



Digital solutions for the financial sector and their contribution to sustainable economic development

I. Challenges and opportunities – Where do we stand?

Digitalisation is transforming the financial sector and creating unprecedented opportunities for financial inclusion and MSME finance

Digitalisation is revolutionising financial systems worldwide – not just in industrialised nations but in developing countries too. Financial transactions are being completed online and by mobile phone around the clock, from large urban centres such as Berlin to remote villages in Africa. Traditional (micro)finance institutions are facing competition from mobile phone providers and financial technology companies (or ‘fintechs’). The rapid rise in mobile phone use in developing countries means that a growing number of people are obtaining access to an increasingly broader array of financial products and services such as **mobile (international) financial transfers** by text message. In this way, people are becoming increasingly connected, allowing them to overcome infrastructural, geographical and cultural barriers. Innovative funding strategies – from **the use of alternative data sources** to **crowdfunding** – open up access to much-needed investment capital for millions of micro, small and medium-sized enterprises (MSMEs) in developing countries. **Digital data entry** and **satellite technologies** promote the development of new insurance products in the agricultural sector, for example, allowing claims such as

crop loss to be assessed more accurately than ever.

These innovations herald an era of new opportunities for the achievement of the sustainable development goals in the financial sector. Mobile phones and the internet are accelerating financial inclusion worldwide. According to the Global Findex Database, between 2011 and 2017, 1.2 billion adults opened an account with a bank or mobile money provider.¹ In 2016, the McKinsey Global Institute estimated that **scaling up digital financial services has the potential to provide access to financial services for 1.6 billion people by 2025.**²



Responsible financial inclusion helps reduce poverty. Digital financial services can strengthen the resilience of households to external shocks. Building up savings using flexible savings plans, accessing credit and insurance and rapid money transfers from relatives and friends can prevent poor households having to sell assets and

property in emergencies or cut essential spending on food, health and education. For example, a study in Kenya showed that establishing mobile financial services reduces poverty.³ Digitalisation could also result in **additional loans of USD 2.1 trillion being granted to individuals and MSMEs by 2025.**⁴ Economies as a whole could benefit too: McKinsey estimates that the widespread use of digital finance in developing countries and emerging economies could boost GDP by USD 3.7 trillion by 2025, provided that public and private actors take the right course of action.⁵

Digital financial services support achievement of the Sustainable Development Goals (SDGs) of the 2030 Agenda in a number of different sectors

Digital change is bringing people and businesses closer together. Financial services have always been a key component of inclusive growth throughout the economy, but in the digital age they are more relevant than ever. They even underpin **innovative business models for implementing the SDGs outside the financial sector.** Digital mobile payment systems in developing countries create business models for off-grid PAYGO household solar systems that are user-friendly and offer clean energy supply particularly for disadvantaged households, which can pay for their energy supply remotely. Such models could provide around 20 million households with energy by 2022.⁶

SMEs and small farmers along agricultural value chains also benefit to a large degree from digital financial services as they often have to travel long distances to their nearest bank. Using traditional channels to provide loans to this target group is therefore not cost-effective. What's more, members of

this target group usually work in the informal sector and are disproportionately exposed to climate risks. It is now possible to better rate the creditworthiness of small farmers and small and medium-sized agribusinesses by evaluating 'alternative data' such as mobile credit, mobile transactions and meta weather data. This means that they have easier access to credit that is tailored to their needs, e.g. in line with harvest cycles. Use of alternative data and mobile-driven sales could also boost access to insurance products.



Digital payment systems are not just a basic prerequisite for **e-commerce**, they also provide participating retailers with access to finance. In China, for example, digital financial data from the Alibaba e-commerce platform are used to provide affordable loans that benefit small and medium-sized businesses.⁷ In 2019, Alibaba generated around USD 30 billion turnover in just 24 hours – on Singles' Day, an annual holiday celebrated in China that is the largest online shopping day in the world. Around 90% of the purchases were made on mobile devices.⁸ In many African countries on the other hand, cash transactions are still common and pose a barrier to online retail trade. African countries are frequently listed as the least prepared to support online shopping on UNCTAD's B2C E-commerce Index, with the lack of access to digital and

transnational payment solutions posing one of the biggest barriers.

Governments also have a lot to gain from digitalised financial flows, which play a key role in fostering **good governance**. Using electronic transfer to pay public servant salaries, transfer payments and procure goods and services can **cut costs, prevent misappropriations and increase transparency and efficiency in the public sector**. In India, for example, the introduction of smart cards for social insurance payments has reduced bribery rates by 47%, achieving savings of USD 2 billion p.a.⁹

According to McKinsey, digitalisation could save governments in developing countries and emerging economies at least USD 100 billion p.a. A staggering USD 70 billion of this saving would come from the prevention of misappropriation and corruption and could be invested in key sectors such as education, infrastructure and health care instead. Digitalising tax payments could generate USD 40 billion in additional tax revenue.¹⁰

Businesses too can benefit from digitalising financial flows. Digital payments can help **boost the transparency of supply chains and fair wages**, e.g. in the textiles sector, where such payments could be electronically verified and substantiated.

In addition to its huge potential, however, digitalising the financial sector poses a number of risks. These relate to the **security and stability of systems** (such as cyber security), particularly **consumer protection**. Customers may fall into financial difficulties if they do not fully understand the terms and conditions for using digital products, e.g. for loan repayments. Furthermore, there is a risk that in cases where transactions rely solely on digital interaction, users who

struggle with or have no access to digital devices may be left behind. All digital financial transactions also leave a trail of data that could reveal details about the customer, thereby exposing them to risks such as fraud, **cybercrime** and **identity theft**.

German DC is actively shaping digital change in the financial sector

Private sector actors are the most important drivers for developing and implementing innovative technical solutions and business models, and the field of finance is no different. But actors and development partners from the public sector can also take on important responsibilities and roles in this context. These include creating conducive policy and regulatory conditions, fostering innovation and competition, enforcing data protection and consumer protection regulations as well as building capacities on both the supply and demand side. The main priority here is to structure innovations so that they also (and primarily) benefit hitherto disadvantaged sections of the population, such as the inhabitants of remote areas and women, and at the same time protect them from adverse developments. **Digital change in the financial sector of German DC partner countries must therefore be designed in a proactive, cooperative and responsible manner.**

BMZ works closely with **international actors and networks** mandated, for instance, to research and implement responsible digital solutions for the financial sector. As part of the **G20 Global Partnership for Financial Inclusion (GPII)**, BMZ plays an active role in implementing the G20 High-Level Principles for Digital Financial Inclusion¹¹, providing support above all for the use of alternative (digital) data for MSME financing, digital payment transaction services and customer and data protection in the financial sector.

BMZ also cooperates closely with the following, for example:

- the **Alliance for Financial Inclusion**, a global peer-to-peer network of finance ministries, central banks and other financial market regulators from developing countries and emerging economies that aims to promote financial inclusion, particularly among disadvantaged sections of the population;
- the **Better than Cash Alliance**, a global partnership of governments, companies and international organisations that aims to harness the potential of digital payment transactions to achieve the Sustainable Development Goals, particularly poverty reduction and inclusive growth;
- the **Consultative Group to Assist the Poor (CGAP)**, a global partnership of development organisations that works to provide poor people with access to financial services so that they can seize opportunities and become more resilient.
- the **Responsible Finance Forum** established in 2009. Each year, it convenes the private and public sectors to share insights, innovations and best practices of responsible financial inclusion, increasingly focusing in recent years on challenges and opportunities of digitalisation in the financial sector.¹²

Box 1: NEW ACTORS IN THE FINANCIAL SECTOR

Digital technology is bringing about a rapid transformation of the financial sector, including and perhaps most significantly for developing countries. One key feature of this transformation is that **actors such as mobile network operators and IT providers now offer financial services and traditional actors such as banks have integrated digital solutions into their business models.** Most digital financial products are based on cooperation between financial service providers (fintechs) and/or mobile network operators. Even if many fintechs are in fact direct competitors of well-established market institutions, they still often cooperate with existing financial institutions to launch products on the market as rapidly as possible. Cooperation enables all participants to play to their strengths. Established banks and mobile network operators have customers, data, financial acumen and familiar brands. Fintechs and insurtechs, on the other hand, have the required agility and technological know-how. Key new actors include:

Fintechs: *'Fintechs are companies that use new technologies and customer-centric approaches to provide services for the financial sector'*.¹³ Their entire business model is based on digital technologies. **The term covers a broad array of technologies that cover payment transactions, digital lending, insurance and financial advice.** However, fintechs not only offer established products in an innovative manner, they also develop completely new services where most of the processes are based on **algorithms** and there is little human intervention. Examples include credit checks based on alternative data, international payments and microloans. Technology-led

companies that operate in the insurance industry are known as insurtechs.

Mobile network operators: During the mobile revolution, mobile network operators have evolved into financial service providers, particularly in the area of **mobile money**. They have claimed a significant market share over a short space of time. In ten sub-Saharan countries, more people have a mobile money account (offered by mobile network operators) than a bank account.¹⁴ Mobile network operators play a key role in this context as they have a large customer base and established sales channels. In developing countries, mobile network operators are increasingly taking on the role of a digital platform that links different sectors.

Big Techs: 'Big Techs' are the technological giants such as **Apple, Google, Facebook, Amazon and Alibaba** that dominate internet applications. They already have or are looking to gain a strong presence in the financial market, touting new ideas such as the digital currency Libra. In China, they are already the market leader in areas such as payment transactions and SME finance. Big Techs still do not play a major role in the financial sector in developing countries. But this may well change in the coming years given their dominance in the digital field.

Independent networks: **Blockchain-technology-based** networks are up-and-coming actors in the financial market. They do not need a central institution to operate. The financial intermediary is now an alliance of people and/or companies that exchange values with each other based on clearly defined rules or a software application.

II. Our goals – Where are we heading?

Together with our partners, we want to leverage the opportunities offered by digitalisation while safeguarding against risks. In this context, BMZ's **Digital Agenda** sets out to expand digital financial services.¹⁵ Although private-sector actors in the financial sector are key drivers of digital innovations, it is important that we support BMZ's partner countries in actively and collaboratively shaping digital change in the financial sector, in order to achieve sustainable and inclusive development.

WHAT RISKS ARE INVOLVED?

As laid down in BMZ's Digital Agenda, digitalisation can play a key role in triggering positive results, for example in reducing poverty. If left unchecked, however, it can achieve the exact opposite, in the financial sector too. In addition to viewing the opportunities and potentials of digitalisation strategies, it is therefore vital that we **conduct a realistic assessment of the risks involved** for the financial sector.

EXAMPLES OF THE RISKS THAT DIGITAL SOLUTIONS POSE FOR THE FINANCIAL SECTOR

In addition to the risk of **data theft**, there is a risk of **malware** being used to capture data that could be used to carry out unauthorised transactions. This ties in with the frequently complex issue of **liability for any resulting loss**. Digital strategies involve a number of other risks too, however, such as the fact that digital, automated systems may collect information related to very **sensitive, personal matters** that could impact on one's eligibility for a loan or result in insurance loadings/exclusions being applied. Certain

population groups may therefore be **discriminated against** due their gender, origin or ethnicity. It is important to clarify the following: How can we ensure that decision-making processes are transparent? How can they be **demystified**? Are they clear to **consumers**? What forms of redress do they have? Are there **protection mechanisms** in place? A further issue is that of the debt trap. This risk is underlined in a current study by **Brot für die Welt**¹⁶, which warns that **digital loans** in particular could in fact amplify poverty if adequate **consumer protection is not guaranteed**.

This should be done based on the principle of **optimising digital potential while at the same time safeguarding consumer protection and data protection and ensuring the stability of the financial system**.

German DC supports partners in implementing reforms and adapting regulations. The aim here is to **provide incentives while at the same time setting clear boundaries, facilitating fair competition, fostering innovation and safeguarding data protection and consumer protection**. Furthermore, previously **disadvantaged sections of the population**, above all, should benefit from digital change and be protected from any undesirable developments. This applies first and foremost to people living in remote and rural areas, women, migrants and refugees.

German DC is engaging in targeted cooperation arrangements with responsible providers to provide advice and appropriate finance to assist established and new actors in the financial sector – fintechs for instance – in shaping this change. It is also providing financial solutions for putting in place and connecting to the required infrastructure

and offering training for regulators, service providers and customers.

We pursue the following goals:

1. Regulation and responsibility: We support our partners on the ground in establishing the conditions for sustainable and responsible development in digital finance.
2. Access for all: We support private-sector actors and facilitate universal access to the financial sector.
3. Investment and employment: We support responsible, innovative digital financial solutions for job creation and increased investment in MSMEs.

Goal 1: We support our local partners in laying the foundations for sustainable and responsible development in digital finance

The digital revolution undeniably offers huge potential, but it also involves significant risks and challenges such as **data security, cybercrime and consumer protection**. Data security and data protection have a huge role to play if weaker sections of the population are to keep up with developments.

RECOMMENDATIONS FOR USING DATA AND ARTIFICIAL INTELLIGENCE IN THE FINANCIAL SECTOR

On behalf of BMZ, GIZ has published recommendations for **using data and artificial intelligence in the financial sector**.¹⁷ These cover issues such as leadership, cooperation, data awareness, consumer empowerment, accountability

and data security. The recommendations can be used in the regulatory context or for the self-regulation of financial product providers.



In many developing countries, restrictive framework conditions and monopolistic structures – in the mobile phone sector in particular – make it difficult for new actors to enter into the market or for innovators to launch new products. The legislative and regulatory framework frequently lacks coherence. In many cases, regulatory bodies are unable to keep pace with the speed of the decisions made by private-sector actors and this can have a negative impact on customers. Preventative action needs to be taken to remedy this situation.

WHAT SUPPORT MECHANISMS DO WE USE?

To structure digital change in a way that supports sustainable and inclusive development, we support political and regulatory institutions in **developing and putting in place innovative and competitive framework conditions and initiatives to protect personal data**. This includes advice on regulatory requirements for innovative digital financing mechanisms such as **crowdfunding** and on supporting technologies such as **blockchain**. We also

provide advice and appropriate finance to established and new actors in the financial sector, enabling them to shape the change.

BRANCHLESS BANKING AND INTEROPERABILITY IN MOSAMBIQUE

In Mozambique, KfW, on behalf of BMZ, supports **branchless banking** by providing finance for state-of-the-art equipment such as automatic teller machines and point-of-sale devices. It is also planned to assist the Mozambican Central Bank in **ensuring the interoperability of commercial banks and mobile money providers** in order to improve access to the formal financial sector and the efficiency of financial transactions.

We foster **dialogue** and cooperation with the private sector and support the development of best-practice solutions for our partner countries. This helps regulators to develop a clear understanding of the relevant innovations and create a culture of regulation that continually promotes innovation.

We also help supervisory authorities in improving the effectiveness of their oversight activities through technology and, where necessary, provide **funding for investment** in digitalisation at the national and regional level.



DIALOGUE FORUM FOR DIGITAL FINANCIAL SERVICES IN JORDAN

In Jordan GIZ, together with the Jordanian Central Bank and the Digital Financial Services Council, has set up a **dialogue forum for innovation in the area of digital financial services** that facilitates the direct exchange of information between regulators, financial service providers and other relevant actors.

We advocate **adherence to consumer protection and data protection principles in digital finance**. In providing technical and financial support for financial institutions, we aim to ensure that the privacy of customers and their data are protected and that products are marketed transparently and fairly.

Goal 2: We support private-sector actors and facilitate universal access to the financial sector

Despite the progress achieved in financial inclusion, 1.7 billion people worldwide still have no formal account (either a traditional bank account or mobile-based account).¹⁸ This underlines the **limits of traditional, branch-based and therefore high-cost sales model** where poorer sections of the population and people and businesses in remote areas cannot be reached cost-effectively.

Digitalisation creates new opportunities for pro-development business models – both for traditional financial service providers such as microfinance institutions and for banks and fintechs whose existence is based on digital technologies. **New digital technologies and the responsible and more effective use of alternative data can help set up new sales outlets, including in remote areas, develop**

more needs-based financial products, better assess credit risks in sectors that are regarded as high-risk, such as agriculture, and improve usability. In this way, people in rural areas can be identified –using their own mobile phones, for example, or through kiosks and other outlets – and accounts opened, money deposited and withdrawn, and bills paid.

INNOVATIVE SALES OUTLETS AND INTEROPERABILITY IN RURAL AREAS IN GHANA

In Ghana, KfW co-finances investment in rural use of the national payment system 'e-zwich' to provide materials and equipment for innovative sales outlets in rural areas. It does this by providing funding for a new technological solution that facilitates interoperability between different payment systems, including mobile money. This support will help lower transaction costs for all financial service providers, making it financially viable for them to supply poor sections of the population, rural MSMEs and rural areas with financial products, thereby improving living conditions and development prospects.

Digital finance technologies and digital data open up **scope for cooperation** between all financial market participants, thereby helping to optimise potential and achieve development goals quickly and sustainably. In this context, **digital payment transactions** play a key role for innovative business and cooperation models. In a cooperation arrangement between solar companies, payment service providers and financial institutions, the digitalisation of payment transactions enables **households** that are not yet connected to the grid to access **solar systems, for example**.



The use of digital technologies and new data also improves the scalability of insurance products for previously undersupplied sections of the population. For example, cooperation arrangements between insurers, mobile network operators and data vendors in the area of digitalisation (e.g. for weather data) enable small farmers to insure themselves against crop failure for the first time, for low-cost premiums. **Fostering cooperation arrangements** involves bringing together all of the partners involved and eliminating obstacles – such as perceived competition. Digital cooperation arrangements – for inclusive digital payment transactions and other areas – also require **technical integration and the interoperability of systems between the different partners involved**. Fragmented systems drive up costs and restrict competition.

SCALING UP FINANCIAL SERVICES IN VIETNAM THROUGH COOPERATION WITH THIRD PARTIES

Sparkassenstiftung supports the Vietnam Women's Union by providing its members with access to savings accounts and loans. **It is cooperating with Viettel Pay, a private third-party provider, to add digital payment transactions** to its range of services, enabling members to complete payments digitally, quickly and cost-effectively.

WHAT SUPPORT MECHANISMS DO WE USE?

We provide process-related advice and training to financial service providers on developing and implementing digital strategies. The focus here is on **establishing innovative sales models and developing and refinancing pro-development financial products that include innovative credit scoring models**. We offer **needs-based finance** to financial service providers for **hardware and software components** to digitalise business activities and sales models (e. g. to modernise core banking systems and support mobile banking platforms).

TECHNOLOGY-BASED FINANCE MODEL FOR SMALLHOLDERS IN MALI

Via the NGO MyAgro, KfW provides support for a technology-based savings model ('mobile layaway platform') that enables small farmers in Mali to purchase seeds and fertiliser. The model provides an alternative to traditional savings accounts at banks and financial intermediaries, which are usually located in distant towns and cities and are too far away for most small farmers to access. MyAgro encourages farmers to save a little every month to pre-pay loan repayments.

We also provide targeted advisory services and funding to support responsible, inclusive fintechs in providing previously neglected population groups and companies with innovative, affordable and needs-oriented financial services.

DIGITAL FINANCE INVESTMENT IN AFRICA

On behalf of BMZ, KfW is involved in the Partech Africa Fund, which offers start-up capital to help innovative enterprises in Africa fund their growth. The multisectoral fund also provides finance for companies from the e-commerce, education and health care sectors as well as venture capital for inclusive fintechs such as the South African card payment provider Yoco, which has already connected more than 35,000 SMEs to electronic payment systems for the first time, offering them additional services such as accounting systems and short-term working capital finance.

We also support digital cooperation arrangements **using financial technologies in different sectors** based on dialogue forums and the development and implementation of standards for technological integration. **In this way, we bring together companies as well as state and civil society institutions from different sectors**, in order to identify overlaps and implement inclusive cooperation arrangements that offer added value for all.

SALES NETWORKS FOR REFUGEES AND IMPOVERISHED GROUPS IN JORDAN

In Jordan, GIZ works with the local fintech Dinarak on **establishing sales networks**, taking special account of women-led retail outlets, particularly in regions with few or no other providers. These measures reach **poor population groups and Syrian refugees** who find it difficult to access services. In addition to generating positive impact of providing access to universal financial services, these innovative sales models create jobs and alternative sources of income for microenterprises.

We encourage the development of demand-oriented, interoperable payment systems at the national and regional level by providing appropriate **funding for investment in infrastructural components** that can be used universally by all financial service providers. We also provide **needs-oriented finance** for financial service providers to **connect up to central infrastructure** in order to facilitate access to formal financial systems for previously excluded customer groups.

We aim to digitalise financial flows **within German DC** in order to generate network synergies and increase effectiveness. This will not only boost the efficiency and transparency of projects in other sectors, it will also promote financial inclusion and help formalise previously informal economic activities. Points of intervention are to be found in almost all sectors. For instance, the payment of teachers' salaries can be digitalised in the education sector, and in the field of decentralisation, digital payments can help combat corruption and ensure that citizen-oriented administrations receive the funding they need. The digitalisation of taxation and other state payments

contributes to good financial governance by increasing the transparency of public finance.

TRUBUDGET PLATFORM – SUPPORT FOR THE TRANSPARENT IMPLEMENTATION OF PUBLIC INVESTMENT IN DEVELOPING COUNTRIES

KfW is using blockchain technology to build a digital process platform. The TruBudget platform maps the work processes of a specific group of partner institutions (Private Blockchain) in a transparent and forgery-proof manner, allowing projects to be managed more efficiently and sustainably using partner structures. TruBudget is already being used in Brazil and Burkina Faso and is to be rolled out in other partner countries too.

Goal 3: We support responsible, innovative digital financial solutions for job creation and increased investment in MSMEs

Sustainable private sector development is crucial if development and employment are to thrive in our partner countries. Access to needs-oriented finance and insurance in developing countries is key to acquiring finance for important investments, particularly for MSMEs. Obtaining this access remains very difficult, however.¹⁹ According to a 2016 report by McKinsey Global Institute, **scaling up digital credit solutions would result in the release of additional loans worth USD 2.1 trillion to MSMEs by 2025.**²⁰

Digitalisation creates **'alternative' data sources** – on mobile phone credit, digital payments, sales and weather data for instance – opening up new opportunities for

the efficient provision of capital to previously unreached recipients and business segments such as poor households (e.g. small farmers) and informal MSMEs. Alternative data are continuously being generated, e.g. via mobile phones or internet-based payment systems, and can be used by innovative financial service providers and evaluated using algorithms and **artificial intelligence**, in order to assess customers' creditworthiness more accurately, rapidly and cost-effectively. This allows them to dispense with traditional collateral and carry out **credit checks in a matter of days rather than weeks**. Alternative data can also be used to replace **paper-based proof of address/identity**, which poses a significant obstacle for customers trying to access financial services and increases operative costs. It is important to bear in mind however, that the positive impact of alternative data and new technologies such as artificial intelligence will drive sustainable development only if they comply with *legal regulations* on the protection and security of personal data and follow *ethical guidelines for artificial intelligence*.

DATA-BASED LOAN APPRAISAL AND DIGITAL REPAYMENT OPTION FOR LOANS TO SMALL FARMERS IN UGANDA

The develoPPP.de programme with the local coffee buyer Ibero Uganda, which is supported by GIZ, developed an app to help **assess loan applications more efficiently and transfer (loan re-)payments more easily**. Even before Uganda adopted its National Data Protection and Privacy Act in 2019, Ibero Uganda had signed a **joint agreement on data privacy** as a self-regulatory instrument based on the EU's General Data Protection Regulation. Under the agreement, Ibero undertook to use software to optimise data collection

processes. GIZ is also raising coffee producers' awareness of their rights and is training Ibero staff to handle personal data responsibly.



Peer-to-peer (P2P) and crowdfunding platforms also facilitate entirely new forms of finance that do not involve banks. In the case of **peer-to-peer lending**, both the lender and the borrower are private persons. The business relationship is facilitated via online platforms that usually also influence the repayment conditions. In **crowdlending**, an individual or group lends money to another individual or group or to an MSME.

WHAT SUPPORT MECHANISMS DO WE USE?

We support financial service providers in **facilitating credit checks using alternative data and new technologies**. To this end, we cooperate with the private sector to develop corresponding digital systems, train and raise the awareness of consumers such as small farmers and implement the relevant consumer and data protection requirements.

By assessing and using new technologies, we help **improve the efficiency of capital markets** e. g. through technology-based validation of investments for their sustainable impact (using Green Asset Wallet described below, for instance). In this way,

we also boost the transparency of and trust in investment markets that play an important role in development policy in order to further stimulate private investment.

STIMULATION OF GREEN INVESTMENT USING BLOCKCHAIN TECHNOLOGY

Green Assets Wallet is a blockchain-based technology that is used to **validate green investment**. The platform validates green projects (solar systems, sustainable buildings and wind power for instance) by gathering from data sources information about the surface area of solar panels or the number of kilowatt hours of renewable energy generated and verifying the data obtained. The market for green investment in emerging economies is stimulated by building **trust** and increasing **transparency** and **efficiency**.

We also want to **support new forms of finance** such as crowdlending in order to open up opportunities for SMEs in particular to obtain capital for productive investment that creates jobs. This approach not only incorporates SMEs, it also creates alternative investment opportunities for interested small investors with no access to such funding from intermediary financial service providers.

HACKATHON FOR DIGITAL FINANCE IN RURAL REGIONS IN MEXICO

At the start of October 2019, the Sparkassenstiftung held a three-day hackathon in Mexico. During the collaborative event to develop software and hardware solutions, **digital finance services were developed for small farmers and rural finance**. Thirteen innovative solutions were developed and the most promising approaches are to be implemented together

with private-sector partners such as IBM Mexico.

III. What next?

Digitalisation will continue to drive the rapid transformation of the financial sector in years to come. The exact scale of the impact is difficult to predict.

We can assume that new actors such as mobile network operators, fintechs and platforms such as Alibaba, Facebook and Amazon will further expand their market reach in areas such as payment services, the provision of short-term loans using alternative data, intelligent algorithms and artificial intelligence and make headway in new areas such as SME finance. Fintechs will continue to develop their business models and forge cooperation arrangements with traditional financial institutions.

‘PayGo’ approaches that are already firmly established in decentralised energy supply will also expand into other sectors such as agriculture (financing of agricultural machinery) and transport (scooter taxis), offering customers new forms of funding for durable consumer and capital goods.

German DC is committed to shaping this change together with partners on the ground and in international forums so that the opportunities presented by digital transformation will be leveraged for sustainable development and job creation while addressing the risks presented in this context as skilfully as possible. In doing so, we will clearly direct our actions to the needs of disadvantaged and vulnerable sections of the population (such as women, young people, refugees and the inhabitants of rural regions) and MSMEs.

Annex (further project examples):

Goal 1: We support our local partners in laying the foundations for sustainable and responsible development in digital finance

WORKING TOGETHER FOR RESPONSIBLE DEVELOPMENT IN DIGITAL FINANCE

BMZ observes digital trends and assesses their potentials for inclusive and sustainable development in the financial sector. To do this, it engages in dialogue with actors such as the Better than Cash Alliance, the Alliance for Financial Inclusion and the Consultative Group to Assist the Poor (CGAP) and supports implementation of joint initiatives. In November 2019, a workshop was run with CGAP as part of European Microfinance Week in Luxembourg, where the **relevance of cyber security for the financial sector in developing countries** was assessed and the **potential role of development cooperation** discussed.

MOBILE MONEY AND AGENT BANKING IN UGANDA

In Uganda, GIZ assisted the central bank in developing **guidelines on mobile payment services**, which include specific requirements on consumer and data protection. This has helped develop conditions that are conducive to building a **mobile money** and **agent banking** network that has a broader scope than traditional bank branches.

Goal 2: We cooperate with private actors to support sustainable digital financial services and facilitate universal access to the finance sector

INCREASED INSURABILITY OF COTTON FARMERS THROUGH BLOCKCHAIN TECHNOLOGY IN INDIA

In cooperation with Weather Risk Management Services, small farmers in India can use block chain technology to document that they farm cotton sustainably. They can avail themselves of insurance cover against extreme weather events such as drought and flooding, provided that they follow prescribed sustainable production practices. This enables **the scaling up of insurance products for cotton farmers as well as increased production**.

DIGITAL FINANCIAL TRANSACTIONS IN MICROFINANCE INSTITUTIONS IN BHUTAN AND LAOS

Sparkassenstiftung is assisting microfinance institutions in Bhutan and Laos with the **digitalisation of savings and credit transactions**. This improves efficiency, allowing **more time for advice and financial education placement services**. Digitalisation also facilitates more **broad-based services in rural regions**. Opportunities for digitalising institutional processes and offering products on digital platforms are also being identified in order to improve or facilitate equitable financial services above all for small and micro agribusinesses in remote regions.

MOBILE--BASED EXPANSION OF MICROINSURANCE IN GHANA

As part of the strategic alliance between BMZ, Allianz SE and BIMA MILVIK (*InsurTech*), mobile--based innovations for **scaling up microinsurance and medical services for low-income population groups** are being developed and tested, along with digital climate-risk management applications for municipalities in Ghana.

USING HEALTH APP FOR BETTER SOCIAL PROTECTION AND HEALTH RISK MANAGEMENT IN INDIA

Under the partnership between the strategic alliance of BMZ, Allianz SE and BIMA MILVIK (*InsurTech*) and the Indian start-up Medicount, the Health Pass application was developed to help improve the **insurability and health risk management** of low-income population groups in India.

DEVELOPMENT OF DIGITALISATION STRATEGIES FOR FINANCIAL SERVICE PROVIDERS IN MEXICO

As part of a project launched in Mexico in November 2019, Sparkassenstiftung is developing **digitalisation strategies** with decentralised financial institutions and microfinance institutions so that they can find ways of adapting to new digital challenges. An Innovation Lab was set up to support innovation processes in financial institutions.

IMPLEMENTATION OF THE DIGITALISATION STRATEGY OF A FINANCIAL INSTITUTION IN MALI

KfW assists Mali's state-owned National Bank for Agricultural Development (BNDA) in implementing its **digitalisation strategy** in order to expand access to needs-based loans for agri businesses in particular.

SUPPORT FOR DIGITALISING A MICROFINANCE INSTITUTION IN BENIN

KfW is assisting *Faîtière des Caisses d'Epargne et de Crédit Agricole Mutuel du Bénin* (FECECAM) in **implementing its digitalisation strategy**. The bank's rapid digitalisation is playing a key role in boosting the sustainability of KfW's engagement and improving access to appropriate financial services in the agricultural sector.

COMPARISON PORTAL FOR FINANCIAL PRODUCTS IN INDONESIA AND THE PHILIPPINES

DEG finances a fintech start-up that helps provide people in Indonesia and the Philippines with a **range of large-scale, transparent, low-threshold financial products** in order to make specialised products available nationwide, such as health insurance for dengue fever, for example. In addition to phone-based advice for consumers, the platform also offers technical services for financial institutions, enabling differentiated credit scoring and allowing underserved customer groups to be reached, for example.

AFFORDABLE INSURANCE PROTECTION AGAINST FLOODING FOR POOR AND VULNERABLE POPULATION GROUPS

In cooperation with the German Aerospace Center, activities are underway to open up access for poor and vulnerable groups to **large-scale, affordable flood insurance** by making use of automated flood monitoring and satellite technology.

Goal 3: We support innovative digital financial solutions for job creation and increased investment in MSMEs

SUPPORT FOR DEVELOPING SPECIFIC FINANCIAL PRODUCTS WITH MOBILE MONEY IN UGANDA

As part of the Farmers as Entrepreneurs strategic alliance, the microfinance institution FINCA has received support to develop specific financial products for small-scale banana farmers in western Uganda. To simplify the repayment of loans in remote regions, customers are now able to **use the Mobile Money app to repay loans digitally**. This has reduced the cost of monthly repayments from 20,000 Ugandan Shillings (transport costs + 10 hours travel time to the next branch) to 2,000 Ugandan Shillings (Mobile Money charges + 10 minutes travel time to the next agent).

¹ The Global Findex Database 2017.

² McKinsey Global Institute (2016), Digital Finance for All: Powering Inclusive Growth in Emerging Economies.

³ T. Suri, W. Jack. (2016), The long-run poverty and gender impacts of mobile money.

⁴ McKinsey Global Institute (2016), Digital Finance for All: Powering Inclusive Growth in Emerging Economies.

⁵ Ibid.

⁶ Off-Grid Solar Market Trends Report 2018, World Bank Group together with GOGLA (2018) among others.

⁷ <https://www.smefinanceforum.org/post/how-is-ant-financial-closing-the-sme-finance-gap-in-china>

⁸ <https://t3n.de/news/alibaba-singles-day-umsatz-1219692/> (in German)

⁹ Muralidharan, K., P. Niehaus, and S. Sukhtankar (2014), Payments Infrastructure and the Performance of Public Programs: Evidence from Biometric Smartcards in India.

¹⁰ McKinsey Global Institute (2016), Digital Finance for all: Powering Inclusive Growth in Emerging Economies.

¹¹ <https://www.gpfi.org/publications/g20-high-level-principles-digital-financial-inclusion>

¹² <https://responsiblefinanceforum.org/wp-content/uploads/2017/06/RFFVIII-Opportunities-and-Risks-in-Digital-Financial-Services-Protecting-Consumer-Data-and-Privacy.pdf>

¹³ Bitkom (2015), Positionspapier zum Status Quo der FinTechs in Deutschland, <https://www.bitkom.org/sites/default/files/file/import/20151123-Bitkom-Positionspapier-Status-Quo-FinTechs-in-Deutschland.pdf>

¹⁴ The Global Findex Database 2017. The ten countries are: Burkina Faso, Chad, Côte d'Ivoire, Gabon, Kenya, Mali, Senegal, Tanzania, Uganda and Zimbabwe. Account ownership in rural areas is difficult to quantify. According to Findex, the available data indicates higher ownership in urban and peri-urban areas.

¹⁵ BMZ Digital Agenda 'Digitalisation for Development': http://www.bmz.de/de/service/sonderseiten/ikt/ziele_digitalisierung/index.html (in German)

¹⁶ Brot für die Welt (2019), Study – Global Justice 4.0 – The impacts of digitalisation on the Global South, https://www.brot-fuer-die-welt.de/fileadmin/mediapool/blogs/Hilbig_Sven/global_justice_4.0.pdf

¹⁷ GIZ (2018), Responsible use of personal data and automated decision-making in financial services, <https://www.eaid-berlin.de/wp-content/uploads/2018/09/2018-08-22-Responsible-use-of-personal-data-and-automated-decision-making-in-financial-services.pdf>

¹⁸ Ibid.

¹⁹ According to survey by the SME Finance Forum, 131 million formal MSMEs are unable to obtain the funding they require, SME Finance Forum, <https://www.smefinanceforum.org/data-sites/msme-finance-gap>

²⁰ McKinsey Global Institute (2016), Digital Finance for all: Powering Inclusive Growth in Emerging Economies.