable mobile data**. The following will be required to achieve this:

- ❖ Improve the **market environment and competitiveness** of the Nigerian telecoms sector by taking steps to:

- Lower the high cost of spectrum and licensing fees, which limit the entry and expansion of new and existing players;
 - Work with security agencies to resolve the vandalism of telecoms infrastructure, which disrupts network availability and performance;
 - Engage with different tiers of government to eliminate multiple taxation and levies, which create a heavy burden and level of uncertainty for service providers;
 - Update and fix gaps and inconsistencies in the existing (legacy) regulatory system, which create confusion and conflicts among service providers and regulators;
 - Encourage the setup and maintenance of public internet access points (PIAPs), such as public Wi-Fi hotspots, community networks, and telecentres to offer free or low-cost internet access for microenterprises and other users; and
 - Implement policies and regulations that foster a conducive environment for public internet infrastructure development by reducing taxes and tariffs on ICT equipment and services, ensuring fair and transparent spectrum allocation and management, and the promotion of public-private partnerships and collaborations.
- ❖ Promote **consumer awareness and empowerment** via online platforms to enable microenterprises to make informed choices, compare prices and quality, and switch providers if dissatisfied.

Financial inclusion was shown to have a strong positive impact on digitalisation. In addition to the known benefits of financial inclusion, it can also serve as a channel for microenterprises to become familiar with digital technologies so that they are empowered to adopt other digital technologies in their business practices. Nigeria has a well-established financial system that should be harnessed and extended to reach microenterprises. The fact that most microenterprises rely on personal bank accounts limits the ability to access other financial services which could be of great benefit to their businesses. This is evident from the fact that most microenterprises only use their bank accounts for store value, with very few adopting digital payments or accessing other financial services. The following efforts can help to **boost financial inclusion and digitalisation for microenterprises in Nigeria**:

- ❖ Strengthen the **financial literacy and capability** of microenterprises by providing them with relevant and accessible information, education and training across the six geo-political zones, emphasising marginalised groups. These interventions should focus on how to use financial products and services effectively and responsibly.
- ❖ Enhance the capacity and outreach of **financial service providers** that cater for microenterprises, such as microfinance institutions, cooperatives, fintech companies and agent networks by mobilising private investments to broaden the access microenterprises have to adequate funding, infrastructure, technology and training.
- ❖ Through the central bank and other responsible agencies, promote and support the diversification and innovation of **financial products and services** that are tailored to the specific needs and preferences of microenterprises, such as microcredit, microsavings, microinsurance and other digital financial solutions.

The level of state support to microenterprises was very low, despite the fact that they are the most in need of support, that they provide a source of livelihood for so many people and in particular for vulnerable population groups, and that the sector is such a critical component of the Nigerian economy. Digital technologies offer an opportunity to create an effective channel to deliver the necessary state support. Efforts at **utilising digital technologies to deliver state support to microenterprises in Nigeria** will initially be constrained by the lack of digital access and by the fact that even amongst microenterprises with access, digital channels are highly underutilised. However a digital channel can serve to incentivise microenterprises to get online and to learn new digital skills. For example, the state can:

- ❖ Create a **one-stop portal or mobile app** that provides comprehensive and up-to-date information on the state's policies, programmes and opportunities for microenterprises. Encourage them to track and exploit these opportunities as they become available online.
- ❖ Establish **online communities, networks and exchanges** that connect microenterprises with other stakeholders such as customers, suppliers, mentors, investors and government agencies, and enable them to exchange good practices, collaborate and access resources.
- ❖ Simplify and streamline online **processes and services** for microenterprises by reducing the bureaucracy, complexity and the cost of accessing state support or government services through digital channels.

Nigeria has seen notable growth in e-commerce activity and has even seen great success in building its own e-commerce platform in the form of Jumia. However, despite these developments, e-commerce appears to remain out of reach for microenterprises. If access to e-commerce platforms for microenterprises can be improved it would open up new markets to microenterprises, not just for selling their products and services but also for sourcing input supplies and learning about market trends. The following recommendations are therefore proposed to try and **leverage existing and new e-commerce platforms to unlock new markets and opportunities for microenterprises in Nigeria:**

- ❖ In partnership with platform providers, **educate and train** microenterprises, including marginalised groups, on the benefits and opportunities of e-commerce, as well as on the skills and knowledge required to use e-commerce platforms effectively and responsibly.
- ❖ Work with different stakeholders, including platform providers and local and international payment companies, to facilitate the **adoption and integration** of e-commerce platforms into the business processes and operations of Nigerian microenterprises. This should be done by stimulating access to adequate infrastructure and connectivity, devices, platforms, services, and content.

Microenterprises, and particularly those operating at a lower scale, exhibit very low levels of integration into local or global value chains. Instead, they operate through spot transactions and almost exclusively sell their products and services to individuals. **Taking positive action to ensure the integration of Nigerian microenterprises into local and global value chains** can help reduce transaction costs and provide certainty with regards to supply chains and the sale of goods and services. The following recommendations are made to help achieve this:

- ❖ Conduct **market analysis and research** in collaboration with the National Bureau of Statistics (NBS) to fully understand the nature of this problem and to identify the opportunities and challenges microenterprises face in integrating into value chains, both locally and globally. Use this research to provide microenterprises with relevant information and guidance.
- ❖ **Mobilise resources** for microenterprises so that they can overcome the constraints and risks of value chain integration, through access to credit, grants, subsidies, training and business development services.
- ❖ Facilitate **linkages and partnerships** between microenterprises and other value chain actors in Nigeria and globally, such as buyers, suppliers, service providers, intermediaries, and government agencies, to enable them to access and leverage resources and markets.

Microenterprises are the backbone of the Nigerian economy and digital technologies can empower them to reach their full potential while contributing to the sustainable development of the economy. Though there have been different government pronouncements, programmes and initiatives targeted at small-scale businesses, none of these have generated any significant impact on microenterprises to date. This report is intended to serve as a starting point for further dialogue and fresh policy action towards resolving digital challenges that microenterprises face and enabling the emergence of digital microenterprises across the vast nation. The challenges that Nigerian microenterprises presently face is surpassed by the prospects of digital capabilities and opportunities that can be unlocked for small businesses in the country. However, policymakers and other stakeholders in the microenterprise

sector in Nigeria have to understand these opportunities and be inspired to actively and creatively take practical steps to pursue and support the digital transformation of microenterprises in Nigeria.

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Appendices

Appendix A1: After Access Survey Overview

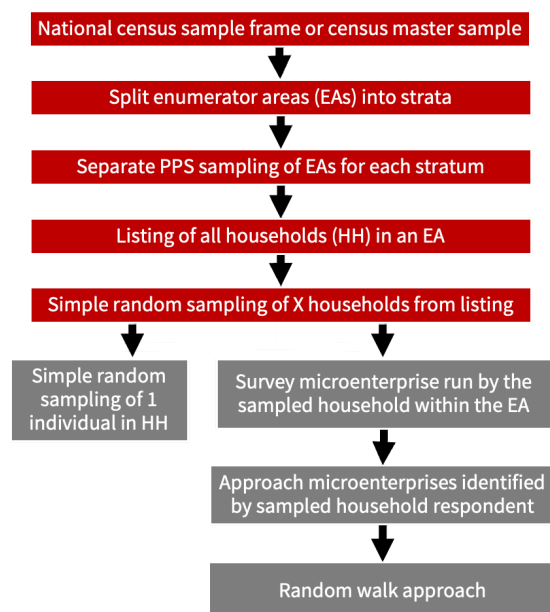
RIA conducted the first After Access survey, then called the “ICT Access Surveys” between 2005 and 2008 covering a total of 17 countries across the African continent. Since then, additional surveys have been conducted for 2010 to 2012 and for 2017 to 2018. In the 2017-2018 round of the survey the name was changed to “After Access” to highlight the realisation of the importance of not just looking at access alone but also how individuals interact with ICTs once access has been achieved. The latest round of the survey took place between 2022 and 2023. The survey provides detailed accounts of how individuals interact with information communication technologies (ICTs) and the barriers holding individuals back from tapping into the benefits of digitalisation.

From the 2010-2012 round of the survey, for each country the nationally representative household and individual survey was accompanied by a microenterprise survey which contains questions on the ways in which microenterprises use ICTs within their businesses.

The random sampling for households, individuals and businesses is based on Census sample frames. A Census divides a country into enumerator areas (EAs) which roughly have a household density of 200. A random sample of EAs stratified by urban/rural was randomly selected based on a complete list of EAs from the National Statistical Office. Households in EAs were randomly selected with the help of satellite imagery and remote sensing of rooftops. Software specialised in the detection of roof types from satellite imagery was used to create a list of the locations of all dwellings in a sampled EA. A random sample of dwellings was then drawn from the EA.

In the 2022 survey, due to budgetary constraints it was not possible to sample microenterprises based on listing at the enumerator area level. Instead, a three-tiered sampling approach was adopted as follows:

1. For each household interviewed, the main respondent was asked if they themselves or another household member was involved in running a microenterprise. If so, then this enterprise was included in the survey.
2. If there was no microenterprise linked to the household then the respondent was asked to name three microenterprises in the local area. These microenterprises were then visited to see if they met the eligibility criteria for the survey and if so they were included in the survey.
3. Failing (1) and (2), the fieldworker was required to adopt a “random walk” technique whereby they walked around the local area and identified microenterprises which met the survey criteria and arranged to interview them.

Figure 90: Sampling steps

- ❖ **Step 1:** The national census sample frames are split into urban and rural strata;
- ❖ **Step 2:** EAs were sampled for each stratum using probability proportional to size (PPS);
- ❖ **Step 3:** Households in EAs were listed through the use of software that detects roof types from satellite imagery;
- ❖ **Step 4:** One individual from all household members 15 years or older was randomly selected for the individuals survey based on simple random sampling;
- ❖ **Step 5:** Microenterprises were sampled through a three-step process:
 - If the household ran a microenterprise within the EA, then this business was surveyed for the microenterprise survey;
 - If the household did not run a microenterprise within the EA, they were asked to identify three local microenterprise to be approached by the fieldworker to deem eligibility for inclusion in the survey; and
 - If, after all sampled households within the EA had been surveyed, the microenterprise survey quota had not been filled, fieldworkers were required to adopt a random walk approach in order to identify eligible microenterprises.

The desired level of accuracy for the survey was set to a confidence level of 95% and a margin of error of 5%, which yields a minimum sample size per tabulation group of 385 (see Table 5 below).

Table 5: Minimum sample size for variables expressed as proportions for large populations

Margin of error	95%	99%
+1	9 604	16 577
+2	2 401	4 145
+3	1 068	1 842
+4	601	1 037
+5	385	664
+6	267	461
+7	196	339
+8	151	260

+9	119	205
+10	97	166

Source: (Rea & Parker, 2005)

Three weights were constructed: for households, individuals and microenterprises. The weights are based on the inverse selection probabilities¹² and gross up the data to national level when applied. Although the sample size is large enough to be representative even of such a large population as the Nigerian microenterprise sector, as the sample was not obtained through a representative sampling frame the results should be considered as indicative rather than representative of microenterprises in Nigeria. As such, although weights are estimated based on survey reports on the number of microenterprises in the country, for the purpose of this analysis unweighted data is used.

$$HH_w = DW \frac{1}{P_{HH} * P_{EA}}$$

Household weight:

$$IND_w = DW \frac{1}{P_{HH} * P_{EA} * P_I}$$

Individual weight:

$$BUS_w = DW \frac{1}{P_{Bus} * P_{EA}}$$

Business weight:

$$P_{HH} = \frac{n}{HH_{EA}}$$

Household selection probability:

$$P_{EA} = m \frac{HH_{EA}}{HH_{STRATA}}$$

EA selection probability:

$$P_I = \frac{1}{HH_{m15+}}$$

Individual selection probability:

$$P_{BUS} = \frac{q}{BUS_{EA}}$$

Business selection probability:

DW = design weight compensation for over-sampling of urban EAs and under-sampling of rural EAs;

HH_{EA} = number of households in selected EA based on information of last census or updated listing by field team;

HH_{STRATA} = number of households in strata (urban, rural);

HH_{m15+} = number of household members or visitors 15 years or older;

m = target number of EAs for each strata;

n = target number of households in EA;

q = target number of businesses in EA.

The target number of households in each EA varied from country to country. Usually, a maximum of 20 households and 10 businesses are selected from each EA. Table 6 provides the total number of completed surveys in each country if the 2022-2023 survey.

Table 6: Survey counts for After Access 2022 as at January 2024

Country	Population	Data collection status	Household surveys completed	Microenterprise surveys completed	Country surveyed in 2017/2018?
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¹² See UNSD's (2008) Handbook on Designing Household Survey Samples for a detailed discussion on sampling weights

South Africa	59 893 885	Complete	1 933	566	Yes
Nigeria	218 541 212	Complete	2 230	718	Yes
Uganda	47 249 585	Complete	1 031	520	Yes
Ethiopia	123 379 924	Complete	2 095	499	No
Kenya	54 027 487	Complete	1 703	547	Yes
Tanzania	65 497 748	Fieldwork complete, cleaning in progress	1 821	510	Yes
Ghana	33 475 870	Complete	1 062	544	Yes
Senegal	17 316 449	Scheduled	-	-	Yes

Appendix A2: Probit model to assess digitalisation drivers

VARIABLES	Mobile phone		Smartphone		Internet access	
	Coefficients	Marginal effects	Coefficients	Marginal effects	Coefficients	Marginal effects
Profit	0.242*** (0.0916)	0.0290*** (0.0107)	0.533*** (0.105)	0.0736*** (0.0136)	0.386*** (0.122)	0.0339*** (0.0105)
Education: Primary	0.634* (0.372)	0.0925 (0.0567)	0.626 (0.585)	0.0704 (0.0607)	-0.0305 (0.917)	-0.00133 (0.0402)
Education: Secondary	0.978** (0.399)	0.133** (0.0575)	1.184** (0.593)	0.150** (0.0644)	1.430* (0.832)	0.104** (0.0440)
Education: Tertiary	1.214** (0.505)	0.156** (0.0619)	2.336*** (0.594)	0.354*** (0.0749)	1.854** (0.861)	0.154*** (0.0566)
Female-owned	-1.062*** (0.379)	-0.127*** (0.0447)	-0.521* (0.295)	-0.0719* (0.0404)	-0.833** (0.325)	-0.0731*** (0.0273)
Formality (tax/authority/VAT)	-0.322 (0.427)	-0.0386 (0.0509)	-0.151 (0.317)	-0.0209 (0.0436)	0.420 (0.357)	0.0368 (0.0311)
Financially included	1.099*** (0.357)	0.132*** (0.0420)	0.836*** (0.272)	0.115*** (0.0361)	0.850** (0.336)	0.0745*** (0.0288)
Size (employees)	-0.209** (0.0935)	-0.0251** (0.0113)	-0.152 (0.0990)	-0.0209 (0.0137)	-0.00205 (0.0902)	-0.000179 (0.00791)
Age (years since established)	0.0388* (0.0217)	0.00465* (0.00260)	-0.0355 (0.0216)	-0.00489* (0.00294)	-0.0367 (0.0322)	-0.00322 (0.00282)
Business premises	0.599** (0.305)	0.0719** (0.0362)	-0.134 (0.267)	-0.0185 (0.0368)	-0.487 (0.344)	-0.0427 (0.0297)
Electricity access	0.511* (0.307)	0.0613* (0.0362)	0.735*** (0.279)	0.101*** (0.0379)	0.655* (0.346)	0.0574* (0.0297)
Rural	-0.0740 (0.264)	-0.00888 (0.0317)	-0.678** (0.280)	-0.0936** (0.0386)	-0.556 (0.351)	-0.0488 (0.0310)
Geopolitical: North Central zone	-0.322 (0.485)	-0.0342 (0.0515)	-0.803** (0.385)	-0.109** (0.0510)	-1.090** (0.443)	-0.108*** (0.0415)
Geopolitical: North East zone	-0.298 (0.639)	-0.0315 (0.0693)	0.204 (0.568)	0.0307 (0.0861)	-0.472 (0.592)	-0.0527 (0.0620)
Geopolitical: North West zone	-0.746 (0.499)	-0.0877 (0.0594)	-0.458 (0.423)	-0.0649 (0.0588)	-0.748 (0.483)	-0.0795 (0.0489)
Geopolitical: South East zone	-0.493 (0.469)	-0.0547 (0.0525)	-0.620 (0.387)	-0.0863 (0.0530)	-1.740*** (0.557)	-0.151*** (0.0406)
Geopolitical: South South zone	-0.764* (0.459)	-0.0902* (0.0538)	-0.0777 (0.381)	-0.0114 (0.0560)	-1.025** (0.477)	-0.103** (0.0442)
Sector: Agriculture	-0.671 (0.511)	-0.0860 (0.0702)	-0.433 (0.496)	-0.0558 (0.0610)	0.162 (0.748)	0.0138 (0.0653)
Sector: Manufacturing	-0.227 (0.365)	-0.0265 (0.0433)	0.480 (0.375)	0.0690 (0.0547)	0.372 (0.511)	0.0330 (0.0478)
Sector: Service	-0.290 (0.367)	-0.0344 (0.0444)	0.156 (0.318)	0.0217 (0.0447)	0.379 (0.377)	0.0338 (0.0345)
Constant	-0.735 (1.058)		-7.013*** (1.239)		-6.323*** (1.427)	
Observations	523	523	521	521	524	524
Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1						

Appendix A3: Calculation of e-commerce barriers

For the barriers preventing the use of e-commerce to sell products online, respondents were presented with a list of 15 barriers as well as an “other” category and asked to identify the first, second and third most pressing barriers:

1. I don't know how to;
2. I don't need to (e.g. I buy and sell all my product in person);
3. There are not many buyers or clients doing online shopping;
4. I'm not comfortable sharing personal details or financial details online with third parties;
5. I am not certain that I or clients will receive the goods/services/not comfortable using delivery services;
6. I am not certain that I will be able to receive the payment;
7. I cannot be certain of the quality of the product that will be delivered to the client or that I will purchase from the provider;
8. Delivery charges are too high
9. It takes too much time to set up an online account;
10. It takes too much time to buy or sell online;
11. I've had a negative experience in the past or heard of people having negative experiences in the past;
12. Payment options are complicated or I don't have a bank account/credit card/debit card/mobile money account;
13. I don't trust online buyers/sellers;
14. There are not many buyers or clients doing online shopping;
15. I'm not aware of what online services or mobile apps to use;
16. Other.

A score, “*nec*”, is then calculated for each reason *r* as follows:

$$nec_r = \frac{\sum_{i=1}^n (D1_r^i + \frac{2}{3} \cdot D2_r^i + \frac{1}{3} \cdot D3_r^i)}{\sum_{i=1}^n NE_r^i} = \frac{\sum_{i=1}^n (3 \cdot D1_r^i + 2 \cdot D2_r^i + 1 \cdot D3_r^i)}{3 \cdot \sum_{i=1}^n NE_r^i}$$

Where for all microenterprises $i = \{1, 2, 3, \dots, n\}$:

$D1_r^i$ = dummy (1 if reason *r* is the biggest reason for business *i* not using e-commerce)

$D2_r^i$ = dummy (1 if reason *r* is the 2nd biggest reason for business *i* non using e-commerce)

$D3_r^i$ = dummy (1 if reason *r* is the 3rd biggest reason for business *i* non using e-commerce)

NE_p^i = dummy (1 if business *i* does not use e-commerce)

Appendix A4: Response rates on sales and profit information

Table 7 reports the response rates on the core questions in the microenterprise relating to financial performance. For each of the variables, it provides the share of respondents providing a response, the proportion that claimed to not know the answer and the proportion that refused to provide it. In addition to providing the outcomes in Nigeria, the table provides the average across the seven countries surveyed as well as the minimum and maximum outcomes across the different countries.

Table 7: Response rates on financial information

Variable	Outcome	Total sample information across the seven countries surveyed			Nigeria
		Average	Min	Max	
Sales	Captured	69%	45%	86%	86%
	Don't know	22%	13%	35%	13%
	Refused	9%	1%	23%	1%
Profit	Captured	66%	39%	83%	83%
	Don't know	25%	15%	41%	15%
	Refused	9%	1%	23%	1%
Expenditure: Rent	Captured	90%	79%	97%	90%
	Don't know	7%	2%	11%	9%
	Refused	4%	1%	11%	1%
Expenditure: Salaries	Captured	82%	62%	93%	89%
	Don't know	11%	3%	17%	9%
	Refused	7%	1%	21%	2%
Expenditure: Inputs	Captured	78%	66%	89%	85%
	Don't know	17%	10%	22%	14%
	Refused	5%	1%	14%	1%