

PART 3

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SECTION 3.1

OVERCOMING THE GENDER DIVIDE: WOMEN AS BUILDERS OF INCLUSIVE DIGITAL ECONOMIES

By Nandini Harihareswara



HIGHLIGHTS

- Digitally delivered services that provide access and control – tailored to women’s needs and accessible through alternative delivery channels such as women’s groups – can help them to meet their challenges and become linked to the formal economy.
- UNCDF helps to empower women, both in the decisions that they make and in their economic empowerment across sectors, including health, education and access to financial services. Our efforts encompass market diagnosis, helping to advance women’s financial and digital capabilities, improving digital services and policy efforts among others.

“It has greatly changed my life – I set a savings plan, then I started saving. It has helped me to learn how I can become income independent, how to become protective of my body, and how to make decisions about my body.”

These are the sentiments expressed by Winnie, a young Ugandan empowered by the Trust Girls App, an interactive mobile application training adolescent girls – particularly low-income girls – in critical topics related to sexual and reproductive health and financial education.

UNEQUAL IN EVERY WAY

The World Economic Forum’s Mind the 100 Year Gap report⁸² asserted that we are unlikely to see gender parity in our lifetime. Gender gaps diminish the role of women in society and their potential contribution, marginalizing them to the sidelines.

In the context of economic activity, women are not empowered to make decisions, and lack autonomy in their control over digital and financial tools. According

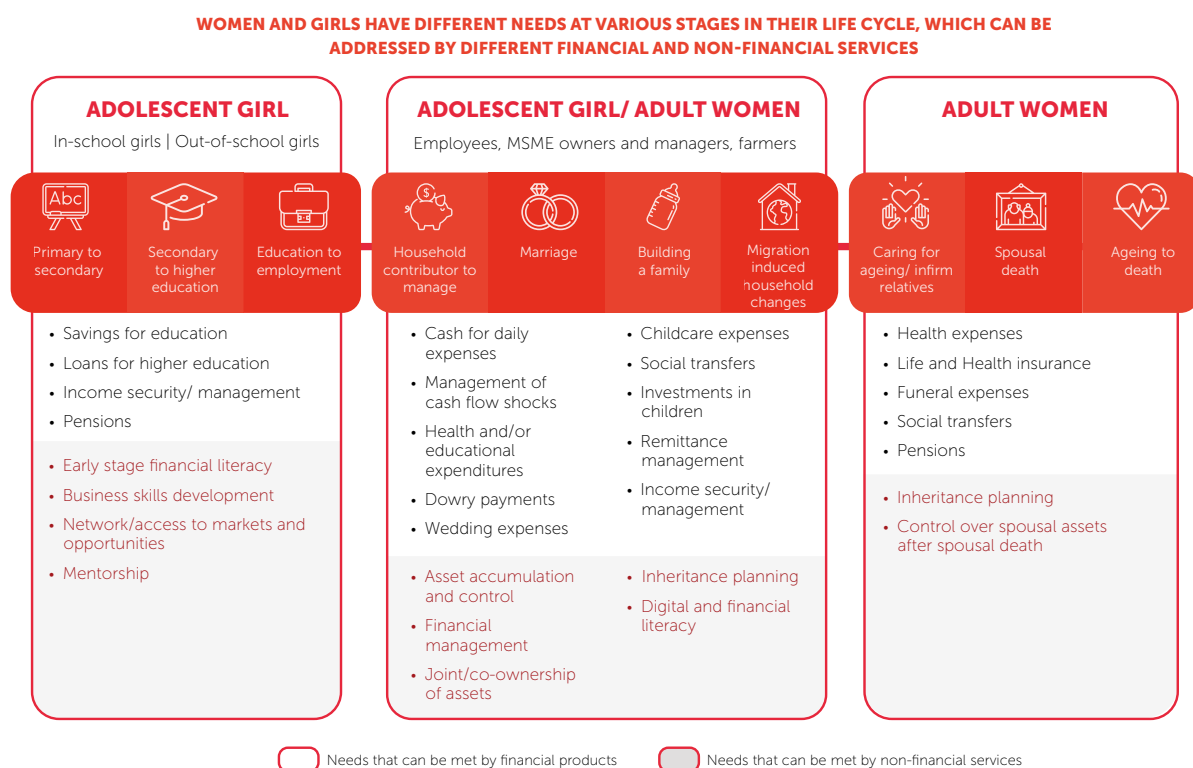
⁸² World Economic Forum, *Mind the 100 Year Gap: Global Gender Gap Report 2020*, www.weforum.org/reports/gender-gap-2020-report-100-years-pay-equality.

to statistics from the United Nations Department of Economic and Social Affairs, one in three married women from developing countries has no control over household expenses or major purchases.⁸³ There are fewer economic opportunities for women, and their access to critical infrastructure and digital services lags behind that of men; across low- and middle-income countries, the gender gap is about 8 percent for mobile usage and 20 percent for Internet usage on a mobile phone.⁸⁴ Women are disproportionately excluded from payments services, savings and access to credit. Their access to financial services in least developed countries (LDCs)⁸⁵ is 28 percent lower than that of men, and

this increases to 63 percent for women entrepreneurs trying to access capital.⁸⁶ Finally, women often lack the necessary education and skills, such as basic digital and financial capabilities.

UNCDF considers the unique financial product and service needs of women as they move through life, working in a focused, impactful manner to address the disparities in empowerment and opportunity which disadvantage women. Through our efforts, we are helping to close the access gap to products and services to achieve gender equality helping to empower girls and women (Sustainable Development Goal (SDG) 5).

FIGURE 9.
The evolving financial product and service needs of girls and women



⁸³ United Nations Department of Economic and Social Affairs, *The World's Women 2015: Trends and Statistics*, <https://unstats.un.org/unsd/gender/chapter8/chapter8.html>.

⁸⁴ Global System for Mobile Communications Association (GSMA), *Connected Women: The Mobile Gender Gap Report (2020)*. www.gsma.com/mobilefordevelopment/wp-content/uploads/2020/05/GSMA-The-Mobile-Gender-Gap-Report-2020.pdf.

⁸⁵ World Bank, *Global Findex Database 2017* (World Bank Publications, 2018).

⁸⁶ World Bank, Global Enterprise Survey, www.enterprisesurveys.org/en/enterprisesurveys.

HOW CAN DIGITAL HELP?

Digitally delivered services that provide access and control – tailored to women’s needs and accessible through alternative delivery channels such as women’s groups – can help them to meet their challenges and become linked to the formal economy.

At different stages in their life, women and girls face different challenges, occupying different economic roles with distinct needs. Women have a different experience from men when it comes to accessing and using services, including challenges with accessing basic, digital and financial literacy. But increasingly, digital products can create sustainable business models that can address these life cycle challenges.

From an early age, access to education can be improved through new digital approaches, including virtual learning and high-quality learning materials. As girls grow older, they shoulder more responsibilities, contributing to their household or building their own family. They need to develop resilience, enabling them to successfully navigate transitions. Improving access to technology can help them to enhance their digital skills and financial literacy, expand their network, achieve better access to critical services such as education and health, and have better prospects of accessing market opportunities and finance to develop new businesses.

A number of barriers need to be overcome to address the lack of parity in access to enabling products and services, and autonomy by women and girls:

- absence of empowerment and autonomy
- lack of economic opportunity
- poor access to infrastructure and services
- absence of services designed to address the needs of women
- lack of opportunities for education and skills development.
- Overcoming these barriers is critical in order to attain gender parity, providing more opportunities to women.

ENABLING WOMEN AS BUILDERS OF DIGITAL ECONOMIES

UNCDF helps to empower women, both in the decisions that they make and in their economic empowerment across sectors, including health, education and access to financial services. Our efforts encompass market diagnosis, helping to advance women’s financial and digital capabilities, improving digital services and policy efforts among others.

DIAGNOSING MARKET CONSTRAINTS AND TARGETS FOR WOMEN’S INCLUSIVENESS

For example, the UNCDF Participation of Women in the Economy Realized (PoWER) diagnostic in Myanmar provided deeper understanding of the main constraints to women’s digital and financial inclusion. These included product awareness, particularly digital, and the need for sex-disaggregated data. These findings resulted in a project to increase awareness and usage of financial products by rural women living in post-conflict areas. Following this initiative, which was conducted with eight financial partners in Myanmar, we have helped to add five solutions tailored to women’s needs, while increasing the number of women served by these partners by 85,000. The tool, developed in partnership between UNCDF and the Bill and Melinda Gates Foundation, has been used across Asia and Africa.

Our Inclusive Digital Economy Scorecard (IDES) is being used in Uganda to establish baselines and targets for the inclusion of women in the digital economy (such as the gender gap in mobile phone ownership, account ownership) through a women’s inclusiveness score. The IDES is being rolled out across countries where our Inclusive Digital Economy Practice is active. For more information about the tool and its deployment, see Section 1.4 **Measuring and tracking progress of inclusive digital economies**.

Alongside its partners, UNCDF has helped to develop linkages with informal savings groups in Africa dominated by women at a community level and supporting peer learning in a ‘safe space’. These efforts have supported 900,000 women group members in accessing and using formal financial services over the past four years. In Tanzania, a toolkit that delivers training modules through a tablet-based app and SMS learning platform has helped to improve the digital and financial capabilities of almost 15,000 women refugees.



BETTER DIGITAL SERVICES TO BUILD BETTER LIVES

In most LDCs, women's access to digital services is impeded by lack of innovation when addressing their needs. Our efforts foster innovation to bring relevant digital services to market, supporting opportunities for women. Examples include platforms, to help improve market access and provide opportunities for skills development; and solutions, including collateral free lending, crowdfunding and peer-to-peer lending.

UNCDF has deployed a competition model to spur innovation and expand tools used by providers to focus on women clients. In the *Zambian Sprint4Women* competition, digital finance providers tested their products and business models in the field, then pitched these to judges. UNCDF supported finalists with technical assistance encompassing product design, digital finance and data analytics. The competition winner, local FinTech *Hobbiton*, changed its approach to messaging and the delivery of its products for women. Its efforts have helped to expand the customer base by more than 50 percent, reaching 1.1 million customers, and increasing the women served from 74,000 to 264,000.

Open digital payment systems can increase women's access to financial services. In its partnership with Women's MicroBank Limited (WMBL) of Papua New Guinea, UNCDF provided technical assistance to support the creation of biometric enabled *Mama Bank Access Points (MAPS)*. MAPS enable easier and secure access to banking services, requiring only a fingerprint to authenticate customers. The rollout of MAPS has enabled WMBL to significantly increase its customer base. In addition, UNCDF provided a de-risking mechanism in the form of a US\$244,000 loan to WMBL to finance its growing loan portfolio, resulting in a 145 percent increase in women micro-entrepreneurs to almost 2,000, and a 66 percent increase in savings customers, to more than 56,000.

PUBLIC AND PRIVATE 'COALITIONS OF THE AMENABLE'

Coalitions can address barriers such as the need for data disaggregated by sex, which can highlight the economic and social participation of women and track their progress over time. One example is our participation in the *Generation Equality Forum's Economic Justice and Rights Coalition*. Working together with key stakeholders, we are creating a blueprint to accelerate the attainment of gender equality in the next 10 years.

EFFORTS TO INFORM POLICY AND REGULATION

It is important to work together with policymakers and regulators to inform policies that take into account the needs of women. Such efforts play a key role in advancing an ecosystem approach for addressing constraints to gender equality and women's economic empowerment.

At UNCDF, we work together with regulators such as the Central Bank of Cambodia, to increase the number of women with savings accounts. By analysing transactional data from key financial service providers and demand-side data, we determined that women were more likely to have passive savings accounts (75 percent) than men (59 percent). This helped to make savings mobilization a key element of Cambodia's national financial inclusion strategy. One component of the strategy is to increase the promotion of remittance-linked savings products, particularly cross-border remittances, which are more often received by women. In addition, the Cambodian strategy has a target of halving the financial exclusion of women, from the current 27 percent to 13 percent.

REDUCING THE 100-YEAR GENDER GAP

Our work with women to address the gender divide is transformative in a number of ways. It focuses on the ability of women to be agents of change, enabling their digital and financial autonomy. It inspires collaboration among actors who do not work together, such as women's groups and mobile network operator associations. These collaborations are foundational in enabling women to be builders of the digital economy. Our efforts provide a roadmap for LDCs and other markets on how to address the 100-year gender gap in a tangible manner, to achieve gender equality (SDG5) and an end to poverty (SDG1).⁸⁷

⁸⁷ These efforts seek to promote SDG5 and SDG1. The objective of SDG5 is to achieve gender equality and empower all women and girls, while SDG1 seeks to end poverty in all its manifestations.



A CALL FOR BOLD, COLLECTIVE SOLUTIONS TO SPARK A GENDER-DIVERSE DIGITAL RESET

By Helene Molinier, Senior Adviser for the Action Coalition on Innovation and Technology, UN Women

With 2020 marking the 25th anniversary of the Fourth UN World Conference on Women, momentum was building to celebrate and more importantly consolidate fragile progress gained in women's rights. We could not have imagined that a global pandemic would put the world into lockdown, producing enormous reversals in the well-being of women while deepening gender inequalities.

25 years ago, only 4 percent of the world's population could benefit from the Internet. Nowadays, approximately half of the world's population is connected and COVID-19 has made digital tools a lifeline for millions of people. However, the pandemic has also exposed the digital divide and shown that the population excluded from the digital world – which includes a majority of women and girls – are the most at risk of being left behind by this crisis.

The year 2021 will be a pivotal point, where public and private partners will need to embrace collective action to improve the state of the world and build a future that will move towards a more equal and inclusive digital transformation. The **Generation Equality Action Coalition on Technology and Innovation** (Action Coalition) builds and reflects this imperative, as an innovative, multi-stakeholder partnership that will mobilize governments, civil society, international organizations, and the private sector to catalyse action, drive investment and deliver concrete, game-changing results for gender equality.

The challenges faced by women and girls to access, use, influence, and create digital technologies are multi-dimensional. They will require designing transformative actions to remove barriers associated with traditional social norms, lack of education, costs,

trust, safety concerns or geographies, among many others. The Action Coalition aims to drive commitments towards specific tactics that will allow us to accelerate progress toward this change.

Bridge the gender gap in digital access and competence

The current trends show lower access to and utilization of digital tools for women and girls and a lack of diverse skilled workforce in the technology sector, in a world with an ever-increasing demand for qualified professionals. To thrive in a 4th Industrial Revolution shaped by technology, girls and women need equitable access to science, technology, engineering, and mathematics (STEM) education, digital and transferable skills. This requires engaging with families and enlisting communities to change harmful gender norms, attitudes and mindsets. We need to provide more opportunities for women and girls, especially those in vulnerable situations, who are facing the most barriers to take full advantage of technology. The Action Coalition will explore blended financing instruments to mobilize private, public and philanthropic capital specifically to promising education models that address the combination of 21st century skills and gender gaps.

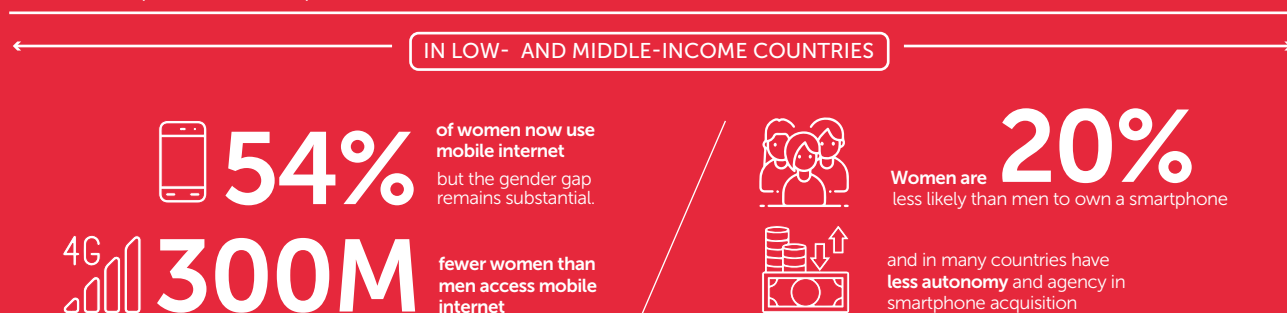
Invest in feminist technology and innovation

Technological innovations can empower women and girls on multiple fronts. They provide access to platforms that amplify their voices. They help leapfrog traditional structures and enhance women's economic participation. However, very few of these digital tools are developed by women or for women, leaving them no opportunity to influence and shape the design of technology. The Action Coalition aims to catalyse efforts across public and private sector actors to develop inclusive and gender transformative technology. The objective will be to invest in and amplify innovations that provide affordable, accessible, useable and sustainable solutions for women and girls to access new opportunities in a variety of sectors such as health, education, agriculture, climate or financial inclusion.



FIGURE 10.

The mobile phone landscape for women⁸⁸



Build inclusive, transformative and accountable innovation ecosystems

Countries and businesses need to build intentional pathways for women and girls' advancement in technology and to lead in changing behaviours and addressing workplace stereotypes. This will require a focus on the human side of the digital transformation and to create new networks that connect talent, investors, academia, government institutions, companies and non-profit organizations. The Action Coalition will pioneer gender-transformative digital innovation hubs, advocate for the adoption of feminist digital policies, and actively promote women's participation in decision-making procedures that shape global digital cooperation.

Prevent and eliminate online and tech-facilitated gender-based violence and discrimination

Women and girls are more likely to be targets of online violence, such as physical threats, sexual harassment, bullying, stalking, sex trolling, and exploitation. As a result, their voices and representation online are

at risk of being marginalized. We need to reset how we develop technology so that everyone equally benefits from platforms, services, and data while maintaining control over their digital lives. Countries and businesses must take responsibility and provide greater transparency and accountability in tackling technology-facilitated gender-based violence (GBV) and discrimination. This will require new regulations but also innovative user care services, and data analysis of safety and privacy issues faced by women and girls or persons in vulnerable situations.

The current efforts to bridge the gender digital divide cannot afford to stall now. We must be united because moving past the COVID-19 pandemic will require extraordinary collaboration and solidarity – among people, organizations, and countries. A generation of girls will be excluded from the digital world if we fail to seize this unique opportunity. UN Women and the Action Coalition's leadership group stand ready to collaborate with all stakeholders interested to join the coalition - civil society, governments, businesses, and academia - to ensure the international community is mobilised and committed to leverage technology to empower women and make irreversible progress that will help realise gender equality before 2030.

⁸⁸ GSMA, Mobile Gender Gap Report 2020, <https://www.gsma.com/r/gender-gap>

SECTION 3.2

CREATING PATHWAYS TO ECONOMIC OPPORTUNITY FOR YOUTH

By Maria Perdomo
and Ata Cisse



HIGHLIGHTS

- The world is experiencing a demographic bulge in its youth population, with more than 3 billion people presently under the age of 25. But many of today's youth lack the digital and non-digital skills necessary to successfully access meaningful economic opportunities. They also lack access to the formal economy and its associated opportunities.
- UNCDF is using digital technology to address the challenges of building skills, unlocking markets, creating new employment opportunities and improving youth access to financial services and capital. Our efforts seek to create skills and opportunities for today's young people as they move through life's transitions, to attain the objectives of SDG8.

Mamadou Bah is a 24-year-old farmer from Guinea who had never owned a bank account. He is a beneficiary of the Guinea INTEGRA programme. Participating in this programme has enabled him to open a checking and savings account with a local microfinance institution and receive financial education through an application on his phone. After nine months of training, and regular contacts with the financial service provider (FSP), Mamadou has asked for a loan to fund an agricultural project. The education that he received empowered him to request the loan and he is pleased with the conditions of the offer. Having received his loan, Mamadou is now working with a group of other youths to expand his farming activities.

The world is experiencing a demographic bulge in its youth population, with more than 3 billion people presently under the age of 25.⁸⁹ The bulge is most pronounced in least developed countries and is challenging the ability to create gainful employment. Youth unemployment currently accounts for 35 percent of the world's total, with significantly higher rates for young women. Yet globally, there are skilled and specialized jobs that cannot be filled. Nevertheless, 470 million new jobs are needed by 2030 to absorb the growing youth population into the labour force.

⁸⁹ World Bank, *Atlas of Sustainable Development Goals 2018: 8 Decent Work and Economic Growth*, <https://openknowledge.worldbank.org/handle/10986/29788>.

Many of today's youth lack the digital and non-digital skills necessary to successfully access meaningful economic opportunities. They also lack access to the formal economy and its associated opportunities. Finally, youth have poor access to the financial services and capital necessary to propel them on their journey of self-employment or entrepreneurship. At UNCDF, we are seeking to close the skills and jobs gap, in order to attain Sustainable Development Goal (SDG) 8.⁹⁰

YOUTH FACE CHALLENGES AS THEY NAVIGATE IMPORTANT TRANSITIONS

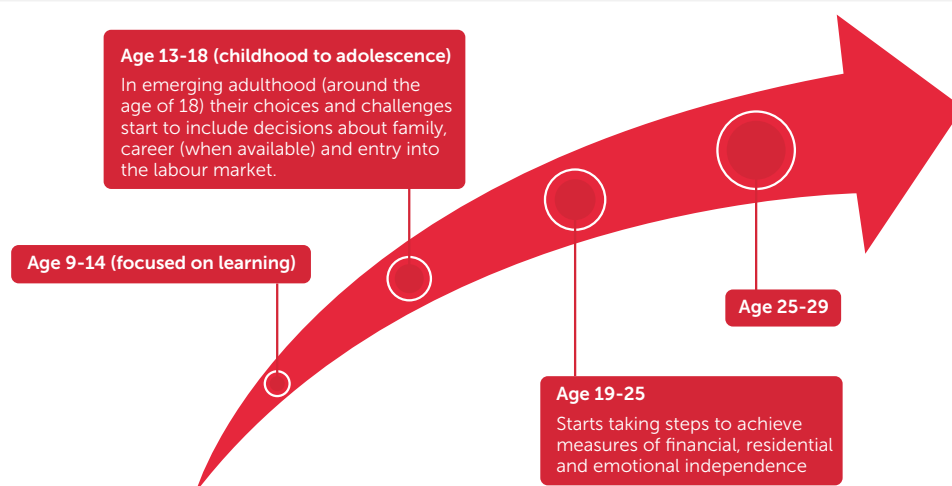
Youth is not a homogenous segment, but is comprised of several distinct age-based groups between the ages

of 18 and 35, each with its own unique needs.⁹¹ Those aged 12–14 are typically at a learning stage, while those aged 15–18 experience important transitions as they start their journey into adolescence. As they move towards adulthood, around the age of 18, young people's choices and challenges include decisions about family, career (when available) and entry into the labour market. Young adults (those aged 19–25) go through another complex transition as they take definite steps towards achieving measures of financial, residential and emotional independence. Fully engaged in their work life, those aged 26–35 continuously strive to build a better life for themselves and their families, learning to develop support networks in order to advance.

It is important to ensure that youths are not forced at a premature age to take on adult roles as they transition from school to work. Instead, the resilience of youth needs to be enhanced, helping young people to successfully navigate transitions or hinge points – each with unique needs – to ensure their continued development.

FIGURE 11.

Youth: key age points and transitions



DIGITAL CAN EMPOWER YOUTH

Digital can and is empowering youth in several ways, through even the simplest technology. Yet there are particular challenges around the digital inclusion of girls and young women (see Section 3.1 **Overcoming the gender divide**). Combining smart technology and connectivity, digital technology offers an opportunity to bundle the services needed by youth: information, training, access to crowdfunding platforms, payment systems, savings, credit

and insurance. Failure to digitally include youth will have a serious negative impact on their resilience.

Digital solutions can help young farmers and business owners to access capital and professionalize the way that they manage their business (such as bookkeeping and marketing). Social network platforms can be tailored to youth, who can reach out to experts on specific topics and network with other youth entrepreneurs. The development of content can leverage the capabilities of creative industries.

⁹⁰ The objective of Sustainable Development Goal 8 is to promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.

⁹¹ While the UN definition for youth is 15–24, UNCDF uses the definition provided by governments to ensure alignment with their respective contexts and priorities.

Digital technology can help to address the challenges faced by youth in several areas:

- developing the skills needed for the digital economy
- enhancing access to employment opportunities, both formal and informal
- mobilizing savings
- increasing access to finance
- improving market access.

Properly understood and used in context-specific approaches, digital technology can produce positive results for youth. UNCDF is unlocking the potential of digital technology to address youth challenges, taking a market development approach in its work.

DEVELOPING NECESSARY SKILLS FOR YOUTH

We help young people to develop a variety of digital and non-digital skills to improve their ability to successfully navigate life transitions.

In the Gambia, UNCDF is supporting young entrepreneurs to access relevant services through a digital application designed to improve their business management skills. This formalizes and tracks their business information, facilitating better decision-making. In addition, FSPs can use this information to improve their lending decisions. Launched in late 2020, the initiative has a target outreach of 12,000.

Digital tools can be used to deliver more focused financial education at lower costs and to expand the reach of these services. For example, a financial education initiative implemented with a Ugandan partner through physical channels resulted in 20,000 account openings over four years. A digital education initiative focused on a smaller, harder-to-reach population of girls from the urban slums of Kampala generated more than 1,000 account openings in a single month. While a clean comparison is difficult, the digital results are nevertheless impressive.

In a separate initiative across five African nations, UNCDF is developing the financial capabilities of youth through literacy training offered by financial service providers on a digital platform. Launched in 2019, the platform had trained more than 4,500 youths as of the end of 2020 and is on track to reach 30,000 by the end of 2023. These literacy efforts are indicative of the opportunity to expand reach through digital solutions.

ENHANCING EMPLOYMENT OPPORTUNITIES

Digital finance creates new employment opportunities for youth by facilitating new business models in finance, in sectors such as energy and the sharing economy, helping to absorb young people into the local workforce. In Senegal, UNCDF has supported a major mobile operator in setting up satellite mobile money kiosks managed by young entrepreneurs in peri-urban and rural areas. The successful pilot not only created jobs for 150 youth, but also increased access to mobile money services. Our activities in other sectors such as clean energy and ride-hailing services, have created new jobs. For example, work with Tootle in Nepal has contributed to the registration of 12,000 young bike riders.

MOBILIZING SAVINGS

Many young people lack the knowledge and funds required to start a business. To address this gap, we have worked in a number of countries across Africa to provide youth with the knowledge and skills to use digital services. For example, UNCDF has supported efforts to develop and commercialize solutions linking savings with credit. Financial education and a demonstrated ability to manage savings have helped participants to gain access to credit. More than 760,000 young people have been trained and have gained access to financial services through these initiatives. Young entrepreneurs (43 percent of them young women or girls) have saved US\$24 million. Close to 395,000 were able to borrow more than US\$76 million to start or expand their own business.

IMPROVING ACCESS TO FINANCE

Enhancing youth access to financial services and capital through digital technology is another key area of UNCDF focus. Improved access can empower young people to improve their lives by instilling positive behaviours, facilitating the development of products that meet their needs and enabling new access channels.

UNCDF is also addressing challenges faced by FSPs in the Gambia and Guinea in lending to youth – testing the use of a psychometric solution to facilitate lending decisions, in the absence of scoring models, to assess clients' potential of repayment. Initial results suggest that the model is performing well. Full validation would enable wider use of psychometric solutions.

Crowdfunding platforms, which provide a new access channel, can provide start-up capital to young entrepreneurs who have no collateral. This channel is well suited to youth due to its low delivery costs, as well as its alignment to segment needs and behaviours. In late 2020, UNCDF partnered with M-Change to bring its solution to Gambian youth, enhancing their access to capital. Linking to local financial service providers, such efforts can help young people to build a credit history and access greater capital to grow their business.

IMPROVING MARKET ACCESS

Digital technology can help youth to unlock market opportunities by providing young entrepreneurs with access to marketplaces and the formal economy. Platforms such as Jumia and Alibaba are revolutionizing the way that people trade. Digifarm, a platform focused on agriculture, is providing farmers with access to new markets, impacting the way that they sell and organize their activities. Such platforms can spur sectoral improvements by providing an ecosystem of complementary services: in this case, crop advice, financial services and market access, increasing productivity, as well as the appeal of the agriculture sector to young people, with its tremendous absorptive capacity in terms of jobs and income.

TRANSFORMATIONAL IMPACTS AND THE SDGs

Demographic trends and the resulting bulge in global youth populations present us with a significant development challenge. This is a problem that can be addressed through efforts focused on education and the creation of new economic opportunities. UNCDF is using digital technology to address the challenges of building skills, unlocking markets, creating new employment opportunities and improving youth access to financial services and capital. Our efforts seek to create skills and opportunities for today's young people as they move through life's transitions, to attain the objectives of SDG8.



DIGITAL FINANCIAL SERVICES AS A KEY FOR ENABLING OPPORTUNITY IN AFRICA

By Reeta Roy, President and CEO of The MasterCard Foundation

Arguably, the single biggest challenge—and opportunity—facing Africa's policymakers today is youth employment. The global pandemic has exacerbated existing problems, many of which are rooted in poverty and driven by a lack of opportunity. Addressing economic inequity is an imperative for all of us—governments, the private sector, education leaders, and philanthropic organizations like the Mastercard Foundation. Digital financial services can help us achieve this goal to better serve communities, improve economic inclusion, and create opportunities for dignified work.

For over a decade, the Mastercard Foundation has been advancing financial inclusion to enable millions of people facing poverty across Africa to improve their livelihoods and lives. One initiative that has been key to this is the Mastercard Foundation Fund for Rural Prosperity. The US\$50 million Fund was launched in 2015 with the goal of expanding financial services to 1 million smallholder farmers and other economically-disadvantaged groups in rural Africa. It enabled 38 businesses to develop and scale innovative approaches to offering savings, credit, insurance, and other services to rural clients in 15 countries.

Approximately 95 percent of the products and services these companies delivered had digital components. One company in Kenya, for example, developed a 100 percent mobile-based loan facility to enable smallholder farmers to access affordable working capital. Easy Solar in Sierra Leone sold entry-level solar products on a rent-to-own basis and used the clients' repayment history as

a form of credit-scoring so that they could purchase other products. In Uganda, Ibero offered farming inputs on credit, along with agronomic and financial training, while guaranteeing farmers a market for their produce. Elsewhere, a technology-based credit-scoring engine was used by financial service providers to analyse data from various sources relevant to the agriculture sector—from mobile phone usage data to warehousing data—to create credit scores of clients to enable them to access credit.

So, what were the results? By 2017, the Fund for Rural Prosperity reached 1 million clients. To date, more than 3 million clients have benefitted from this programme. 36 percent of these were rural women. 28 percent were young people under the age of 35. More than half of these individuals received financial products and services, as well as a training on important topics like agricultural practices and financial literacy. Equipped with knowledge and tools, these clients started to increase their yields and incomes, and could begin to look ahead and plan for the future.

A number of factors contributed to these results. First, the prevalent use of digital platforms enabled rapid scale. Second, the Fund required companies to co-fund these activities, giving them a stake in the success of their clients. Finally, several of the companies used a human-centred approach to understand the needs and views of farmers in order to design relevant products and services.

A second set of results was more surprising—and intriguing. Increased access to financial services enabled these companies to create more than 2,600 jobs,

most of which were filled by young people. Equally impressive, were the indirect benefits. As smallholder farmers were able to purchase more agricultural inputs, buy better equipment, improve land productivity, and increase yields, they also hired others in the community to help cultivate their land and harvest their produce. With this extra income, they generated new local demand for a variety of products and services, sparking entrepreneurship and stimulating the local economy.

These findings set us on a journey to understand and unravel the link between financial inclusion and improved livelihoods for young people. In 2018, the Mastercard Foundation launched Young Africa Works, our bold new strategy to enable 30 million young people across Africa, particularly young women, to access dignified and fulfilling work by 2030. We believe that digital financial services will be a powerful lever to increase these opportunities across Africa. Our experience with the Fund for Rural Prosperity certainly suggests that. Yet surprisingly, there is a relatively limited body of evidence that connects these dots. As part of the Young Africa Works strategy, we will seek to build that evidence base.

Digital financial services hold the promise of cost-effective delivery of financial products and services to hundreds of millions of people. Moreover, digitally-enabled agency banking enhances access to banking services to underserved populations, thus deepening financial inclusion. As we navigate this global pandemic, this is an opportune time to better understand the multiple benefits of digital financial inclusion on the resilience of families and communities. If our experience is anything to go by, the ripples of impact may be greater than we realize.



SECTION 3.3

ADVANCING FINANCIAL RESILIENCE FOR MIGRANTS AND THEIR FAMILIES

By Amil Aneja



HIGHLIGHTS

- As important as remittances are in their own right, and as necessary as it is to improve efficiencies and lower costs, remittances' truly transformative potential goes far beyond moving money from point A to point B. Remittances can and should be a gateway product to a full suite of financial services for a population that is largely financially excluded at present.
- All kinds of migrant-centric financial innovations become possible with a shift to digital. Few of them are practical until that happens. What is ultimately needed is end-to-end digitization: migrants receiving wages digitally, and sending digital remittances to their families, who in turn use those remittances for an array of digital services, such as payments and savings.

An estimated 272 million people, or roughly 4 percent of the world's population, live and work outside their countries of origin. The vast majority are voluntary or economic migrants, and regardless of individual circumstances, they share a common goal: sending money to loved ones back home. Remittances, as these money transfers are known, are a vital source of income for millions of households in developing countries. Families receiving remittances spend more on nutrition, health, education, housing and livelihoods development, all of which directly advance the Sustainable Development Goals (SDGs).

The SDGs acknowledge the importance of remittances both to household well-being and economic development. They also cite the issue of high remittance fees, and set a target of no more than 3 percent transaction costs. However, as important as remittances are in their own right, and as necessary as it is to improve efficiencies and lower costs, remittances' truly transformative potential goes far beyond moving money from point A to point B. Remittances can and should be a gateway product to a full suite of financial services for a population that is largely financially excluded at present. That suite of services can and should, in turn,

be a powerful way to enhance resilience for migrants and their families: to help them avoid setbacks when possible, prepare for them when necessary, and recover from them quickly.

Many migrants are shut out from quality financial services by a variety of physical, technical or cultural barriers. Low-income or low-skilled migrants, in particular, are likely to be financially excluded in their host countries, while their families are excluded back home. Individuals on both sides may lack proof of identity, awareness about quality financial services, or practical access to such services. But even financially excluded migrant families will find a way to move money from the wage earner in the host country to the loved ones at home. If financial inclusion efforts (like development in general) begin with meeting people where they are, then financial inclusion for migrants logically begins with remittances, the universal financial experience for that population.

The migration life cycle provides specific entry points for 'remittances plus' interventions, both those aimed at product delivery and skills building.

Pre-departure. Targeted financial literacy education can demonstrate the benefits of well-managed, formal, digital remittances which, unlike the cash-based alternatives, can be linked to savings and credit products.

Arrival. Early adoption support can help migrants with the process of actually opening accounts, which may be an unfamiliar experience that poses cultural or linguistic difficulties. Workshops and support groups can help migrants to adopt a long-range planning orientation, for financial but also other life goals, and share experiences with one another.

Settlement. Intermediate support interventions can deliver vocational skills development, connect migrants to additional resources as relevant, and provide counselling on financial products and institutions in both the host and home countries.

Pre-return. Financial and legal counselling is often useful to effect the safe and cost-effective repatriation of savings or other funds. Migrants preparing to return home will also benefit from referrals to travel agencies, movers and other reasonably priced service providers, including legal aid and documentation support.

Post-return. Financial and legal counselling present available options among financial institutions in home countries. For entrepreneurs, counselling and referral services can provide introductions to connect business ideas or plans to the right local incubator(s) or accelerator(s).

Every step on the path presents opportunities to think beyond remittances as a transaction, and reimagine them as the on-ramp to a superhighway of financial services that can help to take migrants to the future that they want. Digitizing remittances themselves is the all important first step. As long as remittances remain the cash-based, over-the-counter transfers that are dominant, it will be logistically impractical and cost-prohibitive to layer on additional services.

In a digital model, however, such products become real options. For example, one of the ways that families use remittances is to capitalize small businesses. The overseas migrant family member sends home money, and the family uses it to stock the shelves of its grocery store, or to buy more livestock, or whatever its livelihood requires. However, the migrant still has to send the money, and the family is still limited by what can be sent, and when.

UNCDF is supporting a company called SympliFi in a digital innovation. SympliFi works with financial institutions in the receiving country to provide the local family with a line of credit for their business, guaranteed by the overseas migrant. Instead of actually having to send the money, the migrant agrees via the SympliFi platform to act as guarantor.

In one stroke, the SympliFi digital solution gives the family greater financial flexibility and control, generates business for the home country financial institution, and enables the migrant to keep the money that he or she would otherwise have remitted. SympliFi's innovation focuses on business lending, but all kinds of financial services are ripe for creative adaptations.

In Malaysia, UNCDF facilitated a partnership between AXA, a leading global insurance company, and Merchantrade, a money transfer operator. In May 2018, the partnership launched Remit Secure, an insurance product that delivers income support for temporarily disabled or hospitalized migrants, as well as providing migrant families with up to six months of remittances in the event of the migrant's death or disability. Available for purchase at the equivalent of just US\$1.25 per month via Merchantrade's E-Remit Mobile App and Merchantrade Money wallet, the product features plain language terms and conditions, a simple claims process, and the flexibility to make premium payments either at branches or via mobile wallet deductions. In the very active migration corridor between Nepal and the United Arab Emirates, UNCDF is bringing together an ecosystem of financial institutions, delivery partners and point of sale networks to connect through a blockchain-powered lending platform. Migrants with no or thin-file credit histories, and without savings or other collateral, can access uncollateralized credit on the basis of their remittance histories and other alternative data.

In short, all kinds of migrant-centric financial innovations become possible with a shift to digital. Few of them are practical until that happens. What is ultimately needed is *end-to-end digitization*: migrants receiving wages digitally, and sending digital remittances to their families, who in turn use those remittances for an array of digital services, such as payments and savings. With generous support from the Swiss Agency for Development and Cooperation and the Swedish International Development Agency, UNCDF is pursuing this end-to-end approach, aligned with the four workstreams that guide all the work within our Inclusive Digital Economies practice.

Within **Policy & Regulation**, we are reviewing remittance legal and regulatory frameworks at country and regional level, and supporting central banks to monitor and analyse remittance flows.

Within **Open Digital Payment Ecosystems**, we are strengthening the capacity of providers to acquire agent networks and/or develop partnerships with other agent networks, while also facilitating interoperability and implementation of regional KYC (know your customer) protocols.

Within **Inclusive Innovation**, we are supporting remittance service providers with financial and technical assistance for research and product development.

Within **Empowered Customers**, we are working with our implementing partners and with governments to ensure transparency and consumer protection on pricing and service delivery.

Migrant-centric financial products are crucial to reducing low-income migrants' vulnerability in a world where increasingly fluid labour markets may fray the social contract between employer and employee. They are also vital to ensuring that all migrants can go where their best opportunities lie, and can make the most of their talents once there, for the benefit of themselves, their families and their host countries.

DIGITIZATION: THE KEY TO MIGRANTS' FINANCIAL INCLUSION

Digital technologies are rapidly expanding the potential to increase migrants' resilience and reduce their vulnerability. From digital identity, cross-border remittances, machine learning-based risk models to price insurance premiums and more, innovative digital business models are challenging the incumbent, traditional systems. Moreover, the evolution of regulations and digital deployments is steadily advancing the inclusive digital economies that can create equal access to fundamental opportunities – finance, health and job skills – which are essential to the economic inclusion of migrants and their families.

Access to finance. Financial products and services – such as payments, savings, insurance, credit, pension portability – adapted to the needs of migrants increase the capacity of migrant families to generate savings and invest in livelihood opportunities. Such products and services, however, are not often available.

Access to health. Relative to native populations, migrants may have less access to health services or to the kinds of job that provide medical leave. Especially for migrants working in higher-risk occupations, such as construction, mining, shipping, port services, dangerous good transport, etc., life-threatening diseases must be addressed. If untreated, these diseases can spread multi-drug resistant infections and create public health hazards. Curative and preventive health services must encourage better health-seeking behaviour among migrants, especially among vulnerable, traditionally underserved groups, such as women, children and the elderly.

Access to job skills. In major countries of destination, immigrants drive 40–80 percent of labour force growth,⁹² which in turn helps to fuel economic growth. As many destination countries confront falling birth rates, ageing populations and other demographic changes, targeted immigration can help to fill critical skill gaps and occupational gaps, while investing in job skills can also improve migrant income and savings.

⁹² McKinsey Global Institute, "Global migrations' impact and opportunity" (2016).

TABLE 2.

Digital economies for migrants

	Finance	Health	Job skills
Migrant	<ol style="list-style-type: none"> 1. Remittances 2. Payments 3. Salary deposits 4. Savings 5. Credit 6. Seed capital for business 7. Superannuation/Pension portability 	<ol style="list-style-type: none"> 1. Health Insurance offered through the digital platform of remittance service providers. (e.g. AXA migrant insurance offered by remittance service provider, Merchantrade) 2. Access to basic health-care services offered through the digital platform of remittance service providers 	<ol style="list-style-type: none"> 1. Digital content for migrants specific to their jobs offered through the platforms of remittance service providers (e.g. freight services, mining, shipping and port services, air cargo, hospitality, etc.) 2. Skills that can facilitate the return and integration in the home communities. (e.g. agri value chain, supply and cold chain management, etc.)
Migrant family	<ol style="list-style-type: none"> 1. Personal credit 2. Housing loan 3. Overdraft 4. Financing against remittances 	<ol style="list-style-type: none"> 1. Accidental death 2. Accidental disability 3. Funeral insurance 4. Disaster risk (e.g. Fiji, Nepal, the Philippines) 	<ol style="list-style-type: none"> 1. Pre-departure campaigns 2. Skills for prospective migrants. (e.g. logistics, port processes, air cargo, passenger handling, dangerous goods handling, supply and cold chain, freight forwarding, etc.)

DIGITAL TECHNOLOGIES AND ACCESS TO BASIC SERVICES IN THE GLOBAL SOUTH

By Keith Tatenda Mudadi and Gabriela Violim Mercurio,
Cities Alliance

The concept of 'smart city' has gained significant traction in recent years and has influenced development approaches and policy responses by local governments in rapidly urbanizing countries. This has spurred the development of projects that seek to leverage the deployment of Information and Communications Technologies (ICT) and data to solve challenges experienced by rapidly urbanizing cities. At the core of the smart city concept lie various understandings and components, including:

- Sensing
- Data driven urban systems designed to improve government service
- Enhancing local economies
- Reducing natural resource consumption and waste
- Enhancing citizen's engagements with governments and each other

While digital innovation remains central to the smart city concept, a key question is whether investment in smart technologies and digital innovations ultimately contributes to improving the well-being of citizens in order to 'leave no one behind'. Standardized application of technology-driven approaches to data monitoring in cities without due consideration of the local context may create adverse developmental effects, such as exclusionary governance practice.

However, a collaborative approach in the deployment of digital technologies can positively impact the provision of urban services, livelihoods, and living standards of the urban poor. This is the main conclusion from the Cities Alliance's *Secure Tenure Call in African Cities: Micro Funds for Community Innovation Call of 2019*⁹³ and a recent publication on *Smart technologies for more equitable city economies*⁹⁴. Services that can be leveraged by a collaborative approach in deployment of digital technologies (and were supported by the innovation call and investigated in the publication) include waste management, access to electricity, and land management. Transformative effects of digital technologies in access to these services unfolded into three main functions:

1. Operational uses by removing barriers to entry on formal markets
2. Transactional uses by reducing transactions costs and asymmetries of information
3. Informational uses by bringing evidence and putting on the map informal dynamics

The Secure Tenure Call for Proposals provided some evidence on successful initiatives that use digital technologies to solve some of the challenges faced by municipal and national authorities in developing countries. Lack of tenure security, land and property rights in informal urban settlements remains one of the biggest challenges in improving access to basic services and living conditions of the urban poor. It has a direct impact on investment decisions made by households in upgrading their own dwellings and the private sector, and governments in investing in infrastructure and access to basic services. Similarly, tenure insecurity directly impacts the livelihoods of the urban poor as the constant threat of eviction discourages vendors and small businesses reliant on the public space to sell their goods and services to further invest in their ventures and market stalls. The call provided small grants of up to US\$50,000 to support local innovative solutions that deploy modern technologies to improve tenure security, land, and property rights in African cities.

⁹³ Cities Alliance, *Call for Proposals - Secure Tenure in African Cities: Micro Funds for Community Innovation*, (2019). Available at <https://www.citiesalliance.org/newsroom/news/business-opportunities/call-proposals-secure-tenure-african-cities-micro-funds>.

⁹⁴ Cities Alliance, *Smart technologies for more equitable city economies*, (Brussels, Cities Alliance/UNOPS, 2020), Available at <https://www.citiesalliance.org/resources/publications/publications/smart-technologies-more-equitable-city-economies>.

A key finding from this Call was the need to embed technology into social interaction and social dialogue. This has proven to be crucial not only to ensure that the technology will fit local practices and needs, but also to create acceptance and adherence from both users and beneficiaries. All five projects funded under the Secure Tenure Call have demonstrated the transformative effects of collaborative deployment of digital technologies in alleviating urban challenges.

For instance, the project in Zanzibar⁹⁵ used new data collection and processing methods to solve the challenge faced by the Government of Zanzibar in providing certificates of occupancy to landowners. Working closely with the government, Spatial Collective (the grant recipient) set up a data model and data collection protocols, developed a field guide and criteria for selection of tools and methods, created customized technology to collect data, trained Zanzibar stakeholders on data collection and management, carried out data collection in a pilot area, and supported the Zanzibar Commission for Lands (COLA) with data processing. The collaborative approach in the deployment of digital technologies in the land management system resulted in the review of the existing adjudication process, redesigning the paper-based adjudication form, and building a platform for digital land data collection to be used by the government.

Another interesting example was the initiative implemented by Association 3535 (the grant recipient)

in Côte d'Ivoire⁹⁶ in partnership with the technical services department of the municipality of Cocody. The project created an open-source software application that speeds up issuance of permits for occupation of public space benefitting informal vendors and small business in the municipality of Cocody. The platform's key functionalities are modelled after the existing steps in the process to obtain a permit, but it uses online alternatives to replace most steps requiring in-person interactions and visits to the technical services' local office. The process equally leverages other digital solutions such as mobile money to allow vendors to make payment for the permit. These innovations, which were conceived considering literacy challenges, support transparency and accountability. Deployment of these digital solutions during the pilot project resulted in a significant decrease in the processing time of requests for permits from eight weeks to 22 working days.

The cases of use of digital technologies to improve access to basic services and rights highlighted here are small, incremental, replicable, and driven primarily by civil society and private actors. However, ensuring community engagement and collaboration with local governments in the early stages of the initiatives have proven to be key for the successful adoption of the technologies proposed. Promoting similar initiatives and scaling-up existing ones will require creating an enabling environment to spur investments in digital technologies and a demand driven approach, based on a willingness to consider grassroots technological uses and innovations.

⁹⁵ Cities Alliance, *Secure Tenure on Zanzibar: creating a new methodology for collecting data on land*, (2020). Available at <https://citiesalliance.org/resources/knowledge/global-knowledge/secure-tenure-zanzibar-final-report>.

⁹⁶ Association 3535, *eServices Techniques: a tech solution to help street vendors get access to the public space*, (Cities Alliance, 2019). Available at <https://citiesalliance.org/resources/knowledge/global-knowledge/eservices-techniques-report>.

SECTION 3.4

EXPANDING OPPORTUNITIES FOR REFUGEES AND OTHER FORCIBLY DISPLACED PEOPLE

By Ivana Damjanov



HIGHLIGHTS

- Digital technology can support the arrival of refugees through registration and identity solutions, assist with emergency response, improve refugee resilience and self-reliance, and lay the foundation for access to services from other sectors, such as health, energy and education.
- UNCDF seeks to overcome the obstacles that prevent refugees from using digital technologies. This work paves the way for refugees to access digital services that build stronger inclusive digital economies. Enhanced self-reliance provides refugees with agency over their economic lives and a path to prosperity for their families and communities.

The past decade has seen a dramatic change in the refugee landscape; the population of forcibly displaced people (FDPs)⁹⁷ reached 79.5 million in 2019,⁹⁸ with more than half of all refugees having been displaced for more than 10 years.⁹⁹

In response to the growing refugee crisis, in 2016 United Nations member states adopted the United Nations High Commissioner for Refugees (UNHCR)-issued

comprehensive refugee response framework (CRRF)¹⁰⁰ and in 2018 affirmed the Global Compact on Refugees.¹⁰¹ These efforts provide a basis for predictable and equitable burden-sharing and the assumption of responsibility among member states. Both emphasize refugee self-reliance and integration with host communities, highlighting the potential contribution of refugees to local economic growth.

⁹⁷ FDP is used to refer to both asylum seekers and refugees.

⁹⁸ See www.unhcr.org/globaltrends2019.

⁹⁹ See <https://blogs.worldbank.org/dev4peace/how-many-years-do-refugees-stay-exile>.

¹⁰⁰ See www.unhcr.org/en-us/comprehensive-refugee-response-framework-crrf.html.

¹⁰¹ See www.unhcr.org/en-us/the-global-compact-on-refugees.html.

Take the case of 24-year-old Odette, who fled her home in Burundi five years ago. She is one of the thousands of refugees in the Mahama refugee camp in Rwanda. After registering her biographic and biometric data with UNHCR and the World Food Programme (WFP), she was provided with an identity card and a bank account, through which she receives her monthly cash assistance transfer. By selling cassava in the market, she is able to augment her monthly grant. Proceeds from her sales are tucked away until Saturday, when she meets with her savings group, whose other members are also women refugees. At one of their meetings, the group's coordinator shares a tablet showing Odette and her friends how to access other services on their phones and create a budget for their businesses. Odette dreams of being able to farm her own land and open a small stand to sell dresses. Through new friendships and the technology she sees around her, she thinks it may one day be possible.

TRANSFORMING REFUGEE RESPONSE THROUGH DIGITAL TECHNOLOGY

Digital technology has advanced the way that refugee and humanitarian agencies address their respective challenges.¹⁰² During the COVID-19 pandemic, the humanitarian sector has relied more heavily on digital technology. When refugees, and women in particular, are digitally included, they are more resilient and better prepared to respond to economic shocks. Yet women are less likely than men to access and use mobile technology, especially in humanitarian contexts,¹⁰³ so closing this mobile gender gap is essential. Harnessing digital innovation to drive scale and create broader systemic change reaching beyond refugee camps is a central focus of our efforts at UNCDF. Digital technology can support the arrival of refugees through registration and identity solutions, assist with emergency response, improve refugee resilience and self-reliance, and lay the foundation for access to services from other sectors, such as health, energy and education.

However, several barriers prevent refugees from becoming self-reliant and contributing to local communities:

- lack of infrastructure, such as legal identification, Internet access, mobile connectivity and mobile network operator (MNO) agents;
- the absence of an enabling policy environment allowing refugees to become more economically sufficient and contribute to the local economy;
- lack of digital literacy, enabling refugees to understand and use digital services and solutions.

A CATALYST FOR ENABLING DIGITAL RESPONSES

UNCDF has undertaken a number of efforts to drive digital innovation, in order to facilitate the efficient delivery of assistance to refugees. The CRRF is used to describe the refugee journey to highlight its efforts in this regard.

ADMISSION AND RIGHTS

As in the case of Odette, once registered and granted refugee status, an asylum seeker is issued with identification, beginning the process of accessing available humanitarian services. Ideally, a robust, portable, digital identification system could facilitate economic self-reliance and local integration, benefiting the host country's economy. UNCDF's efforts address policy-related interventions such as identification – critical for refugees to access basic mobile services¹⁰⁴ and to realize their economic potential. We advocate for refugee rights and digital and biometric technology for identification. In Uganda, for example, UNCDF supported the successful advocacy efforts of UNHCR, WFP and the Global System for Mobile Communications Association to have the Uganda Communications Commission accept the attestation letter that refugees are granted by UNHCR as a valid form of identification for SIM card registration.¹⁰⁵ Based on the needs and perceptions of refugees, it was important for this effort to consider privacy and data protection early in the design of the new enabling policy framework.

¹⁰² United Nations High Commissioner for Refugees, "How smartphones and social media have revolutionized refugee migration" (2018). www.unhcr.org/blogs/smartphones-revolutionized-refugee-migration/UNHCR.

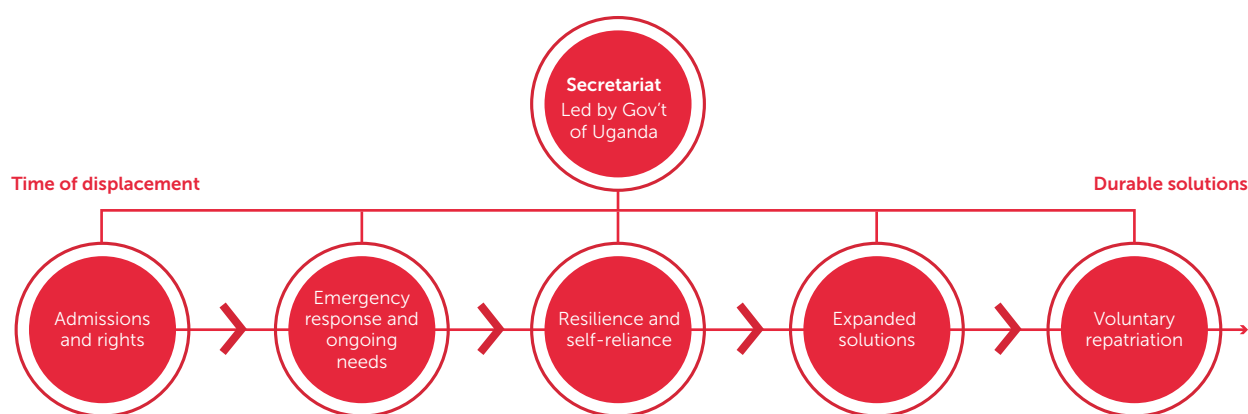
¹⁰³ Global System for Mobile Communications Association (GSMA), "Bridging the mobile gender gap for refugees" (2019). www.gsma.com/mobilefordevelopment/resources/bridging-the-mobile-gender-gap-for-refugees.

¹⁰⁴ GSMA, "Enabling access to mobile services for the forcibly displaced: policy and regulatory considerations for addressing identity related challenges in humanitarian contexts" (2017). www.gsma.com/mobilefordevelopment/wp-content/uploads/2017/09/Policy-Note-FDPs-and-Mobile-Access.pdf.

¹⁰⁵ See www.uncdf.org/article/2506/national-sim-verification-uganda.

FIGURE 12.

The journey of refugees, from arrival at a camp to voluntary repatriation



EMERGENCY RESPONSE AND ONGOING NEEDS

Global advancements in mobile technology and connectivity provide a tremendous opportunity to leverage digital tools to protect and serve refugees. Technology enables humanitarian agencies to deliver services more cost-effectively, with greater accountability and efficiency.

Digital innovation has transformed service delivery from in-kind and direct food assistance to cash transfers delivered through mobile money, using biometric identification.¹⁰⁶ In 2018, WFP successfully piloted its Building Blocks initiative in Jordan and Pakistan,¹⁰⁷ relying on blockchain technology to create virtual accounts accessed by refugees through iris scans in participating local shops and digitally empowering more than 100,000 refugees in the process. UNCDF has been supporting the digitization of cash-based initiatives in Zambia's Maheba camp¹⁰⁸ through a pilot that delivered digital payments to 870 beneficiaries, as well as in Niger and Senegal, which was expected to reach 20,000 refugees in the Matam Camp.¹⁰⁹ In 2017, UNCDF partnered with DanChurchAid and Airtel to pilot the digitization of payments to more than 15,000 refugees in Uganda's Bidi Bidi camp. This was made possible by Airtel's investment in three permanent network towers and the registration of 86,000 new refugee clients.¹¹⁰

Knowing the location of financial service touchpoints is pivotal for an efficient and effective humanitarian response. Geospatial mapping can identify access gaps for rural populations and refugees, and is increasingly important with the shift to digital disbursement of emergency benefits. Following the major Nepal earthquake in 2015, UNCDF helped authorities to identify payment points for the delivery of cash, humanitarian aid and supplies.¹¹¹

RESILIENCE AND SELF-RELIANCE

Digital financial services can be a stepping stone to financial inclusion and contribute to greater resilience for forcibly displaced people.¹¹² This helps FDPs to access aid and provides them with the tools that they need to better manage future risks and shocks – a bridge between humanitarian and development assistance.

UNCDF works with banks, mobile network operators, regulators and users of digital financial services to improve infrastructure in order to reach refugees. Our objective is to demonstrate that these services can be provided safely, at a reasonable cost, sustainably at scale, in a well-regulated environment. We assist MNOs and banks to understand the refugee business case in order to invest in building towers, establish agent networks, and manage agent liquidity. These efforts help to support sustainability by helping to build viable digital ecosystems, thereby avoiding the closure of recipient accounts after donor funding has ended.

¹⁰⁶ Gabrielle Smith et al., "New technologies in cash transfer programming and humanitarian assistance" (The Cash Learning Partnership, Concern Worldwide, Oxford Policy Management, PRIAD, 2011).

¹⁰⁷ See <https://innovation.wfp.org/project/building-blocks>.

¹⁰⁸ See www.uncdf.org/article/3883/unhcr-cash-based-interventions-in-meheba-refugee-settlement-in-zambia-the-journey-to-digitization.

¹⁰⁹ See www.uncdf.org/article/4223/senegal-launches-a-digitalization-project-in-the-humanitarian-sector.

¹¹⁰ See www.uncdf.org/article/3725/digitizing-cash-based-interventions-through-a-mobile-wallet.

¹¹¹ See www.uncdf.org/article/2483/building-a-backbone-for-the-financial-sector-in-nepal.

¹¹² Shelly Culbertson et al., "Crossing the digital divide: applying technology to the global refugee crisis" (RAND Corporation, 2019).

Recognizing that digital literacy is a necessary component of the uptake and usage of digital products and solutions, we believe that behavioural change must be the objective of digital education programmes that allow beneficiaries to learn, practise and adopt new skills. Digital literacy uses existing technological tools such as tablets, phones and computers to teach and engage through guided usage toward concrete client objectives. In [Rwanda and the United Republic of Tanzania](#), UNCDF trained more than 7,300 refugees using tablet-based applications, SMS and videos, introducing immediately applicable information and skills through alternative delivery mechanisms that go beyond traditional methods. In Uganda,¹¹³ UNCDF and WFP partnered to develop a financial literacy curriculum for refugees and roll out a Digital Community Entrepreneur (DCE) model to boost access to and use of phones, solar kits and mobile money products;¹¹⁴ some 1,620 refugees were trained and there are currently 106 active DCEs in Ugandan refugee camps. Examples such as these demonstrate the importance of supporting digital skill development to use a range of services, aside from financial services.

Through their mobile phones, refugees have access to economic and livelihood opportunities. They can receive remittances from abroad, transfer cash to family and friends, contact and pay suppliers, receive payments, access financial services, and reach new clients.¹¹⁵ There are emerging examples globally of FDPs, especially women with existing skills and small-scale enterprises, accessing on-demand work opportunities through digital platforms. For example, the International Rescue Committee and the Overseas Development Institute find “that the gig economy in Jordan offers some promise to provide work to Syrian women refugees, especially by providing wider markets to women who are already economically active on a small scale.”¹¹⁶ Recent efforts have leveraged the digital sector to extend refugee services to other sectors. Increased access to digital mobile technology can translate into increased access to education and training.¹¹⁷ Displacement has taken a substantial toll on refugee education, with 3.7 million children out of school.¹¹⁸ Digital technology can help to address this gap by delivering and providing educational content, training teachers and facilitating access to information on educational opportunities.

¹¹³ See www.uncdf.org/article/5690/financial-literacy-training-toolkit-for-refugees.

¹¹⁴ See www.uncdf.org/article/5797/reaching-the-last-mile-the-foundation-for-growth-of-ugandas-digital-economy.

¹¹⁵ See www.gsma.com/mobilefordevelopment/resources/the-digital-lives-of-refugees.

¹¹⁶ Overseas Development Institute, “Syrian women refugees in Jordan: opportunity in the gig economy?” (2017). www.odi.org/sites/odi.org.uk/files/resource-documents/11742.pdf.

¹¹⁷ World Bank, “ICT and education for refugees: a stocktaking of innovation approaches in MENA, lessons of experience and guiding principles” (Washington, DC, 2016). <https://openknowledge.worldbank.org/handle/10986/25172>.

¹¹⁸ See www.unhcr.org/education.html.

Energy is another sector showing promise. For example, pay-as-you-go services for electricity in off-grid areas are being tested in camps such as the Kakuma Refugee Camp in Kenya, where more than 1,000 solar home systems are in use.¹¹⁹

EXPANDED SOLUTIONS AND VOLUNTARY REPATRIATION

As refugees become ready to move from encampments to permanent living situations, host country policy will determine their ability to access employment opportunities, land and the national educational system. In the absence of such opportunities, the international community must liberalize its own policies towards third-country solutions and agree to resettle refugees in member states.

Resettled refugees should have the same access to digital services as those available to the host country’s citizens. Efforts should be made by member states to support peacebuilding, improving conditions in the countries of origin, so as to allow refugees to voluntarily repatriate. Access to the Internet and messaging applications would allow candidates for repatriation to monitor local news and communicate with people back home, while regionally interoperable mobile money wallets would allow refugees to access and use their funds.

CREATING SELF-RELIANT REFUGEES

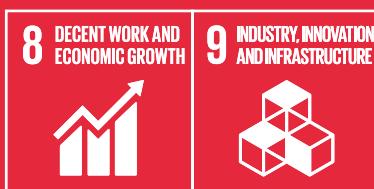
Increasing the self-reliance of refugees and their integration into local communities is currently constrained by several barriers, including the absence of critical infrastructure such as digital connectivity and the lack of nationally accepted identification. Through its efforts, UNCDF seeks to overcome these and other obstacles that prevent refugees from using digital technologies. This work, in turn, paves the way for refugees to access digital services that build stronger inclusive digital economies. Enhanced self-reliance provides refugees with agency over their economic lives and a path to prosperity for their families and communities. Applying digital solutions to programmatic interventions can create new opportunities for displaced populations to help achieve SDG1 (End poverty in all its forms, everywhere) and SDG10 (Reduce inequality within and among countries).

¹¹⁹ See www.unhcr.org/education.html.

SECTION 3.5

MSMES NEED BETTER SERVICES, NOT JUST FOR FINANCE, BUT TO SUPPORT THEIR RESILIENCE AND GROWTH

By Rajeev Kumar



HIGHLIGHTS

- MSMEs generate most of the new jobs that are created in least developed countries (LDCs), and they can be a powerful force for integrating women into the economic mainstream.
- To fast-track the SDGs in least developed countries, UNCDF's Inclusive Digital Economy programme is working with private and public sector partners on MSME-focused initiatives for inclusive innovation, open payment ecosystems, customer empowerment, and enabling regulation. Achieving SDG8 and SDG9 depends on growing MSMEs, which need to benefit from digital transformation, alternative financing solutions and formalization.

Micro, small and medium enterprises (MSMEs) are delivering many vital services at the last mile, which the poor depend on for their personal and productive needs – in the sectors of agriculture, health, energy, commerce and trade, and education. Growing MSMEs are important due to their improved productivity, earnings – and potential tax revenue – services and employment. They generate most of the new jobs that are created in least developed countries (LDCs), and they can be a powerful force for integrating women into the economic mainstream. Empowering MSMEs and enhancing their capacity is a key objective of Sustainable Development Goal (SDG) 8 (decent work and economic growth) and SDG9 (industry, innovation and infrastructure).

The MSME segment is comprised of a diverse group of enterprises, which varies by size, maturity and growth aspirations, among other characteristics. There are 162 million formal micro, small and medium enterprises in developing countries, of which 87 percent are micro-enterprises. Many more enterprises operate informally but are starting to digitalize,¹²⁰ as they use common messaging and content platforms to market and learn.

¹²⁰ See www.financedigitalafrica.org/wp-content/uploads/2019/04/FiDA-Micro-entrepreneurs-in-a-platform-era.pdf.

Given the prevalence of micro-enterprises, their growth to small enterprise status is critical. Take the example of Elase Mwale, a Zambian entrepreneur who started her mobile money booth in Lusaka in 2015. Elase started a booth with six months of personal savings and quickly expanded to three booths. Her inventory was essentially cash, which she frequently ran out of when people cashed-out from their mobile money wallet. A local microfinance institution, FINCA Zambia, provided her with an 'Agent Cash' loan, and within three months she was able to serve more customers and open four additional booths. She reached out to her church network to recruit four members of staff, whom she could trust, to operate these booths.¹²¹ Elase's business grew from a micro- to a small enterprise, requiring skills to plan for business expansion, manage a larger workforce, set in place systems and processes, and secure financing, as well to partner in order to serve mobile money customers as an agent.

The fallout from COVID-19 has been especially difficult for MSMEs. It has led to declines in income and employment and increased inequality and poverty. A recent survey by UNCDF and the International Chamber of Commerce in 47 LDCs¹²² finds that 69 percent of MSMEs experienced substantial disruptions and are operating at less than half their normal business capacity. Micro-enterprises are disproportionately affected, with only 22 percent of them operating at above 50 percent business capacity, compared with 41 percent for the larger SMEs. They face significant difficulty in accessing customers (83 percent) and suppliers (44 percent). The economic impact of COVID-19 is, first and foremost, a crisis of market shutdown and supply chain disruption. As the pandemic is prolonged, with market demand and finance contracting further, the economic emergency is transforming into a business liquidity crisis, in which companies struggle to stay afloat. Informal enterprises are 25 percent more likely to say that the pandemic is pushing them towards bankruptcy. Also, women-led businesses are experiencing higher rates of layoffs, compared with men-led businesses.

While MSMEs are a diverse group, they often experience a common set of challenges to fulfil basic business functions. The degree to which these challenges affect growth varies over the life cycle of an enterprise. Illustrative examples (see Figure 13)¹²³ in certain sectors, such as retail in East Africa, demonstrate how barriers evolve as MSMEs seek to grow from a micro- to a small enterprise. Three key barriers include a lack of:

- **linkages into markets and supply chains** – Many enterprises are reliant on costly intermediaries and are limited in their ability to reach markets beyond their local community. Without networks and logistics, it can be prohibitively costly to access markets and supply chains to grow.
- **managerial skills and systems** – Early on, micro-entrepreneurs need skills to market, operate and manage the business with some level of customer service. If and as they seek to grow, they must have the ability to plan for growth, manage a larger workforce and more complex operations, use systems and policies, and navigate a dynamic market.
- **relevant financial services** – Lack of available collateral and bookkeeping reduces the visibility of business performance to financial service providers. Consequently, many enterprises rely on family and informal sources of finance to start with limited inventory. As they grow, their financial needs evolve, from cash flow smoothing to expansion capital. Furthermore, savings groups, savings and insurance play an important role in protecting against shocks. For women-owned and led MSMEs alone, there is an estimated US\$1.7 trillion financing gap.¹²⁴

Lack of formal registration is also a barrier to growth for many enterprises, affecting both the cost of doing business and excluding them from formal sources of finance. Unlike Elase in the above example, a relatively high share of MSMEs fail to overcome these barriers and either stagnate or collapse. This is why better services for this segment are critical.

DIGITAL PLATFORMS TO SUPPORT THE GROWTH OF MSMEs

A wave of new digital platforms offers services to MSMEs to link them to markets and suppliers, provide relevant financial services, and enhance their skills and systems.¹²⁵ Notable examples are helping millions of MSMEs in some countries, such as Taobao in China and GoJek in Indonesia;¹²⁶ in the process, they are demonstrating the effectiveness of addressing both the non-financial and financial needs of MSMEs digitally. The digital nature of these platforms provides them with the

¹²¹ See www.uncdf.org/article/5317/five-years-of-market-development-in-benin-senegal-and-zambia-2015-2019.

¹²² See <https://spark.adobe.com/page/ff78mnd18a46A/>.

¹²³ Michelle Hassan, "Getting the timing right: the life cycle of a small shop in Africa" (BFA Global, 2018). <https://medium.com/f4life/getting-the-timing-right-the-life-cycle-of-a-small-shop-in-africa-6c10e6e9fab6>.

¹²⁴ See <https://financialallianceforwomen.org/download/msme-finance-gap>.

¹²⁵ See www.financedigitalafrica.org/2019/07/15/msmes-are-the-backbone-of-developing-economies-new-research-shows-how-digital-platforms-can-boost-their-impact.

¹²⁶ See <https://medium.com/caribou-digital-live-learning/indonesias-tech-giants-and-unicorns-catapult-msmes-into-the-digital-economy-914aec661d1f>.

opportunity to add on select services incrementally and at a low marginal cost, to support the needs of MSMEs more holistically. MSMEs in LDCs are underserved by these platforms, in terms of coverage and depth of services.

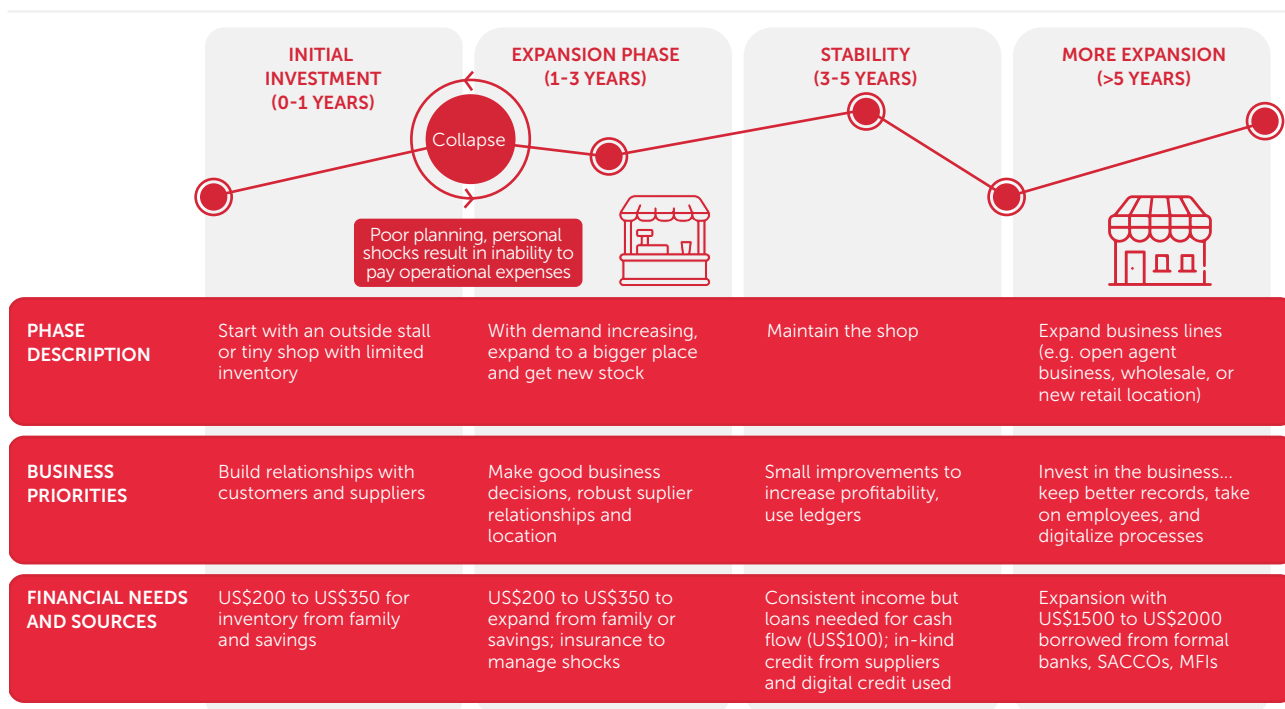
LINKAGES TO MARKETS AND SUPPLY CHAINS

In order to grow, many MSMEs are now looking beyond traditional footfall and in-person transactions. They are increasingly using new channels, such as popular messaging applications like WhatsApp, for marketing. During lockdowns in the COVID-19 pandemic,¹²⁷ these channels have contributed to their resilience. Some informal MSMEs looking to grow further are joining digital marketplaces to sell their goods and services.¹²⁸ Jumia, for example, is a popular digital marketplace in Africa, through which many formal MSMEs are selling to clients domestically and internationally.

Micro-entrepreneurs that provide motorcycle taxi services, which are found in most LDCs, can now access many more customers through mobile apps, as well as provide logistic services to businesses.¹²⁹ In Uganda, UNCDF supported the ride-hailing company SafeBoda to connect market vendors to customers through a digital marketplace that leverages the drivers' (*boda boda*) logistics.¹³⁰ This programme coincided with the start of the COVID-19 lockdown. Six months after the project launch, 520 market vendors are actively selling on the platform. More than 57,000 clients use the platform, providing them with an important lifeline to food and basic goods. Business-to-business (B2B) digital platforms that cater to MSMEs are also growing in Kenya and Nigeria, to provide micro-retailers and agri-input providers with more affordable and reliable goods for resale. B2B digital platforms enable MSMEs to source more effectively and focus on selling.

FIGURE 13.

The life cycle of a micro-enterprise shop in the African retail sector



Source: Adapted from BFA's "The life cycle of a small shop (a duka) in Africa", 2018.

¹²⁷ See www.cgap.org/blog/ride-hailing-drivers-indonesia-discuss-livelihoods-covid-19.

¹²⁸ See www.cgap.org/blog/could-e-commerce-bring-womens-financial-inclusion-bangladesh.

¹²⁹ See https://static1.squarespace.com/static/5ab2a4d655b02c29746fc58c/t/5d84f29c0a997e4f96ae2dae/1568993955203/20092019_Digitising_Logistics_in_Africa_Report.pdf.

¹³⁰ See www.uncdf.org/article/5664/uncdf-and-safeboda-partnership-looks-to-support-last-mile-finance-beyond-COVID-19.

MANAGERIAL SKILLS AND SYSTEMS

As business transactions and marketing functions digitize, platforms are introducing services that support important managerial activities, such as basic bookkeeping, inventory management and restocking. For example, SureCash, a UNCDF partner in Bangladesh, launched TallyKhata, which is an easy-to-use mobile app with offline capabilities that has been used by more than 100,000 micro and small enterprises during the pandemic. It records sales transactions, helps in credit recovery for the in-kind credit that they extend, and provides profit and cash reports. TallyKhata integrates enterprises' digital payments to and from customers, suppliers and banks.

Advances in this area also include skills development for the MSME owners and workers who use digital platforms. Shop-Up and EkShop are digital platforms in Bangladesh that UNCDF supports to embed digital and financial literacy training into services for MSMEs. Digital platforms like these are motivated to find efficient ways to improve the ability of MSMEs to sell their goods and services on their platform.¹³¹ Whether it is Lynk's training for artisans in Kenya or Jumia's training of merchants in Nigeria, examples are emerging where face-to-face and digital training is complementing the business models of platforms.

RELEVANT FINANCIAL SERVICES

Digitalization of MSMEs allows for new opportunities to efficiently extend more tailored financial services to them. At one end of the opportunity spectrum, MSME-focused banks and finance companies are digitizing their products and channels to serve these clients. In the examples of Elase and FINCA Zambia, UNCDF supported the development of 'Agency Cash' products to serve MSMEs. At the other end of the spectrum, new fintech companies are introducing solutions to leverage data from MSMEs to provide, for example, peer-to-peer lending products. In the middle, financial service providers are partnering with digital platforms to finance MSMEs on their platforms.

To take an example, TallyKhata in Bangladesh offers credit in partnership with banks to MSMEs through its platform. In Indonesia, UNCDF supported GandengTangan to develop a mobile app for MSMEs to restock inventory and access loans for this purpose.

GandengTangan uses tokens to limit the use of loan funds to inventory from distributors on its platform, providing a level of risk management. More than 3,500 MSMEs have received financing from GandengTangan.

The adoption of digital payments dispels the myth that MSMEs only need credit. MSME growth can be constrained if the type of services on offer does not meet their needs. Their requirements for financing inventory are very different from those for financing trade, which might require invoice discounting and insurance. Savings and debit cards are especially important to the most micro of enterprises that are most reliant on digital platforms,¹³² known as gig workers.

DIGITALIZATION AS A PATHWAY TO FORMALIZATION

A consequence of digitalization is that many enterprises in the informal economy are better equipped to fulfil the business functions, such as recording sales, that must be in place to operate formally. With digitalization, MSMEs can progressively meet formalization requirements. The adoption of mobile money has been found to reduce the size of the informal sector by up to 4 percent of gross domestic product.¹³³ Whether MSMEs meet these requirements is a more complex question. While there are several deterrents to formalization, including increased taxation, digital platforms can also play a role in enhancing the value to MSMEs of formalizing. For example, during COVID-19 many MSMEs were not able to access social assistance programmes due to lack of registration. It is for this reason that UNCDF has been working with the Government of Bangladesh to register MSMEs through digital platforms.

Given the critical and urgent need for better services to support MSME growth, we must accelerate digitalization to address their needs more holistically. To fast-track the SDGs in least developed countries, UNCDF's Inclusive Digital Economy programme is working with private and public sector partners on MSME-focused initiatives for inclusive innovation, open payment ecosystems, customer empowerment, and enabling regulation. Achieving SDG8 (decent work and economic growth) and SDG9 (industry, innovation and infrastructure) depend on growing MSMEs, which need to benefit from digital transformation, alternative financing solutions and formalization.

¹³¹ See www.cariboudigital.net/transformationalupskillingpltureport.

¹³² See www.uncdf.org/article/6398/the-gig-economy-and-financial-health-a-snapshot-of-malaysia-and-china.

¹³³ See www.gsma.com/mobilefordevelopment/wp-content/uploads/2020/06/Mobile-Money-Driving-formalisation-and-building-the-resilience-of-MSMEs.pdf.

HOW TO BUILD BACK BETTER IN AN INCREASINGLY DIGITAL ECONOMY

By Torbjorn Fredriksson Chief, ICT Policy Section,
Division on Technology and Logistics, UNCTAD

The spread of COVID-19 continues to disrupt economic and social life around the world. The crisis has highlighted how people who can participate in the digital economy continue to work, trade and access basic services. It has also accentuated how digitally excluded people can be left behind. Inclusive digital commerce must be kept high on the policy agenda, and government responses will need to balance the huge opportunities and the various risks and costs involved.

Over the past two decades, the world has become increasingly digital. Digital technologies allow people to better connect and trade online, and businesses to access larger markets and global value chains while overcoming costly intermediaries. E-commerce can improve the productivity of micro, small and medium-sized enterprises (MSMEs) and support agricultural and industrial development. In more recent years, it has helped to diversify and transform countries' economies and improve their export competitiveness. According to UNCTAD's latest estimates, global e-commerce sales in 2018 amounted to US\$25.6 trillion, up by 8 percent from the previous year.

The COVID-19 pandemic has accelerated the digital shift. A recent UNCTAD and Netcomm Suisse survey¹³⁴ found that more consumers have turned to online shopping, especially for essential products. More than half of all respondents expect to continue to do more online also after the crisis.

A separate UNCTAD survey of digital businesses and platforms covering 23 countries¹³⁵ finds that most third-party online marketplaces have experienced an increase in sales and businesses registering on their platform. Social media and direct online sales have become increasingly important channels for e-commerce businesses.

Digital entrepreneurs and e-commerce platforms in developing countries, especially LDCs, are confronted with a myriad of potential obstacles during the COVID-19 crisis. Disruptions in supply chains and logistics, internet and transportation costs are key concerns (experienced by more than half of businesses surveyed). In addition, digital businesses are trying to cope with pre-existing e-commerce challenges, such as limited connectivity, constrained financing for liquidity shortages, and reliance on cash-based payments.

The pandemic has added urgency to the need to bridge the wide digital divides plaguing the world. Digital infrastructure is often insufficient, leading to limited or unaffordable connectivity to undertake effective e-commerce and other online activities. The most vulnerable populations are usually left out. As a result, countries strongly differ in their levels of e-commerce uptake, affecting opportunities to benefit from increasing demand for e-commerce.

Moreover, while many developing countries struggle to harness various digital opportunities, the digital shift under the pandemic has further boosted the performance of the leading digital platforms, based mainly in the United States and China.¹³⁶ These companies are benefiting from increased demand and have seen their market valuations grow significantly even during the pandemic. Increased market dominance of a handful of global digital players is intensifying concerns about the distribution of the value created and about consumer protection and fair competition. Some domestic and regional e-commerce players have emerged in parts of the world where the global leaders have hitherto been less active. However, many face challenges when trying to scale, and those that manage to grow (e.g. Souq, Lazada and Flipkart) often become takeover targets.¹³⁷

¹³⁴ The survey covered 9 emerging and developed economies: Brazil, China, Germany, Italy, Republic of Korea, Russian Federation, South Africa, Switzerland and Turkey. The data for Brazil were collected by the Brazilian Network Information Center (NIC.br)

¹³⁵ The survey covered 23 countries, mainly LDCs in Africa and Asia-Pacific: 1) Africa: Benin, Burkina Faso, Cote d'Ivoire (non-LDC), Madagascar, Mali, Niger, Rwanda, Senegal, Tanzania, Togo, Tunisia (non-LDC), Uganda, Zambia; 2) Asia: Bangladesh, Bhutan, Cambodia, Lao PDR, Myanmar, Nepal; 3) Pacific: Kiribati, Samoa (non-LDC), Tuvalu, Vanuatu.

¹³⁶ For more information, see [UNCTAD's Digital Economy Report 2019](#).

¹³⁷ Ibid.

The recovery from the pandemic will take place against the background of an accelerated digitalization of social and economic activities. However, technology is not deterministic. It is up to governments, in close dialogue with other stakeholders, to shape the rules for e-commerce and the digital economy so that they support greater resilience and inclusive gains. LDCs especially trail behind in the digital economy and rapidly need to overcome a range of barriers and bottlenecks. By January 2021, UNCTAD had carried out 27 [eTrade Readiness Assessments](#), providing concrete policy recommendations for enabling more inclusive e-commerce. A review of the implementation of these recommendations indicates that policies and coordination processes can be further improved (Figure 14). In general, gaps remain in the digital infrastructure, skills, financing for innovation, and policy required for inclusive digital commerce to flourish at a domestic level.

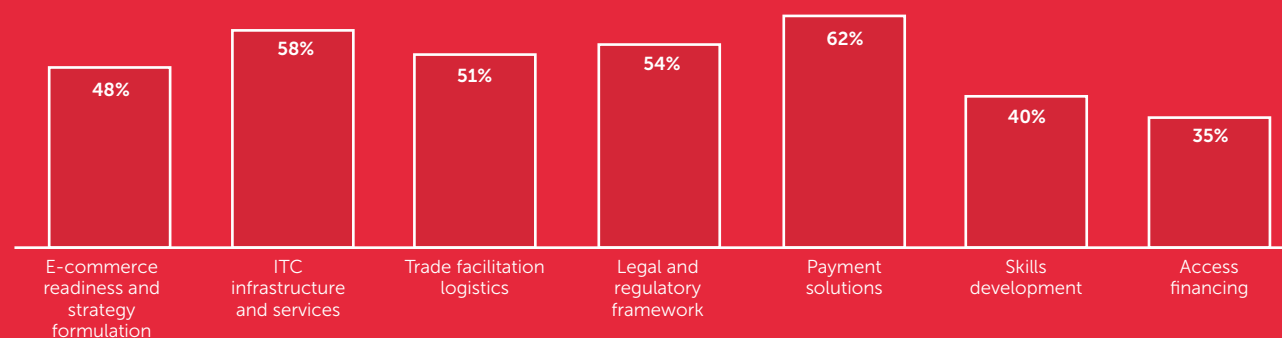
While domestic strategies and policies play a key role in digital transformations, several policy challenges require regional or global action. This applies, for example, to data protection and security, cross-border data flows, competition, taxation and trade. Defining the right responses therefore calls for enhanced international collaboration and policy dialogue, with the full

involvement of developing countries. Any consensus will need to incorporate significant flexibilities to enable all countries to participate.

With only one decade remaining for us to meet the SDGs, we must do more and better by working together. Created by UNCTAD in 2016, the [eTrade for all](#) initiative seeks to do this by bringing together the donor community, development agencies (including UNCDF), international and non-governmental organizations and the private sector to share digital solutions, support e-commerce and bring more coherence in policy making around digital trade. The latter objective is also nurtured by the [High Level Panel on Digital Cooperation Roadmap](#) and the [UNGIS Dialogue on the Role of Digitalization for Development in the Decade of Action](#), two key dialogue spaces to enhance the policy effectiveness across the multiple stakeholders working to regulate digitalization in a fair and inclusive way. The urgency of responding to COVID-19 presents a unique opportunity to unite and speed up the development of an inclusive global digital society.

FIGURE 14.

Implementation rate by policy area across all countries (*Percentage of recommendations completed*)



Source: For more information, see UNCTAD's ["Fast-tracking Implementation of eTrade Readiness Assessments"](#).

SECTION 3.6

MORE PRODUCTIVE AND RESILIENT AGRICULTURE TO ENHANCE FOOD SECURITY THROUGH DIGITAL SOLUTIONS

By Abhay Pareek



HIGHLIGHTS

- It is possible to unlock the massive potential of the agriculture sector with digital solutions. This can raise income and productivity in a sector that is the world's largest employer, provide jobs for a large youth population and meet the growing food needs of an ever-expanding world population in an environmentally sustainable way.
- UNCDF focuses on the power of digital solutions to address critical market constraints in agriculture. Agricultural value chains are ripe for innovation; digital technology can help to improve production and efficiency across the many stakeholders involved. Having the digital infrastructure in place – linking 'low-tech' enterprises to 'high-tech' solutions – paves the way for the connecting participants and the development of agricultural commerce.

Agriculture is a critical source of livelihood for a large part of the world's population, especially for smallholder farmers and agribusinesses in low-income and lower-middle income countries. It therefore plays an essential role in eradicating poverty and achieving global food security. The use of digital financial services, as well as other digital solutions, can enable agricultural value chain actors to improve the productivity, quality and marketability of their outputs.¹³⁸ Leveraging digital

agricultural solutions (agritech) can create commercial efficiencies by facilitating access to finance, productive assets, information and markets for farmers.

Take the case of Godson, a smallholder farmer, who cultivates coffee in the foothills of Mount Elgon in Uganda. At harvest, he is typically eager to secure an agreement with the local middleman because his cash flow has always been tight. Several harvests ago, Godson enrolled in a project sponsored by Kyagalanyi Coffee Limited (KCL), a major coffee buyer. Through the programme, KCL purchases his crop directly, making payment to Godson through a digital wallet set up as

¹³⁸ See UNSGSA, Her Majesty Queen Máxima of the Netherlands, the Better Than Cash Alliance & the World Bank, "Igniting SDG progress through digital financial inclusion", for highlights of the robust evidence linked to 13 of the 17 SDGs.

part of the programme. He now receives a better price for his crop and proceeds from the sale in a timelier manner. The predictability of harvest payments has opened up new possibilities for Godson. Recently, a KCL agent approached him to offer extension services that can help to improve the quality of the coffee crop and yield. The agent also discussed financing to help replace some of Godson's older, diseased coffee trees. Godson now imagines new possibilities for his family.

The importance of agriculture cannot be understated. Some 815 million people worldwide are undernourished.¹³⁹ The agriculture sector employs more than 1 billion people around the world, with women more engaged than men.¹⁴⁰ Smallholder farmers, who own less than 2 hectares of land, operate 82 percent¹⁴¹ of all farms globally. However, they only operate 12 percent of total farmland. Despite their limited access to land, they represent an important source of agricultural produce that is necessary to meet a growing world population; smallholders produce more than 70 percent of the world's food supply.¹⁴²

In the last century, large-scale developments have improved production and impacted the lives of many farmers. However, many farmers in low-income and lower-middle income countries still struggle with basic issues of low productivity and inefficient supply chains. Emerging challenges such as climate change further burden smallholder farmers, especially those not prepared to adapt their farming practices. Finally, the policy environment – especially in low-income countries – is not conducive to supporting the innovation and development of infrastructure necessary to address the emerging challenges faced by smallholder farmers.

CONSTRAINTS TO THE DEVELOPMENT OF SMALLHOLDER AGRICULTURE

A number of constraints inhibit smallholder progress in agriculture. They impede the ability of smallholder farmers to realize their full potential, limiting the opportunities to increase their productivity, output and income.

These constraints include:

- **Land** – Smallholders cultivate small plots. Land titling is time-consuming and rights are tenuous.
- **Inputs** – Limited adoption of improved agricultural technology, such as new seed varieties and fertilizers, compounded by the inability of input dealers to serve the segment profitably.
- **Production** – Farmers may lack access to necessary information, compounded by poor coverage by extension services. On-farm activity is labour intensive, with a heavy reliance on natural elements, increasing the risks to smallholders.
- **Storage and distribution** – Effective storage is not always available to smallholders. There is crop wastage in supply chains and in distribution.
- **Marketing** – Small, fragmented producers lack negotiating power, have little knowledge of prices, and linkages to markets are weak.
- **Processing** – Limited investment in processing and poor handling practices lead to the sale of raw output, with little value added.

DIGITAL SOLUTIONS SUPPORT HIGHER AND MORE STABLE INCOMES FOR FARMERS

Digital technologies, combined with viable commercial models adapted to the needs of smallholder farmers and the micro- and small enterprises that serve them, can positively impact the agricultural value chain. Opportunities stem from increased mobile and digital connectivity among agribusinesses and farmers, better sources of information – enabled by advances in data collection (such as farmer profiles, payments data, sensors and satellites) and analysis (such as machine learning/artificial intelligence) and the combination of new digital services for finance, agronomic advice and market access.

¹³⁹ FAO, IFAD, UNICEF, WFP and WHO. 2017. *The State of Food Security and Nutrition in the World 2017: Building Resilience for Peace and Food Security* (Rome, FAO, 2017).

¹⁴⁰ FAO, *The State of Food and Agriculture: Women in Agriculture* (Rome, 2011).

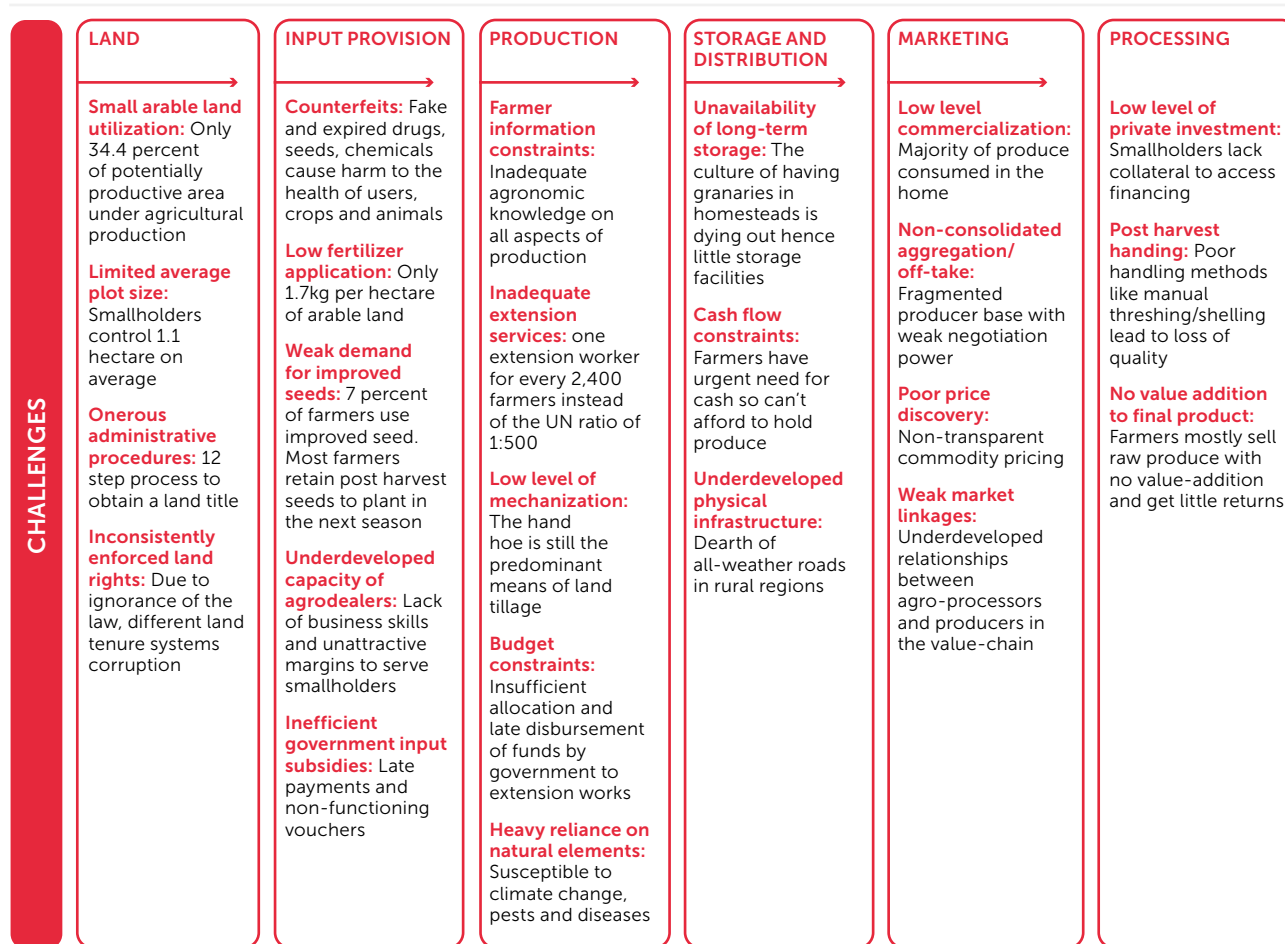
¹⁴¹ FAO, *The State of Food and Agriculture: Innovation in Family Farming* (Rome, 2014).

¹⁴² FAO, *Coping with the Food and Agriculture Challenge: Smallholders' Agenda* (Rome, 2013).



FIGURE 15.

Challenges faced by key actors along the agricultural value chain



Source: World Bank (2014), USAID Feed the Future Agricultural Inputs Activity (2017), UNADA (2014)

New digital solutions are emerging that increase productivity and reduce risks for farmers. Innovations equip smallholder farmers to overcome challenges related to input provision, production and marketing. For example, farmers in East Africa who accessed agricultural microinsurance through mobile devices earned 16 percent more than their uninsured peers through reduced losses.¹⁴³ In other examples, the digitization of agricultural value chains is enhancing the efficiency of payments, removing middlemen and creating more price transparency. It can build tighter connections between farmers and crop buyers, allowing farmers to gain financing and extension support, which can increase farm yield and quality – benefiting both buyers and farmers. New digital platforms, such as M-Louma in Senegal¹⁴⁴ or Napanta in India, enable new solutions (such as inputs, extension services, equipment rental and access to information on government programmes), which provide substantial benefits to

farmers. These platforms provide many farmers with access to services not previously available to them.

Combining irrigation with agricultural training, facilitation and better market access can also increase crop yields and foster the cultivation of high-value crops, raising farmers' incomes as a result. For example, UNCDF partnered with SunFarmer, an innovative agritech solution provider in Nepal.¹⁴⁵

This partnership supports smallholder farmers with digital solutions for agricultural inputs, logistics and sales. In particular, a pay-as-you-go irrigation solution, enabled by mobile money payment, provides affordable access to a solar water pump. This pump gives farmers year-round access to irrigation, providing them with the opportunity to diversify into more lucrative crops, such as vegetables.

¹⁴³ CGIAR, "Scaling up index insurance for smallholder farmers: recent evidence and insights" (Copenhagen, 2015).

¹⁴⁴ See www.uncdf.org/article/3500/digital-solutions-new-opportunities-for-agricultural-value-chains-in-senegal.

¹⁴⁵ See www.uncdf.org/article/3493/uncdf-mm4p-sunfarmer-and-prabhu-partner-to-transform-agriculture-in-nepal-with-digital-technology.

DIGITAL SOLUTIONS TRANSFORM AGRICULTURAL VALUE CHAINS

UNCDF focuses on the power of digital solutions to address critical market constraints in agriculture. Agricultural value chains are ripe for innovation; digital technology can help to improve production and efficiency across the many stakeholders involved. Having the digital infrastructure in place – linking ‘low-tech’ enterprises to ‘high-tech’ solutions – paves the way for the connecting participants and the development of agricultural commerce.

In Uganda, UNCDF partnered with KCL to digitize the coffee supply chain as mentioned earlier in the story of Godson. The project with KCL included other partners: local mobile network operator MTN Uganda for mobile access and mobile money accounts, and Yo Uganda, a payment aggregator for developing the bulk payment application and an on-ground ‘booster’ team for farmer on-boarding. KCL sourced coffee from 12,000 Ugandan farmers. Digitized payments using mobile money resulted in a 27 percent cost reduction by eliminating the need to physically transport cash, an inefficient and unsafe process. KCL reported a 30 percent increase in coffee sales due to greater efficiency of operations, while MTN Uganda’s average revenue per customer in the pilot was 175 percent higher than that recorded among other mobile money users in the same district. Additional benefits that resulted from the digitization of procurement payments included reduced risk of theft, lower work time losses, and greater transparency.

The KCL project also resulted in higher farmer productivity and accessing better-quality outputs, in part due to faster, more reliable access to funds, and in turn enabling more timely investments by farmers.¹⁴⁶

The positive impact of value chain digitization prompted UNCDF to extend its efforts to other agricultural commodities in Uganda, including maize, seed oil and tea.

In Nepal, UNCDF partnered with digital financial services provider Prabhu Management¹⁴⁷ to pilot dairy value chain digitization in two high milk producing districts in Nepal. Prabhu Management developed a digital milk ledger and a cloud-based record-keeping solution for dairy cooperatives, and integrated its bulk payment platform with its mobile wallet Prabhu Pay. Working with 20 cooperatives, the pilot enrolled more than 5,000 dairy farmers, with approximately 3,400 farmers becoming active users of the mobile wallet. Use of the digital wallet spiked by 600 percent during the COVID-19 pandemic. Farmers are now also using digital payments for agricultural inputs and insurance premiums.

GENERATING REVENUE, JOBS AND FOOD

UNCDF’s approach demonstrates that it is possible to unlock the massive potential of the agriculture sector with digital solutions. These interventions raise income and productivity in a sector that is the world’s largest employer, provide jobs for a large youth population and meet the growing food needs of an ever-expanding world population in an environmentally sustainable way. These efforts support our aspirations for a just, equitable and sustainable world with zero hunger (Sustainable Development Goal (SDG) 2) and no poverty (SDG1).



¹⁴⁶ See www.cgap.org/research/publication/digitizing-agricultural-payments-ugandas-coffee-value-chain.

¹⁴⁷ <https://www.uncdf.org/article/6415/digitalizing-rural-financial-ecosystems-journey-and-learnings-from-digitalization-of-dairy-value-chain-in-nepal>.

THE POTENTIAL OF DIGITAL FINANCIAL INNOVATION TO TRANSFORM AGRI-FOOD SECTORS IN DEVELOPING CONTEXTS

By Maximo Torero Cullen, Chief Economist, FAO

Digital financial innovation presents us with a compelling opportunity to build more inclusive, sustainable and efficient agri-food sectors. Digital finance, primarily in the form of mobile money, enables formal financial inclusion for millions¹⁴⁸ of previously underserved smallholder farmers. **Digitized agricultural payments** are often the first step towards financial inclusion, eventually leading to credit, savings, insurance, and a variety of complementary services.¹⁴⁹ Digital innovation is important for vulnerable groups engaged in agriculture, such as rural women and youth, who face complex and unique barriers (economic, legal, and sociocultural) to formal financial access. Most of these barriers can be mitigated, if not outright removed, through the design and commercialization of tailored digital financial services.

Digital financial innovation allows the many actors in agricultural value chains to interface and conduct business with more convenience, transparency and rapidity; it can overcome the lack of collateral or formal ID on the part of clients; it reduces the transaction costs and information asymmetries faced by financial institutions; it bolsters productivity and profitability for small-scale agricultural actors; and it provides small scale producers with access to markets and more stable and fair prices.

In the wake of the COVID-19 pandemic, digital finance has played an essential role in enabling agri-food value chains to remain **active and profitable** despite the widespread restrictions that have taken place, especially in developing contexts.¹⁵⁰ E-commerce platforms have allowed value chain actors (e.g. input suppliers, producers, processors, retailers) to continue doing business, while end clients have seen their demand for raw and processed food satisfied, which has kept production active. Digital credit has allowed small agri-food businesses to obtain essential loan capital to stay afloat, while digital payments have facilitated money transfers throughout agri-food value chains.

Simple and scalable digital financial innovations, designed and delivered with inclusion in mind, hold the most promising opportunities for small-scale agricultural actors.¹⁵¹ These innovations adopt a **one-stop-shop approach**, in which several services (of which financial access is but one component) are gradually added and bundled together on a digital platform that is designed to be easy to access and use for farmers.

One notable example of this approach is **DigiFarm**, launched in Kenya in 2017 by Safaricom, a mobile money operator, in collaboration with Mercy Corps.¹⁵² This mobile platform, accessible even through a basic mobile phone, allows farmers to access a wide range of services. These services are delivered by partner companies: direct input purchase; input credit; harvest cash loans; crop insurance; business training; access to soil testing; customized information on agricultural best practices; and linkages to market agents (e.g. processors, wholesalers). The data generated by each farmer's interaction with DigiFarm allows it to make lending decisions, with default rates lower than 5 percent. Despite these promising innovations, several barriers still limit inclusive agri-food sector digitization, especially among the most marginalized, rural and remote communities.



¹⁴⁸ A 2020 World Bank survey carried out among 29 domestic and international agribusinesses in 17 Sub-Saharan African countries, for example, estimated that digitizing payments among surveyed firms could act as a ramp for the financial inclusion of nearly 18 million farmers, opening up more than US\$6 billion in market potential for these enterprises.

¹⁴⁹ "Digitization of Agribusiness Payments in Africa: Building a Ramp for Farmers' Financial Inclusion and Participation in a Digital Economy", World Bank.

¹⁵⁰ "Digital finance and inclusion in the time of COVID-19: Lessons, experiences and proposals", FAO (2020).

¹⁵¹ "The Digitalization of African Agriculture Report 2018–2019", Technical Centre for Rural and Agricultural Cooperation (CTA).

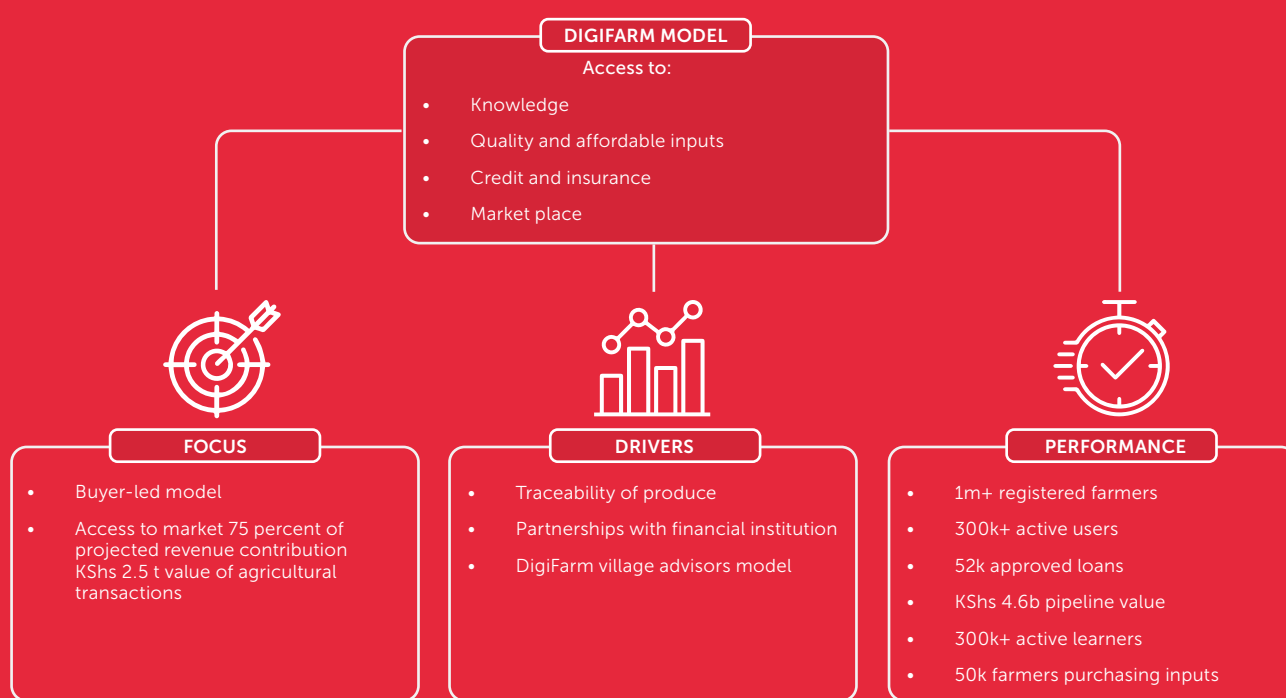
¹⁵² Case study on the DigiFarm platform by Mercy Corps

Barriers include weak ICT infrastructure in rural areas; a weak or absent framework to regulate the digital sector, including digital consumer protection regulation; issues related to data privacy and digital identity of farmers, who may use digital services for the first time; their need for digital and financial literacy to successfully use these new services; an overall lack of capacity among financial institutions to digitalize; and the stark gaps, in terms of digital access and usage, at the gender level (women vs. men) and among age groups (youth vs. adults). In fact, given their tendency to be early digital adopters, young entrepreneurs can play a **champion role** to drive agri-food sector digitization.

Promoting the inclusive digital transformation of rural financial services is part of FAO's broader support to

digitalize the agri-food sector. Such support is provided from a policy, programmatic, and capacity-building perspective. The establishment of an **International Platform for Digital Food and Agriculture** by FAO and partners represents an important step in creating a supportive context for agri-food digitalization globally.¹⁵³ The Platform will provide an inclusive, global and multi-stakeholder forum for identifying and sharing ways to harness digital tools and related best practices in agriculture and food and to maximize the potential of digital innovations for all. Such innovations can range from e-commerce, digital finance tools and blockchain technologies to digital advisory services, tools for early warning on threats to food security, improved management of natural resources, Artificial Intelligence for better pest control, and more.

FIGURE 16.
DigiFarm's strategic model and a sample interface of its mobile platform



¹⁵³ "Realizing the potential of digitalization to improve the agri-food system: Proposing a new international digital council for food and agriculture", FAO.

SECTION 3.7

ENHANCE ACCESS TO AFFORDABLE AND CLEAN ENERGY THROUGH DIGITAL INNOVATION AND TECHNOLOGY

By Vincent Wierda



HIGHLIGHTS

- Countries cannot achieve the Sustainable Development Goals (SDGs) if their citizens cannot access basic energy, let alone power their dreams.
- UNCDF seeks to provide low-income households and micro-entrepreneurs with a jump-start in clean energy access through a market systems development approach, enabled through digital technology such as that of mobile payments.
- Digital finance has unquestionably increased access to affordable clean energy solutions, even in the most difficult and remote locations. By helping to transform a large fixed-cost proposition into a sequence of smaller payments, many more households are now able to afford clean energy and an increasing range of applications, from refrigeration to solar water pumps.

Access to power is integral to improving low-income people's standards of living, productivity and safety. The combination of rapidly falling hardware costs, increasing connectivity, growing digital payment rails

such as mobile money, and innovative business models is making off-grid solar and clean cooking solutions, as well as grid connection, possible for the millions of people who do not have access to modern energy.

ACCESS TO CLEAN ENERGY POWERS UP LIVELIHOODS AND DREAMS

In Kisaba Village on Lake Victoria's Bukasa Island in Uganda, access to electricity has fundamentally changed over the past two years. Fishers are now able to preserve their catch using solar-enabled cold storage facilities, freed from reliance on expensive diesel generators. Miss Cissy operates a small community clinic that today has reliable lighting, where she can now keep medicines refrigerated. UNCDF's partner GRS Commodities Ltd. is achieving real change on the ground, with villagers able to access and pay for a range of solar electricity solutions.

However, for more than 770 million people in Africa and Asia, access to electricity remains a distant dream.¹⁵⁴ Without power, individuals – women in particular – struggle to complete daily tasks. Children rely on sunlight to study; they must stop when the sun goes down or use kerosene lighting with its noxious fumes. Traditional biomass, such as wood and agricultural waste, is still the main source of energy in least developed countries, aggravating already high rates of deforestation. Countries cannot achieve the Sustainable Development Goals (SDGs) if their citizens cannot access basic energy, let alone power their dreams.

Already in 2012, the International Finance Corporation estimated that globally, the poor spent US\$37 billion on poor-quality energy solutions to meet their lighting and cooking needs – a largely untapped market for the private sector to deliver better alternatives. However, until recently there were few alternatives, and those available had large upfront costs, as they typically relied on the energy grid. Also in 2012, UNCDF partner M-KOPA launched a transformational new digital business model for energy: Pay-as-you-go (PAYGO). Many other organizations now deploy this PAYGO business model around the world to make off-grid energy solutions available to communities that were previously underserved. The system enables quick, easy payments, providing access to solar energy and a range of other solutions. This innovative use of digital technology, which combines payments and metering, has allowed solar energy to leapfrog dirty energy technologies, providing consumers with access to affordable clean energy. Innovations such as these have enabled more than 108

million people globally to benefit from improved energy access by way of off-grid solar products.¹⁵⁵ Ensuring access to affordable, reliable, sustainable and modern energy for all (Sustainable Development Goal 7) is important, and critical to achieving other SDGs.

ADDRESSING THE CHALLENGE OF BUILDING ENERGY MARKETS FOR ALL

Affordability, accessibility and awareness are all challenges to overcome if modern energy is to become a reality for women, youth, refugees, farmers and small entrepreneurs in least developed economies. Policies that only focus on on-grid solutions present obstacles to building decentralized energy markets. Put simply, markets do not work as they should. The promotion and retailing of energy solutions, energy generation and usage, and ultimately the maintenance of solutions, has proved a challenge. These barriers increase the cost of selling modern energy solutions by providers, known as Energy Service Companies (ESCOs), to client segments in rural and remote areas. As a result, ESCOs face difficulties in raising funding to cover their risks, expand operations, and reach customers with appropriate product financing options. UNCDF seeks to provide low-income households and micro-entrepreneurs with a jump-start in clean energy access through a market systems development approach, enabled through digital technology such as that of mobile payments.

THE PROMISE OF DIGITAL SOLUTIONS

Digital finance as embodied in PAYGO solutions is a key enabler in the provision of affordable clean energy. PAYGO allows individuals to acquire a solar home system through a lease-to-own financing model. Instead of paying a large upfront amount to purchase a system, users can now make smaller and more frequent affordable payments from their mobile money account, depending on their cash flow. Digital solutions help to promote and retail energy products, facilitating their cost-effective purchase and operation by the last mile. Last but not least, they help to support the maintenance of such systems.

¹⁵⁴ International Energy Agency, *Access to Electricity: Flagship Report (2020)*. www.iea.org/reports/sdg7-data-and-projections/access-to-electricity.

¹⁵⁵ GOGLA "Investing in the off-grid solar sector: what you need to know" (2019). www.gogla.org/sites/default/files/resource_docs/gogla_investment-guide_def-web_opt.pdf.

FIGURE 17.

Off-grid energy value chain challenges

CHALLENGES	PRODUCT DEVELOPMENT	MANUFACTURE ASSEMBLY	MARKETING AND DISTRIBUTION	USAGE AND GENERATION	MAINTANCE
	Research, development, and refinement of technology	Manufacture/ importing of generator and/or device by energy/ enterprise	Promotion and retailing of energy products	Purchase, installation, and operation of energy production(s) and/or service by BoP households	Routine care for and refurbishing of energy product(s)
	<p>A1. Insufficient business development financing: Lack of early stage/seed financing especially for local companies</p> <p>A2. Insufficient local research and development capacity: Limited domestic technical infrastructure and talent to develop products that are tailored to domestic market (all products foreign developed)</p>	<p>B1. Insufficient product financing: Lack of working capital to finance initial production, assembly</p>	<p>C1. Insufficient working capital finance: Lack of working capital finance for energy enterprises to finance setup of distribution network, initial marketing campaign and purchase of SHS (that amortize over 2-3 year period through usage fee)</p> <p>C2. Insufficient consumer awareness: Rural population insufficiently informed about benefits of off-grid solutions</p> <p>C3. Insufficient distribution reach: Energy enterprises need to establish costly distribution network to reach beyond large population centres</p> <p>C4. Insufficient consumer risk management experience/ tools: Energy enterprises lack experience and tools to access and manage credit risk of potential customers</p>	<p>D1. Device-based insufficient consumer lending to low-income households: Low income households have little or no access to short-term bank lending to finance energy device or home system</p> <p>D2. Flooded market with counterfeits with no certification and poor quality</p> <p>D3. Complex payment administration: Unavailability of cashless and cost-effective payment instruments to operate instalment-based finance</p> <p>D4. Community-level usage modulation: Insufficient ability to match supply with demand, especially in peak usage periods</p>	<p>E1. Lack of effective maintenance: Inadequate technical capacity and poor infrastructure limit maintenance provision</p> <p>E2. Insufficient upgrade financing: Battery replacement changes (every 3 years) for solar systems too costly for one-time payments</p> <p>E3. Unavailability of protection against theft or destruction of equipment: No insurance tool to protect against theft damage, destruction of generation devices</p>
WHERE DIGITAL SOLUTION CAN CONTRIBUTE					

INCREASING ACCESS AND AFFORDABILITY OF CLEAN ENERGY SOLUTIONS

UNCDF promotes financial inclusion across the energy value chain by investing in early stage, innovative business ideas that seek to address both product delivery and financing for consumers. Between 2013 and 2020, UNCDF partnered with more than 40 clean energy businesses and financial institutions in Asia and Africa to distribute more than 700,000 solar lamps, solar home systems and improved cooking solutions to the last mile, including households, micro, small and medium-sized companies, health-care centres and schools. More than half of these products were sold either through microfinance loans or PAYGO financing.

DIGITALIZING OPERATIONS TO FACILITATE BUSINESS EXPANSION

Digital consumer financing enables real-time client tracking and a quick response to any problems. It allows for a better understanding of customer payment patterns across geographies, client segments and seasons, supporting better service and improved management of risks. Solutions such as smart metering and digital monitoring are enabling data-backed flexible financing, further increasing affordability.

Entire value chains are now being digitalized as solutions are bundled for customers and enterprises. For example, some ESCOs are bundling solar home systems with a cheap smartphone,¹⁵⁶ ensuring that customers can

¹⁵⁶ See www.gsma.com/mobilefordevelopment/blog/vitalite-zambia-learnings-from-providing-pay-as-you-go-smartphones-through-pay-as-you-go-solar.

make payments on their energy system through mobile banking. In Uganda, UNCDF partnered with FENIX, MTN and Yo Uganda to facilitate digital payments for coffee farmers. FENIX provides a reliable solar system coupled with mobile payments capability.¹⁵⁷ In addition to paying for their systems, 7,000 farmers in the Mount Elgon region can now receive real-time secure payments for their harvests and check on coffee prices nationally.

BIG DATA ANALYTICS TO UNDERSTAND CUSTOMERS AND ADVOCATE FOR POLICY CHANGE

Digital monitoring in support of customer insight is critical to the success of this rapidly evolving sector and understanding the impact of our efforts at UNCDF. Using the mobile transaction data of 672,000 off-grid customers, together with repeat survey data of 424 clients, we have been able to develop a dashboard providing customer insights. The dashboard highlights growth opportunities in the PAYGO solar market, which can be used by association members to inform their market expansion, as well as to lobby governments.¹⁵⁸ Among the findings were that PAYGO leads to wider financial inclusion, with customers opening mobile money accounts in order to pay for solar solutions. Insight into the inverse relationship between taxes on digital finance and PAYGO activations were established. This informed policy advocacy to improve the business and regulatory environment for energy solutions through partners such as the Uganda Solar Energy Association. Advocacy efforts included successfully lobbying for the reduction of the mobile money tax and an import tax waiver on solar batteries.

USING CATALYTIC CAPITAL TO SCALE CLEAN ENERGY MARKETS

UNCDF works to ensure that the right type of capital is available for ESCOs and financial institutions to expand their operations to new geographies and client segments. Grants help PAYGO providers to demonstrate new

and innovative business models to potential investors. These also enable new, innovative financing models such as receivables financing and alternative credit scoring. Critical, however, is affordable debt for working capital, enabling customer financing and ensuring sufficient inventory. The LDC Investment Platform enables UNCDF instruments such as direct debt investments and first loss-guarantees, helping to crowd-in additional private investment. For example, a small guarantee for Solar Today in Uganda helped to unlock a loan from Centenary Bank at five times the value of the guarantee – one of the first deals of its kind in the Ugandan financial sector. Government development finance institutions have a role to play. UNCDF partnered with the Development Bank of Ethiopia to ease liquidity constraints for five financial institutions and 18 ESCOs through a guarantee mechanism. This guarantee has enabled 437,000 energy solutions to be sold in Ethiopia since 2018.

DIGITAL HELPS TO BUILD A CLEAN ENERGY FUTURE AND VICE VERSA

Digital finance has unquestionably increased access to affordable clean energy solutions, even in the most difficult and remote locations. By helping to transform a large fixed-cost proposition into a sequence of smaller payments, many more households are now able to afford clean energy and an increasing range of applications, from refrigeration to solar water pumps. In addition to driving progress towards SDG7 (Ensure access to affordable, reliable, sustainable and modern energy for all), advancing access to clean renewable energy will positively impact women's and men's living standards through better health and educational outcomes, and more economic opportunities. Reliable, clean energy is key to powering a digital economy post-COVID-19, building back better towards a green future.



¹⁵⁷ See www.uncdf.org/article/2109/digital-money-today-or-cash-tomorrow.

¹⁵⁸ See www.uncdf.org/article/5314/digital-finance-for-energy-access-in-uganda-a-big-data-analytics.

SECTION 3.8

DIGITAL SOLUTIONS FOR INCLUSIVE AND EQUITABLE EDUCATION FOR UNDERSERVED COMMUNITIES

By Chris Lukolyo and
Julio Malikane



HIGHLIGHTS

- The COVID-19 pandemic, when 94 percent of learners worldwide were required to continue education at home regardless of their ability to do so digitally, has demonstrated the gaps that can emerge, despite the best efforts of teachers to meet the needs of learners.
- Amidst renewed appreciation for the role of digital technologies in education, careful consideration must be given to additional demand-side barriers that limit the use of digital solutions, especially among school-aged youth in those communities most at risk of being left behind.
- By addressing the overt and underlying barriers in the education system, it is possible to avoid the many pitfalls that can lead to failed digital solutions in education. Above all, close partnership with the relevant education ministries is critical to design solutions and secure buy-in and future investment for sustainability.

Access to affordable, quality education can be improved through digital technology. Students, teachers, parents/ caregivers and schools all stand to benefit from adopting digital solutions that can help to improve affordability and the learning experience, as well as delivery costs, freeing up resources to explore new ways and approaches to

improve educational outcomes. Despite this, education remains a distant promise for many children. Some 258 million children globally should be in school but are not,¹⁵⁹ a figure that includes 26 million primary school-aged children in least developed countries (LDCs). Barriers to educational outcomes exist both on the supply

¹⁵⁹ UNESCO, *The Digital Transformation of Education: Connecting Schools, Empowering Learners* (2020). <https://unesdoc.unesco.org/ark:/48223/pf0000374309>.

side, in schools and education systems, and the demand side, on the part of students and their parents/caregivers. In all low- and middle-income countries, there are several underserved communities that face even greater barriers to accessing education, including women, youth, refugees, migrants and rural communities. Digital transformation is critical to overcome these barriers and deliver inclusive and equitable quality education in LDCs, a key dimension of Sustainable Development Goal (SDG) 4 (Quality education for all).

Parents and caregivers struggle with a number of constraints, which can further contribute to exclusion, even when quality schooling is accessible. In Uganda, for example, Godson Kayiza¹⁶⁰ struggles to pay for school fees that are required upfront for his four school-going children. Godson is a farmer who earns most of his income from his harvest, but school fees are not due on a similar timeline, and are payable as a lump sum. Despite the priority that he places on education, it is only when he negotiates flexible payment that he can meet his obligations. Unforeseen expenditures arising from family and health emergencies make his ability to save difficult without a savings account. Accounts and mobile money have eased his ability to put money aside and pay for his children's school, even in distant Entebbe. Examples such as this show that the growing use of mobile phones among many parents/caregivers, students, teachers and administrators can improve educational outcomes in a number of ways, especially when these are designed to complement and enhance stakeholders in the education system.

KEY BARRIERS

Challenges across the sector contribute to the education crisis. Supply-side barriers affecting the delivery of education include inadequate funding, teacher training, learning environments and, often, curricula. The following issues contribute to these challenges:

- **Curricula development** is adversely affected by resistance among stakeholders to introduce new curricula that include job-specific skills, as well as a lack of access to benchmark best-in-class curricula and content.
- **Teacher training** is adversely affected by low retention of teachers due to low salaries and insufficient school inspection or low-quality inspection services.

- **Learning environments**, in terms of instruction and infrastructure, are inadequate. Instruction is negatively affected by low teacher motivation, poor communication with parents/caregivers, insufficient head teacher training due to financial constraints, and inadequate monitoring and supervision. Infrastructure is negatively affected by the lack of learning materials, proper facilities for a conducive learning environment, and lack of accommodations for teachers, in hard-to-reach areas.

Initiatives to improve educational outcomes must clearly address these challenges, especially during a time when digitalization has emerged as a key priority. The COVID-19 pandemic, when 94 percent of learners worldwide were required to continue education at home regardless of their ability to do so digitally,¹⁶¹ has demonstrated the gaps that can emerge, despite the best efforts of teachers to meet the needs of learners.

Demand-side barriers – among parents, caregivers and students – reduce their ability to access education, or reduce their desire to do so altogether. Among these issues are prohibitively high fees (with payment often required in a lump sum) for school and other related costs, long distances to school, and lack of food. Poor insight on the part of parents/ caregivers into students' performance complicates supervision of their education.

Amidst renewed appreciation for the role of digital technologies in education, careful consideration must be given to additional demand-side barriers that limit the use of digital solutions, especially among school-aged youth in those communities most at risk of being left behind. These barriers can also affect the use of digital solutions among teachers. They include:

- **Prohibitive cultural practices.** While some cultures limit access to education for women, others forbid it entirely. Furthermore, some cultures restrict girls from accessing social media platforms, believing that access exposes them to immoral behaviour, while no such concern is held for boys.
- **Limited digital infrastructure.** Limited connectivity and devices restrict usage among students, especially in remote communities where mobile network operators are not incentivized to invest. Many use-cases for digital solutions are limited by the availability, quality and cost of connectivity, preventing a wholesale leap into the digital future of learning. Even when it is available and accessible, lack of technical support for software and hardware is repeatedly reported.

¹⁶⁰ See www.uncdf.org/article/2778/digital-financial-services-reduce-worries-school-fees.

¹⁶¹ UNESCO, *The Digital Transformation of Education: Connecting Schools, Empowering Learners* (2020). <https://unesdoc.unesco.org/ark:/48223/pf0000374309>.

- **Low levels of digital literacy.** Many countries do not yet mainstream digital skills into basic education curricula or teaching practices. During the COVID-19 pandemic, for example, some schools sent course materials to students using the WhatsApp messaging platform. However, even students with devices and connectivity struggled to download, print and capture images and return assignments to teachers.
- **Unfavourable policies.** While many low- and middle-income countries now prioritize digital transformation in their national development strategies, many governments have not removed policy obstacles to the adoption of digital technologies, which ultimately affects the education sector. For example, know-your-customer (KYC) requirements for people to obtain SIM cards and taxes on digital-related services can limit the adoption of technologies.

OPPORTUNITIES FOR DIGITAL TRANSFORMATION IN EDUCATION

In addition to parents and caregivers, students, teachers and schools stand to benefit from adopting digital solutions. Digital services can facilitate access to high-quality education for the most vulnerable, even in remote rural areas. For example, new pay-as-you-go business models are emerging, smoothing school fee payments and allowing vulnerable populations to access digital content more affordably. Inclusive innovation in the following areas can address critical supply- and demand-side barriers:

- **Digital financial services.** Payments solve the cash-handling issue for students, parents/caregivers and schools, provide clarity over and traceability of school finances, and allow linkages to financial institutions. They are also enabling new 'pay-as-you-learn' business models that align with parents' income flows. This, in addition to dedicated digital savings and loans, allows parents/caregivers to designate savings and loans for education only and prevent the diversion of funds for other uses.
- **E-learning (ed tech) solutions** for teachers and students enable virtual training and self-learning, access to high-quality teaching and learning materials, and gamified or interactive content. Blended learning approaches are emerging that complement and enhance existing teaching

approaches with ed tech solutions. This can improve learning instruction. These solutions can also serve as an important pathway for girls to build science, technology, engineering, and mathematics (STEM) skills and as an enabler for lifelong learning.¹⁶²

- **E-school management solutions** enable the digitization of school records (attendance, performance, etc.), improved communication between teachers and parents, school management (of processes, finances, monitoring), and performance-based pay for teachers. This can improve the overall learning environment.
- **Data analytics** for district leaders to support operational and decision-making in their respective districts and ease the reporting to the ministry level. This provides visibility of schools' key performance indicators that lead to better support. Also, data analytics ease reporting from the district to ministry level. This can also improve the overall learning environment.

Successful deployment of these solutions considers the current accessibility of digital infrastructure to key stakeholders in the education sector. Many of these are already feasible, especially when careful attention is paid to designing client-centric solutions that align with students' and parents' access to and use of mobile-based services, such as mobile money, interactive SMS and apps. These can complement the important initiatives being implemented by our partner agencies at the United Nations, including the Giga and e-Schools initiatives to connect and prepare schools to empower learners.¹⁶³

¹⁶² See www.gsma.com/mobilefordevelopment/wp-content/uploads/2020/09/EdTech-Final-WEB.pdf.

¹⁶³ UNESCO, *The Digital Transformation of Education: Connecting Schools, Empowering Learners* (2020). <https://unesdoc.unesco.org/ark:/48223/pf0000374309>.

DIGITAL TRANSFORMATION OF EDUCATION STARTS WITH A CLEAR FOCUS ON BARRIERS

Several examples highlight the importance of taking a systems-based and client-centric approach to focus on the barriers of key stakeholders in the education system. To provide further context on how digital transformation can be achieved, the following example draws on UNCDF's experience in Uganda, implementing the Leaving No one Behind in the Digital Era programme.

Despite significant progress in increasing access to education in Uganda, gaps persist. Rural communities experience low-quality education, enrolment and completion rates. The education sector grapples with under-resourced and over-burdened schools in a country with an increasingly young population (average age of 16.7 years).¹⁶⁴

UNCDF supported the digitization of payments in 20 schools in Uganda over an 18-month period, which resulted in a drop in student absenteeism, increased school fee collection rates, improved productivity of the finance team, and reduced cost of cash handling. More than 60 percent of parents and caregivers adopted digital payments. A client-centric approach that addressed the different barriers faced by each stakeholder – including school administrators, parents and caregivers – led to the launch of convenient and flexible digital payment options for parents, including Godson, for school fees. Similar initiatives in the Pacific, for example in Solomon Islands, have resulted in active usage (72 percent for men, 52 percent for women) among parents and caregivers for digital education payments. In particular, users from rural households

valued not having to travel long distances to pay school fees. The success of these services is dependent on parents' and caregivers' access to agents who can effectively assist with cash-in, cash-out services.

To complement the efforts of government and other stakeholders, UNCDF takes a systems development approach to building towards sustainable education solutions. UNCDF's commitment to "leaving no one behind in the digital era" focuses on the educational constraints faced by women, youth, refugees and migrants in rural Northern Uganda. Interviews with students, families, teachers and school administrators in this region identified several supply-side barriers that prevent young people from accessing quality education (an excerpt is provided in Figure 18). Many barriers and underlying constraints were identified during the assessment of the education system. UNCDF worked with the Ministry of Education to prioritize targeted interventions to address the following barriers:

- **Ineffective school administration.** Poor school administration processes undermine the efficient operation of schools, which in turn affects the quality of education. A root cause of this barrier is the use of inefficient payment systems and processes.
- **Poor annual school year planning,** which is not informed by demand and results in under-resourced schools. A root cause for this barrier is the limited use of data by policymakers to inform budget and resource allocation decisions.

Interventions and digital solutions were prioritized based on the resources needed for implementation, potential impact on the target communities and feasibility of the solution. The selection of these digital solutions considered the digital demand-side barriers faced by communities in Northern Uganda, which benefited from a supportive ecosystem of mobile connectivity, payments and agent locations.

¹⁶⁴ See www.worldometers.info/world-population/uganda-population/.

FIGURE 18.

Education sector constraint analysis by UNCDF (February 2020)

PROBLEM (SYMPTOM)	UNDERLYING CONSTRAINTS	UNDERLYING CONSTRAINTS	RELEVANT SUPPORT FUNCTIONS/ROLES	WEAKNESS IN SUPPORT FUNCTIONS/ROLES
Ineffective school administration	Data to inform school administration are limited	Date are not routinely collected Certain data points are not collected Data records are lost	Related services Skills	Lack of adequate accountability Lack of appropriate arrangements to ensure collection and accountability Lack of knowledge on efficient data collection and management techniques
	Data to inform school administration is not easily usable	Data are in hardcopy format Data are not collected in a standard format e.g., ticking registers vs. students writing their names down	Skills	Lack of knowledge on efficient data collection and management techniques Lack of digital literacy hindering the use of computers for electronic data capturing Insufficient budget allocation to procure phones/computers Lack of policy driving budget allocation to technology
	Inefficient payment processes	Parents mainly make cash payments	Information	Lack of sensitization and the costs and benefits of mobile money in comparison to other payment mechanisms
Poor annual school year planning	Use of relevant data to inform school planning as well as current and planned interventions by other education stakeholders is limited	Data are not readily useable because (i) it is not available at the right level of aggregation / disaggregation, (ii) data compilation are difficult, and (iii) data are in hard copy Planners lack skills to appropriately leverage and analyse data	Information Infrastructure – power and connectivity Skills	Data are not accessible from a central source and are not appropriately aggregated/disaggregated Lack of digital literacy skills hindering the use of computers/phones for electronic data capturing Lack of reliable power sources and connectivity Lack of appropriate training of school planners

To address inefficient payment systems and processes, for example, UNCDF has partnered with the Ugandan Ministry of Education and a Ugandan company (Service Cops Ltd.), which provides education payment solutions in many African countries. UNCDF support is adapting the digital school fees payment solution for rural Northern Uganda. The solution reduces the time and cost of a typical school fee transaction and is expected to have a significant impact on improving levels of efficiency in governance and management. As digital school fees are adopted and integrated into the workflows of school, the roadmap for the programme will introduce additional financial services, such as digital loans, savings and student pocket money.

UNCDF is also supporting the Ministry of Education and Sport to pilot digital recruitment and e-learning solutions, so as to improve the quality of skills in secondary school teachers. Most digital solutions in the education sector are still at the pilot stage and need a boost to reach scale. For initiatives such as this one in Uganda and elsewhere to scale, a number of factors will be essential. It will be important to educate users in how the products work, and to market new

solutions to parents and caregivers through school, government and provider communications. It will also be crucial to select technologies that are accessible, with offline capabilities, that can work in unstable power environments.

A systems and client-centric approach brings focus to feasible digital solutions for key stakeholders in the education sector. By addressing the overt and underlying barriers in the education system, it is possible to avoid the many pitfalls that can lead to failed digital solutions in education. Above all, close partnership with the relevant education ministries is critical to design solutions and secure buy-in and future investment for sustainability. In particular, effective digital solutions exist to improve school administration and budget planning in the education sector. Improvement in these dimensions can free up resources and accelerate new educational approaches to enhance educational outcomes and contribute to SDG4. Linking these initiatives to national digital transformation efforts that are now under way, especially with digital literacy programmes, will be pivotal in ensuring that young people acquire skills for the digital age.

SECTION 3.9

BETTER HEALTH THROUGH DIGITAL SOLUTIONS

By Chris Lukolyo



HIGHLIGHTS

- Health-care challenges in developing countries materially impact the quality and cost of services, particularly for vulnerable and rural populations. Addressing these will help to enable better access to health care for the most vulnerable. On the demand side, care is expensive and accessing it often requires travel, further increasing the costs for users. On the delivery side, largely paper-based processes and supply chains are inefficient, and the delivery of care is challenged by staffing issues and lack of adequate infrastructure.
- Through its partnerships, reach and experience with sustainable digital models, UNCDF plays an important role supporting customer-centred innovations, and advocacy to drive the conversation and demonstrate how to enable better health care for the most vulnerable.

Digital solutions can improve general access to health care and its quality, cost and delivery in rural areas. They can help to encourage better health-seeking behaviour through access to information and equip community

health workers to deliver quality services at the last mile, while reducing the cost to health-care providers. Health costs force 100 million people into extreme poverty every year.¹⁶⁵

¹⁶⁵ World Health Organization, World Bank, *Tracking Universal Health Coverage: 2017 Global Monitoring Report*, & UNSGSA, Better Than Cash Alliance, UNCDF, World Bank "Igniting SDG progress through digital financial inclusion" for highlights of the robust evidence linked to 13 of the 17 SDGs.

Like many Beninese, Oseye used to struggle to see a doctor. When she reached the hospital there were long waits for an appointment, and additional time was needed to retrieve her records. Waiting imposed further costs on her in terms of lost time attending to matters at home. After she heard about the goMediCAL application, a nurse at the health centre helped her to register. Now able to locate her doctor through the app and make appointments, Oseye feels peace of mind, knowing that any medicines or services that she may need are easily accessible via her phone.

THE STATE OF HEALTH CARE IN UNDERSERVED COMMUNITIES

Less than half of the global population is covered by essential health services.¹⁶⁶ Low-income households fare even worse. They receive most of their health care from government-run or subsidized not-for-profit entities; these providers are often characterized by inadequate staffing and poor remuneration and equipment. It is estimated that an additional 18 million health-care workers are needed, primarily in low- and lower middle-income countries, to achieve universal health coverage by 2030.¹⁶⁷

There has been progress in a number of health areas, such as in reducing maternal and child mortality, in increasing coverage of immunization, and in reducing some infectious diseases. However, while progress continues, the rate of improvement has slowed and is likely to reverse. Furthermore, illness and deaths from communicable diseases will spike as a result of the COVID-19 pandemic. For example, service cancellations are expected to lead to a 100 percent increase in malaria deaths in sub-Saharan Africa.¹⁶⁸

Yet government spending on a per capita basis remains low. There is an absence of national health insurance schemes in many least developed countries, with individuals typically paying a high percentage of health costs themselves. Concerted efforts are required to achieve universal health coverage and sustainable financing for health.

Health-care challenges in developing countries materially impact the quality and cost of services, particularly for vulnerable and rural populations. Addressing these

will help to enable better access to health care for the most vulnerable. On the demand side, care is expensive and accessing it often requires travel, further increasing the costs for users. On the delivery side, largely paper-based processes and supply chains are inefficient, and the delivery of care is challenged by staffing issues and lack of adequate infrastructure.

DIGITAL IS REVOLUTIONIZING HEALTH CARE

Digital solutions have helped to improve health-care delivery by making services available more cost-effectively and simplifying procedures, as well as improving coverage by enhancing transparency and accountability.

Several examples demonstrate the benefits of providing health care digitally. Initiatives such as Babyl in Rwanda – which provides efficient virtual access – show how digital services can be deployed at scale in the health sector, in partnership with governments. This digital model provides efficient access to health care through virtual delivery, reducing costs for consumers.

Beyond consumer impact, digital technologies can also help health-care providers to improve internal efficiency. In many developing countries, health clinics most often manage patient- and clinic-related data manually, increasing record retrieval times. Across the landscape, ‘healthtech’ platforms are emerging to serve pharmacies, such as Field Intelligence in Kenya and Nigeria. These platforms leverage pharmacists’ data and extend in-kind credit through ‘pay-as-you-sell’ pricing strategies; business model innovation such as this can improve the efficiency of pharmacies and keep prices low.¹⁶⁹ Yet health data are highly sensitive and must be treated as such, as shown by the use of non-client, pharmacy-level data. Some health system financing innovations are bundling insurance with information and advice, as in the case of Tonic in Bangladesh, which now has 5 million registered users. Digital solutions can also be used by frontline health workers to conduct detailed registration of household medical needs and provide health-care services to communities, in addition to efficiently managing/monitoring extension workers.

¹⁶⁶ United Nations, “Good health and well-being: why it matters”, www.un.org/sustainabledevelopment/wp-content/uploads/2018/09/Goal-3.pdf.

¹⁶⁷ See www.who.int/health-topics/health-workforce#tab=tab_1.

¹⁶⁸ WHO, “The potential impact of health service disruptions on the burden of malaria: a modelling analysis for countries in sub-Saharan Africa” (Geneva, 2020).

¹⁶⁹ See www.accion.org/how-tech-is-helping-to-meet-health-care-needs-during-the-pandemic.

UNCDF IS A CATALYST FOR BETTER HEALTH CARE

Through its partnerships, reach and experience with sustainable digital models, UNCDF plays an important role supporting customer-centred innovations, and advocacy to drive the conversation and demonstrate how to enable better health care for the most vulnerable. Applying a market systems development approach, our efforts focus on overcoming key constraints to facilitate the development of well-functioning sustainable markets.

Digital approaches can expand access by improving delivery through both new and existing channels, making health care more cost-effective for both consumers and providers.

In supporting goMediCAL, UNCDF had two main goals: to integrate more people in Benin into the health-care system, and to increase digital financial transactions and inclusion. The goMediCAL app achieves these aims by addressing constraints faced by medical providers for scheduling, records management and payments, among others. The application allows patients to make and confirm appointments with more than 250 health professionals, share medical records and pay remotely. By 2019, some 15,900 patients were regularly using the app, well above the initial target.¹⁷⁰

A significant shortage of trained health workers in Uganda has led community health workers – such as Village Health Teams (VHTs) – to become the cornerstone of the primary health system. VHTs are increasingly recognized as an integral component of the health-care workforce necessary to achieve public health goals. However, despite their community-level successes, VHTs experience challenges related to remuneration, training and retention.¹⁷¹

Take the case of Leilah Akubar, a community health worker in Koboko, who has to carry a hefty registration book, a weighing scale, a blood pressure machine and sometimes food supplements to a household when called upon to provide primary health-care services. Once inside a home, she goes through her book to locate the family's information – registering a pregnant mother or sick child, writing a referral if

necessary. Replacing paper-based reporting with a digital system cuts Leilah's physical load by half, while reducing inconsistencies and inaccuracies in diagnosis and reporting.

Working in close collaboration with the Ugandan Ministry of Health, BRAC Uganda and Medic Mobile, UNCDF considered the challenges faced by village health workers like Leilah, before launching an initiative to design and deploy a sustainable delivery model leveraging digital technology. The model seeks to increase the service quality and productivity of community health workers and improve health-care outcomes. The solution focuses on enhancing delivery to address use cases such as antenatal and postnatal care, and disease surveillance in Northern Uganda and Kiryandongo District.

The digital solution has been pivotal in enabling community health workers to maintain delivery of health-care services during the COVID-19 pandemic. Recognizing the need to keep VHTs motivated, the solution enables them to earn supplementary income from the sale of health-related products. By addressing the systemic barriers to improved quality of service, performance and motivation, the pilot is poised to support 400 community health workers, which will in turn impact 200,000 beneficiaries or member households.

OPTIMIZING MEDICAL SUPPLY CHAINS FOR BETTER HEALTH OUTCOMES

In a market assessment carried out by UNCDF in Uganda, underlying constraints were identified regarding the medical supply chains, including: procurement financing and processes, limited supply capacity, poor infrastructure, distribution and planning, lack of personnel, and poor coordination. Drug stock-outs pose a widely acknowledged health problem across sub-Saharan Africa, and despite a number of digital pharmacy solutions, Uganda still faces challenges.

¹⁷⁰ See www.uncdf.org/article/5317/five-years-of-market-development-in-benin-senegal-and-zambia-2015-2019.

¹⁷¹ Kimbugwe, G., Mshilla, M., Oluka D., et al., "Challenges faced by Village Health Teams (VHTs) in Amuru, Gulu and Pader Districts in Northern Uganda", www.ncbi.nlm.nih.gov/pmc/articles/PMC4542049.

Responding to the need for improved stock management of essential drugs and medical supplies in Uganda, UNCDF has launched an initiative with Medical Access Uganda Limited. Leveraging digital technology, a solution has been deployed to provide regular inventory management information regarding essential drugs and medical supplies. The system provides timely information, alerts and reports to relevant supply chain stakeholders on the availability of drugs and medical supplies, and enables effective planning to ensure that the flow is kept constant.

For these efforts to yield success, they need to ensure government buy-in and involvement. Policy changes may be required to create an enabling environment and support infrastructure development. However, governments cannot walk this path alone. There is a need to crowd-in players already operating in the ecosystem. Partnerships such as that of UNCDF with the Swedish International Development Cooperation Agency complement government efforts to improve access to and delivery of health-care services, especially for those in hard-to-reach areas. These efforts help to provide better health-care solutions for all, as targeted in Sustainable Development Goal (SDG) 3 (Ensure healthy lives and promote well-being for all at all ages), and have positive spillover impacts on other critical SDGs.



SECTION 3.10

TAILORED DIGITAL FINANCIAL SERVICES FOR CLIMATE CHANGE AND OTHER DISASTERS

By Krishnan
Narasimhan



HIGHLIGHTS

- Numerous approaches can be taken, including capacity-building and education on resilience and recovery planning, to manage the risk of climate-related disasters. Tailored financial services must be among these approaches, as they stand to make effective and relevant solutions available to the most vulnerable.
- Climate action must include climate disaster risk financing and insurance because it enables marginalized people, communities and countries to mitigate the effects of climate-related disasters and strengthen other coping efforts. Leveraging digital technology, especially following the accelerated shift to digital services during the COVID-19 pandemic, creates a clear pathway for taking urgent action.

Climate change now threatens the resilience and adaptation of marginalized people globally, pushing many of them further into poverty. The hostile impacts of climate change are not equally shared across the world; given the variation in regions' exposure to hazards, ability to adapt, and the make-up of marginalized groups, some regions and groups bear a heavier share of the burden.

In East Africa, the extreme flooding and locust outbreaks in 2020 have increased hunger and poverty for millions of people, demonstrating that the most vulnerable are at risk. Yet, these populations have not

significantly contributed to global warming. In countries such as Bangladesh, whose rural population is heavily reliant on agriculture, flooding caused and exacerbated by climate change has eroded people's livelihoods and food security.¹⁷² In Nepal, where more than 80 percent of the population depends on agriculture and forest resources for its livelihoods, people are increasingly prone to floods, soil erosion and landslides.

¹⁷² Alamgir, M. S., Furuya, J., Kobayashi, S., Mostafiz, R. B., & Ahmed, M. R., "Farm income, inequality, and poverty among farm families" (GeoJournal, 2020).

Climate change is expected to increase the intensity and frequency of hazards affecting people, especially for marginalized groups,¹⁷³ so now more than ever, it is critical to assist the most vulnerable people and countries. Numerous approaches can be taken to address this challenge, including capacity-building and education on resilience and recovery planning, to manage the risk of climate-related disasters. Tailored financial services must be among these approaches, as they stand to make effective and relevant solutions available to the most vulnerable.

DIGITAL FINANCE CONTRIBUTES TO COMMUNITY RESILIENCE

For example, tailored index-based weather insurance services have been deployed in Bangladesh and India, using satellite technology. These services help to reduce financial risks to smallholder farmers due to adverse weather events.¹⁷⁴ In East Africa, the use of data collection technology and satellite imagery has enhanced the response to the locust outbreak by improving control operations.¹⁷⁵ Success with insurance services has also been achieved by the Caribbean Catastrophe Risk Insurance Facility,¹⁷⁶ which aids small developing economies by providing rapid payouts after disasters as part of the initial disaster response – helping countries that face short-term cash flow problems after a catastrophe.

While insurance can be used as an *ex-ante* approach to managing disaster risk, remittances can be used as an *ex-post* response. These play a key role in the aftermath of disasters as migrants living abroad send money to their families back home. In 2018, the World Bank recorded a total of US\$529 billion remittance flows to low- and middle-income countries.¹⁷⁷ Given the importance of remittances and insurance as a source of income during crises, new business models and digital innovation for financial services can be pivotal in making these more inclusive and widely available.

INNOVATION TO MAKE INSURANCE MORE AFFORDABLE AND INCLUSIVE FOR MARGINALIZED GROUPS

Traditional insurance products and services in Africa, Asia and the Pacific are relatively unknown, poorly understood, or generally perceived as unaffordable, especially by marginalized segments. A demand-side survey conducted by UNCDF in Fiji in 2015 and repeated in 2020 shows that the majority of people without insurance in the Pacific either do not know what insurance is, or do not know where to find it.¹⁷⁸ Most of the products available offer inadequate risk coverage and have prohibitively high premium rates, contributing to low penetration rates of only 2.8 percent in Africa and 0.2 percent in Bangladesh.¹⁷⁹ However, innovations are making insurance more affordable and relevant to marginalized segments.

Many vulnerable people may think that insurance is very expensive, even considering it a luxury item. The FijiCare bundled microinsurance product proves otherwise; it provides total coverage of 10,000 Fijian dollars (FJD) (US\$5,000) for risks such as death, funeral expenses, fire and personal accident for a premium of FJD 1 (\$0.45) a week,¹⁸⁰ showing that affordable insurance is possible for everyone, even low-income earners. Interestingly, the FijiCare bundled microinsurance product initially targeted sugar cane farmers and soon covered more than 13,000 producers throughout Fiji. The product went on to insure more than 135,000 clients, showing that there is an appetite for microinsurance among marginalized groups in the Pacific.

Innovation can make insurance more inclusive. Administration for traditional insurance can be costly, but the use of digital tools and aggregators – such as seed companies – for distribution, payments and processing can make the process cheaper. FijiCare used aggregators, including cooperatives, growers' associations and credit institutions, to assist in the collection of premiums and the processing of claims. The FijiCare mobile app allows customers to upload their claims remotely, eliminating the need to submit applications physically and reducing costs in the process. The digitalization of insurance value chains

¹⁷³ Intergovernmental Panel on Climate Change, *Climate Change and Land: an IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems*.

¹⁷⁴ CGIAR, "Insurance as an agricultural disaster risk management tool: evidence and lessons learned from South Asia" (2019). <https://wle.cgiar.org/insurance-agricultural-disaster-risk-management-tool-evidence-and-lessons-learned-south-asia>.

¹⁷⁵ See www.acaps.org/special-report/outbreaks-east-africa-desert-locusts-and-COVID-19.

¹⁷⁶ See www.ccrif.org.

¹⁷⁷ World Bank, "Record high remittances sent globally in 2018".

¹⁷⁸ UNCDF, "National demand side surveys", www.pfip.org/our-work/work-streams/market-information/national-demand-side-surveys.

¹⁷⁹ Asian Development Bank, "Disaster insurance in developing Asia: an analysis of market-based schemes" (2019).

¹⁸⁰ See www.pfip.org/our-work/work-streams/financial-innovation/fiji-care-bundled-micro-insurance.

is yielding greater efficiency for both insurers and customers and expanding the provision of services to marginalized segments.¹⁸¹

DIGITAL FINANCE BOLSTERS NATIONAL PLANS FOR CLIMATE DISASTER RISK FINANCING

Natural hazards such as cyclones, droughts, earthquakes and tsunamis have a significant economic impact, not just at an individual level, but also on the budgets of low- and middle-income countries. In the Pacific, Category 5 cyclones and droughts have increased in the past five years.¹⁸² Fiji, Tonga and Vanuatu have been disproportionately affected by the devastation. Countries in South and South-East Asia, the Caribbean and sub-Saharan Africa are also vulnerable to various natural disasters. Given the potential for these events to cause large-scale losses and the resulting financial implications, Climate Disaster Risk Financing (CDRF) country strategies are needed as part of an integrated National Disaster Risk Management strategy.

In partnership with the United Nations Development Programme and the United Nations University-Institute for Environment and Human Security, UNCDF is pioneering an initiative in the Pacific, to develop market-based CDRF instruments targeting micro- and meso-level beneficiaries who include individuals, households, communities, small businesses, associations and cooperatives.¹⁸³ The plan is for this initiative to develop, test and scale hybrid financial instruments, including indemnity insurance, parametric insurance and savings, to offer a unique combination of solutions aimed at protecting against risks, both climate change-induced and otherwise. Given the challenges of the geographical spread across the many archipelagos of the Pacific and the need to keep costs low, digital solutions will be deployed for onboarding and claim payments. UNCDF will also work with governments and regulators to create an enabling environment for deploying innovative hybrid financial products, as part of CDRF country strategies.

While the initial testbed for this initiative will be the Pacific, the experience gained will be replicated in other countries in Asia, Africa and the Caribbean. By combining relevant technical expertise in insurance, digital financial services, last-mile distribution models and policy and regulatory interventions, UNCDF offers a radically new approach to climate and disaster risk financing needs. The overall strategy is to empower consumers through enhanced financial and digital competencies, as well as blended financing instruments, by deploying market-based inclusive insurance solutions in least developed countries and developing markets.

CLIMATE ACTION INCLUDES INCLUSIVE INSURANCE AND RISK FINANCING

Climate action (Sustainable Development Goal 13) must include climate disaster risk financing and insurance because it enables marginalized people, communities and countries to mitigate the effects of climate-related disasters and strengthen other coping efforts.¹⁸⁴ Leveraging digital technology, especially following the accelerated shift to digital services during the COVID-19 pandemic, creates a clear pathway for taking urgent action. With enabling policy and regulation in place,¹⁸⁵ there are good prospects that the innovative initiatives described here aimed at making insurance and remittances more relevant and inclusive can be replicated.



¹⁸¹ See www.gsma.com/mobilefordevelopment/wp-content/uploads/2020/05/Agricultural_Insurance_for_Smallholder_Farmers_Digital_Innovations_for_Scale.pdf.

¹⁸² See https://humanitarianadvisorygroup.org/wp-content/uploads/2021/03/EmergingHumIssuesBrief_Pacificfinal.pdf.

¹⁸³ Micro-level beneficiaries refer to individuals, while meso-level beneficiaries are groups such as farmers associations and cooperatives who together have greater buying power for insurance cover.

¹⁸⁴ See www.greenfinanceplatform.org/sites/default/files/downloads/resource/Inclusive%20Insurance%20and%20the%20Sustainable%20Development%20Goals_GIZ%20.pdf.

¹⁸⁵ See www.unisdr.org/files/globalplatform/591d50243021aMaking_Climate_Risk_Insurance_Work_for_the_Most_Vulnerable_Seven_Guiding_Principles.pdf.



BRIDGING THE DIGITAL DIVIDE

By Mats Granryd, Director General, GSMA

With 5.2 billion unique mobile subscribers worldwide, and more than 7 billion people¹⁸⁷ covered by a mobile network, mobile is increasingly being used to access life-enhancing services that contribute to the achievement of the UN Sustainable Development Goals (SDGs).

Globally, SDG 9 (Industry, Innovation and Infrastructure) remains the goal most impacted by the mobile industry. Since 2015, an additional 900 million people have been covered by a 3G network (currently 90 percent coverage) and an additional 2.2 billion have been covered by a 4G network (now 80 percent coverage). Mobile infrastructure is critical to spur inclusive and sustainable development, and greater innovation. The mobile industry's most improved score is against SDG 4 (Quality Education), which is also its second most impacted goal: 1.4 billion mobile subscribers used their phone to improve their education or that of their children in 2019 – an increase of 140 million users since 2017.

Mobile has had an enormous impact on financial inclusion, which cuts across multiple SDGs. Mobile money has helped reduce the financial exclusion gap in low- and middle-income countries (LMICs), with over 1 billion registered accounts at the end of 2019.¹⁸⁸ More women are using financial services, low-income households are accessing essential utility services and smallholder farmers are getting paid more quickly and conveniently. Millions of migrants and their families are experiencing the life-changing benefits of faster, safer and cheaper international remittances and humanitarian cash assistance is being delivered more thoughtfully to those in crisis situations.

Given the global reach of mobile, so much more can be done to leverage its power and further support the delivery of the SDGs. Crucial to this will be helping people realise the full benefits of using mobile and the

mobile internet to access health information, public services and digital payments, both in developed and developing countries. The full potential of mobile technologies and access to digital services cannot be realised without the active participation of governments and regulatory authorities, working with the private sector to enable vibrant, competitive markets and to help shape the digital environment that citizens want.

The GSMA does much research in this area, in order to connect the mobile ecosystem and overcome the challenges that countries face in bridging the digital divide, which now consists of a coverage gap of 600 million people who live in areas that are not covered by mobile broadband, and a usage gap of more than 3.4 billion people living in areas covered by mobile broadband but who are not using mobile internet services. If current trends continue, more than 40 percent of the population in LMICs will still be offline in 2025. Some challenges are overarching, such as the main barriers to mobile usage for men and women¹⁸⁹ in LMICs – affordability, literacy, digital skills, and safety and security. These barriers are often exacerbated for women, who face lack of family approval in many markets. Our Connected Women programme works to accelerate digital and financial inclusion for women, and most recently published a Practical Guide¹⁹⁰ for reaching women, for mobile operators, the public sector and NGOs.

We know that the digital divide can look very different across LMICs and global sub-regions. For example:

- In **Uganda**¹⁹¹, mobile network coverage is weakest in rural areas. Mobile operators, such as MTN Uganda, are working with key ecosystem players, like iSAT Africa, to test and evaluate new mobile internet connectivity solutions for unconnected rural communities, and the GSMA has worked with policymakers and UNCDF Uganda to incorporate mobile technology into the key objectives and focus areas of the Third National Development Plan (NDPIII).
- In **Bangladesh**¹⁹², 3G coverage has expanded from around 50 percent of the population, in 2014, to 95 percent. Yet 70 percent of those covered by mobile broadband networks do not use mobile internet services.

¹⁸⁷ GSMA, *The Mobile Economy 2020*, <https://www.gsma.com/mobileeconomy/>

¹⁸⁸ GSMA, *State of the Industry Report on Mobile Money 2021*, <https://www.gsma.com/sotir>

¹⁸⁹ GSMA, *The Mobile Gender Gap Report 2020*, <https://www.gsma.com/r/gender-gap>

¹⁹⁰ GSMA, *Reaching 50 Million Women with Mobile: A Practical Guide*, <https://www.gsma.com/mobilefordevelopment/reaching-women-with-mobile>

¹⁹¹ GSMA, *Supporting the Growth of the Tech Start-Up Ecosystem in Uganda: A Policy Outlook*, <https://www.gsma.com/mobilefordevelopment/resources/supporting-the-growth-of-the-tech-start-up-ecosystem-in-uganda-a-policy-outlook>

¹⁹² GSMA, *Bangladesh: Driving mobile-enabled digital transformation*, <https://www.gsma.com/mobilefordevelopment/resources/bangladesh-driving-mobile-enabled-digital-transformation>

- During the COVID-19 pandemic¹⁹³, access to affordable digital content and services has been fundamental. Understanding the importance of data, mobile operators have made access to and use of the mobile internet more affordable, through temporary measures including discounts on tariffs and cost subsidies.
- In **Pakistan**¹⁹⁴, through its National Dialogues programme, the GSMA has worked with the Ministry of Information Technology and Telecommunication to advance digital and economic inclusion through mobile.
- Across Uganda, tech hubs and innovators are benefiting from greater collaboration with mobile operators, accelerating the development of new content and services. MTN Uganda provides access to its Mobile Money Access Programming Interface (API), enabling entrepreneurs to develop financial and transactional applications that enhance financial inclusion by offering tailored payment options. The GSMA has worked with UNCDF and Start-Up Uganda to promote a healthy innovation ecosystem.
- Digital platforms are used in **Pakistan** to increase engagement, improve service delivery to citizens, and deliver good governance, alongside the government's digital policy to transform the country into a knowledge-based economy. In 2014, UNICEF, in partnership with Telenor Pakistan and the provincial governments of Sindh and Punjab provinces, commissioned a pilot to test how mobile technology augments the traditional, paper-based birth registration process.
- **Ghana**¹⁹⁵ is facilitating the provision of digital identity, critical for the population to access services such as health care, education, employment, financial services and voting. Tigo Ghana has worked with partners to digitize the registration process and make it more efficient and cost effective.
- **Bangladesh** is improving productivity for farmers with mobile platforms that provide up-to-date agricultural information on market prices,

production techniques and weather forecasts. Grameenphone and Robi provide mAgri services with seasonal agricultural content for crops and livestock.

- **And across the Pacific Islands**¹⁹⁶, where, at the end of 2018, mobile internet penetration was the lowest of any region in the world, the mobile ecosystem is working to overcome issues around infrastructure and spectrum assignment and affordability.

Addressing the digital divide across LMICs requires collaboration between players from across the mobile ecosystem, as well as a supportive regulatory and policy environment that encourages investment and innovation. A number of bodies, including the World Bank and the GSMA, are highlighting the importance of collaboration and harmonization in both telecoms and broader ICT regulation, and catalysing essential work within the Mobile for Development portfolio and Public Policy programme.

Whilst we should celebrate the strong progress that the mobile industry has made in contributing to the SDGs over the past five years, there is no denying the fact that as a society we are currently not on track to achieve the 2030 targets.¹⁹⁷ Mobile technology remains at the very centre of how we address our most significant global challenges, such as COVID-19, which has led to the increased vulnerability of those who suffer the digital divide.

In emerging markets, where mobile is the primary access technology but the mobile adoption rate is lower than in developed markets, we are seeing that the poorest and most vulnerable people are disproportionately affected by this pandemic. Mobile operators have continued to innovate in addressing the digital divide, providing data for access to vital information, including health and education, regardless of geography.

Right now, we must commit to do more and to do it faster. We need to extend mobile connectivity to those that remain offline, whether due to lack of access or the more critical lack of usage. In this ever-changing and uncertain world, revived and collaborative partnerships across different industries and the public and private sectors have never been more necessary to our future.

¹⁹³ GSMA, *Keeping Bangladesh connected: The role of the mobile industry during the COVID-19 pandemic*, <https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2020/12/Keeping-Bangladesh-connected-The-role-of-the-mobile-industry-during-the-COVID-19-pandemic.pdf>

¹⁹⁴ GSMA, *The power of mobile to accelerate digital transformation in Pakistan*, <https://www.gsma.com/mobilefordevelopment/resources/the-power-of-mobile-to-accelerate-digital-transformation-in-pakistan>

¹⁹⁵ GSMA, *Country overview: Ghana*, <https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2020/05/Ghana-Country-Overview.pdf>

¹⁹⁶ GSMA, *The Mobile Economy Pacific Islands 2019*, <https://www.gsma.com/mobileeconomy/pacific-islands>

¹⁹⁷ GSMA, *2020 Mobile Industry Impact Report*, <https://www.gsma.com/betterfuture/2020sdgimpactreport>