



IGNITING SDG PROGRESS THROUGH DIGITAL FINANCIAL INCLUSION



In September 2015, the United Nations General Assembly adopted a plan of action for people, prosperity, and the planet, entitled “Transforming our World: the 2030 Agenda for Sustainable Development.” The 2030 Agenda consists of 17 Sustainable Development Goals (SDGs), developed in collaboration with a wide range of stakeholders globally and endorsed by all United Nations (UN) member states. The SDGs embody humanity’s shared aspirations and vision for the future, and faster progress is needed for them to make a difference in people’s lives.

The evidence presented in this compendium identifies how digital financial inclusion can ignite faster progress toward the SDGs, and create long-lasting social and economic impact for millions of people worldwide.

Are you a decision-maker in government, business, or civil society? We invite you to use this compendium to make digital financial inclusion a priority, whether it is allocating financing to build digital infrastructure, digitizing your payments, or passing regulations to ensure digital financial services can be used by everyone.

The world is experiencing a digital revolution. More people than ever have access to mobile phones, the internet, and other digital services like prepaid cards, with the number growing every day. How can this digital revolution help us reach the 2030 Sustainable Development Goals more quickly? One important answer is through digital financial inclusion. Financial inclusion means affordable, effective, and safe financial services for everyone. Inclusive digital financial services refer to mobile money, online accounts, electronic payments, insurance and credit, combinations of them and newer fintech apps, that reach people who were formerly excluded. Digital financial inclusion, when provided responsibly and sustainably in a well-regulated environment, not only drives growth, but also enables faster progress toward many of the other SDGs, as this compendium shows.

Inclusive digital financial services mean that poor people can store and increase savings, cope with unexpected economic shocks, access social benefits more cheaply, and make investments in economic opportunities that can lead them out of poverty. For example, the widespread use of digital financial services in Kenya helped lift around 1 million people out of extreme poverty between 2008 and 2014 (SDG 1). Farmers are managing risks and making investments that result in higher yields and incomes (SDG 2). Women are gaining more control over their finances and greater economic opportunity (SDG 5). Businesses are accessing working capital to grow and create new jobs (SDG 8 and SDG 9). There is widespread support for the World Bank's goal of reaching universal financial access by 2020. The compendium contains 13 SDG briefs on how digital financial inclusion can ignite progress. The world should act now.

This compendium is a collaboration between the Office of the United Nations Secretary-General's Special Advocate for Inclusive Finance for Development (UNSGSA) – Her Majesty Queen Máxima of the Netherlands, the Better Than Cash Alliance, the United Nations Capital Development (UNCDF), and the World Bank.

FOREWORD



In my role as the UN Secretary-General's Special Advocate for Inclusive Finance for Development, one of my highest priorities is making sure that **people not only have access to financial services, but are also able to use them to change their lives for the better**. Financial inclusion is not simply a goal in itself; it is also about achieving development outcomes.

In line with this priority, I am putting a great deal of emphasis on **expanding digital financial inclusion, which offers a tremendous opportunity and a game-changing tool for both private sector and governments**. Digital financial inclusion enables financial services such as savings, payments, credit, and insurance to be delivered efficiently at scale with widespread benefits.

Recently, we witnessed the power of digital tools in Sierra Leone. During the Ebola crisis, digital payments to health workers reduced payment times from a month to a week. This helped stabilize the workforce that saved countless lives.

Digital financial inclusion also promises solutions to the world's most challenging problems. Globally, pay-as-you-go solar companies have used digital finance to provide 10 million people with affordable, modern energy for the first time in their lives.

This compendium provides many compelling examples of the transformative power of digital financial inclusion. It builds on the valuable insights shared in "Achieving the Sustainable Development Goals – The Role of Financial Inclusion," whose publication I supported in 2016.

I truly believe the evidence-based solutions presented in this publication will **help leaders of the private sector deepen their commitment to making a social impact, while maintaining thriving businesses**. It will also **help governments learn how to leverage digital financial inclusion to attain development goals while achieving savings**.

I especially encourage policy-makers to use this compendium as an inspiration for the development of digital financial inclusion in their countries.

H.M. QUEEN MÁXIMA OF THE NETHERLANDS

*UN Secretary-General's Special Advocate
for Inclusive Finance for Development (UNSGSA)*

Igniting SDG Progress through Digital Financial Inclusion

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Ending Poverty through DIGITAL FINANCIAL INCLUSION

Over 1 in 10 people worldwide live on less than \$1.90 a day.^{1,2}

THE OPPORTUNITY

Digital financial services provide low-income households with access to affordable and convenient tools that can help increase their economic opportunities.

For extremely poor families, combining digital financial services with livelihood promotion, safety nets, and mentoring boosts their long-term standard of living.³



CHALLENGES*

Sudden illnesses or natural disasters can wipe out household assets and trap families in poverty.⁴

Over 100 million adults globally still receive government transfers, wages, or pensions in cash.⁶ Paying transfers in cash is **costly and vulnerable to fraud or theft**.

Globally, **39% of the poorest 40% of households lack an account**, making it nearly impossible for them to accumulate savings or establish a financial history to access other financial services.⁸



SOLUTIONS*

Digital financial services help families save money, **cope with shocks, and protect assets against risk**.⁵

Digital financial services, such as digital payments, allow government transfers, wages, or pensions to **efficiently reach those who need them most**.⁷

Digital financial services fuel business models that **expand access to low-cost financial services**, potentially reaching another 1.6 billion people.⁹



“End poverty in all its forms everywhere.”

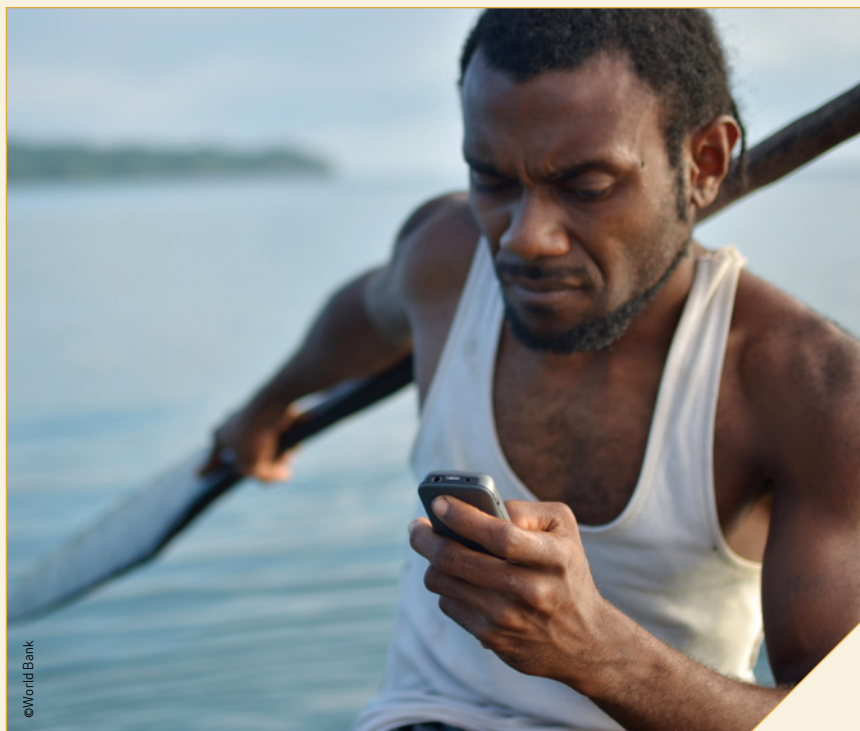
BRAZIL Conditional social transfer program Bolsa Família **cut transaction costs from nearly 15% in 2001 to below 3% in 2005** by bundling all benefits onto one electronic payment card.¹⁰ The successful program contributed to a 12%–18% reduction in poverty.¹¹

BURKINA FASO Users of mobile money are **3× more likely than non-users to save** for unpredictable events and health emergencies.¹²

NIGER Delivering safety net programs through mobile phones resulted in time and cost savings for recipients equivalent to roughly 20 kilograms of grain per person in just five months.¹³

KENYA The spread of mobile money lifted roughly **1 million people** out of extreme poverty from 2008 to 2014 – the equivalent of 2% of the population.¹⁴

TANZANIA Farmers who accessed digital financial services such as microinsurance through mobile money **earned 16% more** than their uninsured peers, due to higher investment.¹⁵



* These represent only a few of the many important challenges and solutions. They should not be read as an exhaustive list.



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THE WORLD BANK



Helping Eliminate Hunger through DIGITAL FINANCIAL INCLUSION

815 million people worldwide are undernourished.¹

THE OPPORTUNITY

Digital financial services can help farmers access the funds they need to produce higher yields with lower risks, increasing overall agricultural productivity. Digital financial services deliver faster, safer, more reliable social transfers for the undernourished.²



CHALLENGES*

A lack of access to financial services makes it harder for farmers to manage **agricultural risk and invest in measures to provide a more secure income**. Formal financial institutions meet less than a sixth of the \$200 billion in financing needed by small farmers living in emerging economies.^{3,4}

Cash-based value chains and unreliable cash payments lead to **slower and lower returns for farmers**.⁶

Money transfers, whether from governments or private remittances, help to maintain food security for the undernourished. But many households – particularly in poor, rural, and remote communities – **face barriers to accessing transfers**.⁸



SOLUTIONS*

Digital financial services enable farmers to **access credit for seed and fertilizer, reduce risk through digital micro-insurance, and securely save their earnings** to improve financial resilience. The potential market for digital value chain payments will reach \$394 billion by 2020.⁵

Digital payments are **faster, safer, more efficient, and transparent**, helping farmers **earn more**.⁷

Digital payments **lower the cost of sending and receiving remittances and social transfers**, creating more inclusive and effective safety nets that can reduce hunger.⁹



“End hunger, achieve food security and improved nutrition, and promote sustainable agriculture.”

KENYA By digitizing agricultural loan repayments, One Acre Fund helped **cut repayment collection times by 46% and costs by 80%**, freeing up resources to help farmers with measures to improve yields and incomes.¹⁰

EAST AFRICA Between 2009 and 2012, farmers who accessed agricultural micro-insurance through mobile devices **earned 16% more** than their uninsured peers by reducing financial losses.¹¹

INDONESIA The government of Indonesia has moved to card-based vouchers for 1.4 million recipients of subsidized rice in 2017. As a result, **9 out of 10 recipients said they received more and higher quality food.**¹²



UGANDA A leading coffee exporter, sourcing from 12,000 Ugandan farmers, digitized payments and **cut costs by 27%** by eliminating the inefficient and unsafe process of transporting cash. Digital payments are **45% cheaper** than cash considering indirect benefits such as higher business productivity and better quality products produced by farmers who have faster, more reliable access to funds to invest in their farms.¹³

WORLDWIDE Digital platforms such as M-Louma in Senegal,¹⁴ Napanta in India,¹⁵ and 2KUZE in East Africa¹⁶ allow smallholder farmers to sell their products directly to wholesalers. This cuts out middlemen and guarantees more price transparency, providing higher incomes for farmers and helping to reduce hunger.

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Better Health through DIGITAL FINANCIAL INCLUSION

**Health costs force 100 million people
into extreme poverty every year.¹**

THE OPPORTUNITY

Digital finance allows households to cope better with health emergencies without being forced into poverty. Healthcare providers can extend their services into low-density rural areas through digital payments and financing.²



CHALLENGES*

Healthcare is too expensive for many households: Roughly 100 million people globally are pushed into extreme poverty every year due to out-of-pocket health expenses.³

Citizens of low- and middle-income countries pay 37% of all health expenditures out of pocket, compared to 21% in high-income countries;⁵ in part due to **low levels of public and private health insurance coverage.**⁶

A shortage of caregivers and medical facilities in rural and remote areas makes it harder to deliver effective and affordable health services.



SOLUTIONS*

Digital financial services such as digital savings and insurance products can help households **prepare for and cope with unexpected healthcare expenses.**⁴

Digital finance can make **public or private micro health insurance affordable and viable** for more people. Digital payments mean lower costs of registering, paying premiums, and receiving disbursements.^{7,8}

Digital payments, including incentive payments for workers,⁹ can deliver **larger and more reliable incomes**, encouraging caregivers to live and work in rural and remote areas.



“Ensure healthy lives
and promote well-being
for all at all ages.”

BANGLADESH By paying incentives with mobile money, MAMA Bangladesh managed to mobilize enough community health agents to **register over 1 million new mothers** to their maternal mHealth program. The mothers received vital health information from pregnancy to infancy on their mobile phone.¹⁰

KENYA TM-Tiba's mobile health wallet enables health payments, savings, and access to credit. It has already reached 1 million Kenyans since its launch in 2016, **facilitating 150,000 patient visits to medical facilities and \$2 million in medical payouts.**¹¹

PAKISTAN Mobile money-enabled incentives increased the efficiency of a tuberculosis detection program by mobilizing a wider population of screeners and improving availability of data. The program **resulted in a 300% increase in detection** over a year in one catchment area and a **90% increase in patient treatment adherence.**¹²



SIERRA LEONE Shifting to digital payments at the height of the Ebola crisis from 2014 to 2016 helped critical health workers receive their pay quicker – **reducing payment time from over a month to around one week** – which eliminated worker strikes and secured the Ebola response workforce that saved countless lives.¹³

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Delivering Quality Education through DIGITAL FINANCIAL INCLUSION

264 million children who should be in school are not.¹

THE OPPORTUNITY

Digital finance can make education expenses more manageable for lower-income households and help schools and national education systems improve their financial management. This can free up resources for teachers, materials, and technologies that improve education outcomes.



CHALLENGES*

The **financial cost of education** is a barrier for households in low-income countries. Education costs can take up to $\frac{1}{3}$ of low-income household revenue, whereas in high-income countries it's $\frac{1}{5}$ of household revenue.²

Collecting pay in cash often causes **teachers to miss critical time in the classroom**. For example, in the Solomon Islands, teachers often miss several days of work to collect wages due to lack of easily accessible financial services.⁴

In low- and middle-income countries, 82% of school fees are paid in cash⁶ which can involve **long wait times and incur hidden fees** for parents and **unpredictable revenue streams** for schools due to late payments.⁷



SOLUTIONS*

Flexible digital saving and loan products designed to help parents manage education expenses can keep children in school and learning.³

Digital payment channels eliminate the need for teachers to take time out of teaching to collect their pay. Digital payments mean **safer, faster, and more reliable wages for teachers**.⁵

Digital payments make it easier for households to save and pay for education costs, giving schools and governments better **visibility and predictability of cash flows and more sustainable business models** for providers.⁸



“Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.”

KENYA An experiment providing access to a digital savings account to Kenyan households in 2015 **boosted high school enrollment by 5%-6%**, one-third higher than those without such access.⁹

NEPAL Households headed by women **increased education spending by 20%** when given access to digital savings accounts.¹⁰

LIBERIA Digitizing teacher salary payments **saved teachers 13.5 hours per paycheck on average**, and cut the cost of collecting wages by 92%, from \$25 per paycheck to \$2. Less time collecting cash wages means more time that teachers can spend in classrooms.¹¹

UGANDA A flexible education loan using mobile wallets and a “pay-as-you-go” business model helped parents to start paying school fees at the beginning of term and keep their children in school. In households using this product, only 15% of students missed a day of school for nonpayment, compared to 24% for those not using the product.¹²

AFRICA Mobile payments enable **pay-as-you-go e-learning**, allowing vulnerable or remote populations to access educational content digitally and more affordably. Eneza Foundation’s mobile education platform has **over 3 million unique users across Africa, 70% of which are from rural areas**.^{13,14}



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Advancing Women's Economic Empowerment through DIGITAL FINANCIAL INCLUSION

35% of women worldwide – approximately 980 million – remain excluded from the formal financial system.¹

THE OPPORTUNITY

Digital financial services empower women to earn more and build assets. This greater financial power fuels gender equality and economic growth.



CHALLENGES*

Women are **7% less likely to be involved in the formal economy** than men, reducing their ability to control their own finances.²

Women-owned small businesses face a **credit gap of \$1.7 trillion globally**, limiting their ability to grow their businesses.⁵

The **lack of sex-disaggregated data** hinders policymakers and financial service providers from designing policies and products that meet the needs of women.⁶



SOLUTIONS*

Digital financial services give women **greater control over their own finances**, including safe, convenient, and discreet access to banking accounts.^{3,4}

Digital channels help collect instructive data on women business owners, leading to a **better understanding of their needs** and **more comprehensive creditworthiness assessments**.

Digital financial services help collect sex-disaggregated data, which helps policymakers to **develop female-friendly policies**, and providers to design **better digital financial products** for women.



“Achieve gender equality and empower all women and girls.”

NIGER Women who received social transfers via their mobile phones **were better able to control this income and reprioritize household spending.** As a result, their families had more diverse diets and their households were more likely to grow cash crops than those who received social transfers in cash.⁷

INDIA In a government workfare program reaching over 100 million people, women who received benefits paid digitally into an account led to **increased employment** compared to those paid in cash. The biggest impact was on women whose husbands had expressed the most opposition to their wives working.⁹

SOUTH AFRICA The use of digital cards for government safety net transfers enhanced women’s decision-making power in the household and led to a **92% increase in women’s likelihood of participating in the labor market.**¹¹

DOMINICAN REPUBLIC One-third of low-income women who were previously rejected for loans **were considered creditworthy** using alternative data and a gender-differentiated credit scoring model.⁸

KENYA When **women-headed households** adopted mobile money, the country saw a **22% plunge in extreme poverty and a 20% increase in savings** between 2008 and 2014. In addition, 185,000 women left farming jobs for better, more stable jobs in business or retail.¹⁰



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Improving Access to Water and Sanitation through DIGITAL FINANCIAL INCLUSION

2.1 billion people lack access to consistently safe drinking water.¹

THE OPPORTUNITY

Digital finance enables water and sanitation providers to serve low-income households, while also supporting the sustainable expansion of utility networks.



CHALLENGES*

In many countries, water providers who rely on cash struggle to serve rural customers because **metering, billing, and payment collections are slow, costly, and insecure.**²

Utilities in many countries barely cover their costs: The ratio of revenue to operating expenses in 2014 was just 1.09 in low-income countries compared to 1.42 in high-income countries.⁴

People in some emerging economies face **prohibitively high costs** to access basic sanitation or safe water in their homes. Upfront costs can often equal the monthly income of poorer households.⁶



SOLUTIONS*

Using digital channels for metering, billing, and collections **lowers operating expenses, secures cash flows,** and enables providers to expand **safe water** access to rural customers.³

Pay-as-you-go water ATMs and smart meters can help utilities to **reduce late payments, reduce water use that is not paid for, and sustainably expand access.**⁵

Micro-loans and *layaway* products can help bring safe, **sustainable services** within reach for low-income households. Digital wallets can make it easier to save and pay for water and sanitation upgrades, ultimately saving lives.⁷



“Ensure availability and sustainable management of water and sanitation for all.”

GHANA By introducing digital payments and prepaid smart meters, Safe Water Network more than **doubled its per-liter payment collection rate** between 2016 and 2017, helping the company sustainably expand access to safe drinking water.⁸

KENYA Digital billing and payment services developed by software company Wonderkid helped a Kenyan water utility to increase its revenue collected by 28% in 18 months.⁹



TANZANIA A water payment's digitization project resulted in **tripling water utility payments** and **reducing water collection waiting time from 3 hours to 10 minutes**

on average within a year, benefiting women in particular.^{10,11,12}

BANGLADESH The national government and the World Bank have partnered to support micro-financed installation of hygienic toilets, leveraging mobile money for loan repayments. 16,500 toilets were installed in 2017, with a long-term goal to reach 170,000.¹³

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Affordable and Clean Energy through DIGITAL FINANCIAL INCLUSION

Over 1 billion people lack access to electricity.¹

THE OPPORTUNITY

Digital payments enable solar companies in Africa and Asia to offer pay-as-you-go energy to millions of low-income families – a clear win for people and the environment.



CHALLENGES*

Only 1 in 4 utilities in emerging economies are financially viable, limiting their ability to grow.²

Nearly 1 in 4 of unelectrified households – largely rural – would be best served by lower-cost distributed energy solutions such as rooftop solar.³

Globally, 1 billion adults who have a formal account pay for utilities in cash, making utility companies inefficient.⁵



SOLUTIONS*

Digital finance helps utilities and mini-grid operators shift toward **low-cost, prepaid, or pay-as-you-go services**, increasing financial viability.

20 million unelectrified households could benefit from pay-as-you-go solar energy by 2022.⁴

Digital payments can **help reduce costs, expand access to energy, and boost investment**.⁶



“Ensure access to affordable, reliable, sustainable, and modern energy for all.”

GHANA AND CÔTE D'IVOIRE **PEG Africa** uses its solar devices to help customers establish a credit rating and access loans and is on track to reach **500,000 people** with this life-changing service.⁷

UGANDA Replacing cash with prepaid cards and mobile payments helped national electricity distributor Umeme **raise its collection rate from 84% in 2006 to 98% in 2016**, enhancing financial viability.⁸



KENYA M-KOPA, a pay-as-you-go solar company, has raised \$65 million in local-currency debt, using its expected future revenue in digital payments as collateral. With only cash payments, the company would not be able to continue expanding in underserved areas.^{9,10}

WORLDWIDE There are 690 million registered mobile money accounts¹¹ enabling new business models for affordable and clean energy companies. Pay-as-you-go solar companies have used digital finance to provide **10 million people with affordable, modern energy**.¹²

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More Good Jobs and Economic Growth through DIGITAL FINANCIAL INCLUSION

**470 million new jobs are needed by 2030
to overcome growing population and unemployment challenges.¹**

THE OPPORTUNITY

Digital financial services fuel low-cost business models with the potential to create 95 million new jobs and add 6% to global GDP by 2025.²



CHALLENGES*

230 million unbanked adults still receive private sector wages and salaries in cash, excluding them from the many benefits of digital financial services.³

Micro, small & medium enterprises (MSMEs) **cannot scale without access to credit.**

Despite their growth potential, there was over \$5 trillion worth of unmet demand for credit in 2015, partly due to lack of a credit history or collateral.⁴

More than half of the payments made and accepted by retail MSMEs in 2015 were in cash or check,⁶ which **increased costs** for MSMEs.



SOLUTIONS*

By digitizing salary and trade payments, businesses can offer their employees and business partners a **direct channel to financial inclusion** – increasing economic opportunities and resilience.

When MSMEs digitize payments, they start generating data that can be used for credit scoring, which can then be used to make decisions on access to financing.⁵

Digital financial services enable MSMEs to **reduce the cost of handling cash and increase access to consumer financing.**⁷



“Promote sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all.”

AFGHANISTAN Workers at one firm increased their savings after choosing to have a portion of their salaries automatically deposited into mobile phone savings accounts. During the first six months, **the average worker saved approximately 37% of their salary.**⁸

CHINA Ant Financial and MYbank have used digital payment transaction data to underwrite **more than \$70 billion in cumulative loans to 5 million small businesses, microenterprises, and entrepreneurs** since 2015.¹⁰

BANGLADESH Digitizing wages of factory workers in the garment sector **could save up to 85% of transaction costs of the factory** within two years.¹¹

INDONESIA Go-Jek adopted digital payments to improve logistics and payments, building an entire suite of services in its mobile app. The company distributes over \$700 million in earnings to its drivers and partner MSMEs annually.⁹



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Expanding Small Industry through DIGITAL FINANCIAL INCLUSION

Micro, small, and medium enterprises in emerging economies have an unmet financing need of \$5.2 trillion every year.¹

THE OPPORTUNITY

Digital finance enables small businesses to grow, innovate, and reach new markets, bringing more people into the digital economy.



CHALLENGES*

Micro, small, and medium enterprises (MSMEs) in emerging economies face **constraints in access to finance**, hampering their growth potential.²

Cash payments for suppliers and distributors can be **expensive – as high as 20% of annual company turnover** in some emerging economies.⁴

Cash payments are **largely untraceable**, making it costly and complex for companies to fight fraud and theft and confirm if payments were made in full.^{6,7}



SOLUTIONS*

Digital financial services can help MSMEs build **payment histories and credit scores** that can serve as collateral, resulting in greater access to finance.³

Digitizing supply chain payments can lead to significant **efficiency gains and increased revenue** for MSMEs.⁵

Digitizing payments can help businesses **avoid disparities in wage payments** in factories and ensure **compliance with labor standards**, as well as significantly **reduce fraud** in supply chains.⁸



“Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation.”

AFRICA Kopo Kopo uses electronic transaction history to assess the creditworthiness of MSMEs and grant them short-term loans. In three years, the company has provided over **\$4 million in cash advances to over 1,000 merchants.**⁹

MEXICO Grupo Bimbo worked with small retailers to help them adopt digital payments. **Sales revenue increased by up to 30%** for participating merchants.¹⁰

BANGLADESH Garment factories that digitized their payments to staff and vendors reported a **53% time savings** for their administrative and finance teams.¹¹



INDIA Gap Inc. digitized the salary payments of roughly 95% of its factory workers, ensuring that workers' wages were paid in full, including overtime. This led to a **15%–20% reduction in worker attrition.**¹²

EMERGING ECONOMIES

In agricultural industries, **farm productivity can increase up to 60%** when mobile payments are bundled credit.^{13,14,15}

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1 IFC, World Bank Group, & SME Finance Forum, 2017 2 Ibid. 3 OECD, 2018 4 World Bank, 2017 5 Chaintreau et al., 2018 6 Ibid 7 Chakravorti, 2014 8 Vodafone, 2016 9 Kopo Kopo, 2018 10 Rendon, 2014 11 Chaintreau et al., 2018 12 Ibid. 13 Nzomo, 2014 14 AfDB, 2017 15 Vodafone, 2016



Reducing Inequality through DIGITAL FINANCIAL INCLUSION

The wealthiest 1% globally holds 82% of wealth worldwide.¹

THE OPPORTUNITY

Digital finance can be a powerful equalizing force, giving low-income households new tools to increase their incomes, improve financial resilience and access new economic and social opportunities.



CHALLENGES*

9 out of 10 of the world's poor are in rural areas.²

The urban-rural divide accounts for up to 40% of inequality.³

Remittances are an essential source of capital for many low-income households, but **international remittance costs can be very high** – more than 10% of the remittance's value for some channels.⁶

The world's poor have **limited access to quality health, education, and utility services**, constraining their economic opportunities.

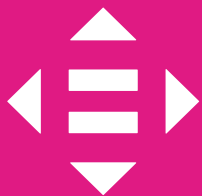


SOLUTIONS*

Digital financial services can **increase productivity and income for rural households** by connecting them to economic opportunities beyond their rural communities.^{4,5}

Digital finance can lower the cost of remittances,⁷ and further digitization could **cut remittance costs by 3.5% on average**, lifting 30 million people out of poverty.⁸

Digital payments, credit, and micro-insurance can help households to better manage their health, education, and utility services costs.^{9,10} This increases security and opportunity for the poor.



“Reduce the costs of remittances and promote economic opportunity and social inclusion for all.”

KENYA When faced with economic shocks such as agricultural losses, users of mobile money were able to maintain their current spending levels on goods and services. **People that did not use mobile money decreased their spending by 7%**, an effect most evident in poorer households.¹¹

INDIA In rural communities, storing income in a digital bank account, rather than keeping cash at home, **increased household savings by 131%** within three months, and the effect has been long-lasting.¹²



ASIA A 1% increase in international remittances as a percentage of GDP could lead to a 22.6% decline in the poverty gap in Asia.¹³

WORLDWIDE By **reducing the costs of remittances by 5 percentage points**, recipients in emerging economies could benefit from **\$20 billion more each year**. Digital payments can play a key role in lowering remittance cost.¹⁴

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Creating Sustainable Cities through DIGITAL FINANCIAL INCLUSION

60% of the global population will live in cities by 2030,¹ but many will not enjoy the potential benefits of urban life.

THE OPPORTUNITY

Cities rely on crucial public services such as affordable housing and transportation, but delivering these services using cash is highly inefficient and costly. Digitizing payments could save 100 major cities \$470 billion every year by addressing these inefficiencies and avoidable costs.²



CHALLENGES*

Public transport systems are often **inefficient** and do not sufficiently respond to users' needs.³

30% of the urban population in emerging economies lives in **informal settlements**, often in poor living conditions.⁵

Congestion is worsening, particularly in middle-income countries. In Egypt, traffic jams in Cairo cost 4% of national GDP annually.⁹



SOLUTIONS*

Collecting fares digitally **reduces the time, cost, and potential for leakages**. Digital fare payments can also generate **valuable data** to improve transportation routes and service delivery.⁴

Micro-mortgages enabled by digital payments can make it easier for people living in informal settlements to invest in adequate housing.^{6,7,8}

Electronic toll payments **reduce the congestion** caused by cash toll collection.¹⁰ They enable more **flexible and effective congestion pricing** and encourage **ride-sharing** networks.¹¹



“Make cities inclusive, safe, resilient, and sustainable.”

RWANDA Moving from cash to tap-and-go smart cards for buses in Kigali helped the bus operator to **raise revenue by 140% in just one month**, mostly by reducing leakages.¹²

SINGAPORE Smart commuter cards enabled Singapore to use payment, geo-localization, and censor data to improve transportation planning. The smart cards also support the travel rewards program to manage overcrowding by allowing commuters to earn points by choosing alternative routes. As a result, the country **reduced crowding issues by 92%** and waiting times by three minutes despite growing daily ridership.¹³



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SWEDEN The introduction of digitally enabled congestion charges in Stockholm **led to a 22% reduction in traffic volume after a few weeks** that led to a 30%–50% reduction in congestion and a 10%–15% reduction in emissions over seven years.^{14,15}

COLOMBIA Smart public transport transit cards in Bogota **lifted ridership by 56%** among recipients in just one year. This helped reduce traffic congestion and encouraged participation in the labor force.¹⁶

* These represent only a few of the many important challenges and solutions. They should not be read as an exhaustive list.



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Combating and Adapting to Climate Change through DIGITAL FINANCIAL INCLUSION

Emerging economies face US\$1.7 trillion in economic damage if global temperatures rise three degrees by 2050.¹

THE OPPORTUNITY

Digital finance can help individuals, communities, businesses, and government combat and prepare for the damaging effects of climate change, particularly by building resilience and driving sustainable investments.



CHALLENGES*

The UN projects a **3–4°C increase in average global temperature by 2100** as a result of increasing CO₂ emissions, even with Paris pledges.²

Since 2008, **25 million people have been displaced** by weather-related events each year.⁴ Global **economic losses** from natural disasters now total \$250–300 billion annually.⁵

Southeast Asian countries, alone, face a **\$160 billion annual gap in green credit**, which makes it harder for households and businesses to fund investments in sustainability.⁸



SOLUTIONS*

Digital payment platforms can be used to **nudge consumers toward products with a lower carbon footprint**, helping curb CO₂ emissions.³

Access to digital savings, credit, and insurance services can help poor households **mitigate the risk** of climate-related disasters.^{6,7}

Digital finance enables households and businesses to make **environmentally friendly investments**, including those that reduce carbon emissions today and prepare for damaging effects of climate change in the future.⁹



“Take urgent action to combat climate change and its impacts.”

CHINA Users of Ant Financial’s digital finance platform have **prevented 150,000 tons of carbon emissions in just nine months** by monitoring the environmental friendliness of their potential purchases and adapting their purchase decisions accordingly.¹⁰

UGANDA A community savings group product using mobile wallets **helped over 300,000 small-scale depositors save \$10 million** in just two years, boosting their resilience to financial shocks caused by climate change.¹³

KENYA Between 2008 and 2010, households that did not use mobile money experienced a 7% drop in use of goods and services when hit by a negative income shock (i.e., agricultural losses), whereas those that used mobile money did not experience a significant drop on average.¹⁴

WORLDWIDE Digital finance has catalyzed a new wave of green lending, with pay-as-you-go models helping finance over **2 million solar home systems** as of 2017.¹⁵

THE PHILIPPINES Mobile money and smart cards proved vital in distributing financial aid following Typhoon Haiyan in 2013.¹¹ Households with these savings accounts recovered faster after the typhoon.¹²



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Promoting Just and Inclusive Societies through DIGITAL FINANCIAL INCLUSION

US\$110 billion is lost each year due to leakages in government expenditures and tax collections globally.¹

THE OPPORTUNITY

Digital payments dramatically improve transparency of transactions to and from governments. This helps hold governments accountable to a higher standard for usage of public funds and increases the funds available for vital public services, investments, and transfers.



CHALLENGES*

Nearly 1 in 4 people globally reported paying a bribe to access public services in the past year.² The use of cash in government payments makes it **harder to trace funds, enabling corruption and leakages.**³

Making and receiving payments in cash involves much **higher transaction costs for governments,** reducing the pool of funds available for vital public services, investments, and transfers.

Low-income countries collect less than half of domestic revenue on average compared to high-income countries.⁶



SOLUTIONS*

Digital transactions create **more transparent, auditable records** that can help hold governments and other parties to account for the use of public funds.⁴

Digitizing government transfers **reduces operational costs** and helps ensure payments are delivered to the **intended recipients in full and on time.**⁵

Digital accounts can **help formalize economies,** bringing more capital into the financial system and broadening domestic tax bases.⁷



“Take urgent action to reduce corruption and promote just societies.”

TANZANIA

Digitizing entrance fees in national parks **reduced leakages by 40%**, increasing government revenues by \$7 million.⁸

MEXICO Digitizing government salaries, pensions, and social transfer payments **helped save around \$1.3 billion per year, or 3% of government expenditure.**⁹

INDIA Switching from cash to smart cards for pension payments in Andhra Pradesh between 2010 and 2012 resulted in a **47% fall in reported requests for bribes** from officials.¹⁰



GEORGIA A tax modernization program deployed **digital tax payments, yielding \$4 billion in additional revenue** over six years and reducing the incidence of leakages.¹¹

WORLDWIDE

Governments can **capture about 20% of leakages** over several years of concentrated effort using digital payment data, alternative data sources, and advanced analytics. Worldwide, that represents a **trillion-dollar opportunity.**¹²

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Igniting SDG Progress through Digital Financial Inclusion

GLOSSARY & REFERENCES

Glossary

Alternative data In a world that is increasingly digital, individuals and MSMEs are generating relevant data outside of the traditional financial system sources of information that can help improve credit scoring. These new sources of data may include the use of cloud-based services, use of internet and mobile services, e-commerce platforms, social media, shipped or received packages, online recordkeeping, call data records, airtime top ups as well as P2P, P2G, and G2P transaction data. Coupled with big data processing techniques, these new data sources help provide a more comprehensive picture of an individual or an organization's ability to repay loans.

Collateral Something pledged as security for repayment of a loan, to be forfeited in the event of a default.

Credit history Refers to a record of a borrower's or potential borrower's responsible repayment of debts.

Credit report Is a record of a borrower or potential borrower's credit history from a variety of sources, including but not limited to banks, credit card companies, governments, telecommunication companies, and others.

Credit score Is a numerical score representing an individual's creditworthiness resulting from a level analysis of the individual's credit history.

Digital financial services According to the G20 High-Level Principles for Digital Financial Inclusion, digital financial services are "financial products and services, including payments, transfers, savings, credit, insurance, securities, financial planning, and account statements. They are delivered via digital/electronic technology such as e-money (initiated either online or on a mobile phone), payment cards, and regular bank accounts."

Digital payments The term digital payment or e-payment is digital financial service generally understood to mean a transfer of value from one payment account to another using a digital device (such as a mobile phone or computer) and electronic communications channel (such as mobile wireless data). This includes payments made with electronic bank transfers, mobile money, and payment cards (e.g., credit, debit, prepaid).

Financial resilience Refers to an individual's ability to withstand life events that impact his or her income and/or assets. Examples of these events include unemployment, divorce, disability, or health problems.

Flexible loan product Refers to a loan that allows the borrower to increase or decrease the amount borrowed, or to vary the repayments. In some cases, they may allow you to miss the occasional payment, as set out in the Credit Agreement.

Flexible savings product In this context, refers to a committed savings account that yet provides individuals with the flexibility to make small and incremental payments. This flexibility allows individuals to better manage their liquidity.

Layaway product Refers to a product that is secured for later purchase. The customer only gets access to the product once the payment is completed. This payment system often requires a deposit. The full payment may be completed in installments.

Micro-insurance Refers to the protection of low-income people against specific perils in exchange for regular premium payment proportionate to the likelihood and cost of the risks involved.

Micro-loan or micro-credit The extension of loans of very small amounts at low interest to impoverished borrowers or small businesses.

Micro-mortgages The extension of long-term loans (usually 10 years or more) that share the characteristics of traditional loans (house as collateral, ability to foreclose and sell the house in case of default) and are affordable by low-income individuals and families.

Micropayments Refers to a financial transaction involving a very small sum of money (for instance, transactions of under USD\$ 1). It is most commonly used for transactions carried out digitally.

Mini-grid or Micro-grid According to energypedia, mini-grids can be defined as a set of electricity generators and possibly energy storage systems interconnected to a distribution network that supplies electricity to a localized group of customers.

Mobile money According to GSMA, mobile money can be defined as a service in which the mobile phone is used to access financial services.

Mobile payment According to GSMA, mobile payment refers to a movement of value that is made from a mobile wallet, accrues to a mobile wallet, and/or is initiated using a mobile phone. The term may sometimes be used to describe only a transfer to pay for goods or services, either at the point of sale (retail) or remotely.

Mobile wallet An account that is primarily accessed using a mobile phone.

Pay-as-you-go Refers to a system where costs are met as they arise, or services are paid for before they are used. New business models are emerging where mobile payments or other forms of digital payments are used to facilitate payment processing.

Prepaid systems Systems where costs for services are paid before the final consumer has access to them.

Sex-disaggregated data Data that is broken down by sex, helping reflect the different realities and contexts of men and women, allowing for a better understanding of the needs, challenges, and preferences of both sexes.

Smart card They are usually plastic cards with a built-in microprocessor most often used to enable the processing of financial transactions or personal identification.

Smart meter Can be defined as an electronic device that records consumption of energy or other forms of utility and communicates the information to the supplier for monitoring and billing. They usually enable two-way communication between the meter and the central system.

Voucher It is a prepaid financial service that entitles the holder to a predetermined value that can be exchanged for goods and services. These can be paper-based or digital (usually called e-vouchers). E-vouchers electronically store value.

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