![GSMA logo]

Digital identity opportunities for women
Insights from Nigeria, Bangladesh, and Rwanda

May 2019

The Commonwealth Digital Identity Initiative

The GSMA Digital Identity programme has partnered with the World Bank's ID4D programme and Caribou Digital, to demonstrate the opportunities, address the barriers and highlight the value of mobile as an enabler of digital identification specifically for women and girls in the Commonwealth. GSMA's work will include research on the unique barriers that women and girls face when accessing or using identity systems, delivering projects that test new approaches to overcoming these barriers, and providing policy recommendations to promote inclusive digital identity systems. The initiative aims to contribute towards helping to meet the Commonwealth target of reducing the identity gap and providing access to a digitally enabled identity for every woman and girl in the Commonwealth by 2030. The Commonwealth Digital Identity Initiative is supported by the UK Department for International Development and Australia's Department of Foreign Affairs and Trade.

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Connected Women

The GSMA Connected Women Programme works with mobile operators and their partners to address the barriers to women accessing and using mobile internet and mobile money services. Connected Women aims to reduce the gender gap in mobile internet and mobile money services and unlock significant commercial opportunities for the mobile industry and socio-economic benefits for women.

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Definitions

Digital identity solution	Leveraging digital, data, and/or technology (including mobile technology) to support an individual – or entity such as a business, or other organisation – in proving their identity, function, or status.
Economic identity	A further aspect of an individual's identity, moving beyond their 'fixed identity' (i.e. the demographic and biometric details recorded on an identity document). An 'economic identity' focuses on an individual's shifting, dynamic, and less tangible, social and economic circumstances.
Foundational identity	Foundational identification carries an official and multi-purpose status, such as a birth registration certificate or civil identification.
Functional identity	Functional identification is developed and issued for a single, well-defined purpose or service – for example, Voter IDs issued to those eligible to vote. This distinction is not necessarily permanent, with a functional ID able to evolve to become a de-facto foundational ID – as is the case with the Voter's Card in Bangladesh.
Identification	The process by which one proves their specific identity.
Identity	One's status as a unique individual in society.
Identity-linked service	Services that require some degree of identification – ranging from accessing healthcare through to logging into an online service, or using a mobile phone number to subscribe to an SMS service.
Identity document	An 'ID', a document that contains a set of attributes that uniquely describe an individual and enables them to prove who they are.
Know Your Customer (KYC)	Regulations developed for private-sector entities (including mobile network operators, and financial service providers) mandating the collection of customer data – such as biographic and biometric information – in order to reduce fraud or other illicit activity.

Executive summary

The World Bank estimates that over 230 million women and girls across the Commonwealth do not have access to official identity.[1] Official proof of identity (ID) is fundamental to a woman and girl's ability to enforce their rights and secure access to a wide range of vital services such as mobile connectivity, healthcare, education, social protections and financial services. Reflecting the importance of identity, the United Nations Sustainable Development Goals (SDGs) has set a specific target to provide every person with a legal identity, including birth registration, by 2030.[2]

The absence of identity documents among women is both an effect, and the cause of, prevailing gender inequalities. In a number of economies, legal and cultural gender disparities can prevent or disincentivise women from obtaining a national identity card, applying for a passport, or being recognised as the head of a household. Without proper documentation, women are likely to face additional barriers when pursuing opportunities such as education and formal work, placing real and definite limitations on their aspirations, potential, and personal and professional growth. Therefore, widening access to identity will also help the international community effectively address Sustainable Development Goal 5, which aims to achieve gender equality and empower all women and girls.

It is increasingly important that mobile network operators (MNOs) understand the barriers that can impact a woman or girl's ability to access identity documents and identity-linked mobile services. In an estimated 150 countries,[3] Know Your Customer (KYC) regulations now require individuals to present a valid proof of identity before they can subscribe to mobile services. In these situations, women are particularly vulnerable to being excluded from owning a phone or having mobile services registered in their own name; in fact, compared to men, women in low- and middle-income countries remain 10 per cent less likely to own a mobile phone and the services they use tend to be less diverse.[4] Closing the gender gaps in mobile ownership and usage represents an important commercial opportunity for the mobile industry. If mobile operators could close these gender gaps in low- and middle-income countries by 2023, this would provide an estimated additional $140 billion in revenue to the mobile industry over the next five years.'[5]

Drawing on in-country qualitative research, this study explores the specific incentives, challenges, preferences and benefits that women and girls will encounter, compared to men, when engaging with digital identity systems or services.

The report identifies how both men and women navigate day-to-day identity-related pain points, as well as the short- and long-term incentives that influence their decision to access and use identity documents and identity-linked services. It also highlights women's perspectives on digital identity services, and the role that mobile technology could play to help address the identity gap.

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1. See the World Bank ID4D Global Dataset
2. SDG 16.9
3. GSMA (2019) 'Access to Mobile Services and Proof of Identity 2019: Assessing the impact on digital and financial inclusion'
4. GSMA (2019) 'The Mobile Gender Gap Report 2019'
5. ibid

Research was conducted in Nigeria, Bangladesh and Rwanda. These countries were selected on the basis that they are at distinct stages on their journey towards delivering full national identity coverage, and because they provide varying identity, mobile and gender-related challenges and opportunities:

Nigeria

A country with lower national identity (NID) coverage, features a tech-savvy population, high mobile penetration, and clear opportunities to augment or complement the NID. This is a strong foundation for mobile- and wider digital-identity products and services, but any ID products or services must address strong gender inequalities and embedded social norms that inhibit women's access to identity and technology across many parts of the country.

Bangladesh

The NID is key to accessing essential services and more formalised employment. Due to this centrality, the absence of NID can result in a very definite ceiling on personal and professional life. In addition, a fairly conservative culture limits some women's ability to access or engage with identity and mobile services in the same way as men.

Rwanda

Features a well-embedded and robust national identity: to be a 'Rwandan' is important, and NID rollout has been successful. The NID is the only acceptable form of identification for many aspects of life, including SIM registration, legitimate access to mobile money, opening of a bank account, and access to government services. Those without NID are excluded from these activities, and employ workarounds or compromises – or avoid participation in them completely.

Bangladesh

Nigeria

Rwanda

Key findings

While every market presents its own context, opportunities and challenges for MNOs and other stakeholders seeking to develop and implement digital identity solutions (particularly for women), our research highlights a number of important cross-cutting themes that are shaping this area:

Identity documents are highly valued

For both men and women, official forms of ID are aspirational and desirable, both functionally and emotionally. They provide access to essential services, enable inclusion in society and the economy, represent national pride, and often confer social status. As this study highlights, when the benefits of ID are clear, enrolment rates increase.

There is a complex gender narrative associated with identity

Nearly all participants in this study spontaneously advocated that women and men have an equal right to national ID, but beneath this there is a widely held assumption that women have less practical need for ID compared to men. This diminished sense of priority, combined with practical barriers to enrolment, are substantial factors in many women not being registered for ID.

Registering for mobile services in your own name is important

In all three research countries, official ID is required to register a SIM card – and a robust SIM registration regime adds credibility to mobile as an identity tool. However, workarounds were being employed to enable many women (as well as some men) without the 'right' ID to access SIMs and mobile services. This has a significant and negative multiplier effect: it results in 'invisible' women, whose mobile needs and realities are indistinguishable from the men whose ID they use to secure SIM cards.

Mobile is already playing a significant role in many day-to-day identity journeys

This includes individuals calling others to 'vouch' for them, using two-factor authentication, and relying on handsets and SIM cards to store key identity documents or photographs, or display credentials in social and professional contexts.

Engaging with customer trust and data security is essential

Organisations and institutions tended to be trusted over individuals, with participants having few concerns about the security of their data at an institutional level. In contrast, there was more varied trust in frontline individuals who handle personal data (such as mobile agents). Here, trust was based on personal relationships with individuals, and less on institutional affiliation. These concerns were not prohibitive, but merit consideration and the development of robust oversight, accountability, and reassurance processes.

Through testing a range of digital ID concepts with participants, the study also **confirms the relevance and potential of mobile technology in delivering digital ID solutions** for general, financial, business, and healthcare needs. Mobile was also seen to have the potential to improve NID enrolment, and to tackle a number of the above barriers and challenges. The research also showed that there was a willingness among end-users to pay for many of these services, as long as fees were reasonable and there was a clear incentive to access.

These findings, combined with the growing penetration of mobile technology across the three countries, highlights the key role that mobile technology could play in delivering ID and digital ID solutions for women and girls. However, it is vital that the gender gap in mobile phone ownership and access is also tackled, and that mobile-enabled digital ID solutions are designed to be more accessible, easy-to-use and enable individuals to better meet their daily needs.
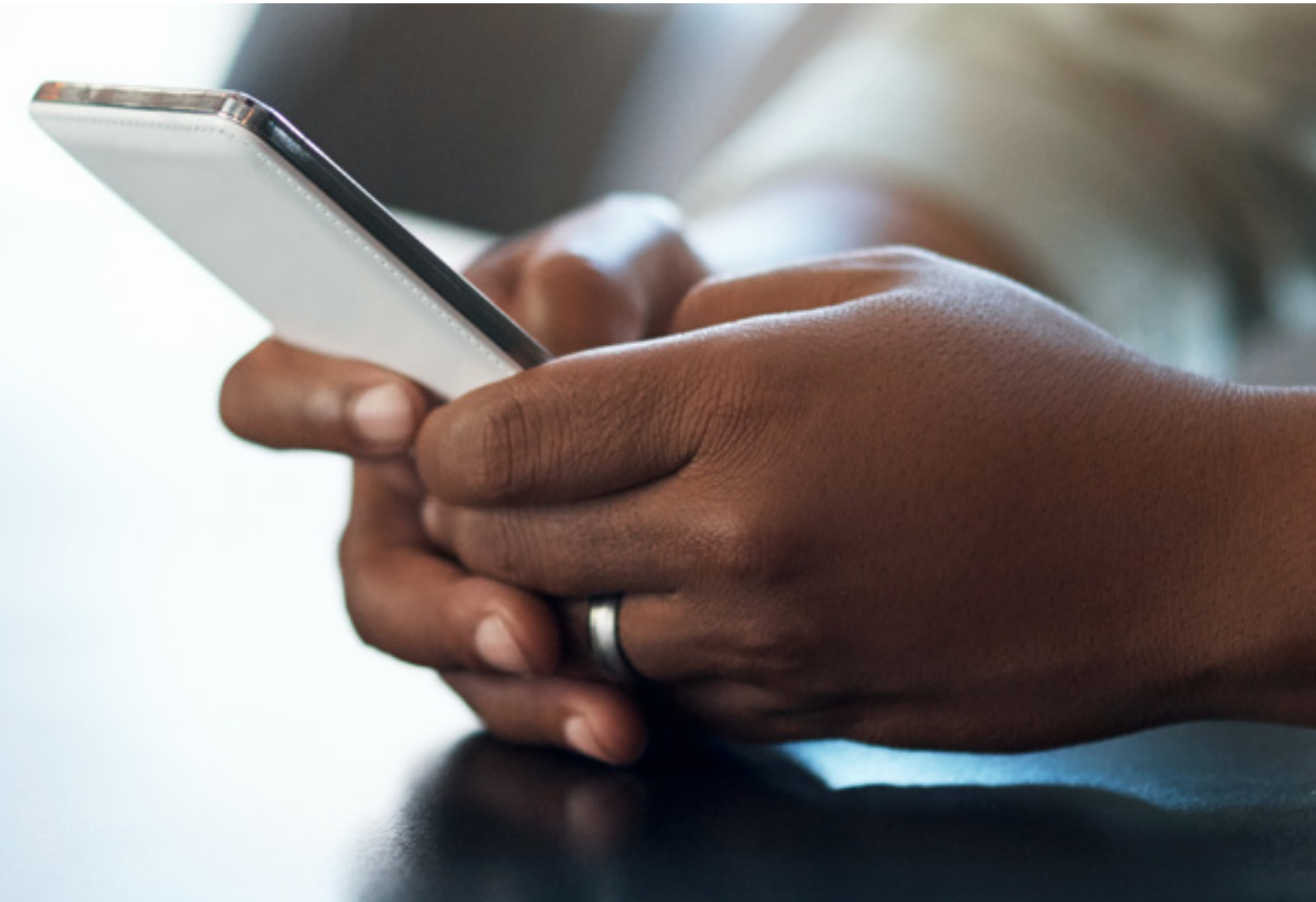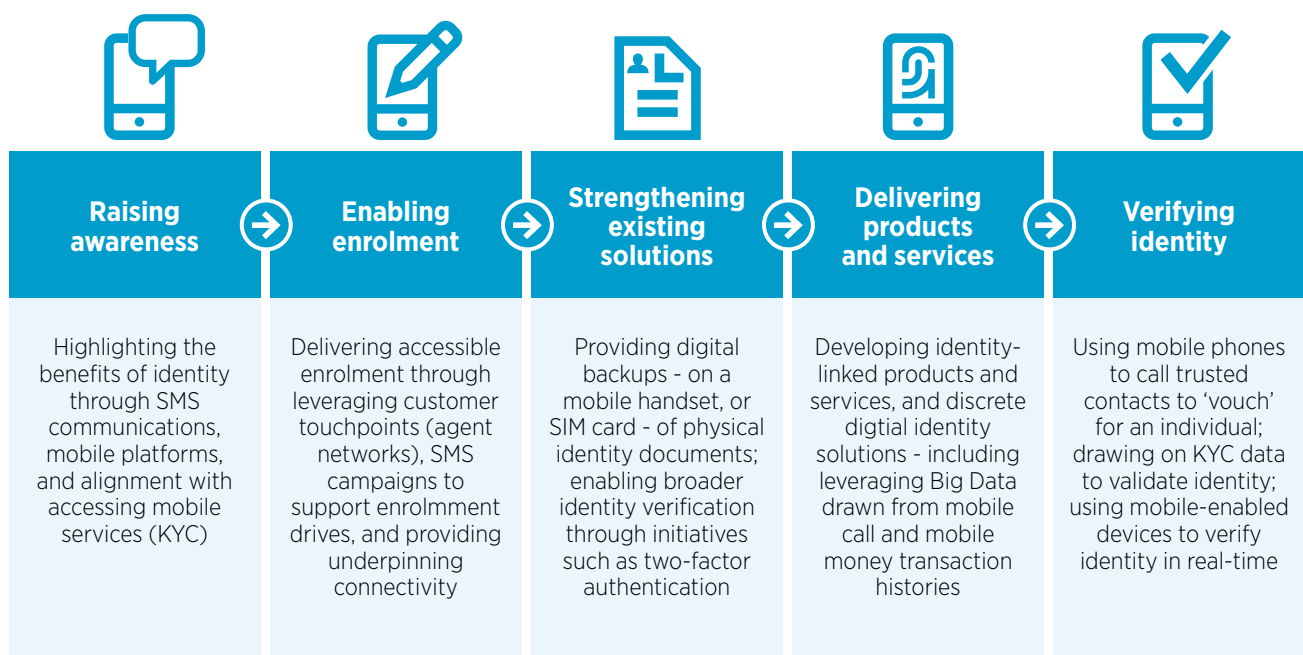
Objectives and methodology

As more and more governments move towards establishing national identity programmes, opportunities will emerge for MNOs to leverage their existing assets and identity-related practices to provide women and girls with greater access to official identity as well as relevant, identity-linked mobile services. The widespread availability of mobile technology enables identity solutions to be delivered into the hands of millions – although the very real gender gap in mobile phone ownership and access need to be tackled. In addition, the wide reach and legitimacy of MNOs in many countries provides a strong foundation for engaging individuals with regard to the role and benefits of identity solutions. As highlighted in the identity user journey (Figure 1) the role of mobile can be wide-ranging.

Figure 1

Identity user journey

Raising awareness	Enabling enrolment	Strengthening existing solutions	Delivering products and services	Verifying identity
Highlighting the benefits of identity through SMS communications, mobile platforms, and alignment with accessing mobile services (KYC)	Delivering accessible enrolment through leveraging customer touchpoints (agent networks), SMS campaigns to support enrolment drives, and providing underpinning connectivity	Providing digital backups - on a mobile handset, or SIM card - of physical identity documents; enabling broader identity verification through initiatives such as two-factor authentication	Developing identity-linked products and services, and discrete digtial identity solutions - including leveraging Big Data drawn from mobile call and mobile money transaction histories	Using mobile phones to call trusted contacts to 'vouch' for an individual; drawing on KYC data to validate identity; using mobile-enabled devices to verify identity in real-time

With this context in mind, the objective of this study is to provide GSMA, MNOs and the development sector with an extensive understanding of the country contexts and opportunities across the identity landscape in Nigeria, Bangladesh and Rwanda. It also aims to provide recommendations on how mobile could be leveraged to drive adoption and usage of identification and identity-linked services, especially among women and girls. More widely, this report sets out a range of considerations and recommendations for organisations working on, or interested in developing, digital identity solutions.

The research began by investigating stakeholder perceptions and attitudes towards the identity-related needs and barriers faced by women and girls. Interviews were conducted with experts from MNOs as well as relevant donor and partner organisations, academia, government, and private sector institutions. The assumptions and recommendations made about end-users and their preferred use-cases in this phase of the research, as well as wider desk research, were used to develop a range of mobile-related identity concepts that

show how identity solutions or identity-linked services could work in reality. These were explored with end-users during fieldwork, and included a potential role of mobile technology in enabling NID enrolment; as well as mobile and digital ID solutions in health, finance, and business (for more details, see the '**Digital identity opportunities**' section on page 50).

Building on this foundation, qualitative research was conducted to deepen GSMA's understanding of the particular experiences, attitudes, pain-points and perceptions of women and girls (compared to men) related to identity. Group discussions and individual in-depth interviews were conducted across the three markets in both rural and urban locations. In total, more than 300 adults participated in these discussions, approximately two thirds of which were women. Men were included in the research to provide a comparison across genders, and 'gatekeepers' – typically men or older women in the family – were interviewed to determine how they might influence women's mobile or identity ownership and usage.

In order to best explore the benefits of ID, as well as the challenges experienced by those without ID, participants were split into two categories: those with the respective country NID ('adopters') and those without ('non-adopters'). The experiences of the former were used as stimulus in non-adopter discussions. The research participants included a mix of ages (between 18 and 60 years), education and literacy levels, and were a good mix of phone ownership and usage behaviours. All participants were from lower to middle class segments (sociodemographic class C and D)

Research participant sample by location

	Nigeria	Bangladesh	Rwanda
National ID Coverage	**28%**[6]	**83%**[7]	**90%**[8]
Mobile Ownership Gender Gap	**5%**[9]	**33%**[10]	**37%**[11]
Overall Sample ⊙	143	75	94
Urban Location(s) ⊙	Ikorodu; Ibadan; Kubwa	Dhaka	Bugesera
Rural Location(s) ⊙	Agbowa; Erunmu	Kalihati Upazila	Kayonza
Sample Breakdown ⊙	• 61% of women • 34% rural • 100% of women had their own mobile phone • 34% of women had a NID	• 60% of women • 51% rural • 38% of women had their own mobile phone • 51% of women had a NID	• 60% of women • 50% rural • 98% of women had their own mobile phone[12] • 51% of women had a NID

Additional details on the research methodology can be found in Appendix 4.

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6. Statistics on National ID coverage provided by the World Bank and are based on 2017 surveys (unpublished)
7. ibid
8. ibid
9. GSMA (2019) 'The Mobile Gender Gap Report 2019'
10. ibid
11. After Access, Understanding the Gender Gap in the Global South: https://afteraccess.net/wp-content/uploads/2018-After-Access-Understanding-the-gender-gap-in-the-Global-South.pdf
12. After Access report (cited above) highlights a 37% gender gap in mobile phone ownership. Although this current study does not aim for representativeness, the vast majority of female research participants owning their own phone highlights some differences between the national and study populations.

Focus: key findings on gender and identity

There is a complex interplay between gender and identity. Although the gender context in each country is unique, the study highlighted a number of shared insights across Nigeria, Bangladesh, and Rwanda.

All agreed: identity is a right which is, and should be, available to everyone

Across all three countries, nearly all participants spontaneously asserted that women and men – as equal citizens - have a right to obtain a national identity (NID) document. More broadly, identity was also seen as equally useful for both women and men in accessing services and other opportunities. Although not a focus in this study, birth registration was also seen as similarly important, regardless of gender.

> *"Everyone should have ID – once you are 18, everyone should have it. It is part of being a citizen."*
>
> **Male, NID adopter, Erunmu (Nigeria, rural)**

> *"Children, whether male or female, are the same."*
>
> **Female, NID non-adopter, Bugesera (Rwanda, urban)**

There was minimal evidence of any conscious or deliberate male or female gate-keeping in terms of women's access to ID. In numerous cases, male family members had encouraged women to get registered for NID, while in other cases, women had enrolled first and then encouraged their husbands to do the same. Similarly, a lack of birth registration was largely attributed by participants to difficulties navigating the process itself, and not due to gender discrimination. Discussions highlighted that in-hospital registration immediately following birth, as in Nigeria, had a positive effect on registration rates, due to the convenience of not having to return to register. In Bangladesh, where birth registration is not completed immediately after birth, discussions highlighted more instances of delayed or no registration.

However, below the surface, women are perceived to 'need' identity less than men

Despite this apparent equality, across the three countries there is a more insidious bias – echoing the ID gender gap.[13] Women's need for ID is often seen as less pressing than men's, and often derived from deeply-rooted structural and societal gender inequality and social norms. Women tend to travel less, or work at or near the home, and therefore do not need ID to navigate checkpoints. Related to this, women are perceived to be less threatening than men, and are therefore able to navigate some physical ID barriers through smiling, crying, or providing their phone number to the official blocking access. Men are more likely to have roles that require or provide ID (a catalyst in itself for ID enrolment), whilst the largely informal economy roles of female participants did not require nor provide ID. Women also often use a man's ID when accessing services.

This bias, when ID is considered to be less useful for women than men, can be cumulative, and reinforcing. Women are less likely to pursue ID ownership as they perceive that they have no real need for it within their lives. This, in turn, results in a narrowing of women's social and economic potential as they lack the ID solutions needed to live a more empowered life. Although particularly the case in rural settings – where women's roles are more

likely to be traditional, and women's social circles, lifestyles and horizons are likely to be very narrow and defined by their homes and local communities – this disparity was also prevalent in urban settings.

> *"Women refer to men as their ID card."*
> **Female, NID non-adopter, Kayonza (Rwanda, rural)**

Religion and rurality can also play a role. Among the Muslim communities of Central Nigeria and Bangladesh, and also in more rural areas, there were stronger impediments to female ID enrolment due to more ingrained social norms. Women were more likely to be expected to remain at or near the home, to eschew working in favour of childcare, and face explicit and implicit limitations on behaviour (including access to and usage of mobile technology, explored later in this report). Although there was no suggestion of any man preventing a woman's enrolment, it is clear that cultural expectations – and the effect of location – can be major barriers to female participation in ID systems and services. In urban settings, women highlighted more autonomy and agency, however they are still expected to take primary ownership of domestic and childcare responsibilities.

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13. The World Bank Global Findex Database 2017 shows that in Bangladesh, 84.6% of men have an NID, compared to 81.2% of women; in Rwanda, 92.1% of men have an NID, compared to 89.4% of women. Nigeria was not covered by this survey. See: https://globalfindex.worldbank.org

The perception that women need ID less than men, combined with other structural factors, inhibit women's access to formal identity systems and services

The assumption that ID is less essential for women can result in women deprioritising ID registration. This lack of urgency to register is compounded by other barriers. Remaining at home, women are unable or unwilling to travel to navigate lengthy, complex, and often arduous, enrolment processes. However, emphasising the benefits of individual ID for women – even if initially only in association with services of relevance to their traditional roles (such as healthcare access and school enrolment) is important.

With regard to digital identity solutions, there are similar structural barriers. Discussions highlighted lower digital and functional literacy amongst women – including less understanding of related concepts such as data privacy and security, than men - as well as reduced access to mobile devices. This echoes previous research in Nigeria,[14] and wider efforts by some governments to improve womens' digital literacy.[15]

> *"When the phone rings, I hand it to my son to answer it, and he will tell me if it is for me [due to son's stronger literacy and digital skills]"*
>
> **Female, Non-adopter, Kalihati (Bangladesh, rural)**

There is an important role for mobile in improving the accessibility, usefulness, and relevance of identity for women

Despite these barriers, mobile technology has significant potential to drive greater ID equality between genders in a number of ways. First, enabling ID enrolment via mobile agents would make it quicker and easier for women to register for national ID solutions. Female mobile retailers, or female-only registration days could also help remove cultural or social barriers, notably in countries such as Bangladesh. In addition, more could be done to increase the salience of ID amongst women – including through SMS information campaigns.

Beyond this, there are extensive opportunities to deliver identity and identity-linked products and services that could significantly improve the lives and livelihoods of women and their families.

With many women working informally, or running informal businesses, they lack evidence of their business' status or professional performance. Due to this, they struggle to access financial products, or other services, to grow their businesses. Digital identity solutions that demonstrated an individual's professional credibility, or the strength of their businesses, were of significant interest to both male and female participants.

Although the above opportunities, and associated benefits, are significant, digital identity solutions should be careful to avoid exacerbating the ID divide, and the ID gender gap. They must also be relevant and useful for those with minimal or non-existent literacy and digital skills, designed for basic phones and smartphones, and accessible to all.

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14. GSMA's Mobile Gender Gap Report 2019 notes that 34% of female non-mobile owners identified 'literacy and skills' as the single most important barrier to mobile ownership – compared to 17% of men.
15. The Government of Rwanda's National Digital Talent Policy includes a particular focus on women's digital literacy. See the National Digital Talent Policy.
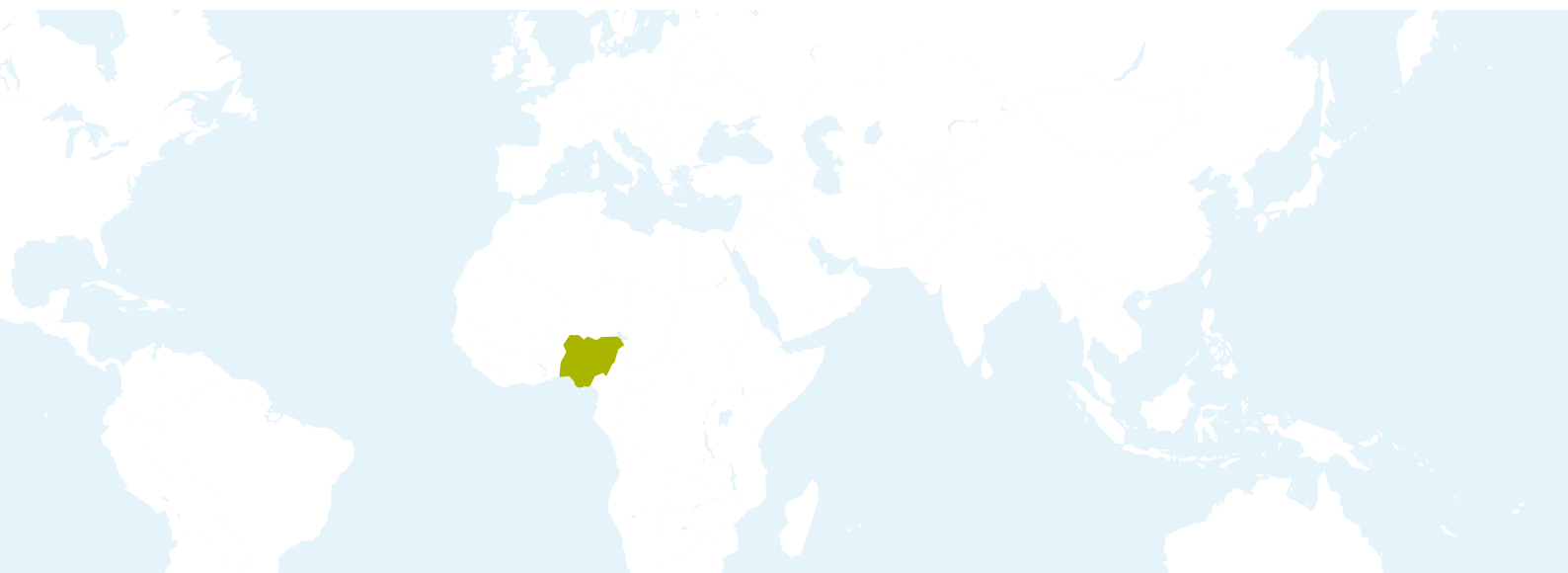
Market overview

Nigeria

✎ Country summary

Nigeria is a large and diverse country. Nonetheless, strong structural inequalities and deeply embedded social assumptions inhibit women's access to identity services and technology across regions. The ID landscape in Nigeria is fragmented, with many systems of identification – including the NID, which has undergone several previous iterations, and the Voter's Card. This complexity inhibits understanding of the role and benefits of ID. There is a real need for an ID solution to reach scale, a potential that could be achieved through leveraging mobile technology.

The NID is seen as the 'ultimate' identity document, both in symbolic terms– verifying one's status as a 'true Nigerian' – and functional terms: as an official, powerful, and universally-accepted form of ID. However, it is often prohibitively difficult to access, with many encountering real challenges during the enrolment process. There is a significant opportunity to develop more effective enrolment processes, in particular leveraging MNO customer touchpoints. The wide range of 'workarounds' weakens the need for NID ownership, and there is an associated role for MNOs in communicating the benefits of the NID or developing essential NID-linked products and services.

Mobile penetration is high and digital behaviours are fairly advanced. Nigerians are tech-savvy consumers: smartphone ownership is growing, multiple SIMs are common, and mobile phones are frequently used in everyday identity journeys. In addition, the gender gap in mobile phone ownership is lower compared to some other African and Asian countries.[16] These are strong foundations for digital ID solutions, with participants particularly interested in digital ID products and services that can provide professional identification – including providing credibility for informal businesses, or to enable networking and marketing.

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16. GSMA (2019) 'The Mobile Gender Gap Report 2019'

Contextual and cultural factors

Large, diverse, and entrepreneurial

Nigeria is Africa's most populous country with over 190 million people, and its largest economy.[17] It is extremely diverse, with a wide range of different tribal and ethnic groups distributed across a vast geographical area, and varying cultural, economic and security contexts in different regions. There is a robust entrepreneurial spirit, with a thriving informal economy and a young demographic. This is complemented by a strong sense of self-reliance. Few expect the government to support them, so individuals are driven to support and enable themselves.

Public services can be patchy and difficult to access. Officials, police in particular, are perceived as unhelpful or obstructive – with many noting that the only way to get things done is by knowing the 'right' person. Nonetheless, there was acceptance that individuals have to engage with these officials or institutions in return for vital services. The security situation is also challenging, elevating the importance of ID for many, as police and security forces have a prominent presence.

Trust is higher in private organisations, than in public sector institutions or individuals. Banks and financial institutions are highly trusted, and trust in MNOs was rarely questioned at corporate level. Participants considered their personal data – including biometric data captured via KYC processes – to be secure. Reputation and customer attraction are considered strong incentives to maintain this trust. Largely, concerns regarding trust and data privacy focused on the individual with whom the data is being directly shared – and not the institution that they represent. Wider fraudulent activity was front-of-mind for many.

Personal, professional and national pride

Great pride is held in one's Nigerian identity. There is also a strong sense of local provenance, with an individual's state of origin being seen as an important identifying feature, both legally and personally. The importance of this geographic identity adds to the desire to 'prove' one's status as a citizen – whether to other Nigerians or to internationals.

Particular importance is also placed on work as a source of personal fulfilment and external status. Professions are mentioned early as part of an introduction, and life goals or aspirations are often framed around commercial achievements: growing one's business, or developing international trading opportunities. This makes the task of verifying one's business or proving professional skills particularly important – especially for women – and a key digital identity opportunity.

> [When asked how she would introduce herself:] "My name is Lasis. I am a trader. I sell eggs. I have a kid, 2 years old. I am from Oyo but my husband is from Osun state."
>
> **Female, NID non-adopter, Ibadan (urban)**

More foundational tenets of identity also play a strong role. Personal appearance and comportment are key indicators of respectability including keeping hair and appearance in order, and speaking clearly and properly. Being respectful towards others is especially important, and the ability to speak English properly is linked to being held in high regard by others. These factors help to show that you are a "responsible Nigerian".

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17. World Bank DataBank for Nigeria: https://databank.worldbank.org/data/views/reports/reportwidget.aspx?Report_Name=CountryProfile&Id=b450fd57&tbar=y&dd=y&inf=n&zm=n&country=NGA

A complex gender landscape

Research took place in Abuja and Oyo states, featuring both Christian and Muslim participants. Women commonly worked, often in small businesses or alongside domestic duties. Compared to their rural counterparts, urban women were more likely to work in more formal roles; often had higher levels of education and ambition, and had greater freedom and autonomy. Rural women were more likely to work in the informal sector. Women's literacy and digital skills were also lower than men's, especially in rural and Muslim communities. Regardless of location, women are still expected to assume the bulk of domestic duties and childcare responsibilities:

> *"I am proud that I am a man who does not drink in town with the guys and come home late – I come straight home and I help my wife."*
>
> **Male, NID non-adopter, Erunmu (rural)**

There were also substantial differences between religious groups in terms of the role, status and lifestyles of women. Among Muslim participants, a strongly patriarchal family structure was more apparent. This was reinforced by expert interviews which noted that women, particularly in Hausa Muslim families, may struggle to see the relevance of ID as they leave home infrequently and are less educated. Among Christian women, and especially in the South West – although the women remain primarily responsible for domestic work, they have a great deal more agency and freedom.

> *"It is not possible for my husband to stop me from getting ID if I want it."*
>
> **Female, NID adopter, Erunmu (rural)**

Alegoke

Female, 47, Non-adopter, Erunmu (rural)

Alegoke is a mother of five children, living in a rural town in South-West Nigeria. Her eldest child is 23 and her youngest is eight. Alegoke works weaving wicks for kerosene stoves, which she sells to a trader. She also does wirework: making earrings and other items that she sells locally.

She lives in a house left to her by her husband's mother, whom Alegoke adopted when she fell ill and nursed until her passing. Alegoke is proud of having been able to care for her husband's mother, and sees this as a real achievement and an affirmation of her as a good wife and member of the community. The fact that she inherited the house is testament to this. **"It makes me proud that I took care of my mother in-law, and am honoured as a good wife."**

She has a Voter's Card, but rarely needs to use it. She does not habitually carry it around with her – she sees it as mainly useful for voting. She rarely needs to use ID of any form - her work is based around her home and the community and so she rarely travels. However, she was once invited to the local government office to deliver training on how to weave stove wicks, and she showed a professional certificate to prove her ID and her qualification.

She desperately wants NID, to prove that she is a good citizen, and to give her the option of traveling. However, despite having made a concerted effort in the past she has not been able to register. This has left her feeling bitter and excluded. **"It is painful that I have not gotten it - how will I get this thing I have been longing to have? [If she sees someone who has NID] I will now ask the person how he was able to get his own, so that I can also do likewise."**

She was extremely enthusiastic about the prospect of mobile agent enrolment. The primary barrier preventing her enrolling for an NID has been the chaotic and time-consuming sign-up process at the official enrolment centres. If an easier and more local option were available, she would be keen to try again.

Identity landscape

National identity in Nigeria

The NID is the most official and robust form of identification, and generally favoured and recommended by government agencies. Two different issuances of the NID are in circulation. The first was launched with a mostly-unsuccessful recruitment drive in the early 2000s, characterised by fraudulent enrolments and fulfilment issues. Rollout of the new NID card is ongoing, with total overall NID penetration currently around 30[18] per cent.

The greatest barrier to uptake of NID is enrolment: registration centres are often overcrowded and waiting times can be unpredictable: several participants explained that they had arrived before dawn and queued until the evening without being able to enrol. They then repeated this process for several days, and often without successfully registering at all despite such concerted efforts. Many are not able to devote this much time to the process, due to competing personal and professional priorities (including the opportunity cost of leaving work, and the financial cost of travelling). This is particularly the case for women who are unwilling to subject themselves to the physical maelstrom of enrolment.

Beyond enrolment, the fulfilment process is also considered by many to be flawed. There are long delays between enrolment and issuance of a permanent NID – in some cases, years, if at all. Following enrolment, citizens are issued with a temporary, paper, NID. This comprises of a large, laser-printed, slip – a format that is not robust nor conducive to regular usage. These difficulties are well-known, and also highlight the importance of improving the enrolment experience – including through leveraging MNO touchpoints, biometric equipment, and customer engagement:

> *"And after all that trouble, you only get a scrap of paper? No, I will wait until they have sorted out these problems."*
>
> **Female, NID non-adopter Ibadan (urban)**

18. See: World Bank Identification For Development (ID4D) Global Dataset

> *"We have the biggest reach nationally on Nigerians, particularly in rural areas. If we were involved, it would probably mean a big jump for the NID."*
>
> **MNO expert**

More broadly, many respondents considered the NID to currently have limited practical value. Few are keen to undertake the above enrolment process when more accessible forms of ID are suitable for most day-to-day scenarios:

> *"ID cards are more important in urban areas. In rural areas, people do not really have any knowledge of them."*
>
> **Female, NID non-adopter, Kubwa (Nigeria, urban)**

This highlights the importance of any digital identity solution being founded on compelling use cases, and reflecting the needs and realities of potential users. It also reaffirms the relevance of mobile technology in the identity journey. Here, mobile can both reduce the barriers to enrolment, as well as increase the salience of the NID, through communications campaigns and the development of essential NID-linked services.

Despite relatively few essential applications, NID was aspirational both for those who have it, and for many of those who do not. Ownership of a document that affirmed an individual's nationality is powerful. Particularly in the South-West, those who struggled to register for NID often felt as if their citizenship were less secure, or that their birthright was being denied:

> *"It hurts me that I cannot have it. All citizens should have it."*
>
> **Female, NID non-adopter, Erunmu (rural)**

> *"It is so painful to me. They asked me, "Even you, as big as you are, you do not have ID?'"*
>
> **Male, NID non-adopter, Ibadan (urban)**

Overall, the ID ecosystem in Nigeria is quite fragmented, with four main official (government-issued) forms of identity documents in operation: the NID, the Voter's Card, Driving Licence, and international passport. These, and other official documents, are set out in the Appendix. None feature any mobile or digital components, with the exception of the smartcard functionality of the new NID. In addition, unofficial 'Work ID' is widespread – often laminated or basic plastic cards showing a company logo or similar identifying mark. These are easy to produce, as they are not standardised, and serve most day-to-day identification needs. For those without official ID, work ID is their only or best form of ID. The Nigerian government aims to make NID the primary identity document for all – including driving uptake through increasing its day-to-day usefulness.

Numerous other documents were used for identification, with varying degrees of weight and legitimacy. These are often used in combination, to 'add up' to a valid identification.

Identity documents cited by research participants in Nigeria

Multi-purpose ID documents	Birth certificate; state of origin certificate; High Court affidavit; electricity bill (NEPA bill)
Professional ID documents	Complimentary business card; trade association membership card; professional qualification certificate; LinkedIn profile
Health-related ID documents	State hospital card; NHIS (National Health Insurance Scheme) card; immunization card; private hospital card
Education-related ID documents	Student ID; school ID; school leaver's diploma; university acceptance letter

However, the complexity of the identity landscape causes some confusion and cynicism in end users. Many struggle to understand the different options, or have experienced the patchy rollout of previous systems, and therefore question the need for the new NID. The negotiable nature of identity in Nigeria also means that end-users are unaccustomed to the idea of a single, indispensable ID, and struggle to think of many use cases where no alternative ID would be valid.

The workarounds used by those without the necessary ID are extensive. Noted by many participants was the role of 'vouching' – whereby someone else attends, or is called, when an individual needs to explain who they are. For example, when entering a building, the visit recipient will come down in person; or when stopped by the police without ID, a contact with ID may come to the police station or checkpoint to help. Beyond this, participants highlighted other workarounds including describing relationships with others (in particular, providing the names and addresses of one's parents), personal recognition, written references, and using an expired ID (largely a student ID).

Although these workarounds were universal, women noted that they would smile or cry at security checks, or provide the security guard with their phone number. More widely, there is supposedly special dispensation for pregnant women in particular (and unclear) circumstances. The simplicity and acceptability of these specific workarounds perhaps reaffirms how women are taken less seriously – and seen as less of a security risk - in some settings.

CASE STUDY 2

Mohamed

Male, 28, NID non-adopter, Kubwa (urban)

Mohamed is a student who works part-time in a barber's salon and lives in compound accommodation. He is proud of being Nigerian, as well as of being Muslim. **"This is a great country... I would love to see my country move forward, and I want to be someone who adds value to society."**

He has two handsets and two SIM cards on different networks. He uses one of these SIM cards for data - particularly chatting via WhatsApp, as well as using Facebook and Gmail. He also habitually receives messages and updates on services via his phone: *"I get bank messages, and information about school registration."*

He has a Voter's Card which is very important to him. It provides him with a sense of reassurance and stability. He feels it meets all of his needs, and he is confident that he can prove his ID when needed. He feels positively towards the NID, but does not see it as essential, and he feels it is hard to get – whereas the Voter's Card is something he thinks everyone can get easily. *"I have my Voter's Card which is very important to me. In Ushafa, we have about seven points that you can register for Voter's Card. So everyone can get it easily."*

This feeling that a Voter's Card is enough for him was reaffirmed recently when he tried to open a bank account. He was able to do so through a combination of his Voter's Card and the shared utility bill from his accommodation. While NID might have made this experience easier, it was not essential – confirming his belief that it's not important enough to warrant the stress of trying to enrol. *"It's impossible stress..."* Nonetheless, if enrolment were easier, he would be interested to sign up for NID.

He was very positive about many potential digital ID solutions, including a digital version of an ID document, such as the NID (which promises convenience); and mobile agent enrolment. The latter would make it easier for him to consider enrolling for an NID.

In exploring this context, there are a range of potential opportunities for digital ID solutions. The prominent role of informal 'Work IDs' in society, and the fact that they are fairly inaccessible to self-employed or informal workers, highlights a significant opportunity for digital identity innovation: delivering equivalent functionality and benefits to informal workers:

> *"It would be good to be able to prove your business, and they [customers] would not have to come to your shop before they can believe you."*
>
> **Female, NID non-adopter, Erunmu (rural)**

Similarly, banking can be out of reach to many of those without NID, or without another fairly robust combination of identity documents, leaving many with inadequate access to basic financial functions. Mobile money usage is also lower than other countries in the region, but likely to grow in the coming years.[19] New identity-linked services which expand access to basic financial services like cheque cashing, savings, and payments – or which could drive uptake of mobile money – have clear potential:

> *"I want to open a bank account but couldn't do it because of the National ID Card. When someone sends money to me, I have to collect my friend's ATM card to get the money."*
>
> **Female, NID non-adopter, Erunmu (rural)**

Identity processes around accessing healthcare are fragmented, and can be slow or unreliable. Due to this, there is real demand for centralised or streamlined services:

> *"Like your files, you go to hospital and you go and check for files, you spend hours, you spend days, they will now ask you to come again that they didn't get your file…"*
>
> **Female, NID non-adopter, Kubwa (urban)**

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19. GSMA, State of the Industry Report on Mobile Money (2018): https://www.gsma.com/r/wp-content/uploads/2019/02/2018-State-of-the-Industry-Report-on-Mobile-Money-1.pdf

Mobile landscape

Mobile phone penetration is increasing in Nigeria, and mobile internet usage has also seen strong and recent growth (Figure 4, figures based on total population). This context provides a strong foundation for digital identity solutions, with larger mobile internet usage than in the other two countries[20] studied - and with significant opportunity for further progress. However, although the country has a smaller gap in device ownership between men and women, there is a more marked difference in mobile internet usage and awareness of mobile internet between genders. Among the adult population in Nigeria (age 18 and above), women are 29 per cent less likely than men to use mobile internet.

Overview of mobile and mobile internet landscape[21]

Millions

Unique subscribers · Subscriber penetration · Mobile Internet Subscriber Penetration
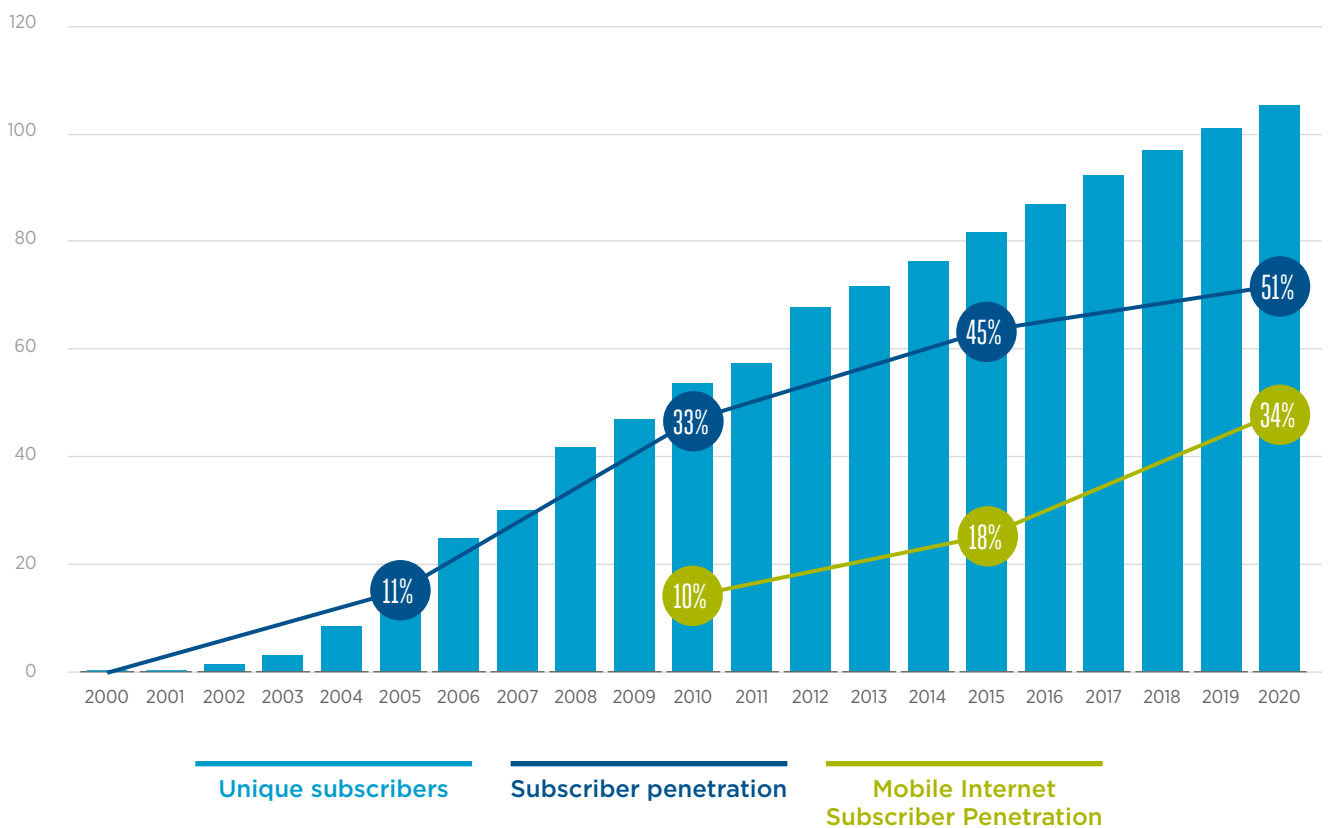
Nigerians are highly tech-savvy, with ownership of multiple SIM cards common. Often, the use of multiple SIMs was driven by a desire to optimise across different tariffs (for example, when one operator offers cheap call credit, but another offers cheaper data). However, some consciously used multiple SIMs to allow for distinct lines and numbers: one for 'business' and the other for everyday life, or a 'hotline' for close friends and family and 'general' number for everything else. In a competitive mobile market, the development of digital ID solutions could be a strong differentiator for MNOs.

20. GSMA (2019) 'The Mobile Gender Gap Report 2019'
21. All data from GSMA Intelligence, unless otherwise stated

Multiple handsets were also common, particularly among younger and more urban participants. Typically, this was one "big phone" (smartphone, usually Android) and one "small phone" (a basic or feature phone). Smartphones were typically used for internet services, and feature phones as a reliable go-to for calls and SMS. The majority of both male and female participants owned and used a smartphone, with access to mobile internet – however, as highlighted above, national usage of both smartphones and mobile internet is lower. Battery life was a concern, and many were reluctant to rely on a smartphone alone as their primary point of contact. This has clear implications for any mobile-enabled identity services, which are likely to leverage smartphones due to their growing market penetration.

Know Your Customer regulations

The Nigerian Communications Commission requires SIM cards to be registered in order for them to be activated. This registration requires MNOs to capture personal and biometric data at the point of activation. Customers are required to provide official identification documents to prove their identity, and it should not be possible for an individual to register a SIM in someone else's name. A small number of participants were unaware of the ID requirements for SIM registration, despite their belief that they had registered their SIM card correctly, and in their own name. A very small number of participants were aware of the requirements, and flouted these through borrowing the ID of a family member or similar. One MNO expert also noted that in more traditional Nigerian families, if a women wants a mobile phone it is likely to be purchased and registered by the male head of the family.

Mobile phone usage

Many participants used mobile phones for personal and professional reasons. Even individuals with lower self-reported digital literacy frequently made and received calls, and SMS, from clients or customers. Mobiles were also used to take photographs of goods that individuals had produced, or that participants were looking to sell, to show to potential customers. Mobile money – (Paga is a leading provider, and the common name for the service) – was used much less widely than in other African markets. Only six per cent of adults have a mobile money account; four per cent of women.[22] Online marketplaces like Jumia were also popular amongst participants for the purchase of wholesale goods, to be resold later. Other platforms were also used widely for professional purposes: with participants advertising goods via WhatsApp, or promoting one's business via a dedicated Facebook page.

For all mobile internet users, usage of WhatsApp and Gmail was frequently cited as well as Facebook and Instagram. Concerns regarding security and trust varied across applications, with many aware of the presence of fraudsters on social media. More specifically, particularly isolated individuals – notably Muslim females – felt that their husband would be unhappy if they were to upload personal data to sites such as Facebook.

Participants used mobile phones in a range of identity journeys. This included calling others to 'vouch' for them (either verifying the individual's identity over the phone, or in person), two-factor authentication, exchanging numbers to ensure that one can be contacted in order to prove "good faith", or to store key identity documents – including NID numbers, or one's Bank Verification Number (BVN). With regard to building on this latter use-case, participants noted that these digital copies would not be an acceptable substitute in more intense identity challenges (particularly in cases of police "harassment").

22. Global Findex Database 2017, World Bank: https://globalfindex.worldbank.org/node

The scope for digital identity innovation

Participants' existing mobile ID behaviours – combined with the relatively high levels of digital literacy and mobile engagement – indicates a high level of readiness for further mobile and digital ID innovation. Particularly among younger and urban individuals, digital ID solutions offer convenience benefits – notably due to the convenience of the device. This is in contrast to the temporary NID, which is often left at home as it is not simple to transport (or to replace) and therefore often not available when needed. While few participants expected a digital ID to be as credible as its analogue counterpart, a recognised digital version was seen to be a useful concept.

Similarly, the range of ad hoc digital and social media solutions being used to prove one's business credibility - and to promote goods and services - highlights a clear and unmet need for economic identity[23] products and services. The importance of less formalised 'Work ID', and the lack of a solution for those working in the informal economy, reaffirms this opportunity.

However, even amongst those positively disposed to mobile ID solutions, there were a number of queries. Battery life was frequently cited as a potential barrier. Dependence on a mobile handset as your primary form of ID felt too risky – many in this sample owned older handsets with unreliable batteries. There was strong expectation, therefore, that digital and mobile ID would be a 'back-up' to a physical copy, or a supporting ID rather than something essential and foundational.

There were also concerns around security and privacy. Some of these related to online or digital security, and understanding of these areas was poor. Many security concerns were more focused on individual interactions: in particular, a reluctance to show or share your handset with others. Concerns ranged from fear of identity (or phone) theft or fraud, to outright rejection by the official. However, these objections stem from what are unfamiliar concepts to many participants, and with widespread promotion and education these barriers are not insurmountable.

> *"You do not show your phone in the market square, where anyone can see…"*
>
> **Female, NID non-adopter, Kubwa (urban)**

> *"If I get stopped by a police and I try to show him my phone – he will not have patience for this. He will just take my phone and throw it and arrest me anyway."*
>
> **Male, NID adopter, Ibadan (urban)**

23. 'Economic identity' is a further aspect of an individual's identity, moving beyond their 'fixed identity' (i.e. the demographic and biometric details recorded on an identity document). An 'economic identity' focuses on an individual's shifting, dynamic, and less tangible, social and economic circumstances. There is significant potential for economic identity solutions to improve financial inclusion. GSMA has explored the concept of economic identities with a range of groups, including Smallholder farmers in Sri Lanka (2018).

Market overview

Bangladesh

Country summary

The NID has been heavily promoted by the government and is often seen as the most important form of ID. It has evolved from a functional purpose (as a Voter's Card) to a more foundational role and is increasingly essential for public and private life. These attributes have been reinforced by extensive government activity to drive NID registration.

Although perceptions of NID are still influenced by its election origins, its practical and symbolic role has grown. It is seen as a source of civic pride, and those without an NID experience a definite ceiling on personal and professional aspirations. Although workarounds do exist, those without NID are often excluded from numerous services and employment opportunities. There is therefore significant potential for functional digital ID solutions linked to professional advancement.

More broadly, a fairly conservative Muslim culture curtails some women's ability to participate actively in civic life. This is especially true in rural families, where a woman's role is expected to revolve around the home, and her ability or confidence to travel without male accompaniment may be low. Related to this, mobile phone sharing is common. Women are more likely to be 'secondary' sharers, with less immediate access to a handset and lower daily mobile usage. Women also tend to have lower levels of digital literacy. Both of these aspects are key barriers to digital ID products and services. In male, and urban, segments, smartphone usage and digital literacy is higher.

Contextual and cultural factors

Robust government and institutions

Bangladesh is a densely-populated, Muslim-majority country of approximately 165 million people. It is undergoing rapid development and growth, with GDP more than doubling since 2010.[24] Much of this growth has been driven by manufacturing, especially the textile and garment industries. However, large portions of the country are rural and agriculture remains a very large source of employment.

Economic growth has led to rapid urbanisation, with many workers migrating from the countryside to work in cities, often in garment factories. Many of these rural-urban migrant workers stay in temporary accommodation, remitting money back to their families in their home district. This presents some identity-related difficulties, as NID registration needs to be undertaken in one's home town.

Bangladesh is run by a parliamentary democracy, with a relatively robust and organised, central government – a government which was returned to power just prior to this research. This contributes to fairly high levels of trust in government and in institutions generally. Amongst participants there

was low awareness or expectation of corruption within government institutions as a whole, and no information was considered 'too private' to share with government agencies.

However, while the government itself is well-regarded, with various forms of government social support being available – including help for the poor, financial support for single mothers, and contributions towards the cost of education - many see low-level corruption as commonplace. Police checks and stops are common, especially for those travelling at night, and many believe that interactions with police or government officials might often result in a demand for a bribe. In this context, identity is a central consideration for many.

> *"Another person is referring to a place where I need to spend 600 taka. I am saying why should I need 600 taka? Am I not a citizen of this country? Why should I need 600 taka for registering?"*
>
> **Female, NID non-Adopter, Dhaka (urban)**

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24. See: World Bank DataBank for Bangladesh

The importance of home, faith and family

In Bangladesh, an individual's identity is generally rooted in familial and geographic origin first and foremost. These elements are often central to any introduction. Further affiliations or characteristics – including profession, or place of residence - are secondary, especially in the case of migrant workers, who typically identify much more strongly with their home region than with their new city location.

Behaviour and piety are key drivers of pride and respect, with many participants wanting to be seen as "a good citizen, and a good Muslim". This generally entails being polite and respectful, being a responsible and helpful member of one's community, and following the tenets of Islam to the best of one's abilities. Education, wealth and professional success are also important measures of status, and Bangladesh has a growing middle class. Several poorer participants reported feelings of inferiority and embarrassment at their relatively low station, and feel that they are not afforded sufficient levels of respect. This highlights a potential role for digital ID solutions that evidence professional experience and capability.

> *"When people address me as a beggar and say that I don't have a house, I feel disrespected. But I feel proud that I don't need to ask for money because I earn my own."*
>
> **Female, NID non-adopter, Kalihati (rural)**

Hopes and aspirations typically centred around children – especially among older participants, or women who often feel that their opportunities in life have been limited. Such individuals focus their energies on their children, working to ensure that they might have a better life and increased opportunity. Participants noted the role of ID here, in particular the value of NID in ensuring secure and more formalised employment. Building on this, highlighting the benefits of NID enrolment for one's children could increase its salience – particularly amongst women, who are primarily responsible for children's care and education.

A conservative gender dynamic

Participants described traditional and strongly patriarchal family structures, in which a male head of household typically has responsibility for, and a degree of control over, the women and girls in the household. Women are expected to be based in the home, and to undertake domestic and childcare responsibilities. However, those in urban areas were likely to be more liberal in their attitudes and behaviours, and it was common for women to work – whether in formal or informal employment. Mobile phone ownership was lower amongst women.

> *"My husband told me to make it [the NID] as soon as possible from wherever I can get it. It is very essential. My children are growing up. They need the card for school admission or for other things."*
>
> **Female, NID non-adopter, Dhaka (urban)**

In contrast, rural women were more often housebound. They are reluctant to go out without their husband or a male chaperone – or, at a minimum, as part of a group of women. Levels of literacy and education were lower among these groups, and many did not work (formally or at all), prioritising their domestic duties instead. This presents considerable barriers to uptake of mobile-enabled identity services among these hard-to-reach audiences, where women have limited education, independence or agency, and often live within quite narrow limits.

> *"Girls always have housework to do. I wake up in the morning, do some housework, and when I have free time I sit idly. I don't go outside the home to do any work. I wanted to grow up and do something after studying, but that did not happen."*
>
> **Female, NID adopter, Kalihati (rural)**

CASE STUDY 3

Rafiq

Male, 28, NID non-adopter, Kalihati (rural)

Rafiq is a young auto-rickshaw driver in Kalihati Upazila. He recently married and does not yet have children of his own – he lives with his parents and his wife in his parents' home. He's also in charge of the family cow, and of doing the family's grocery shopping. He feels very closely connected to his local community, and puts great importance on how one behaves within the community as a source of respect from others. This includes doing good deeds (he took in and supported two homeless, trafficked girls when he was living in Dhaka), donating to good causes locally (like contributing to the wedding of a poor family's daughter), and being respectful – giving 'salaam' to his elders in the street.

He wishes to start a family and raise his children happily and healthily, and for his children to have more in life than he has. When he has children, he and his wife firmly intend to register their births: "After a child is born, the first identity it needs is the birth certificate. They have to have it, because without it, they cannot get admitted to school. It is necessary for both girls and boys."

He has a smartphone, which he uses to go on Facebook and to check sports results. His wife does not have a phone at all. If she wants to make a call, he dials the number and then passes her the handset.

Rafiq does not have a NID, and it has not caused him many problems as he is generally able to find relatively simple alternatives: he carries a letter of identification from the Upazila Chairman which helped him to get his job as an auto driver;

he was able to register his marriage due to the personal contacts he has with the officials; and he registered his phone using his mother's ID (although she had to come with him in order to provide her fingerprints).

Nonetheless, he remains excluded from many elements of financial and civic life. The desire to receive a loan, in particular, is drawing him closer to enrolling for a NID: "I want a voter ID because now in our village if you go to an NGO for a loan, they also ask for your voter ID."

New digital ID products and services which could help him achieve his professional or other life goals – such as business and work digital identity solutions – resonated highly with him, as did innovations that could make it easier for him to access NID in the first place.

Identity landscape

National identity in Bangladesh

The Bangladesh NID dominates the country's identity landscape, and is used in all official circumstances, or to access services. NID rollout has been broadly successful in Bangladesh, with over 80 per cent of the population aged over 15 years old registered.[25] Most participants noted that NID ownership is an absolute necessity for life as a Bangladeshi; concordantly, many of those without NID felt deeply aggrieved, marginalised, and disenfranchised by their failure or inability to enrol.

The NID is required to register a mobile SIM card, to access regular banking services, and to apply for (or collect) government subsidies and benefits. It is also essential for accessing work, with the majority of formal employers – and even some informal employers – demanding NID before hiring an individual. Those without a NID are therefore excluded from virtually all office jobs, government jobs, and even garment factory work, and are limited instead to informal and self-employed work. However, even here lack of a NID can be an obstacle: several participants who worked as home assistants lost clients because they could not prove their identity.

The NID was also seen to provide legitimacy to one's identity. Perhaps reaffirming this, those without a NID noted definite barriers in navigating their personal and professional lives. These challenges made them feel "powerless", and that they were missing out on key services and opportunities. Lacking a NID also carries a significant stigma and those who have not enrolled are often desperate: not just to access services, but also to receive the level of respect that they feel that they deserve – and to validate their status as a Bangladeshi citizen. For those on a very low-income, NID is seen as key step in the journey to a better life and to "peace of mind":

> "I know I will not ever get in trouble if I have my own NID."
>
> **Male, NID non-adopter, Dhaka (urban)**

Despite these benefits, many are unwilling to navigate the challenging enrolment process with the potential for long queues, delays, and the need to navigate bureaucratic processes. For urban migrants, these barriers are compounded by the requirement to register in one's home district during the designated enrolment period. MNOs were seen to play a potentially key role here. Whether through SMS campaigns, highlighting enrolment periods or processes, or through mobile agent enrolment. Further support and reassurance could also help drive enrolments. In particular the prospect of group enrolment trips was very reassuring for many women, who often feared the potential for confrontation or exploitation at the hands of unscrupulous officials.

Fear of losing one's NID was high, meaning that some participants did not want to carry it with them. Instead, they carried a photocopy or a photo of the card on their phone. There is also a temporary digital version of the NID which is issued upon enrolment, for use while waiting for the card itself. Some participants continued using this after receiving their card. Others did not carry a digital copy of any kind with them, but explained that if needed, they could call someone at home who could bring the ID card if they were in trouble, or show it over a video call to prove their identity. In any case, this shows a high degree of readiness for some form of mobile-delivered digital ID.

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25. Global Findex Database 2017, World Bank: https://globalfindex.worldbank.org/node

In addition to the NID, there are a range of other official ID documents that are relevant for particular use-cases (see Appendix). Beyond these, participants cited Chairman's Letters as having relevance in some situations. These are semi-formal documents attesting to an individual's residency and/or good character. They carry some legal weight, but do not detail the holder's personal information. They are more common in rural areas, and require strong community connections – a challenge in an urban setting, such as Dhaka, where migrants have weaker links to the local community. Participants noted that the letter is largely useful for daytime police checks in one's local community, or for obtaining informal employment.

The centrality of NID makes workarounds less easy and less widespread, and there is little flexibility around what forms of identification may be accepted. In many official contexts, only an NID is suitable. In more informal settings, limited workarounds for those without NID are possible – but these often focus on persuading gatekeepers of one's identity and/or good character. In comparison to the other two countries studied, workarounds are much less common and are likely to fall into one of two types. First, an individual – primarily a local community leader – vouching, via voice or video call, for one's good character. Second, and in very informal situations, detailing one's personal

information (such as the name of one's parents, or husband) may suffice.

With regard to the latter point, women were seen as less likely to need to resort to ID workarounds. They were considered to be much less likely to be outside of the home after dark, or travelling far from home. Both instances were mentioned by most participants as when individuals were particularly challenged to verify one's identity.

> *"If women get their NID stolen, they don't have to worry as much."*
>
> **Male, NID non-adopter, Kalihati**

More boadly, and in response to the challenges faced by those working in the informal economy, there is a significant opportunity to develop digital ID solutions that highlight the credibility of less formal businesses, employment, and skills. This may also include a wider business proposition to drive greater economic participation: for example, enabling non-working women to launch and promote a business from home. In addition, beyond the smart NID card, most other identity documents are less formal and robust. These documents would be simple to digitise, and could be strong foundations to the development of a digital ID ecosystem.

CASE STUDY 4

Salma

Female, 41, NID adopter, Dhaka (urban)

Salma is mother to three daughters, who all live back in her home village with their grandparents. The eldest daughter is in college, while the younger two are in school. Salma lives in rented accommodation in Dhaka with her husband. Salma works as a maid at some local houses, and her husband is a security guard. Their main focus in life is earning money to support their children back in the village – to put them through education, and to enable them to have a better status in life than Salma herself has had. The fact that she is able to afford to put them in education is a source of pride for her. She is also thinking about saving for the future, so that she will not have to depend on them when she is older. "I think that by educating my children well, it helps them become good people. We work so we can get our children to be well educated and be of good status."

Salma has a feature phone of her own, which was given to her by the madam of one of the houses she works at. The madam's daughter had a spare phone, and the madam wanted to be able to get in touch with Salma when she needed her. Salma mainly uses the phone for calls, but also uses it to listen to songs and religious sermons that she loads onto her phone before she goes out. She would like to use the internet more to make video calls to her relatives, but she believes that data is expensive and this stops her from experimenting with her phone. Salma has only recently got her NID card back, after losing it: "I was staying in a slum at Mirpur. One time I went back to my village, and when I returned I saw that our slum had been destroyed, and I had lost my NID. It was hard. I had to work as a maid."

Salma had been working in a garment factory for four years, but lost her job when her employer asked to see her lost NID. She has had to work as a maid ahead of getting another job, now that she has an NID again. The prospect of having a digital backup for her NID was extremely appealing, as she recognised how it could have helped her when her NID was lost.

Mobile landscape

Bangladesh has a burgeoning mobile market, with just under 90 million unique subscribers - in a population of just over 160 million (Figure 5). When considering those aged over 18, a substantial mobile gender gap exists: 86 per cent of men own a phone, compared to only 58 per cent of women. This gap is even more pronounced with regard to mobile internet usage, with only 13 per cent of women using mobile internet.[26] However, GSMA Intelligence data highlights that mobile internet penetration is growing fast: by as much as 12 per cent year-on-year.[27] Despite this progress, digital identity solutions must account for these disparities and be available for all.

Figure 5

Overview of mobile and mobile internet landscape[28]

Millions

Unique subscribers   Subscriber penetration   Mobile Internet Subscriber Penetration
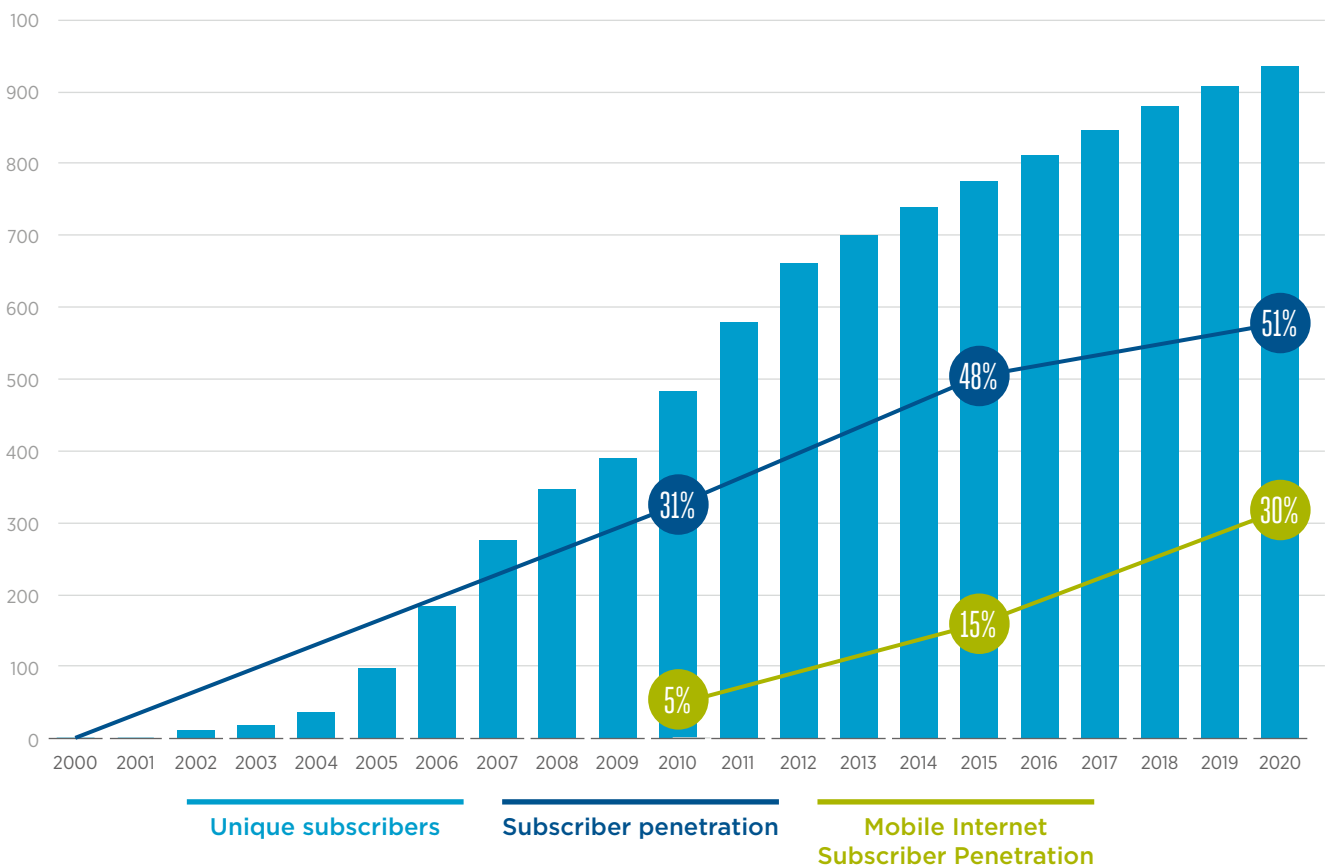
While mobile internet usage and more sophisticated online behaviours are slowly growing in Bangladesh, many in this sample were still using their phones in relatively basic ways. Many owned basic or feature phones, with an emphasis on calling and texting over online services. Nonetheless, the ability of a phone to take and store a photo was very valuable for several participants. Smartphone connections are also growing steadily – a clear opportunity for digital ID products and services, although those with more basic handsets should not be excluded from the potential afforded by digital ID. Having more than one SIM card was rare amongst participants, and only a small number had multiple handsets – usually one work phone and one personal, or one for calls and one for data.

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26. GSMA (2019) 'The Mobile Gender Gap Report 2019'
27. All data from GSMA Intelligence, unless otherwise stated
28. ibid

Mobile phone usage

Mobile money usage was relatively widespread across the sample, with BKash and Rocket used by many participants. These services can be used even by those without accounts of their own, and without the relevant ID documents to set up an account, by dealing in cash directly with the mobile agent. However, this usage is perhaps not representative of the wider country context. Across Bangladesh, 21 per cent of the population use mobile money and a significant gender gap exists: 32 per cent of men use mobile money, compared to 10 per cent of women.[29]

Many viewed mobile agents as trusted and indispensable members of the community. Several in this sample had used an agent for help in learning how to use their phone, as well as buying top ups. Given this, agents represent a clear opportunity for the implementation and roll-out of digital ID solutions such as NID enrolment. Mobile agents could also act as enablers, serving as a source of information and assistance regarding wider digital ID solutions.

Although social media usage was low amongst participants, awareness of social media was considerably higher. While users appreciated the benefits of social networks, in terms of conducting business and meeting people, many are also aware of risks in terms of security of personal data – if only vaguely. These included concerns regarding data – such as accounts being hacked – as well as personal or offline risks, such as meeting, "Friending", or being approached by the "wrong" people. These concerns were particularly prominent for female participants, several of whom worried that their husbands would not approve if they used social media. This wariness was most pronounced among more conservative households, especially in rural areas. Clearly, digital identity solutions must engage with privacy and security concerns.

Digital literacy

Digital literacy levels were low amongst participants. Many women in the sample, especially in rural areas, were less confident than men with using mobile phones, the internet, and technology more broadly. Most women did not have a phone of their own, and many shared a handset – one often owned by their husband. In some cases, women would have to ask for help from their husband or son to answer a phone call, or read a text message.

For women who share a phone with their husband, access to identity-linked mobile services may be harder. They lack exclusive handset usage, and the phone is typically registered in their husband's name. Personalised ID solutions will need to contend with these structures. In this context, participants also raised some questions around security. Some voiced an expectation that any identity-related service accessible via a phone would need to be password protected.

Low levels of functional literacy (and limited English) also need to be taken into account, as text-based apps or even SMS services might feel intimidating to some women. Similarly, text input systems are not optimised for Bangla. Nonetheless, one NGO expert noted that despite these challenges, the situation is improving - and women's access to digital and mobile service is set to increase in some areas, particularly urban.

> "In areas where there are industrial units, where women work in factories: they might have their own mobile wallets and mobile money accounts. There was a study which showed that year on year penetration of mobile money is increasing by four per cent among Bangladeshi women."
>
> **NGO expert**

29. The Global Findex Database 2017, World Bank

Know Your Customer regulations

In principle, it should not be possible to get a SIM registered in Bangladesh without holding a NID. However, those with a NID are allowed to register up to 15 SIMs to one's card. Therefore, it is not uncommon for a SIM card to be registered on someone else's behalf. Many female participants had phones that had been registered by a family member - typically their husband or father, and in his name. There is some evidence of trust barriers at present. One MNO expert mentioned privacy concerns that had been voiced by customers, who were uncomfortable sharing biometric data with MNOs as part of the SIM registration process. This situation could be improved by highlighting the statutory obligations of MNOs, with regard to KYC regulations.

> *"People assume they are sharing their biometric data with the MNO, when it's not the case, we don't keep it in our records. There is still a lot of confusion and low awareness of the process, which leads to mistrust."*
>
> **MNO expert**

More broadly, MNOs were typically seen as global, established companies with secure processes. Few had any concerns about sharing further data with MNOs, as long as the exchange clearly benefitted the customer. These benefits included allowing an individual to obtain a SIM card, to use mobile money services, or to potentially use mobile-based identity solutions in the future.

Discussions with a number of MNOs highlighted significant interest in closer cooperation between MNOs and the government. This included with regard to digital identity products and services, and SIM registration and KYC requirements - particularly in terms of women's SIM registration rates. Due to KYC requirements, MNOs already possess biometric hardware and could further support and promote female SIM registration. This would have intrinsic value for MNOs. One MNO expert highlighted the challenges of maintaining accurate data on female customers, particularly due to the number of female-operated SIMs registered to male family members. Strengthening this data is an important foundation for any digital identity solution.

The scope for digital identity innovation

During discussions, participants provided a wide range of feedback on the several digital ID concepts presented. Due to the above enrolment challenges experienced by many, and the centrality and necessity of the NID for day-to-day life, participants were broadly positive with regard to the role and potential for digital ID products and services.

The difficulties of enrolment, including travelling to one's home district, resulted in significant interest for NID enrolment via mobile agents – who are already in possession of biometric equipment, with data links to public data registries. Similarly, the importance of the NID perversely incentivises many to keep such an important document in a safe place – largely at home. Due to this, many do not have access to their NID when challenged to prove their identity. Therefore, digital identity solutions which allow users to show their NID on their mobile device were considered by many participants to be a potentially useful approach.

In addition, the requirements for a NID have constrained many in the informal sector – who struggle to find more formalised opportunities, access financial services to grow their business, or build longer-term enterprises. Digital ID solutions could offer significant benefits in this area by providing informal workers and business owners with products and services to verify their hard work and successes, and to evidence their skills and experience. Participants were also interested in a shareable economic identity, which could be sent to potential clients or employers.

> [With regard to enrolling via a local mobile agent] "We can get it from nearer places, don't have to go too far or look for people to help. It is helpful."
>
> **Female, NID non-adopter, Kalihati (rural)**

> "This means I won't have to worry about carrying my papers with me. I won't worry if I forgot them."
>
> **Male, NID adopter, Dhaka (urban)**

> "They wanted papers from me, but I didn't have any. So, the owner did not give me any work at first. I had to beg him to take me. I was working fine, but after a month, they asked me for documents again."
>
> **Male, NID non-Adopter, Dhaka (urban)**

Market overview

Rwanda

✎ Market summary

Rwandans are proud to be citizens of a country that is working successfully towards a positive future. The country's recent stabilisation and economic development contribute to a strong buy-in to a shared national identity: to be 'Rwandan' is important. The Rwandan NID is an essential document, and the only acceptable form of identification for numerous aspects of life including SIM registration, legitimate access to mobile money, opening of a bank account, and access to government services. Those who do not possess a NID are therefore excluded from these activities. Several participants without a NID articulated feelings of shame or embarrassment, and had resigned themselves to day-to-day workarounds and compromises – or even avoided public services altogether.

Smartphone usage and digital literacy levels were low amongst participants, particularly for women. Smartphones are highly desirable, yet largely out of reach for many. Women were less likely to have access to a smartphone than men. Any digital ID solutions would need to accommodate low smartphone usage and digital literacy, and be available on basic and feature phones. Despite this, storing identifying information on one's mobile, particularly on a SIM card, was common. Many with a NID saved a copy of their National Identity Number (NIN) or a photo of their NID on their handset. There is scope to build on this familiarity when designing digital ID solutions, as mobile phones are already considered to be identifying tools.

The formal 'Head of the Family' is most commonly a male, meaning women often depend on men to access specific services such as healthcare. This contributes to a widespread belief that a man's social role is higher than that of a woman, and therefore it is more important that he have a formal identity. Digital ID products and services will need to engage with this context, and developing solutions focused on the identity needs (or domains) of women could be valuable.

Contextual and cultural factors

Politically stable and unified

Rwanda has recently stabilised, however citizens remain acutely aware of the 1994 genocide. Many participants expressed pride at the country now being peaceful, with a supportive community infrastructure, and positive economic development – especially relative to neighbouring countries. A strong sense of shared national identity, and its importance, is widespread. In 2007, during a three-day weekend, the government asked Rwandan citizens to stay at home to allow civil servants to register citizens. During this time, 9.2 million people were added to the National Population Register (NPR).[30]

The Government of Rwanda's Vision 2020 Umurenge Programme (VUP) aims to eradicate extreme poverty by 2020. This includes activities targeted at socio-economic transformation, as well as local participatory events (such as monthly Community Work days, when all citizens are required to help with cleaning their local area). With regard to broader VUP projects and programmes, some participants mentioned benefitting from government subsidies. These included a fertiliser assistance programme, and a project that distributed mosquito nets to vulnerable populations. Initiatives such as these were cited by participants as evidence that the government is working to improve their lives, and Rwanda more widely. Such efforts also contribute to very high levels of trust in government and official institutions.

Crime is low, and few individuals in this sample described having been victims of illegal activity – although isolated individuals mentioned mobile-related or digital security issues, such as hacking of social media accounts. However, street-based security checks by police are common and accepted. These were described as "operations" by participants, where all citizens in the area are subject to ID checks.

Close link between national and individual identity

For most, pride is linked to their status as 'Rwandan', rather than being connected to any particular region of the country. At an individual level, many participants described being proud of their family. Life aspirations reflected this, and typically focused on financial stability for the family, or paying for children's education. Alongside this, a very strong sense of community is present. This is particularly the case in rural areas where the Village Chief plays a leadership role, supported by community peer workers.

Only a minority of participants spontaneously referenced work, or their business, as an achievement (beyond the ability it gave them to provide for their children). However, work-related digital ID solutions were of significant interest to many. Some participants were keen to return to education as an adult, having found their studies curtailed in earlier life by pregnancy or the need to work and support the family (amongst males and females).

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30. World Bank ID4D Country Diagnostic: Rwanda: http://pubdocs.worldbank.org/en/573111524689463285/Rwanda-ID4D-Diagnostic-Web040318.pdf

A patriarchal model of society

In the majority of families within this sample, a male fulfils the position of Head of the Family – a role whereby one family member is responsible for all others. Whilst a women could fulfil this role, this is rare - if an adult male is present, Head status defaults to him. Women may often therefore see their identity as subsidiary to, and less important than, the family Chief whether that is their husband or father. Several women also mentioned suppressing their own career goals due to the expectation of having children, and also noted limited access to birth control or family planning information.

SIM card registration by men, on behalf of women, is also a common occurrence. Even women with a NID are likely to have their SIM and/or handset purchased by a man. This is largely due to the fact that these men are more likely to have the financial means to buy a handset, and easier access to mobile stores. SIM cards are therefore also registered to a man's NID. This presents some challenges for females accessing services such as mobile money, or using the Irembo digital government platform,[31] as access is linked to both mobile phone number and NID.

> "To access Irembo, it is necessary to have a mobile number which is linked to your ID."
>
> **MNO expert**

More generally, several male and female participants described men as being seen as more of a 'threat' than women by police. Males also referred to women as being worthy of respect and deference. Perhaps associated with these factors, women felt that they were less likely to be security checked, particularly by (typically male) police officers.

31. Irembo (roughly translating to 'gateway') is the Rwandan government's online e-government portal, providing access to a range of public services – including facilitating applications for birth certification, driver's licences, and NID enrolment: https://irembo.gov.rw/rolportal/en/home

Identity landscape

National identity in Rwanda

NID rollout has been very successful in Rwanda, with more than 90 per cent[32] of the population enrolled. NID was seen by participants as the only identity document that could provide full access to all services – both public and private. Without NID, many would struggle to use mobile money, open a bank account, pay taxes, or register for exams. Due to this importance, the NID is seen as a potent symbol of one's participation in society; a clear sign that an individual is "fully, truly Rwandan". Participants without a NID reported feeling marginalised.

> *"I feel unhappy and not free in my country because I have no ID."*
>
> **Female, NID non-adopter, Kayonza (rural)**

Those with an NID also stated that the NID helped them to advance, both professionally and personally. Entrepreneurs were able to officially register a business in their own name, which granted their business further credibility. NID was also considered to be an advantage when looking for a new job, as some employers do not accept workers without this document. A small number of participants noted the international relevance of the NID – enabling travel to neighbouring countries, such as Uganda, for employment and to visit friends and family.

The wide, and central, role of the NID highlights its symbolic, practical, and aspirational tenets. It marks the bearer as a true citizen, enables them to find better work more easily, and connects to the world beyond Rwanda. Due to its importance, the majority of participants carried it with them every day – it is an essential component of day-to-day life in Rwanda.

Those without an NID were largely in this position due to missing their official enrolment slot – with most with an NID enrolled via a school enrolment drive at the age of 16. Some had missed this window due to ill health, incarceration, or being outside of the country at the time. Participants were not aware of other enrolment channels, for example through the Irembo platform. Many without NID expected the enrolment process to be arduous, and requiring a commitment incompatible with their daily responsibilities.

Participants, and experts, noted a role for MNOs in disseminating information regarding the enrolment process via SMS or IVR. Similarly, MNOs could play a more extensive role in NID enrolment through leveraging their customer infrastructure. Mobile agents were generally perceived to be more accessible than government enrolment venues. MNOs also possess much of the technology required and therefore, MNO participation in NID enrolment seems feasible.

> *"If MNOs were legally recognized as an identifier, it would give them credibility and agency to help with access to ID."*
>
> **MNO expert**

Beyond the above participants that were unsure of enrolling, a very small number of (older) participants were uninterested in enrolling completely – largely due to a lack of a perceived need for the NID. Whilst they understood the card's function and role fairly well, they felt that they could navigate all the situations that they encountered in daily life reasonably well without it. These participants explained that in their small, rural communities, people could rely on their reputation and personal connections with community leaders to access some services. Therefore, the NID would provide them with minimal benefit.

This ambivalence towards NID was also a product of the above enrolment barriers. This older population lived in more remote rural communities where they find it difficult to get accurate information about enrolment, were often unable to travel to designated enrolment centres, or to access government online portals. Innovations which help to increase enrolment through reducing barriers for those in more rural locations would help to encourage these NID-waverers to consider registering.

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32. Global Findex Database 2017, World Bank: https://globalfindex.worldbank.org/node

CASE STUDY 5

Alphonsine

Female, 55, NID adopter, Bugesera (urban)

Alphonsine is a farmer, and female Chief of the Family; her husband left her to raise their children alone. She has four children and one grandchild, and her aspiration for the future is for her children to own their own homes. At present, two of them are self-employed and helping her on her farm. She has one SIM card, and a feature-phone. Like many of her peers, she protects her handset using a PIN code tied to her date of birth.

Alphonsine is president of the Committee of Women in the area, where women come together once a month and talk about how to improve their lives. She is also prominent in a farmers' cooperative which occasionally receives bank loans, requiring her to submit the land property documents and details of all the members. **"I am a village leader who is used to motivating others by showing them how my life was not easy and how I managed to overcome problems."**

She has also independently received bank loans for her business, and believes that this could not have been obtained without her own NID. **"If you do not have a National Identity Card, you are nothing"**

For Alphonsine, it is a given that she would have NID. She views the NID as equivalent to wealth and believes that, as a figure in the community, she has a responsibility to possess it. She is an ambassador for NID in the area, and has helped others to enrol. **"[N]ID card can resolve everything… It proves that one lives as a human being."**

Alphonsine particularly liked the idea of a mobile service which would help keep track of her health documents: **"If I am away from home on a trip in Cyangugu and I get sick, I won't have my documents. But now I could get treated via my cell phone and maybe even pay via mobile money."**

Participants mentioned a range of unofficial ID documents that are regularly used as replacements for the NID, but with varying levels of success. For those without an NID, these documents are often the only identity documents that can be accessed, and tend to only be useful in one's local community or village. Outside of these settings, unofficial identity documents are less likely to be accepted and serve very little official purpose. Unofficial forms of ID mentioned by participants were letter-based:

Letter from the Chief of the Village: printed and signed, or handwritten. These are often carried by those without a NID, and the document vouches for the holder's identity. It includes information about their name, age, address and family ties, and sometimes a justification for the bearer's lack of more formal identification. Participants mentioned using these for security checks in their community, and when registering a birth without a NID. It is considered to be a document which is easy to access, especially in smaller villages where the community was more likely to be tight-knit, but potentially hard to replace if lost.

Letter from the Chief of the Family: an ad-hoc authorisation document. These are often handwritten and issued for specific occasions, such as registering children for school or granting access to healthcare on the family healthcare plan. If the Chief of the Family has a NID, these letters are easy to access and accepted for less 'official' purposes in the local community. The letter would not be accepted for security checks. It was more common for female participants without NID to make use of this type of letter.

Awareness and usage of Rwanda's digital government platform, Irembo, is also high. Only accessible with a NID, most government services – including paying taxes, and applying for a driver's licence, or a new NID card – are available via the portal. Rwanda's digital identity components, including the NPR and Ubudehe social registry, are also robust and embedded. These components contribute to the centrality of the NID as a foundational document and its efficiency in providing access to various services. However, other forms of identification do exist and are used - with varying levels of success and versatility.

Identity documents cited by research participants in Rwanda

Multi-purpose identity documents	Land property deed: used in irregular financial scenarios, e.g. to obtain a loan; birth certificate: used if other documents are lost and require replacement
Professional identity documents	Complimentary business card: used by some tradespeople and salespeople
Voting documents	Voter's card, used for voting only in this sample

CASE STUDY 6

Claude

Male, 33, NID non-adopter, Kayonza (rural)

Claude is married and the father of a daughter, aged two. He made some **"bad choices"** during his youth and spent time in prison – but since then, he is proud to have turned his life around and is now a fruit seller. His aspiration for the business is now to grow it, and to sell fruits at different markets. He does not have an NID, as he was incarcerated during the local enrolment window in Kayonza. Due to this, he needs to take steps to avoid situations where identification is required - such as being checked by police, or accessing services: **"When I go to ask for a service, I check what they're asking for, and if they need documents, I go back."**

He does not have health insurance, or use mobile money, or have a bank account. He saves his money **"in [his] pocket"**, but would particularly like a bank account to enable him to save properly. He obtained his two SIM cards from a mobile agent who registered them on his own NID.

Claude is embarrassed to not have formal identity documentation, and it pains him not to be able to prove who he is. **"I do not have any peace of heart when I do not have ID. I am sad… When someone asks me [about documents], I say I am looking for them."**

Claude responded very favourably to a potential business-focused digital ID service on his mobile. He noted that it could help him to diversify his business by finding other fruits to buy, and to gain new customers. He also hopes that such a solution could help him to legitimise his business, which is currently registered in someone else's name as he does not have a NID.

Because the NID is so essential for service access, workarounds are less frequent - and often less effective - than in other countries, such as Nigeria. Instead, participants without a NID are commonly self-excluded from situations where proof of NID was needed – or did not attempt to access services requiring a NID. There was a high level of awareness that they would be refused if they were not able to provide the appropriate identification document.

As a result, participants looked for alternative solutions. For example, those who could not access healthcare would visit a pharmacist or local traditional doctor for advice. Several participants without a NID would also change their travel plans in order to avoid security checks. Amongst women, the more commonly attempted workarounds included: asking a relative (usually a male) to present their own NID in person; carrying, and displaying, a male's Head of the Family ID; and using other persuasion methods (smiling, crying, hiding in a crowd, carrying an infant, or looking "pretty and feminine").

Beyond the above, participants mentioned a small number of less-common workarounds. This included in-person vouching, whereby another person may attend to confirm the identity of the person without identification. However, this would only be acceptable in very unofficial scenarios. Similarly, there were isolated references to a parent's or husband's name being given as proof of identity – or the use of a deceased relative's NID card.

The extent of NID penetration, and its centrality in the robust Rwandan identity ecosystem, provides a very strong foundation for digital identity products and services – including those that leverage digital components, such as citizen registries. In addition, digital ID solutions that enable simpler NID enrolment – including mobile agent NID enrolment – or strengthen the utility of the NID, through a digital counterpart, were also of significant interest to participants.

Mobile landscape

The mobile market in Rwanda is growing steadily (Figure 7), with continuing growth in 3G and 4G connections – a strong foundation for data-driven digital identity products and services. The market is dominated by two MNOs: Airtel and MTN. Engaging with the identity-related challenges and opportunities highlighted in this study could be a strong differentiator: enabling an MNO to attract customers, and to increase their understanding of the customer-base.

Figure 7

Overview of mobile and mobile internet landscape[33]

Millions

Unique subscribers   Subscriber penetration   Mobile Internet Subscriber Penetration
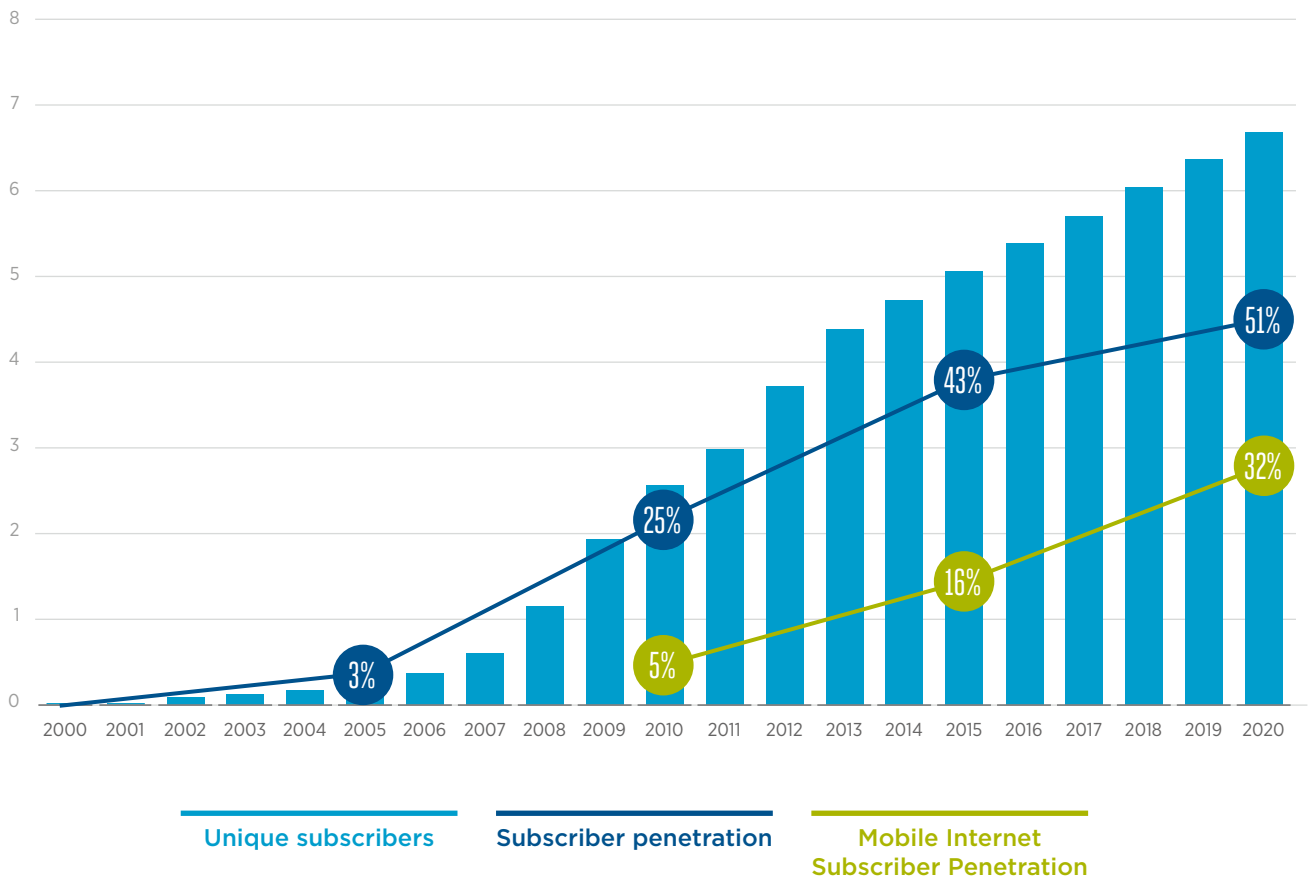
Despite the above steady growth, there are lower levels of general phone ownership than in other markets[34] - as well as lower smartphone penetration. For most participants, handset affordability was a major barrier – especially those living in more rural areas. Many participants owned one device, but used multiple SIM cards in order to access the best value deals and tariffs across networks. Many participants had handsets with dual-SIM functionality.

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33. All data from GSMA Intelligence, unless otherwise stated
34. In Rwanda, 60% of men (compared to 37% of women) own any mobile phone – a mobile gender gap of 38% (RIA After Access Household and Individual ICT survey 2017)

Mobile phone usage

Participants were largely using mobile phones for personal reasons, with limited usage of mobile for professional purposes. In a professional context, mobile phones were largely limited to voice calls - including to negotiate prices, and to remain in touch with clients and suppliers. Several participants, who were farmers in rural Kayonza, also described signing up to 'Smart Nkunganire'. This is a government-sponsored mobile platform which provides access to loans for fertilisers and seeds, as well as other support.

Beyond this, however, for a large majority in this sample, mobile did not play a key role in relation to their professional identity. There was no spontaneous or prompted mentions of business profiles or using mobile phones to store business information. There is potential scope to build digital identity services which would introduce the notion of mobile as a professional identification tool, and expand the use of mobile in a work context – but these are not currently well-established behaviours.

More widely, mobile phones played an important role in participants' day-to-day lives. In particular, mobile money is an increasingly popular service. Even participants without a NID were finding workarounds – often involving family members, and borrowed NID cards – to use it. Several participants even received their salary via an SMS notification from mobile money agents – including participants without SIM cards registered in their own names. The extent to which mobile money is becoming embedded in Rwanda highlights an exciting opportunity for economic digital identity products and services – in particular, government-to-person (G2P) payments.

The majority of participants also accessed government or MNO services via mobile short-codes: including to check SIMs registered against one's NID, confirm one's categorisation on the Ubudehe social register, gather information on health insurance rights, or to pay taxes. The short-code numbers for each specific function were often memorised. This shows familiarity and engagement with mobile as a tool for identity services in multiple situations, and suggests a potential, familiar, and accessible format for such services.

Participants' digital literacy was low generally, but particularly amongst women. Many were unsure how to use the internet, or (amongst feature phone users) unclear whether their phone could access internet-enabled services. Only the more sophisticated users – who were typically younger – were using mobile for activities such as accessing social media, messaging via WhatsApp, or browsing news headlines. Low digital literacy, compounded with limited access to smartphones, highlights the need to build inclusive digital identity solutions, accessible on all device types, and designed to be understood easily. Achieving this will require co-designing any digital identity products or services with end-users, and using intuitive or familiar interfaces such as voice-activated elements or short-codes.

Know Your Customer regulations

Since January 2013, SIM card registration in Rwanda has required the customer to present a NID in their name, as well as in-person attendance in order for the mobile agent to confirm the customer's identity. The customer's details are then checked against the NID database.

Participants were aware of the requirement to show a NID in order to register a new SIM card, or to retrieve a lost one. However, for those without a NID, a recurrent workaround was found: family members would register a SIM with their own NID, and then give this SIM card to them. There was some limited evidence of fraud; one participant described discovering that multiple SIMs had been registered to his NID, and others to his wife's, without their knowledge.

> *"To withdraw from my mobile money account, I need to take my husband's NID as my SIM card is registered in his name."*
> **Female, NID non-adopter, Kayonza (rural)**

> *"I found out recently that nine SIM cards were registered to my NID without my knowledge."*
> **Male, NID adopter, Kayonza (rural)**

Amongst some participants, concerns were raised with regard to trusting MNO agents with their personal data, due to a perceived risk of information misuse. This is representative of a wider finding: that MNOs as businesses were largely more trusted than their individual representatives – mobile agents. However, MTN's recent campaign to encourage customers to check their NID, and to confirm which SIM cards have been registered against it, was seen by participants as a positive step in increasing transparency and reducing the risk of fraud.

The scope for digital identity innovation

Building on the above discussions, a range of digital ID concepts were presented to participants. Although current usage of mobile may be limited, particularly due to the scarcity of smartphones and relatively low digital skills overall, there was appetite for increasing the role of mobile in a digital identity context. This was particularly true amongst younger participants, who were more digitally literate.

> *"I think [the idea of having NID on one's mobile phone] is a good idea because for people like me who have telephones and use technology it's an important and easy thing."*
>
> **Female, NID adopter, Bugesera (urban)**

There was also widespread comfort with information being attached to a SIM card, as this was perceived to be a secure and robust system. In fact, participants largely preferred storing important information on a SIM card instead of the handset. In addition, very little information was considered by participants to be so private that they would not be willing to store it on their mobile phone, with the occasional exception of health records. This is a strong context for digital ID innovation, with trust in such services and acceptance of data sharing both high – as long as a service of real value is being offered in return.

> *"If I have AIDS, I would not like to give this information to the public."*
>
> **Female, NID non-adopter, Kayonza (rural)**

> *"[On sharing health information digitally]
> As you go with your cell phone, you can
> access the health services everywhere. It's
> actually easy."*
>
> **Male, NID non-adopter, Bugesera (urban)**

> *"I do not trust mobile agents who do not have
> offices, who do not present themselves with
> their ID."*
>
> **Male, NID non-adopter, Bugesera (urban)**

When designing any digital identity product or service, the security concerns highlighted by many participants will need to be addressed. Questions regarding the safety of individual data at the point of handover were raised by men, including the reliability of actors such as mobile agents. Women tended to be less concerned about the possibility of fraud or security threats – with many female participants not securing their own mobile phone with a PIN code, due to a low perceived risk of misuse.

Clear markers of authenticity, credibility, and trust would help drive uptake of digital ID solutions. For example, visible evidence of technology when registering information via mobile agents was seen to demonstrate the authenticity of the process, and provide reassurance that personal information was being stored on a secure database. There is also an opportunity to build on the widespread trust in government by communicating any public-private partnerships, as well as incorporating visible signs of government accreditation.

> *"Yes, I trust mobile agents. But it isn't every
> kind of information you can provide so easily. I
> cannot tell for example my marital status, the
> children I gave birth to."*
>
> **Female, NID adopter, Bugesera (urban)**

> *"For me, I only trust government because others
> don't protect our data, people could steal from
> us using our data."*
>
> **Male, NID adopter, Kayonza (rural)**

> *"We trust the government first because it's here
> at all levels: cells, districts and above. But then
> telephones come second, because you have
> them in your pocket all the time. If there is no
> government or phone to help you, it would be
> like life is stopping."*
>
> **Female, NID adopter, Kayonza (rural)**

Cross-market overview

The research highlighted a range of national contextual factors associated with the roll-out of identity solutions. However, there are also a number of shared findings and opportunities across the three countries.

Figure 9

Summary of identity pain points

Functional pain points:

- Access to services is limited / refused
- Inconvenient and time-consuming workarounds are required – e.g. having to seek out and produce multiple ID forms to 'add up' to the right documentation

Emotional pain points:

- Shame at feeling like a 'partial' citizen
- Embarrassment in front of others
- Frustration at lack of status and legitimacy: feeling trapped in lower social status
- Fear of being liable for others' actions

These pain points are present throughout the identity journey...

Enrolment	Presentation of ID document			Culminating in...			
Unable to access	Lost identity documents	Not having physical ID document when needed	Physical degradation especially temporary / paper copies	Identity fraud and theft	Needing to borrow others' identity	Needing 'vouching' from other people	Needing work-arounds in financial use-cases

Specifically for women:

Unable to access due to household duties	Not having the right document: drives unreliable 'feminine' persuasion methods	Having to depend on men (by borrowing their ID, being accompanied, requesting their help)

Figure 10

Identity needs and implications for mobile

Although these pain points are varied, each provides an opportunity for future mobile-delivered digital identity solutions - many offering particular benefits for women.

Enrolment: needs

- Close to me
- Flexible timings
- Efficient
- Information on the process
- **For women:** near my home, where I can take my children; not physically stressful

ID documentation: needs

- Reliable and robust
- Easily recoverable if lost or stolen
- Shows multiple identification 'points': photo, name, biometrics
- Physical, quick to produce

Purpose for ID: needs

- Access services
- Grow business / get a job
- Show who I am
- Validate citizenship and status
- Travel
- Education (mine and my children's)
- **For women:** access services without depending on a man

Opportunities for mobile-enabled identity services:

- **MNO-enabled enrolment:** close, flexible, trusted (if in a store)
- **Initiatives targeted at women:** specific enrolment days, separate queues
- **Campaigns** to raise awareness of enrolment process

- **Can incorporate multiple identifying factors:** photo, name, origins, etc.
- **Easily accessible** and securely stored on a database
- **Easily recoverable** (especially if achievable via MNO)

- **Reliable** and multi-function foundational digital ID
- **Functional digital ID:** particularly related to business, employment, education, health

Digital identity opportunities

Across the three countries, there are clear opportunities for digital identity solutions to support and amplify existing foundational and functional identity documents and processes. In particular, MNOs could improve the accessibility and relevance of existing identity solutions by facilitating NID enrolment; providing education, information and reassurance around the enrolment process and the benefits of identity; or developing new identity-linked applications and services.

In each research country, participants discussed, interrogated, and critiqued five digital ID concepts that were developed using the recommendations, assumptions and insights collected through desk research and expert interviews. Using high-level ID concepts and visual stimulus as a supplement to lines of questioning is an effective way to engage with participants, spark discussion, and compensate for low literacy, shyness, and unease around sensitive topics. It also provides useful insights about how future digital identity solutions will need to work in practice: the needs they will have to meet, the concerns they will have to address, and the benefits or value they will have to provide.

Figure 11

Identity concepts explored with participants across all markets

	MNO-enabled enrolment	Mobile as ID	Mobile financial ID[35]	Mobile work ID	Mobile for health
Lever	Accessibility	Accessibility	Relevance	Relevance/ Accessibility	Relevance
Goal	To reduce barriers to NID enrolment and increase uptake by leveraging MNO's physical infrastructure and bring enrolment closer to end-users	To make ID more attractive and easier to use day-to-day by making it more portable, more durable and easier to replace	Financial IDs – built on MNO transaction data – could open access to foundational financial services to those currently excluded due to their lack of formal ID – while adding robustness to their identity setup	To give some of the benefits of formalised work to those in the informal economy; and to facilitate use of professional ID in more places	To facilitate access to, and management of, healthcare information in markets where medical data infrastructure may be lacking
How	Allow end-users to register for NID with a local mobile agent, who will be equipped with biometric capture technology	Identity documentation made available securely via mobile	Enable basic banking behaviours (cheque cashing; saving) via a mobile money account, without a formal bank account or formal ID	Enabling work ID documents to be accessed via mobile, including creating a platform for informal use to register their business and create a business profile	Health information and personal details made available via mobile

35. The GSMA has explored the concept of 'Financial IDs', or 'Economic Identities' with a range of groups, including Smallholder farmers in Sri Lanka (2018) and Cocoa Farmers in Ghana (2019).

These concepts resonated with men and women in each of the research countries. However, as Figure 12 highlights, the relevance and perceptions of each concept varied by location.

Figure 12

Overview of digital identity concepts, by market

	MNO-enabled enrolment	Mobile as ID
Summary	Highly appealing for many; and would resolve many of the barriers around enrolment. Some concern regarding data privacy – with greater comfort with store outlets, at least initially, and markers of trust seen as important.	Clear convenience benefit, as phones were largely available. Particular interest as a backup for analogue identity cards. Some concerns regarding security, robustness (including handset battery life, and signal), and acceptability as a standalone document.
Nigeria opportunity	**HIGH /** Enrolment problems are significant and tackling these is potentially transformative. Bringing enrolment closer to communities makes it much easier for women to access – especially Muslim women with less ability to travel freely. Mobile money somewhat less mainstream, so linking to SIM registration may make more sense.	**MEDIUM /** Obvious appeal and utility, but concerns remain around effectiveness and security – with participants reluctant to show their phone in public, and doubts as to whether police or officials would recognise the validity of a digital ID. In a country with weaker KYC regulation, this may undermine the credibility of this solution.
Rwanda opportunity	**HIGH /** A key barrier to enrolment is a lack of information about the enrolment process, which this could help answer. Potential to link this solution directly with Irembo to allow for online and/or remote enrolment.	**HIGH /** Need to carry NID is near-constant, which leads to fear of losing or damaging one's NID. This is seen as both less likely to get damaged or forgotten, as phones are constantly carried, and easier to replace than a physical NID.
Bangladesh opportunity	**HIGH /** Travelling to home district during a specified enrolment window is a key barrier. If this solutions could enable remote enrolment and/or on-demand enrolment, it would make a significant difference.	**HIGH /** As NID is essential to access core services, the prospect of a back-up was very appealing and reassuring. However, due to technology and digital literacy issues this needs to be realised on a basic phone for less-advanced users.
Gender	Appealing to both genders, but particularly women – many miss enrolment due to childcare. Women-only enrolment days or female enrolment agents could also help reduce barriers to uptake.	No difference between genders; equally appealing to both.
Urban/Rural	Particularly appealing in rural environments: travel time to enrol can be greater.	No difference by location.
Commercial opportunities for MNO	Most would be willing to pay to circumvent a substantial known frustration to access an important and desired service. Also likely to drive footfall into MNO retail premises.	Initially, some resistance for paying directly for what is seen as a 'back-up' and therefore less essential.

Mobile financial ID	Mobile work ID	Mobile for health
Would provide financial inclusion, with savings accounts particularly desired by many participants. Loans, microfinance products, and cheque-cashing functionality were also seen to be particularly useful.	Interpreted variably as an ID 'badge'; a business 'homepage'; or a virtual CV. Client testimonials and photos of past work are particularly appealing. Ideally would require accreditation, to reassure its 'audience' of validity	Longer-term development prospect, allowing users to store hospital numbers, records, and digital prescriptions. Security was a particular concern due to the sensitivity of health information.
HIGH / Low mobile money penetration leaves a substantial unmet need around financial services for the unbanked. Cheque cashing was very appealing to those without NID, as this can be a difficult process without an NID. Many entrepreneurs and parents are unable to save, and feel that this holds them back from improving their situation: access to savings would be welcome. Favourable context for rollout, as many without NID do have their SIM registered in their own name, facilitating these services.	**HIGH /** Resonates highly - one's profession is very important as an identity signifier, and a Work ID is a key identity document. SMEs and informal workers struggle to verify their credibility or prove their value when attempting to secure loans or other capital. The ability to serve as collateral when applying for microfinance would further increase its utility.	**HIGH /** Medical services are somewhat slow and decentralised. The ability to speed up or smooth healthcare would be valuable. However, many had doubts about whether Nigerian healthcare infrastructure would be able to support the: substantial systemic change needed to make this work in the near-term.
MEDIUM / Easier access to financial services would be welcome, especially savings products. However, mobile money serves many of these needs, and cheques are less commonplace.	**LOW /** Lack of established mobile for business behaviours to leverage or build upon. Low digital literacy levels lead many to doubt that this solution would be widely accepted or understood by clients or customers.	**MEDIUM /** Some appeal for easier access to health services, especially if this could help with queues and waiting times. However, widespread usage of the health insurance card lessens the appeal, although a digital version of it would be welcome.
MEDIUM / Easier access to financial services would be welcome, especially savings products. However, mobile money serves many of these needs, and cheques are less commonplace.	**HIGH /** Proving one's employment record and verifying one's skills would be very useful, particularly for workers in the informal sector. There is also appeal for a 'shareable' work ID, which could be sent to potential employers or clients	**MEDIUM /** Fewer barriers and frustrations around access to healthcare led to a positive, but lukewarm response for this solution.
Easier routes into financial services would benefit women, who are less likely to have bank or mobile money accounts of their own. The ability to create such an account without NID would further extend its relevance to more marginalised women. Saving money for children's education or future is important to many.	No difference between genders; equally appealing to both, although female digital literacy may be a barrier in Bangladesh and Rwanda.	Can appeal to women on behalf of children – would enable many to feel more in control of their care, especially across healthcare providers if travelling.
No difference by location.	Greater appeal to more digitally literate, and commercially-minded urbanites.	No difference by location, but often more appealing for regional travellers who may seek care in different locations.
A small fee (e.g. per transaction) in line with other financial/ payment services was seen as reasonable and acceptable.	Initial reluctance to pay but, if it can demonstrate value, (helping to get a better job, new clients, better fees) then willingness to pay increases.	Less clear how this might be paid for – implies coordination between MNO and healthcare provider or insurer.

Considerations and recommendations

The identity concepts explored with end-users, in combination with broader insights gained from research across the three countries, highlight a range of considerations and recommendations with regard to designing and rolling-out digital identity solutions.

Digital identity is particularly important for women, and solutions must meet their needs

Women can be limited from accessing ID solutions by their household responsibilities. Therefore flexible, uncomplicated access to identity products and services, without the need for extensive travel or arduous enrolment, are essential. Any digital identity solution must also be useful in a context where women's access to and usage of mobile is often less than men's, and engage with lower literacy and digital skills – including a lower understanding of data privacy and security. Women are also key actors in enabling the benefits of ID, as they are responsible for their children's future, and wider household. Highlighting the benefits of identity solutions, such as digital birth registration, in this context can be valuable.

> *"The NID card can be useful if I need to prove my identity for my child."*
>
> **Female, NID adopter, Erunmu (Nigeria, rural)**

Security concerns need to be addressed

Any ID solution on a mobile phone should be easy to revoke, recover, monitor, and to report misuse. Participants noted the importance of easily revoking or "freezing" a digital ID if a handset is lost or stolen, in order to prevent illicit use of one's ID. Similarly, any digital ID should be easily recoverable in the event that a handset is damaged, lost, or stolen – especially if the ID solution is an essential component of day-to-day life. More broadly, participants highlighted the importance of being

able to monitor how any digital ID is used and to report any improper use of one's digital ID, although the extent of this varied in line with local trust in police and security services.

> *"Better NID coverage could also help with crime rates, it could discourage people more."*
>
> **MNO expert, Nigeria**

Building trust is non-negotiable

Trust is not a major barrier to the rollout of digital ID solutions at this time, however it is an area that requires careful management. Trust in MNOs, at corporate level, was high and participants were familiar, and comfortable, with sharing personal data with MNOs as part of the standard SIM card registration and retrieval processes. Building on this, any digital solutions must inspire confidence: mobile agents display a visible certificate or accreditation, and partnerships with financial institutions or government could be leveraged to lend credibility to digital ID products and services.

> *"They would need to be trained, and approved, so that they're competent enough."*
>
> **Female, NID adopter, Bugesera (Rwanda, rural)**

> *"As the market develops, issues that were raised in India might come up: how much data the institutions get access to and how, which services are linked together."*
>
> **MNO expert, Bangladesh**

Digital identity products and services should be relevant and accessible

As far as possible, digital ID solutions should be available or accessible on basic and feature phone handsets, as well as smartphones – particularly in order to avoid exacerbating the gender gap around smartphone and mobile internet usage. Similarly, solutions should be designed to maximise usage: faster, easier access to services is a motivating promise for digital ID products and services (particularly in Nigeria). Any digital ID products and service must also address the above security concerns raised by participants. Access to ID should

be protected, via a PIN or other means – although this may present further barriers to less-literate audiences who may struggle to remember their PIN, or recognise its importance.

> *"You know that sometimes people can sell their phones – if you sell this phone can they still get my ID? It would need a password, to be more secure."*
>
> **Male, NID non-adopter, Ibadan (Nigeria, urban)**

Digital identity has significant potential to close the identity gap

Building on the above, the extent of mobile penetration in the three countries – and the accessibility of MNO customer touchpoints – provides a strong foundation for pan-country coverage of mobile-delivered digital ID solutions. This research highlighted the very real challenges of delivering physical ID in rural and hard-to-reach areas, and similarly reaffirmed the relevance of leveraging digital and technology in tackling these barriers. However, and as noted above, any such products and services must engage with the realities of these locations. Rural and other hard-to-reach populations often have lower levels of education, reduced independence and agency, and less access to technology – including, often, a more pronounced gender gap in mobile access, ownership, and mobile internet usage.

Communicating the benefits of identity is a real priority

All ID solutions should address clear use-cases and needs. It is important to make clear in which environment they can be used, and how, and the problems that they will solve. On a related note, digital ID does not operate in a vacuum. Any new identity service where a handset is used as a proxy for an identity document will need some form of official accreditation, and likely substantial education around its role and function, to ensure that it is accepted and understood. The benefits of digital ID are also important to highlight, including convenience, the ability to recover ID products more easily, and leveraging trusted channels (such as SMS) to promote identity solutions.

> *"If I forgot to take my card with me, I could use this instead. But would they believe it?"*
>
> **Male, NID adopter, Dhaka (Bangladesh, urban)**

Government plays a catalytic role in driving digital identity uptake

Across all three countries, government has recognised the importance of identity solutions and is a key actor in enabling digital ID products and services. Making any form of identity *essential* for public service access is a huge driver to enrolment, but enrolment and distribution of any ID solution must be accessible to prevent reinforcing an 'identity gap'. Beyond this, government is in a unique position to build the foundations of a digital ID ecosystem – including core components such as canonical registers, digital interfaces with public services, facilitating the rollout of underpinning connectivity, and developing an enabling policy environment.

> *"[NID] is something of great value, because in all government services they need my NID."*
>
> **Male, NID adopter, Bugesera (Rwanda, urban)**

Customers are willing to pay for secure and useful digital identity solutions

There is clear willingness among end-users to pay for digital ID products or services that deliver concrete, tangible value or benefit – and which addresses concerns regarding security. However, these fees must be in line with those charged to access similar services, or (in the case of ID enrolment) equivalent to the money saved by circumnavigating traditional registration process - for instance, the cost of a bus fare to a registrar office. The digital nature of any solution also enables a range of different payment and pricing models. This includes transaction fees, service add-ons, potential commission-based agreements with wider service providers, licensing fees for any business-to-business or 'White Label' solution, partnerships and subsidisation, and driving customer traffic to MNO premises (and to other mobile products and services).

> *"Maybe if they only charge 10 Naira each time you want to track your ID number – that could be okay."*
>
> **Female, NID non-adopter, Ibadan (Nigeria, Urban)**

Looking forward

This research has helped to develop a more detailed picture of the needs, opportunities and use-cases for mobile-enabled digital identity solutions that target low-income consumers - particularly women and girls. As more and more governments move towards establishing national identity programmes, opportunities will emerge for MNOs to leverage their existing assets and identity-related practices to provide women with greater access to official identity as well as relevant, identity-linked mobile services. This could include facilitating enrolment for national identity schemes; effectively communicating the benefits of mobile-based identity services; and developing new services that meet the identity needs of citizens, business owners, informal workers, and those marginalised from financial and other services.

However, any such initiatives must be inclusive – and this will require engaging with, and tackling the very real barriers faced by women in their attempts to access and meaningfully use both identity and mobile services. Through the creation of public-private partnerships, governments could look for new ways to leverage mobile networks and technology to improve the efficiency and reach of their national identity and civil registration programmes.

In the coming year, the GSMA Digital Identity Programme – through the Commonwealth Digital Identity Initiative[36] - will be working with MNOs across the Commonwealth to build on the opportunities and insights identified through this research. In the immediate term, this includes conducting detailed end-user research in Nigeria in order to further explore the role of mobile-delivered, economic ID, solutions in improving the lives and livelihoods of female entrepreneurs.

Beyond this, and with just over a decade left to meet the 2030 United Nations' Sustainable Development Goals, there is a clear need for concerted action. Governments, the development community, the mobile and financial services sectors and stakeholders from the wider identification ecosystem need to do their part to jointly address the difficulties millions of women and girls face registering identity documents and help to ensure that with these documents they are able to access enhanced opportunities, including life-enhancing mobile services in their own name.

The GSMA is committed to supporting dialogue between the above stakeholders in an effort to create more enabling environments where the needs of underserved groups are better catered for. This also involves advocating for and exploring various unique roles that its mobile network operator members can play in bringing the benefits of digital ID to many of the poorest and hardest to reach individuals around the world. If you are a GSMA member, policymaker or other organisation seeking to pursue digital identity solutions for the urban poor and other underserved populations, please contact the Digital Identity team at **digitalidentity@gsma.com**.

36. See: https://www.gsma.com/mobilefordevelopment/commonwealthinitiative/

Appendix 1:
Identity documents in Nigeria

	What is it?	Use cases	How easy to acquire?	Reach
National ID Card (NID)	The new NID card – officially known as the National e-ID Card (eNID) – stores biometric data and has a Mastercard chip, potentially enabling many future applications beyond identification. The NID displays the bearer's name, basic information (date of birth, gender, nationality, height) and a unique identification number. It also has an expiry date.	NID is valid in almost any day-to-day situation that requires ID. It is also specifically needed in a small number of instances. These include getting a government job or running for political office; international travel; or isolated financial use cases (such as inheriting money or receiving overseas bank transfers). However, alternatives and workarounds are almost always possible.	Can be extremely difficult: long queues at enrolment centres, delays in processing, and long delays in issuing permanent cards. Many in this sample believed that the easiest – or indeed only – way to get NID was by having an inside connection. This provides an opportunity for MNO-enabled NID enrolment, as a way to tackle current barriers to enrolment.	Rollout is ongoing, with penetration currently around 30%[37]
Voter's Card[38]	A plastic or laminated paper card recording the bearer's personal details including name, gender and date of birth. It also has the holder's occupation and address, and their nominated voting centre. This is where the voter was registered, and is the one that must be used when voting in elections. The card has no expiry date.	The Voter's card is primarily used for verification when voting, but it is valid in most situations that require ID. It is issued by the Nigerian Electoral Commission, carries a high degree of trust, and is widely accepted as identification (even in instances where NID is theoretically required).	Relatively easy to acquire from local government offices. The application can usually be completed in a day. However, it can be only be registered in the state where the owner resides and intends to vote, which can present barriers to registration for those living away from their home state, or intending to vote somewhere other than where they live.	A total of 84,000,000 Nigerians were registered to vote for the 2019 election[39]
Driver's Licence	Plastic card with a range of personal information including name, date of birth, and address, as well as category of licence and expiry date. New licenses also include blood group, and physical descriptors (including height and facial markings)	Primarily in the context of driving and rarely mentioned as a mainstream or day-to-day identification document. Most participants had a low income so could not afford a car. As such, there was reduced mention of Driver's Licences.	Thought to be relatively easy to get, although expensive (in official fees and unofficial bribes). This, and lack of car ownership, contributed to it remaining of little relevance to participants - who typically travelled by bus or motorcycle.	Data not available

37. NID coverage provided by the World Bank and based on 2017 surveys (unpublished)
38. Research took place immediately ahead of 2019 elections, which may have influenced the salience of the Voter's Card amongst participants
39. ElectionGuide country profile: Nigeria http://www.electionguide.org/countries/id/158/

	What is it?	Use cases	How easy to acquire?	Reach
International Passport	A passport, following international standards. Notably, this document is always referred to as 'international passport', and never as simply 'passport'. In Nigerian English, 'passport' refers to a passport-size photograph, and not to the travel document itself	The international passport is only used for travel, not for day-to-day ID – and most participants did not possess one.	This is out of reach for most – perceived to be exclusive and hard to access, requiring either money or connections.	Data not available
Work ID	Any of a range of cards, either plastic or paper, often held in a clip or lanyard. They are issued by employers directly to employees with no official regulation, standardisation, or oversight. They vary widely from one employer to the next, but typically record name and profession, and usually job title. It may include information about where it was issued, or the address of the employer company.	Day-to-day scenarios, whether in the course of their work or not: during police checks, to gain entry to buildings with security guards or to justify someone's presence somewhere. Can be used in conjunction with supporting documentation, for a wider range of more formal applications for which it might not, in principle, be valid, for example cashing a cheque, registering a SIM, or registering a child for school.	For those in formal employment: extremely widespread and easy to get. Typically issued as standard and at no cost. For others, including self-employed or working in the informal economy, a Work ID is very difficult to acquire. There is a significant opportunity for mobile- or digital-identity solutions for those working in the informal economy.	Data not available
Bank Verification Number (BVN)	A code issued to individuals by the Central Bank of Nigeria in order to identify and link all of their financial holdings, and prevent fraud. This has no standard physical form – it exists only as a code – and is rarely thought of by end-users as a form of ID. However, the BVN is a vital identifier and a pre-requisite for accessing formal banking services. It is also linked to biometric data.	Required for, or produced by, opening a bank account of any kind. It is also treated almost as a PIN to prove the account holder's identity when using banking services. Users are very secretive about their BVN – much more so than other personal data – as they see it as granting access to their financial lives.	Often generated by other activity (opening a bank account, or registering for NID). However it does require another form of official ID, meaning anyone without any of these forms of identification is effectively excluded from banking services. There is a significant opportunity for mobile- or digital-identity solutions to deliver financial inclusion to those who lack the necessary ID.	Over 37,000,000 BVNs had been issued as of March 2019[40]

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40. Data from Nigeria Inter-Bank Settlement System (NIBSS): https://nibss-plc.com.ng/bvn/

Appendix 2:
Identity documents in Bangladesh

	What is it?	Use cases	How easy to acquire?	Reach
National ID Card (NID)	Plastic card with photographic, personal and biometric data about the bearer. The new generation of plastic 'Smart' NID cards carry a chip, making them electronically readable	Seen as the ultimate proof of identity, for use in all situations where identity may be required. This includes securing formal employment, voting, participating in police checks, and accessing government services.	Challenging: requires travel to an individual's region of origin for registration during a designated enrolment drive; can take several months to arrive; may require the payment of a bribe	Currently around 83% of population is registered with NID[41]
Birth Certificate	A simple paper form issued locally, with the exact formulation differing depending on state. Carries basic personal and family information (name, date of birth, region, parentage)	Perceived as less reliable than the NID; acceptance can be more dependent on 'who you know'. However, in theory, a birth certificate could verify one's identity to enable similar access to services - with the exception of: voting, accessing government services, SIM registration, and opening a bank account.	Easy; most participants had this from their childhood (or had secured one in more recent years)	Still very patchy, or happening later in life – only 20% of under-5s were registered in November 2017[42]
Work ID	Any of a range of (usually) plastic cards issued by employers showing photograph, name, job titles and sometimes qualifications or experience.	Entering buildings associated with one's employment or work activities.	Easy, for employees	Data not available Seemingly widespread in urban areas
Student ID	Usually plastic or laminated, often in a lanyard, bearing a photograph, name, and enrolment and/or matriculation dates	Entering buildings; and police checks – although largely only regularly reliable for those aged under 18	Easy, for students	Data not available

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41. NID coverage provided by the World Bank and based on 2017 surveys (unpublished)
42. UNICEF, birth registration (December 2017): https://data.unicef.org/topic/child-protection/birth-registration/

Appendix 3:
Identity documents in Rwanda

	What is it?	Use cases	How easy to acquire?	Reach
National ID Card (NID)	Government-issued card, laminated, and includes holograms and micro-printing elements. It bears the holder's name, date of birth, sex, signature, NIN, photo, as well as the place of issue. It also holds biometric data and the above information in a 2D bar code on the reverse, as well as an encryption key.	The NID can be shown (and number occasionally used as an identifier), in almost all scenarios where proof of identity is required. Several participants also highlighted examples of carrying family member's NIDs – for children to confirm parental information at school, or for women to access healthcare.	Easy, for the majority: many citizens were signed up during an initial weekend-long government enrolment drive, subsequent school enrolment drives, or community visits by enrolment staff. But if these are missed, respondents are unaware of other alternative enrolment channels. This highlights the potential of mobile-enabled ID enrolment.	Currently at over 90% registration of adults aged 16 and over, highly versatile and well established as main foundational form of identity[43]
Health Insurance Card	Issued as part of the Community-Based Health Insurance Plan (Mutuelle de Santé / Mituweli), delivers a paper-based health card, in which health details and records are inscribed by hand; also has a record of the holder's Ubudehe category and personal information	Government-provided card, largely replaced by NID; still used by those who do not have NID, to access healthcare Often, needs to be accompanied by Chief of Family's NID	Can only be obtained by those who have another family member with NID Potential for a mobile solution which would give access to similar benefits as the Health Insurance Card (medical records, access to services) to those without NID	Membership grew to 91% by 2010, and decreased in recent years, with a June 2015 estimate of 75% coverage, among those eligible for the scheme[44]
Driving Licence	A government-issued laminated card which includes holder's name, date of birth, place of issue, class of licence It has an expiry date	Used only if police-checked whilst driving	Easy – but provisional licence sign-up now requires NID	Data not available
School ID / Student Card	Either paper-based or laminated, and tends to include a record of the student's grade / year, age, personal information, information about the school	Shown to access school premises. Used at police security checks by those without NID	Easy to access, from school or university	Data not available

43. NID coverage provided by the World Bank and based on 2017 surveys (unpublished)
44. USAID, African Strategies for Health – Health Insurance Profile; Rwanda http://www.africanstrategies4health.org/uploads/1/3/5/3/13538666/country_profile_-_rwanda_-_us_letter. pdfGSMA (2019) The Mobile Gender Gap Report 2019.

Appendix 4:
Research methodology

The research for this study was conducted between November 2018 and March 2019, and was split into two phases.

Phase one: scoping (November – December 2018)

Interviews were conducted with experts from MNOs, donor and partner organisations, academia, local government institutions, and national private sector organisations. These discussions aimed to understand the current identity, gender and mobile context in all three markets, and to identify opportunities for MNOs, and mobile technology more broadly, in delivering identity and digital identity solutions.

These interviews also generated a range of concepts, which highlighted potential roles for MNOs (or mobile technology) in developing identity products and services. These included the role of mobile in enabling NID enrolment, and functional identity solutions in health, business, and finance. These concepts are discussed in more detail, below.

Phase two: in-country fieldwork (December 2018 – February 2019)

Fieldwork was undertaken in rural and urban locations in Nigeria, Bangladesh, and Rwanda. Exact locations were:

- Nigeria: due to the scale and variety of the country, three locations were explored: Ibadan, Oyo State (urban) Erunmu, Oyo State (rural), and Kubwa, Federal Capital Territory (peri-urban)

- Bangladesh: Dhaka (urban), and Kalihati Upazila (rural)

- Rwanda: Bugesera, Eastern Province (urban), and Kayonza, Eastern Province (rural)

In total, more than 300 individuals participated in discussions (see Figure 11, below).

Figure 13

Overview of research participants

	Urban		Peri-urban		Rural		Total participants
	FGD	*IDI*	*FGD*	*IDI*	*FGD*	*IDI*	
Nigeria	39	7	40	8	41	8	**143**
Bangladesh	30	7	N/A	N/A	30	8	**75**
Rwanda	40	7	N/A	N/A	39	8	**94**
FGD = Focus Group Discussion; IDI = In-depth interview						**Total**	**312**

Focus group discussions and individual in-depth interviews were conducted in each of the three markets, with adopters and non-adopters of the country's respective NID. This distinction enabled a 'mirroring approach' to be employed, where the latter groups could reflect on the benefits, opportunities, and enrolment and identity journeys of those with an NID. Discussions were further split by gender, and moderated by gender-relevant moderators, in order for respondents to feel comfortable discussing delicate topics.

In addition, participants were selected to provide a diverse range of mobile phone ownership types – including those who owned a mobile, and those who borrowed a handset.

Concept stimulus

Participants also discussed, interrogated, and critiqued the digital ID concepts identified from desk research and expert interviews. These concepts were drawn from a number of insights, including the difficulties of NID enrolment, the extensive penetration of MNOs and mobile technology, the opportunities associated with linking NID to functional use-cases, and the need to increase the relevance of NID – or wider identity solutions – to women. The concepts, iterated during the fieldwork in response to local needs and preferences, were:

1. **MNO-enabled enrolment:** enrolling for an NID via a local mobile customer touchpoint

2. **Mobile as ID:** proof of identity, available on a mobile phone

3. **Mobile financial ID:** to enable cheque cashing, or to provide access to financial products and services

4. **Mobile work ID:** for the self-employed, to demonstrate business success to customers, potential clients, or service providers; for employees, to demonstrate professional reliability and responsibility to employers or potential employers

5. **Mobile for health:** storing medical records, appointments, and healthcare interactions on a phone

Participants also discussed two other concepts: **Anti-ID theft** (allowing uses of identity documentation to be tracked), and **Info-mobile** (providing NID enrolment information). These concepts are not covered specifically within this report, as their potential remit was broad, and spanned the other ideas and potential communication strategies.

Further consideration

The study also highlighted the complexity of conducting end-user research around identity. Participant discussions often explored questions regarding identity (one's status as a unique individual in society), identification (the process by which one proves their specific identity), and the identity document (or 'ID') that one uses as evidence of identity.

This delineation is complicated further when considering the interplay between mobile phones and identification. Here, participants highlighted a range of overt identification processes – including adherence to Know Your Customer regulations - but also informal and intangible identity-related roles played by mobile phones. This latter group included communication, using mobile phones to prove identity, and to build online and offline social networks.

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