PART 1

WHERE ARE WE HEADING?

SECTION 1.1

HOW IS THE GROWTH OF DIGITAL FINANCE LEADING TO THE EMERGENCE OF DIGITAL ECONOMIES?

By François Coupienne

HIGHLIGHTS

- By 2025, unique mobile subscribers will reach 71 percent of the world's population while mobile internet capability will reach 61 percent.
- The development of tailored suites of services for women (SDG5), youth (SDG8), refugees, migrants, elderly, disabled and rural populations (SDG10) in sectors such as agriculture (SDG2), health (SDG3), education (SDG4), water (SDG6) and energy (SDG7) allow Least Developed Countries (LDCs) to develop inclusive digital economies that reduce poverty (SDG1), increase resilience and improve economic opportunities for all citizens.

The past two decades have seen a phenomenal change in the adoption of mobile and digital technology in emerging markets. The sector predicts that unique mobile subscribers will reach 5.9 billion by 2025, equivalent to 71 percent of the world's population. However, a more significant opportunity lies in the associated mobile internet capability reaching 61 percent of the population in the same period.[1] The growing ubiquity of mobile phones has led many people to use them as their primary means of accessing a wide range of services. Still, common barriers such as cost, literacy and availability have prevented many users from progressing beyond basic services, such as calling and messaging. Despite the proliferation of technology, the successful development of inclusive digital economies will only be achieved if all citizens can access and use digital services that positively impact their daily lives.

Inclusion in the digital era is not a given. Technology itself is neutral, and can lead to increased exclusion, depending on how it is deployed and whether it is accompanied by measures to ensure that new forms of exclusion are not introduced. Although digital technologies can leapfrog

[1] Global System for Mobile Communications Association (GSMA), *The Mobile Economy 2018*, London, 2018.

traditional models of market expansion, adoption often depends on whether intended clients understand, accept and perceive the added value from those financial and non-financial digital services. Bridging the digital divide is not a question of pushing access to and usage of technology; it is about taking a user-centric design approach and tailoring the right services to improve people's lives and livelihoods.

User-centric approaches are also improving the adoption of digital and digitally-enabled solutions among people who are new to using mobile phones, or lack access to such devices. These approaches use a combination of digital technology and low-touch delivery by people in the community ('tech and touch').[2] For example, over-the counter services offered by agents have enabled the use of mobile money by many marginalized communities in Africa.[3] In Uganda, Digital Community Entrepreneurs have effectively increased the use of new and previously unknown digital services, such as pay as you go solar.[4]

To achieve the Sustainable Development Goals (SDGs), it is vital that Least Developed Countries (LDCs) succeed in making digital economies inclusive. The development of tailored suites of services for women (SDG5), youth (SDG8), refugees, migrants, elderly, disabled and rural populations (SDG10) in sectors such as agriculture (SDG2), health (SDG3), education (SDG4), water (SDG6) and energy (SDG7) allows LDCs to develop inclusive digital economies that reduce poverty (SDG1), increase resilience and improve economic opportunities for all citizens, including marginalized segments.

THE ADVANCE OF DIGITAL FINANCE

Beyond the extensive use of mobile phones for calls and messaging, there is a rapid increase in the adoption of digital finance globally. This has accelerated in the past decade, led by mobile network operators and digital platforms worldwide. From 2008 to 2019, the mobile money industry recorded 1 billion registered users.[5] Digital platforms, such as Alipay, WeChatPay, Grab, GoPay and WaveMoney, have registered more than 2 billion users for their financial services.

This wide availability of digital finance offers tremendous opportunities for improving the lives of billions of excluded citizens, as illustrated below.

Joshua is a dairy farmer from the Mbarara region in Uganda. His wife Janet and their five children live on a 16-hectare parcel of land 2 kilometres from the centre of the village. Joshua has three cows. Every day after milking them he pushes his bicycle with his milk jugs, which typically contain 20 litres of milk, to the dairy cooperative in his village. At the cooperative, the quantity and quality of the milk are calculated and manually registered in the milk ledger. Fortnightly, the cooperative calculates the amount to be paid to each farmer, at which point Joshua cycles back to receive his USh336,000 (US$91) payment in cash. Back home, he hides part of the money in a pot under his roof; his goal is to buy another piece of land and two more cows. He also keeps USh20,000 (US$5) for the family's day-to-day expenses. In 2018, the dairy cooperative decided to leverage digital technology to increase efficiency. It digitized the milk ledger and farmers' payment process; Joshua opened a mobile money account. Today, the milk ledger is updated via a tablet each fortnight. At the push of a button, the cooperative automatically reconciles the ledger and pays its 234 farmers via mobile money. Joshua does not have to pedal back to town to receive his payment. He has started saving on his mobile money account and now keeps a minimum of cash at home.

[2] https://content.accion.org/wp-content/uploads/2018/10/1122_TechTouch-RO6-Singles.pdf.

[3] http://finclusion.org/uploads/file/FINAL%20SENEGAL%20-%20UNCDF%20MM4P%20Senegal%20.pdf.

[4] www.uncdf.org/article/6446/digital-community-entrepreneurs---going-the-extra-mile-to-close-the-digital-gap-in-rural-uganda.

[5] Global System for Mobile Communications Association (GSMA), *State of the Industry Report*, 2019.

Tui is a vegetable and herbs vendor. She has a stall at the Phontong market in the Lao People's Democratic Republic. Tui recently bought a smartphone and opened a wallet account with a local fintech company. With her smartphone, she exchanges information and tips to improve her business with her peers in social media groups. Her mobile money account has created opportunities to store money digitally and to receive payment via a QR code from her customers.

The list of cases continues in the following chapters. Here you can read more examples about the transformational impact of the digitalization of services, businesses and government.

Photo credit: Shutterstock

DEFINING DIGITALIZATION AND DIGITIZATION[6]

The term 'digitization' refers to the use of digital technology to convert physical information into digital formats for efficiency, such as automating a paper process that already exists.

The term 'digitalization' refers to the use of digital technology to adopt fundamental ways of doing business. Digitalization means overhauling an organization's entire business model, creating better ways of serving clients and partners.

BUILDING INCLUSIVE DIGITAL ECONOMIES

For Joshua and Tui, mobile phone ownership and digital finance have been the primary route to financial inclusion. However, financial inclusion is not the end goal; it is a means to multiple ends. Meaningful digital financial inclusion has to provide outlets for low-income account holders to engage in the economy in order to meet their daily needs and to improve their skills, productivity and marketability in the digital era. Joshua is now keen to have agricultural training to improve the quality and quantity of the milk he produces, as well as a loan to buy another piece of land and more cows, and better access to the marketplace, so that he can buy agricultural inputs and energy for his farm. Cash advances can be provided by buyers to farmers such as Joshua through mobile money and alongside extension services, when they directly enter into purchasing agreements for their produce. To meet unexpected expenses, farmers are often forced to sell their crops early and at poor prices. To address this challenge, Ibero Uganda introduced a mobile money cash advance[7] to help coffee farmers avoid selling early. The introduction of such digital financial services within supply chains can increase farmer productivity and revenue.

[6] United Nations Development Programme, "Future forward: UNDP digital strategy", https://digitalstrategy.undp.org/introduction.html.

[7] Mastercard Foundation, "Lessons learned from Ibero Uganda's approach to financially including coffee farming families", https://frp.org/knowledge-hub/blog/2020-case-study-strengthening-agricultural-supply-chains-through-delivery.

Tui would love to have access to an online marketplace to buy her supplies and have a wider variety of choices. She would like to learn more about financial planning and budgeting, so as to further grow her business, and she would be pleased to have access to better health and education services for her family. For vendors such as Tui, digital financial services can be used to pay for goods online when there is high trust between producers and their suppliers. To fully leverage digital marketplaces in order to expand her source of suppliers, the use of a digital account with an escrow function, where funds are only released upon her satisfactory receipt of goods and services, can be powerful tools to enable economic activity. For example, Alibaba has introduced digital escrow accounts to break down trust barriers and expand activity in its Taobao e-commerce marketplace.[8]

Two decades ago, no government, financial service provider, agricultural input dealer or energy provider would have possessed a business model to offer such tailored services to citizens like Joshua and Tui. The cost of developing a physical distribution network and relationships with low-income customers was prohibitive. Today, 7 out of 10 people globally has access to a mobile phone, unleashing tremendous opportunities. Digital technology offers governments, companies and individuals the possibility of establishing a **one-to-one relationship** with 70 percent of the world's population. It allows the secure exchange of information – to perform transactions, establish dialogue, make payments and share real-time emotions. Furthermore, the data collected enable governments and companies to **tailor services that fit each individual's needs and to continuously refine those services over time,**[9] instead of developing one-size-fits-all services for a whole country. A financial service provider can now analyse Joshua's cash-flow transactions and offer him a tailored loan to expand his business and revenues. An agro-input dealer can access information about his farm and advise him on the best way to increase production. A health service provider could offer Tui remote advice and a diagnosis while she is at home with her family. Tui's children could access specific education content tailored to their age and interests.

There is another significant paradigm change for the future of the digital era. Two decades ago, delivering a service to Joshua or Tui involved making a physical journey to their doorstep. It was a cumbersome process, resulting in limited competition, few options to choose from, and financial services that didn't seamlessly link to their use in the real economy. Now, with a phone in their hand, Joshua and Tui can browse a wide range of digital services offered by various providers. The digital nature of products and services, such as finance, allows for them to be combined and embedded into other digital services, such as agriculture. This shift to digital is blurring the distinctions between sectors (agriculture, finance, energy, etc.), as Joshua and Tui choose the services that bring the most value to accomplish their goals in the real economy, not just the only service available next door.

In the digital era, the future of financial inclusion will not depend exclusively on developing the right payment, the right loan or insurance product. It will be about developing a suite of tailored and interlinked services in various sectors (agriculture, energy, health, education, transport, commerce, etc.) that offer compelling value propositions for each customer. Financial services will not be supplied on their own, but will be a part of a broader range of financial and non-financial services seamlessly embedded together. Joshua, for example, has developed a relationship with an agricultural platform; his interactions provide useful information, such as his use of inputs and production history, which can be used to tailor services to him by banks or other agribusinesses on the platform. This information can support services that address both his financial and non-financial needs, such as those that can help him to improve productivity.

Financial health is a concept that provides a compass for viewing the improvement realized in digital economies. It enables us to look at the impact that we want to have on the inclusive digital economy – impacts associated with the use of financial products and improved access to other critical services, enabled by digital infrastructure and digitally-enabled business models. These in turn lead to increased ability to manage cash flow, absorb shocks, and plan for the future, as well as to access health care, invest in education and have improved economic opportunities.

[8] Bank for International Settlements, "Annual economic report 2019", www.bis.org/publ/arpdf/ar2019e3.pdf.

[9] With the use of data, machine learning and artificial intelligence.

Digital finance is a key foundation for a digital economy that can achieve the Sustainable Development Goals. Now that many more people are digitally connected and providers can serve them, we must ensure that all marginalized segments benefit from these services and that 'no one is left behind'. Digital transformation in many LDC economies is only just beginning, providing the opportunity for all stakeholders to proactively embed inclusion early in the process. By listening to and engaging with women, youth, refugees, migrants, the elderly, disabled and rural populations, we can ensure that digital development responds to their needs. Issues that will determine their inclusion are skills, access to digital infrastructure at the last mile, user-centric innovation, and enabling policy and regulation. The following chapters address inclusion considerations for each of the most critical marginalized segments.

Partnership (SDG17) and innovation (SDG9) must be core components of the digital era, if these new digital financial and non-financial services are to be brought to marginalized groups. Such services are critical to increase the resilience of these people and to improve the economic opportunities available to them. UNCDF is committed to making partnerships and innovations a reality. This report outlines the key issues ahead – and shows that this opportunity is within reach.

"WORKING TOWARDS A HUMAN-CENTRIC DIGITAL FINANCIAL INCLUSION"

By Cécile BILLAUX,
Micro-economic Analysis, Investment Climate, Private Sector, Trade and Employment, EU

Health and economic lockdowns as a result of COVID-19 are severely harming the world's poorest populations and exposing structural flaws in our ability to address some of the most pressing issues. The economic consequences of this crisis have already reversed years of progress to reduce global poverty worldwide[10] and pose serious risks to the effectiveness of the global development system in responding to the crisis.

In our journey towards a 'Build Back Better' recovery, we need to profoundly embrace the opportunities provided by the digital revolution. According to the World Bank Group, an affordable and inclusive digital economy can raise the global gross domestic product (GDP) by 2 percent every year, consequentially reducing poverty if human capital investments are made. Depending on the definition, recent evidence shows that the digital economy represents around 15.5 percent of the global GDP and is forecasted to reach 25 percent in less than a decade.[11]

A sustainable recovery, in which global efforts focus on a green and digital transition, is a strategic objective for the European Union (EU). In this context, stepping up digital financial inclusion is a must to empower the world´s poorest to capture opportunities while building resilience.

[10] World Bank, "COVID-19 to Add as Many as 150 Million Extreme Poor by 2021", 7 October 2020, Available at https://www.worldbank.org/en/news/press-release/2020/10/07/COVID-19-to-add-as-many-as-150-million-extreme-poor-by-2021.

[11] United Nations Conference on Trade and Development (UNCTAD), "Value creation and capture: implications for developing countries" in *Digital Economy Report,* (2019).

Advancing digital financial inclusion for the people living at the bottom of the pyramid means embracing the radical transformation of the financial service ecosystem for the poor. Over the years, there has been a dramatic reshaping in how financial services can better capture people's needs, as microcredit morphed into microfinance and eventually into digital finance and more recently digital financial inclusion.

Through the digital transformation of financial inclusion, new services are emerging and scaling across the spectrum, including health, education, energy, and agriculture. In addition to this continuous transformation, we have witnessed a fierce change in the nature of livelihoods, which has been profoundly altered by factors such as globalisation, demographics, and climate change. It is now fundamental to bring a human-centric focus to this new paradigm shift while embracing the digital revolution.

Within the EU, we have seen the potential for an integrated financial inclusion ecosystem through the Digital Single Market, which has created a competitive and innovative common market for more than 500 million people. With the adoption of the strategic document *'Digital4Development: mainstreaming digital technologies and services into EU Development Policy'*, we are promoting digital economies in the rest of the world. Priority actions focus on affordable and secure broadband connectivity, digital literacy, and entrepreneurship. Each of these priority areas highlight the role of digital technologies as an enabler for the Sustainable Development Goals (SDGs).

Amid the opportunities presented by the digital economy, the digital revolution brings new challenges and risks. This includes a growing digital divide, market disruptions, cyber security risks, and a threat to personal data protection. It is therefore fundamental for development partners to join forces and support the creation of a conducive ecosystem with enabling policy solutions to avoid the expansion of digital inequalities.

Digital financial inclusion can be a powerful source to thrive in the digital economy and stimulate economic progress. Additionally, if combined with digitally-enabled innovations, it could pave the way for new viable markets and economic opportunities for the private sector. This will increase fiscal revenues for governments to alleviate inequalities and extreme poverty among vulnerable populations.

With the emergence of these new trends, it is crucial to enhance conducive dialogue between the public and private sectors. Significant scope exists to increase cooperation between actors to capture new opportunities but also tackle old problems in innovative ways. This approach is a key feature of the new Digital4Development Hub, where key European actors have joined forces to advance the EU Digital4Development Agenda.

The COVID-19 crisis has reiterated the importance of building resilience in local communities by working in a more integrated approach. This means combining financial resources, technical assistance, and an enabling policy environment to support local ecosystems. In line with this, the EU and the Organization of Africa, Caribbean and Pacific States (OACPS) are using an integrated approach to ensure financial inclusion is a key feature in the initial COVID-19 response and economic recovery. Using financial resources, capacity building, and policy, this work can enable a range of digital solutions. For example, the use of digital services can ensure health workers are paid on time or create an efficient digital payment ecosystem so individuals can safely access government support.

Together with UNCDF, we are now exploring how to best deploy transformational and incremental digital finance solutions for more than 600,000 people across the globe.

As the EU, we are ready to continue joining forces with business and development partners to harness the potential of the digital revolution to solve the most pressing development challenges ahead of us.

SECTION 1.2

A MARKET SYSTEM DEVELOPMENT APPROACH TO BUILDING INCLUSIVE DIGITAL ECONOMIES

By Anne Duijnhouwer

HIGHLIGHTS

- In building an inclusive digital economy, we must recognize that the constraints to market development in each country are context specific.
- UNCDF plays the role of facilitator and catalyst in the countries where we operate. With an emphasis on data, we adopt a focused strategy, seeking to build inclusive digital economies that work for all.
- Skills, innovation, infrastructure, and policy and regulation serve as the building blocks that underpin the UNCDF approach and represent the foundation of the inclusive digital economy.

In considering digital services and how they can be expanded, we have come to realize that Kenya is not Uganda, just as the Lao People's Democratic Republic is not Nepal. Institutions are different; each possesses distinct resources, and their culture's unique characteristics have driven the development of digital finance and enabling ecosystems down distinct paths. In building an inclusive digital economy, we must recognize that the constraints to market development in each country are particular, and we should treat them accordingly. The path to digital inclusion for a smallholder farmer like Joshua in Uganda – introduced in the article **How is the growth of digital finance leading to the emergence of digital economies?** – is different from that of a small-scale merchant such as Tui in the Lao People's Democratic Republic.

In some developing markets, an inadequate digital infrastructure is the main barrier to further market expansion, while in other countries efforts may be better focused on leveraging inclusive innovation to meet the needs of end users more effectively, supporting the development of services to reach critical sectors. Examples include pay-as-you-go services to ensure energy access and platforms that engage smallholder farmers, improving their access to critical inputs, so as to enhance productivity and increase revenue. In still other markets, efforts might focus on removing distortions caused by government regulation, such as interest rate ceilings or the failure to pursue a neutral regulatory treatment of technology.

UNCDF's own efforts aim to identify and address unique market constraints in order to accelerate the development of an inclusive digital economy, at local, regional and global levels. Uniquely positioned to help build inclusive digital economies, we play the role of facilitator and catalyst in the 28 countries where we operate. With an emphasis on data, we adopt a focused strategy, seeking to build markets that work for all.

THE MARKET SYSTEMS DEVELOPMENT APPROACH

To foster the growth of inclusive digital economies, UNCDF applies a market development approach. The overall aim is to understand and intervene in market systems in order to address underlying market constraints to the inclusion of marginalized communities and improve efficiency, effectiveness and sustainability. The approach seeks to (i) leverage the roles and behaviours of the existing players in the market, such as users and providers of digital services, supporting them in doing what they do better or differently; (ii) work with current players to provide financial instruments that encourage investment and de-risk new business models in order to make digital solutions more inclusive; and (iii) strengthen the systems and relationships among the various players in the market (e.g. service providers, policymakers and regulators) through, for example, an enabling policy and regulatory environment. Such an environment is critical for strengthening systems, and can be just as important as investment and competition. The delineation of a policy framework for digital services will help to develop these critical systems. See the article **Enabling policy and regulation in Section 2.4** for details of our approach to policy.

In rural Zambia, for example, there were challenges in reaching the last mile to drive adoption of energy and financial services. Agents selling Solar Home Systems (SHSs) were unable to support payments by customers for their solutions and mobile money agents were hard to find. In order to test a new approach to address these constraints, UNCDF partnered with Fenix, an SHS firm, and MTN, a local mobile provider. The strategy involved converting Fenix sales agents into a mobile money agent network, developing the business case for a combined solar sales and mobile money agent network and determining how this network could achieve scale and financial sustainability. The model strengthened the sustainability of agents through increased commissions and greater customer trust and loyalty. Zambia has subsequently seen significant support for the expansion of solar and alternative energy products across the country.

When applied in Zambia across a number of projects that sought to address key constraints to market development, transformative top line results were achieved. In the period from 2015 to 2019, use of financial services by the adult population increased from 4 to 44 percent. The country went from 5 digital financial services (DFS) providers to 18, including mobile network operators (MNOs), banks, microfinance institutions (MFIs) and fintechs. Correspondingly, the density of agents rose to 4.8 agents/1,000 inhabitants in 2019 – a 36-fold increase.[12] In partnership with Fenix, efforts extended to energy and agriculture.

UNCDF's work is based on a decade of experience in improving access to financial services, and building the digital rails essential for the development of new business models to support inclusive growth. With a focus on the key building blocks of a digital economy, progress is tracked through our Inclusive Digital Economy Scorecard, a strategic tool that measures market development, helping to set priorities in the dynamic context of the digital era. See Section 1.4 - **Measuring and tracking progress of inclusive digital economies.**

ORGANIZATION OF STRATEGY AND CUSTOMER FOCUS

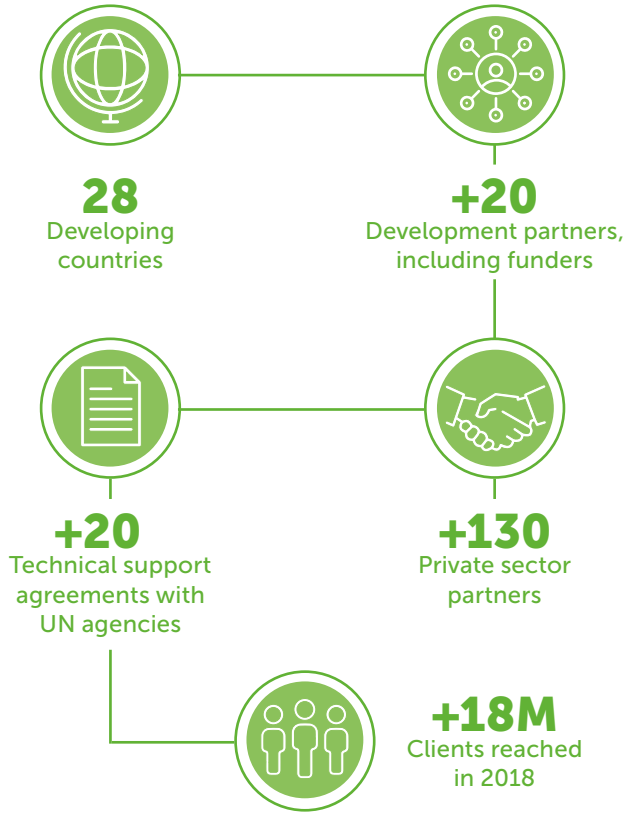
Complementary and reinforcing, the four building blocks underpinning the UNCDF approach represent the foundation of the inclusive digital economy:

- Skills – providing customers with the knowledge, skills, behaviours and autonomy to access and use digital tools and financial products in a meaningful way;
- Innovation – developing business models and services that address customer needs across various sectors (finance, agriculture, health, education, energy);
- Infrastructure – strengthening the digital rails (device ownership, mobile networks, distribution network, access to energy, digital ID) and reducing the digital divide;
- Policy and regulation – developing digital economies characterized by inclusive policies and regulations that enable access to and usage of digital services.

[12] Mastercard Foundation and UNCDF, *Five years of Market Development in Benin, Senegal and Zambia (2015-2019)*, 2020, www.uncdf.org/article/5317/five-years-of-market-development-in-benin-senegal-and-zambia-2015-2019.

An organizing principal in UNCDF's efforts is the lens of customer centricity, putting the needs of the end-user – the customer – front and centre. We do this by mapping the customer journey within segments to identify barriers at the customer, provider, infrastructure and policy level. The focus is on client needs to highlight broader opportunities to support usage and establish profitable business cases for the provider. This in turn guides efforts to remove constraints, which can include innovation challenges with the private sector to meet particular segment needs or involve policymakers in learning first-hand about relevant issues. Customers like Joshua and Tui, of which there are many, may have limited means, but they have immense needs.

FIGURE 1.
UNCDF in action



As an experienced actor, UNCDF has targeted its substantial assets to address constraints to market development that limit inclusion, driving positive impact for end clients across multiple segments and sectors:

- Supporting providers – addressing constraints faced in the delivery of services to small businesses, strengthening the ecosystem to better serve vulnerable populations;
- Encouraging and de-risking investment – improving last mile distribution of solutions by helping providers to develop a viable commercial model;
- Strengthening systems – enhancing market insight for policymakers to inform decision-making, tracking progress towards financial inclusion goals, and achieving better regulatory balance.

REMOVING UNIQUE CONSTRAINTS TO MARKET DEVELOPMENT

Innovation addressing client needs is critical to realize the promise of the digital economy. Several examples of UNCDF efforts, addressing constraints along with their impacts, are highlighted in the following paragraphs.

In Benin, there was an opportunity for several financial service providers to better address client needs. Their products required significant travel and wait times, wasting precious client time, which could be used for other purposes. In particular, the challenge was addressed by helping UNCDF's MFI partner to understand the value of working with a mobile network provider, so as to lower travel and wait times. The end result was a partnership, unlocking the value of MNOs' digital channel for the MFI. Clients saved time by making loan payments through their mobile phones, rather than queuing at the MFI branches.

Overall, UNCDF was involved in six projects in Benin focusing on client challenges, mobile money agents and their distribution networks and finally, helping new providers to enter the market. Our efforts cut across a number of constraints to help develop the enabling financial ecosystem. We hosted seven learning events and working group meetings to advance critical efforts such as partnerships and fintech. The projects helped to evolve products from those providing basic services to mass market DFS products and more

advanced products, such as bank to wallet and IDE (Inclusive Digital Economy) advances such as mHealth.[13] Over a five-year period, these multiple efforts helped to increase DFS users from 2 to 40 percent of the population in Benin. DFS providers in the country increased from two MNOs at the outset to six providers, including banks, an MFI and the post office – coupled with a 65-fold increase in the density of agents.[14]

Ensuring that DFS delivers digital financial inclusion requires a solid agent network. In Senegal, the lack of a viable commercial model challenged the extension of agents to rural areas. UNCDF provided financial and technical support to help local fintech startup InTouch to develop a rural agent acquisition strategy. Through the DFS working group that UNCDF set up in Senegal with the Ministry of Finance and the Central Bank of West African States, we introduced InTouch to potential partners, to facilitate growth through collaboration. Our partnership with local MFI Partnership for Mobilizing Savings and Credit in Senegal (PAMECAS) sought to develop a more advanced digital financial offering to provide Intouch agents with unsecured credit.

A credit scoring model developed with PAMECAS facilitated enhanced decision-making and risk management. These capabilities enabled unsecured lending to Intouch agents, youth and women who lacked the collateral necessary to initiate or expand their agent business. As a result, InTouch exceeded its target of 26 rural agents, reaching more than 550, while serving close to 300,000 customers in rural areas. UNCDF efforts in Senegal cut across a number of constraints to further the development of the financial ecosystem. In the period 2015 to 2019, use of financial services by the adult population increased from 13 to 29 percent. The number of DFS providers increased from 4 to 22, including the emergence of new players such as banks, fintechs and the post office. Support for IDE included initiatives in the agriculture sector. Overall, there was a 19-fold increase in the number of mobile money agents.[15]

An enabling policy and regulatory environment reduces costs, while promoting innovation and consumer interests. Aside from support for policy implementation, the technical, political and financial capacities of the public sector need to be sustained as a prerequisite for the mass adoption of digital services. In Zambia, for example, the data capabilities of the regulator did not provide the necessary insights to inform policy and decision-making. This made it difficult to track progress of the country's financial inclusion strategy, or to balance the strategy with its additional risk. UNCDF supported the development of a flexible DFS data system[16] to generate better insights through improved market visibility. This enabled the nation's central bank to monitor implementation of the national financial inclusion strategy. Enhanced market visibility enabled informed data-driven decisions and facilitated increased competition. These efforts, coupled with other initiatives, helped to advance the enabling DFS ecosystem in Zambia.

WORKING ACROSS ECOSYSTEMS

These examples highlight UNCDF's work to address constraints to market development. Our experience points to the need to work across an ecosystem. Efforts, which are elaborated in the next chapter, focus on developing customers' skills and inclusive innovation, while developing infrastructures and enabling policy and regulation to balance the benefits of inclusive growth with the risks of digital innovation needed to drive growth. Our approach is grounded in data and puts the needs of the customer front and centre. Such targeted efforts seek to develop better functioning markets that benefit all, leaving no one behind. The approach aims to understand and intervene in market systems to address underlying market constraints, so as to include marginalized communities and improve efficiency, effectiveness and sustainability.

[13] mHealth is an abbreviation for mobile health. It refers to the use of mobile devices to support the practice of medicine, the delivery of medical care and public health efforts.

[14] Mastercard Foundation and UNCDF, Five Years of Market Development in Benin, Senegal and Zambia (2015-2019), 2020, www.uncdf.org/article/5317/five-years-of-market-development-in-benin-senegal-and-zambia-2015-2019.

[15] Ibid.

[16] www.uncdf.org/admin/editors/ArticleItem/Index/4820?articleTitle=introducing-the-dfs-data-automation-system-bank-of-zambia-and-uncdfs-data-automation-solution.

THE REPUBLIC OF UGANDA
MINISTRY OF ICT & NATIONAL GUIDANCE

DIGITAL TRANSFORMATION IN LDCS: THE ROLE OF GOVERNMENT IN SUPPORTING DIGITAL TRANSFORMATION

By Honorable Vincent Bagiire, Permanent Secretary, Ministry of ICT and National Guidance

The world over, the cardinal duty of governments in supporting the transformation and development of any given sector remains unchanged – to put in place an enabling environment in which all players and stakeholders from both the public and private sectors have little or no limitations in their pursuit of excellence. Overall, an enabling environment can be actualized through formulating and enacting policies and regulations that favour rather than hinder the activities and programmes that build a particular sector. This is indeed true for the development of the broad ICT sector and digital transformation in Least Developed Countries (LDCs).

Without a doubt, digital transformation is a critical and topical issue today that all governments ought to give prominence. It continues to claim more space as a prerequisite to one's full engagement in the twenty-first century. Unfortunately, in many LDCs, the digital economy is disconnected from the 'traditional economy'; and in most cases from the state with digital innovation being left to 'young innovators', and the innovators not looking to governments for direction. To analyze the role of governments in supporting digital transformation in LDCs, we need to answer the singular most important question: Do governments in LDCs consider digital transformation a worthwhile pursuit? Is digital transformation a priority in the governments' overall development agenda?

Digital transformation as a driver of the national development agenda: lessons from Uganda

Digital transformation is a major enabler for sustainable development in growing economies. The role of digital in economic transformation becomes even more profound in a country like Uganda, where more than 77 percent of the population is below the age of 30 and with a literacy rate of 89.4 percent (in 2018). Despite the undisputed place of digital transformation in revolutionizing livelihoods – from transforming the way we obtain information, do business, study, communicate, receive services to how we consume entertainment – digital has not always attracted sufficient budget allocation within most LDCs.

The government of Uganda's commitment to actualize digitalization as a critical cog in the development agenda of Uganda can be seen from the sector's growth trajectory over the years. The establishment of a fully-fledged Ministry of ICT in 2006, consolidating the leadership of ICT strategies and harmonizing policy development, laws and regulations demonstrates the instituting of the sector as high priority in accelerating national development.

Indeed, the government of Uganda has continued to duly position digital transformation as a strong contributor to Uganda's Vision 2040 – where Uganda aspires for a "transformed Ugandan society from a peasant to a modern and prosperous country." In the recently completed National Development Plan (NDP III), ICT is identified as a "fulcrum of development, an accelerator, amplifier, and augmenter of change"; with a huge potential to improve national productivity by making government and business enterprises more efficient, effective and globally competitive.

Creating policies and regulations for the digital era

There is no doubt that realizing benefits from digital transformation calls for investment in complementary factors such as enabling policies, human capital, new institutions and infrastructure. However, while the digital economy is constantly and quickly evolving, policy formulation does not happen as fast. For governments to promote a dynamic ICT ecosystem, there is a need for agility in creating policies that facilitate operations of a dynamic digital economy.

Over the years, the government of Uganda has enhanced the policy, legal and regulatory environment of ICT through the establishment of a National ICT

Policy, the National Broadband Policy, Data Protection and Privacy Act and several regulations under the Uganda Communications Act and the National Information Technology Authority Uganda Act.

The enabling environment has seen the ICT sector grow at an average growth rate of 14.8 percent with significant growth seen in areas of use of mobile devices, computer applications, information processing, storage and dissemination as well as mobile finance, global connectivity and online trade.

While development partners have been key in supporting digital transformation in Uganda, like in many other sectors, there is always a risk of working in silos and duplication of efforts. To mitigate this, the Ministry of ICT has established and formalized the ICT sector working group to ensure efficient utilization of resources within and across sectors. The ministry is also developing the Digital Uganda Vision that provides a unified direction for ICT and aligns ICT investments in various sectors.

Building e-government capabilities

LDCs have the opportunity to harness the power of digital transformation to make service delivery more efficient, and enhance transparency and accountability. As COVID-19 further accentuates the case for digital transformation that some public institutions have been sceptical about, digitalization of government and its services is no longer an option. In Uganda, improvement of National Backbone Infrastructure (NBI) has paved the way for improved connectivity and e-government service delivery across the country. The ministry of ICT is now focusing on mainstreaming ICT in all sectors of the economy, and digitalization of service delivery.

Supporting research and innovation

LDCs must facilitate the creation of an ICT innovation ecosystem and marketplace for innovative digital products, and support commercialization of local knowledge products. While Uganda has embraced ICT research and innovation by supporting the creation of innovation hubs and workspaces countrywide, innovative initiatives seldom reach the market realization stage. Support to innovators needs to go beyond technical assistance and grants towards the establishment of an open multidisciplinary ecosystem that nurtures sustainable innovations that can thrive and reach scale. Mobile money, which has revolutionized digital financial inclusion in Uganda, is a perceptible example of how innovation can facilitate effective, efficient and sustainable development.

Fostering an inclusive digital economy

The lessons and successes notwithstanding, Uganda still remains one of the countries with the lowest ICT Developmental Index at 1.94 (ranked 152 out of 176 in the world). The limited network coverage, high costs of devices and internet, limited access to energy and inadequate digital skills among others put a big population of Ugandans at risk of being left out of the digital economy. As part of the NDPIII digital transformation agenda, the Ministry of ICT is working to achieve a digitally enabled modern society that empowers citizens to enjoy access to affordable digital services and content. The government of Uganda recognizes its duty to ensure that citizens are empowered to take advantage of the opportunities that digital transformation offers, while at the same time protecting them from the risks it presents. We are continuously assessing the current policies and regulations to determine further policy reforms. Leveraging the Inclusive Digital Economy Scorecard developed by UNCDF, the Ministry of ICT is committed to measuring and tracking the level of development and inclusiveness of Uganda's digital economy, to ensure that efforts towards driving digital transformation reduce and not exacerbate the digital divide.

SECTION 1.3

DATA, THE LIFEBLOOD OF INCLUSIVE DIGITAL ECONOMIES

By Robin Gravesteijn

HIGHLIGHTS

- Data can facilitate the paradigm shift to inclusive digital economies by informing a customer-centric approach to the crafting of robust value propositions that meet customer needs in new sectors across the economy.
- It will be important to identify new risks that may be introduced by data, so that we may mitigate these in a thoughtful way, enabling us to advance efforts to realize the promise of digital economies that leave no one behind.

Access to digital technology is increasing rapidly in developing countries. This trend has been accompanied by a surge in the volume and quality of data available to citizens, the private sector, development partners, policymakers and regulators. The vast amount of data generated by digitization, as well as the ability to collect it in real time and use it in new solutions and business models, is a game changer.

Data are being generated in many parts of people's lives, and are most plentiful where they have the deepest digital engagement. For example, as farmers turn to digital platforms for agronomic information and market access, these platforms gather insightful information on them. This information, especially when combined with data from other parts of their life, can be important for tailoring financial services. A case in point is that of open application programming interfaces (APIs), which standardize data capture and provide access to an expanding array of data sources that have emerged – greatly improving the ability of digital platforms to integrate and embed financial services provided within their broader offering to customers.

These data can help us to understand human behaviours and needs, and to develop innovative solutions addressing those needs, helping to expand consumer choice. In many least developed countries (LDCs), data bring visibility to larger parts of the economy, in particular the informal sector, improving our understanding of the market landscape and informing evidence-based policy. Data also create new risks – to their safe storage and usage, to personal

privacy, and the risk that we will lose control of our personal information. There are important policy and regulatory decisions to be made regarding data that will determine whether the full potential of an inclusive digital economy will be achieved. We need to address these risks, ensuring that as we harness the potential of data for inclusive digital growth, the risks around data are mitigated.

DATA STORAGE COSTS HAVE DECLINED SHARPLY AS COLLECTION METHODS HAVE PROLIFERATED

Cost reductions have spurred the capture of data from many aspects of our lives. Traditional consumer activities that have been digitized, such as making purchases and banking, as well as new activities like using mobile phones, browsing the Internet, and connecting and sharing through social media, generate data that are being captured and analysed. As sectors digitize, on the production side we observe people accessing work and earning income through platforms, as well as micro, small and medium enterprises ordering supplies, tracking inventory, and marketing on social platforms. Cost reductions for storage and processing have fuelled exponential growth in data capture and information creation, with 90 percent of the world's information accumulated in the last two years alone.[17]

DECLINING COST OF PROCESSING DATA AND ADVANCING ANALYTICS CAPABILITIES

Conducting mobile phone-based surveys with remote customers is cheaper than ever, dropping to US$3 per interviewee in Nepal. New techniques are being deployed to leverage these new data, for example, combining different demand and supply sources, to generate new views. Data analytics capabilities have advanced and are more easily available, including new channels such as third-party platforms. Digitization has fuelled the increased availability of big data (such as location data, e-commerce trails, social media conversations), which together with computational advances in analysis software and the use of unstructured data, is driving more granular, real-time understanding of customers and markets. The increased size of our data footprints has helped to advance financial inclusion and is pivotal to building an inclusive digital economy. Governments and people may not always be ideally positioned to reap the benefits of data, and UNCDF is helping to improve their ability in this respect. For example, our efforts have informed landscape analyses, mapping out financial service networks, identifying market gaps and opportunities to address them.

DATA CAN BENEFIT CITIZENS, THE PRIVATE SECTOR AND GOVERNMENTS

However, not all data may be available or accessible. The digital divide can prevent access to digital services, forcing individuals to rely on traditional analogue services and preventing the cost-effective digitization of data. In other cases, the problem may be lack of enabling open digital infrastructure (such as open data systems, open APIs, and interoperability) – infrastructure that facilitates the sharing of data between ecosystem partners. For more details, see the article **Enabling infrastructure for inclusive digital economies** (Section 2.2), particularly the section on Open digital infrastructure.

Nevertheless, data are advancing our efforts to build inclusive digital economies in several dimensions. Digital services are generally cheaper, more automated and generate more accurate data that can be systematically collected. These efforts can be enabled through open APIs, which facilitate the ability of systems to efficiently communicate, providing access to data that would otherwise be daunting to find. In Uganda, the development of open APIs is at an early stage,[18] and in 2020 UNCDF organized a workshop in Kampala for critical stakeholders, highlighting the importance of fast-tracking interoperability between companies – through APIs – to the growth of digital economies.

[17] Forbes, "How much data do we create every day? The mind-blowing stats everyone should read", www.forbes.com/sites/bernardmarr/2018/05/21/how-much-data-do-we-create-every-day-the-mind-blowing-stats-everyone-should-read/#:~:text=The%20amount%20of%20data%20we,in%20the%20world%20was%20generated, 21 May 2018.

[18] UNCFD, "The next stage of Uganda's digital economy will be powered by open APIs", www.uncdf.org/article/5281/the-next-stage-of-ugandas-digital-economy-will-be-powered-by-open-apis, 16 January 2020.

The digitalization of business models provides opportunities to craft and deploy truly innovative solutions. Products and services can be configured in robust value propositions. Data can enable digital and financial service providers to effectively offer value to people and enterprises, delivered through business models that organize economic activity in new ways.

One example is linking savings and other financial services directly to health, education, agriculture and transportation services to address unmet needs.[19] As is happening in Nepal, where a UNCDF agricultural initiative is helping smallholder farmers gain access to affordable solar water pumps through a Pay-as-you-go solution enabled by mobile payments. See the article **More productive and resilient agriculture enhancing food security** (Section 3.6). New sources of data may serve as substitutes for traditional data. For example, psychometric data can overcome challenges presented by the lack of decision-making data on young borrowers – in turn, facilitating lending to promote their entrepreneurial endeavours. See the article **Creating pathways to economic opportunity for youth** (Section 3.2).

Customer-centric approaches and product personalization made possible by data enhance the economic viability of solutions and business models, improving our ability to reach the last mile. In this digital era, data are the lifeblood of inclusive digital economies.

An informed citizenry with more choices about how to meet its needs will make better decisions. Better information enables citizens to make more informed choices, with confidence because they are grounded in truth. Those may be decisions about their health, with patients able to understand symptoms and take appropriate measures. Equally, it may relate to the weather, allowing farmers to take decisive action on harvests, or to the level of pollution in a city and the best available options for commuting. Access to better information enables citizens to understand the consequences of their choices, and to assess these, such as their impact on certain Sustainable Development Goals (SDGs), in an informed manner.

Data can spur and drive innovation. They not only help providers to improve existing services, but enable the development of new solutions focused on client needs, using approaches such as human-centred design. Data can lead to new ways of performing existing activities, enabling new business models that improve the commercial viability of reaching the last mile. This innovation is evidenced by the fintech revolution. For example, financial services such as savings and credit can be tailored to women micro-entrepreneurs in the informal sector to align with their specific enterprise, life cycle, gender needs and sector. In a recent gig worker challenge we focused on identifying solutions to reduce the economic risks of gig workers in Malaysia and improve their labour mobility. One solution that emerged was from Pay:Watch. The firm partners with employers and banks to provide gig workers with instant access to earned wages, in real time before pay day. This low-cost bank financing ensures gig workers do not have to turn to expensive informal lenders. Pay-as-you-go for services such as clean energy is another example of new emerging models. See the article **Enhance access to affordable and clean energy through digital innovation and technology (Section 3.7).**

Data support more accurate and transparent programme monitoring, which in turn can crowd-in investment resources. For example, UNCDF has developed both a national view and separate project dashboards. The application has helped to visualize and analyse the current status and trends in usage of mobile money, enabling us to prioritize country-, district- and lower-level interventions with our partners.

The easy capture, storage and analysis of proliferating data improve our ability to assess policies and to develop evidence-based policy. They also help to inform new approaches to public services. For example, enhanced data capture provides more transparency in education, helping to drive reforms. It can inform reforms in the delivery of health care through greater supply chain transparency and provider efficiencies – see the article on **Better health through the use of digital solutions** (Section 3.9). It improves the ability to track progress towards policy goals such as financial inclusion, an inclusive digital economy and the SDGs. In Nepal, after the devastating earthquake of 2015, the Nepal Rastra Bank developed a regtech solution in partnership with UNCDF, mapping active financial access points across the country.[20] The platform addresses the data and analytics challenges faced by the central bank, financial institutions and stakeholders. It not only supports the country's efforts in the wake of a crisis, but also improves financial inclusion efforts in Nepal by highlighting where services and access are still lagging, encouraging market players to take action.

[19] UN Taskforce on Digital Financing of Sustainable Development Goals, "People's money: harnessing digitalization to finance a sustainable future" (United Nations, August, 2020).

[20] *Nepal Financial Inclusion Portal*, www.uncdf.org/article/4158/nepal-financial-inclusion-portal.

The use of data helps to foster greater competition by reducing the barriers to entry in different markets. For example, new disruptive solutions enabled by data can pave the way for the entry of new firms. New business models address market failures, expanding the size of markets, while creating opportunities for new entrants.

RISKS FROM DATA MUST BE RECOGNIZED AND ADDRESSED

The tremendous potential of data must be balanced with the increased risks that they present. The speed at which digital economies are evolving poses challenges to regulators and policymakers, as the current landscapes are not configured to enable digital innovation that is balanced with adequate risk management. The regulatory landscape in many LDCs still lags in the formulation of adequate data privacy and protection laws, necessary to support innovation, and at the same time safeguard privacy, which is critical to building trust in digital technologies.

Data need to be harnessed to enable citizens to make more informed decisions in their daily lives. Client protection must be ensured through effective data management, supported by good governance. Data ownership and permissible use must be clarified; Europe and India are currently at the forefront of such efforts.[21] In India, for example, citizens have underlying ownership rights to their data and new licensed entities are emerging to share their data with providers, based entirely on user consent.[22] Initiatives such as these, which empower customers to choose how their data are used as they seek financial or other services, are new and offer policymakers around the world important examples of how their choices today can shape the digital economy for years to come.

In LDCs, digital and financial literacy rates are often lower than in developed countries, increasing the importance of such safeguards. Large volumes of personal and behavioural data held by various actors create more opportunities for leakage, exposing citizens to threats that could undermine trust in digital technology – trust that is critical to efforts to build the inclusive digital economy.

THE PATHWAY FORWARD

Data are at the core of the shift from financial inclusion to inclusive digital economies. They enable us to leverage and build on the payment rails, expanding on progress in financial inclusion to build inclusive digital economies. Data facilitate this paradigm shift, by informing a customer-centric approach to the crafting of robust value propositions that meet customer needs in new sectors across the economy (such as agriculture, energy, health, transport). Digital technology enables us to assemble the necessary components, while data serve as the glue holding them together.

While we embrace the promise of data, and the potential that they possess for building inclusive digital economies, we must remain vigilant. It will be important to identify new risks that may be introduced by data, so that we may mitigate these in a thoughtful way, enabling us to advance efforts to realize the promise of digital economies that leave no one behind.

[21] European Parliament and Council of European Union, *"Regulation 2016/679, 2016"*. Republic of India, "The personal data protection bill", 2018.

[22] Bank for International Settlements (BIS), "The design of digital financial infrastructure: lessons from India", BIS Paper 106, 15 December 2019.

DIGITAL GIANTS AND THE SUSTAINABLE DEVELOPMENT GOALS

By Jonathan Donner,
Senior Director of Research at Caribou Digital

When Google was founded in 1998, 3 percent of the world's population was online. Fourteen percent was online by 2004, when Facebook was founded.[23] While it takes many organizations to create a thriving digital ecosystem, these two companies, along with a few other peers from China and the US,[24] are central to the internet experience of the growing ranks of first-time and mobile-only users around the world. In 2021, as the world has notched 50 percent online and its fourth billionth user,[25] it is important to understand the unique roles the digital giants play in building inclusive digital economies and achieving the Sustainable Development Goals (SDGs).

The digital giants are not just 'platforms.' They are also what some call 'super platforms,'[26] constellations of interconnected products and services, leveraging deep pockets, talent, operating systems, hardware, infrastructure, platforms, data and AI to offer a multitude of mutually reinforcing products and services to billions of users, many of whom consume them 'for free' (without payment, instead in exchange for advertisements, data, and attention).

The sheer size of these digital businesses, and the scope of the services they offer, makes it both difficult and important to think carefully about them. As they have come to mediate so many elements of the economic and social spheres, their services support many of the SDGs. For example, satellite imaging can improve sustainable agriculture (Goal 2).[27] Mobile-based personal wellness monitoring[28] and disease surveillance[29] can help ensure well-being (Goal 3), and 'Smart cities' may soon help make human settlements more inclusive, safe, resilient and sustainable[30] (Goal 11).

As companies, too, these digital giants participate directly in "the Global Partnership for Sustainable Development" (Goal 17). Facebook has a new initiative called, accordingly, Project17, focused first on gender equality (Goal 5).[31] Google is a partner on several SDG initiatives,[32] and Microsoft is leading by example, committing to be carbon negative by 2030 (Goal 13).[33]

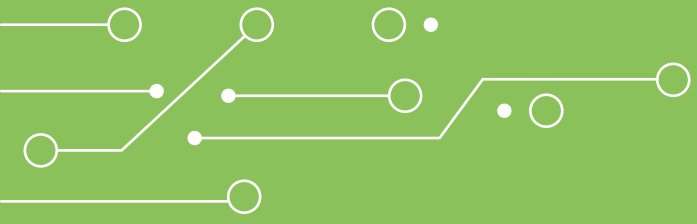
Against this rather complex backdrop of activities, this article focuses on three SDGs to highlight reasons for considerable optimism, as well as measured concern, for the ways in which these digital giants may support inclusive digital economies.

Deploying Infrastructure

Several of these giants are central to the infrastructure and innovation systems underpinning Goal 9, especially relevant to Target 9.c: *universal and affordable access to the internet*. Specific technologies include everything from undersea cables to urban rings to new low-Earth orbit satellite solutions to promote more universal access. These companies continue to advance the boundaries of affordability and access.[34] A similar logic underpins their role in financial services—the giants have a role to play in addressing the 'unbanked' just as they do with the 'unconnected'. Facebook's efforts to offer a global cryptocurrency may have stalled, but its WhatsApp payment functionality is live in India and Brazil. Alibaba's Alipay, too, is supporting a revolution in payments. The march towards increased accessibility and affordability of digital tools and the internet itself continues, led in no small part by the digital giants.

Making Inclusive Markets

Goal 8 is to *promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all*. Here, there is promise in new 'platform livelihoods.'[35] Some giants (and many smaller platforms) are revolutionizing e-commerce, allowing microenterprises to sell goods online, either via formal marketplaces or informally via messaging and social media, in a widespread practice known as social commerce. A similar dynamic plays out in labour markets, where people find 'gig work' in freelancing, ride-hailing, delivery, and all manner of local services. An inclusive digital economies agenda here would seek to ensure that these marketplaces not only increase consumer choice and lower prices, but also provide market access and reliable incomes to small enterprises,



and secure, dignified working conditions for individuals. To be clear, this balance is a work in progress, and a combination of carrots (partnerships) and sticks (regulations) will be necessary to make sure these markets are fair and not exploitative.[36]

Upskilling a Generation

Goal 4 focuses on *equitable access and lifelong learning*. Platforms, including the giants, are developing upskilling programs for gig workers and small-scale sellers and creating training materials like Grow with Google and Facebook for Business that teach valuable business skills to entrepreneurs.[37] Meanwhile, in K-12 learning, advancements in e-learning continue, accelerated by COVID-19 and the demand for remote instruction. Google's YouTube platform hosts a vast array of third-party content. Khan Academy on YouTube is just one great example here: clear, concise instruction in mathematics, available 'for free' in English, Portuguese, Hindi, Spanish and Gujarati.

Remaining Challenges

Two caveats are in order. First, this article is too brief to explore all the permutations of digital giants' engagement with the SDGs. Second, it is critical to simultaneously acknowledge some ways in which the current digital ecosystem actually works against the SDGs—for example, in hosting and spreading disinformation,[38] in underestimating the risks of AI bias[39] and in allowing skewed competition,[40] there are substantive critiques of the digital giants which cannot be ignored by the digital development community.

Yet the examples above illustrate how the world's largest digital companies are playing an important, albeit complex, role in the world's advancement towards an inclusive digital economy.

To frame a closing challenge, though, note the absence of Goal 1—ending poverty in "all its forms, everywhere"—from this list. The digital giants were built to advertise to the first billion, to bring groceries or airport rides to the first billion, etc. Given the lack of purchasing power among the world's most poor, vulnerable digital businesses, large and small, will struggle to find business rationales to directly and profitably serve the last billion.[41] Even the gig workers and microenterprises finding new digital livelihoods are not (yet) members of the last billion—they are still mostly urban, and mostly young. Of course, the digital giants have the advantage of scale, and may be better positioned to offer digital connectivity and services 'for free' to the poor, but this is not the same as offering services tailored to or for the poor.

Thus, continued innovation by the digital giants that extends transactional business models and lowers the cost of acquiring and serving customers is required to include and serve the last billion. Innovations like Reliance Jio (nearly free internet) and MPESA (sachet-based financial services) are promising and important exceptions to tech's focus on middle-and high-income users. But there remains a risk of technologies continuing to exacerbate separation between those who are able to take advantage of these technologies and those who are not, and, in the case of the current digital giants, those who are valuable to advertise to and those who are not. In the longer run, a failure to make technologies work for everyone, even outside the market incentives to do so, may end up leaving a subset of our world on the outside looking in, and perhaps even poorer for it. It is precisely the job of the digital development community to be aware of this tension and the persistence of a digital divide, and not to put all its faith and eggs in the (market) basket of the business logics of the giants, while working productively with them to build a better and more inclusive digital economy for everyone.

[23] ITU, "Individuals Using the Internet (% of Population)," World Bank Data Bank, 2021, https://data.worldbank.org/indicator/IT.NET.USER.ZS.

[24] There are overlapping lists of digital giants.

[25] ITU Development Sector, "Measuring Digital Development: Facts and Figures 2020" (Geneva: International Telecommunication Union, 2020), https://www.itu.int/en/ITU-D/Statistics/Documents/facts/FactsFigures2020.pdf.

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[31] Marne Levine, "Helping to Close the Gender Data Gap," Facebook Newsroom (blog), March 10, 2020, https://about.fb.com/news/2020/03/closing-the-gender-data-gap/.

[32] (A listing where the government/entity/organization Google is listed as a partner, 2021; Google, 2021); United Nations, "A Listing Where the Government/Entity/Organization Google Is Listed as a Partner," SDGs partnerships platform, 2021, https://sustainabledevelopment.un.org/partnership/partners/?id=10449; "Google," Business for 2030: Forging a Path for business in the UN 2030 development agenda, 2021, https://www.businessfor2030.org/google.

[33] Brad Smith, "Microsoft Will Be Carbon Negative by 2030," January 16, 2020, https://blogs.microsoft.com/blog/2020/01/16/microsoft-will-be-carbon-negative-by-2030/.

[34] Alliance for Affordable Internet, "Members," 2021, https://a4ai.org/who-we-are/members.

[35] Caribou Digital and Qhala, "The Quality and Experience of Platform Livelihoods: A Literature Review for Digital Development" (Farnham, Surrey, UK, October 2020), https://www.platformlivelihoods.com/wp-content/uploads/2020/10/QYDEL-v1.01.pdf.

[36] International Labour Organization, "The Role of Digital Labour Platforms in Transforming the World of Work" (International Labour Organization, February 23, 2021), https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_771749.pdf.

[37] Jonathan Donner et al., "Platform-Led Upskilling: Marketplace Platforms as a Source of Livelihoods Training," in Proceedings of the 2020 International Conference on Information and Communication Technologies and Development, ICTD2020 (New York, NY, USA: Association for Computing Machinery, 2020), 1–12, https://doi.org/10.1145/3392561.3394629.

[38] Siva Vaidhyanathan, Antisocial Media: How Facebook Disconnects Us and Undermines Democracy (Oxford University Press, 2018).

[39] Emily M. Bender et al., "On the Dangers of Stochastic Parrots: Can Language Models Be Too Big? 🦜," in Proceedings of the 2021 ACM Conference on Fairness, Accountability, and Transparency, FAccT '21 (New York, NY, USA: Association for Computing Machinery, 2021), 610–23, https://doi.org/10.1145/3442188.3445922.

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SECTION 1.4

MEASURING AND TRACKING PROGRESS OF INCLUSIVE DIGITAL ECONOMIES

By François Coupienne and Tobias Schillings

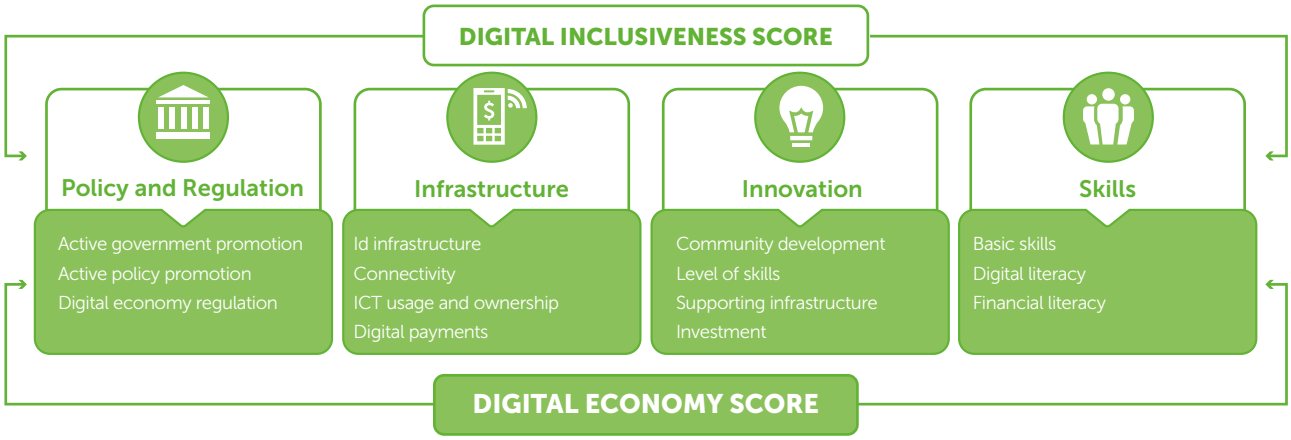
HIGHLIGHTS

- To support governments in tracking progress and adapting priorities to accelerate the digital transformation, UNCDF developed a strategic performance tool, the Inclusive Digital Economy Scorecard (IDES).
- The IDES considers four components relevant to the development of a digital economy: Policy & regulation; Infrastructure; Innovation; and Skills.
- By the end of 2021, the IDES tool will have been implemented in a wide range of countries. The tool will continue to evolve on a yearly basis to incorporate latest market developments and ensure that it remains the reference for governments to measure digital transformation.

Tracking progress and continuously adapting priorities to accelerate the digital transformation is a key responsibility for governments seeking to bolster economic growth and advance inclusive development. Even more important in a fast-changing environment of emerging technologies and new stakeholders, this role is complex due to the nature of digital development. Firstly, digital transformation is not driven by a single government entity; responsibilities are widely distributed throughout the whole government, making monitoring and coordination more difficult. Secondly, due to the wide scope of digital transformation processes, finding reliable, regularly updated and comprehensive data sources for tracking progress is often challenging.

To support governments in this crucial task, UNCDF developed a strategic performance tool, the Inclusive Digital Economy Scorecard (IDES). The IDES is a policy tool that governments can use to help set the priorities for their country's digital transformation. It identifies the key market constraints hindering the development of an inclusive digital economy and helps in setting the right priorities to foster a digital economy that leaves no one behind. The tool is developed in collaboration with individual governments to ensure that it can become an enabling part of their digital journey.

FIGURE 2.
Foundations of the inclusive digital economy scorecard



FROM AN INTERNAL TOOL TO A GLOBAL REFERENCE

The IDES was initially developed in 2019 as an internal tool for UNCDF to track the progress of its work on digital transformation in different programme countries. However, building on our increased involvement in supporting governments in their digital transformation, we discovered the value of adapting the IDES as a policy tool for governments. To achieve this, UNCDF set up a reference group in early 2020 to further refine the IDES as a measurement tool for policymakers, national governments and the private sector. The reference group comprises partners from the European Commission, the Global System for Mobile Communications Association (GSMA), the United Nations Conference on Trade and Development, the United Nations Department of Economic and Social Affairs, the United Nations Development Programme and UNCDF. The group's objective is to refine the scorecard and its indicators and, more broadly, drive the agenda of the measurement of inclusive digital economies.

The 2020 version of the IDES was implemented in four pilot countries (Burkina Faso, Nepal, Solomon Islands and Uganda). To support this process, UNCDF worked closely with the governments of these countries to further strengthen the tool and complement the recommendations from the reference group. UNCDF collaborates with policymakers to populate the IDES and supports them in identifying focus areas that align with their priorities. Since 2021, Burkina Faso, Solomon Islands and Uganda have been using the IDES as a tool to drive and monitor the development of their digital transformation. Implementation often involves many ministries, including those for information and communications technology and the digital economy, as well as the planning authority and central banks. For example, the IDES is now informing the development of the National Financial Inclusion and the National Digital Economy strategies in Solomon Islands. Since the last quarter of 2020, the IDES has been implemented in 21 additional countries (Bangladesh, the Democratic Republic of the Congo, Ethiopia, Fiji, Gabon, the Gambia, Ghana, Guinea, Malawi, Malaysia, Myanmar, Namibia, Niger, Papua New Guinea, Rwanda, Samoa, Senegal, Sierra Leone, Tanzania, Timor-Leste and Zambia).

In the course of a single year, the IDES has become a global reference tool for measuring digital transformation. By the end of 2021, the tool will have been implemented in a wide range of additional countries. With the support of all countries, the tool will continue to evolve on a yearly basis to incorporate latest market developments and ensure that it remains the reference for governments to measure digital transformation.

A SPECIFIC FOCUS ON INCLUSIVENESS

A fundamental issue in the digital era is the exclusion of billions of citizens, especially from marginalized segments (women, youth, the elderly, refugees, migrants, micro, small and medium enterprises (MSMEs), rural inhabitants and people with disabilities). As mentioned earlier in this publication, the sector predicts that the number of unique mobile subscribers will reach 5.9 billion by 2025, equivalent to 71 percent of the world's population. Yet this still means that in 2025, approximately 30 percent of the population will

not have the opportunity to benefit from the digital revolution. Given the rapid development of the digital sector and its related transformation, this exclusion is becoming more and more problematic, as the level accumulates and deepens the digital divide. This divide does not only relate to having access to a phone; it also implies that 30 percent of the population is denied access to all the services and skills available in the digital ecosystem. It is therefore the responsibility of governments to focus on the inclusion of all citizens in their digital transformation processes, from the start of their digital journey.

From the outset, the IDES has been built around inclusiveness, to ensure that governments have the right indicators to assess the inclusiveness of their digital economy for marginalized segments. With this information, government can then set the right priorities, according to the development of their markets.

The IDES considers four components relevant to the development of a digital economy: Policy & regulation; Infrastructure; Innovation; and Skills. For each of these components, a series of indicators measures the development of the digital economy and its inclusiveness.

FIGURE 3.
The IDES and its components

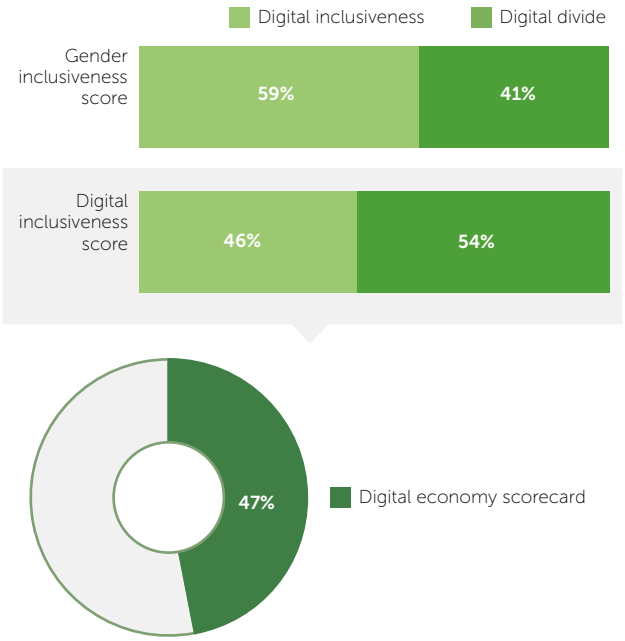
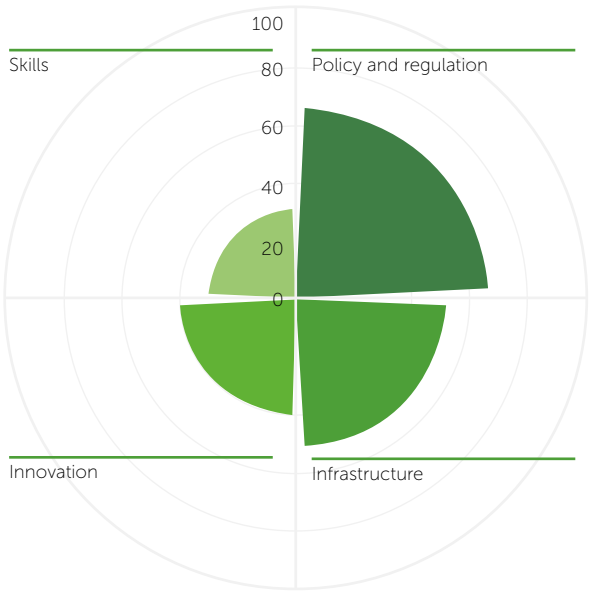


FIGURE 4.
The Digital Economy Score



At global level, the IDES provides 3 main scores on a scale from 0 to 100:

- The Digital Economy Score measures the development of a national digital economy and its four main components.
- The Digital Inclusiveness Score measures the level of inclusion in the digital economy for key customer segments (rural, women, youth, the elderly, refugees, migrants, disabled people, MSMEs).
- The Gender Inclusiveness Score is a subset of the Digital Inclusiveness Score and measures the level of inclusion in the digital economy for women.

In the Policy & regulation component, the scorecard captures the extent to which a government actively promotes the development of an inclusive digital economy, as well as the policies and regulations in place that support digital finance and the digital economy. The scorecard covers a range of critical enablers relating to the financial sector, competition, data privacy and security, consumer protection, and telecommunications.

In the Infrastructure component, the scorecard quantifies the level of development of mobile infrastructure (ID, information and communications technology usage and ownership, network coverage, access to electricity) and the status of the digital payment ecosystem, including the level of interoperability and the openness of the digital infrastructure for third-party players.

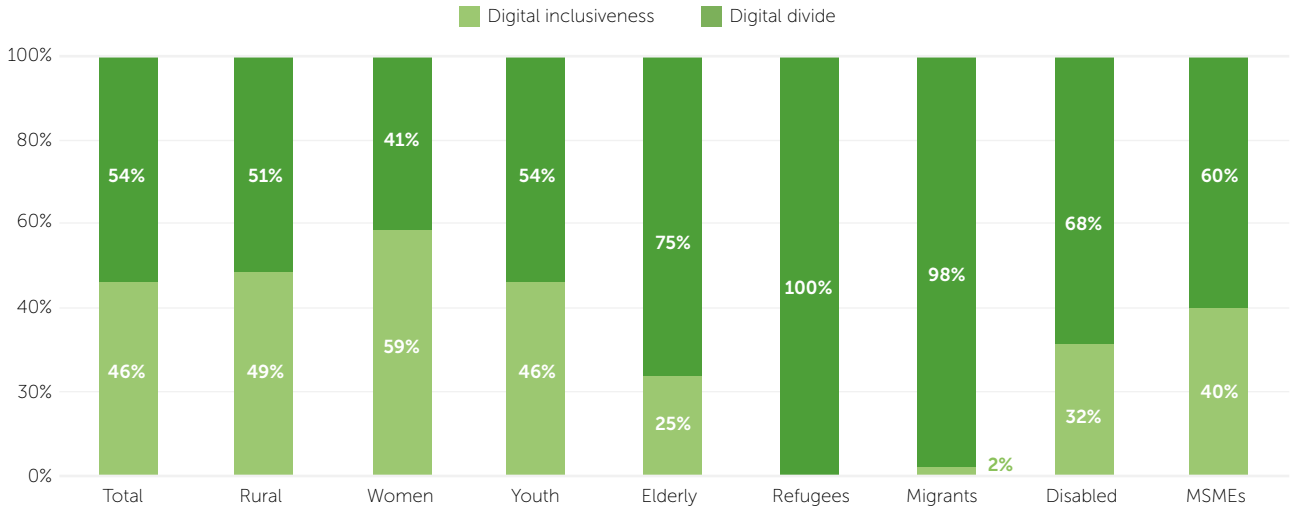
Policy & regulation and Infrastructure form the foundation of an inclusive digital economy. At UNCDF, this foundation is referred to as the 'digital rails.' If the digital rails are properly developed, they open avenues for innovation by third-party players and for the use of technology for people's skills development.

In the Innovation component, the scorecard measures the state of a country's innovation ecosystem. Key elements are the following: the level of development and the synergies within the innovation community; the level of skills held by entrepreneurs in the ecosystem; the presence of supporting infrastructure; and the availability of financing.

In the Skills component, the scorecard tracks the active participation of the public and private sectors in digital and financial skills development, as well as the level of basic, financial and digital skills among the population.

The Inclusiveness of the digital economy is measured through quantitative and qualitative assessment of the efforts made by the public and private sectors to include specific population segments in the expansion of the digital economy.

FIGURE 5.
Digital inclusiveness by population segment



Dalberg Data Insights

"FROM BIG DATA TO SHARED DATA"

By Frederic Pivetta, CEO Dalberg Data Insights

Data and technology are at the core of many economic development strategies of the 21st century. Digitization and advanced technical approaches using artificial intelligence (AI) and Big Data have generated expectations and promises beyond anything we could have dreamed of 40 years ago. It is now important to reflect on the progress made and what needs to be done moving forward. What is our shared understanding when it comes to investing in data and AI? How can we ensure our approach is inclusive and sustainable?

Building on systemic learnings

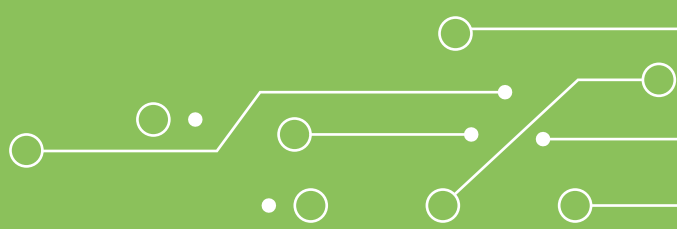
Over the last decade, there has been considerate attention and investment on the application of data to achieve development outcomes. Based on this experience, there are some important systemic learnings:

- *Impact is sometimes incremental and can barely be measured* – Digital impact is neither direct nor in step change but rather very indirect and incremental. Each step builds gradually on each other to generate digital transformation. This makes measurement more challenging.
- *Capacity building is not a silver bullet* – We need to unpack the cognitive path of the end-users of the data. In complex environments, it becomes important to create intuitive technical interfaces offering more ready-to-digest insights rather than mobilizing a large group of on-call data analysts.
- *Cutting-edge innovation is not always key* – Big Data and AI-based models and tools have been piloted over the last few years. Hence, it becomes increasingly important to move to the next phase and imbed the most advanced approaches into operational processes.
- *Social impact-driven products and services should find the right balance between not being economically sustainable vs. supporting a business case for the private sector* – For instance, telecom operators offering agri-related insights to farmers can both increase crop yields and create commercial stickiness that prevent farmers from moving away from their current telecom operators.

Integrating the learnings to build the next level of impact: Creating data ecosystems

One way to generate technical innovation and improve quality of life for citizens has often been to build more advanced infrastructure on top of existing infrastructure, while building new goods and services that leverage these new and more advanced infrastructures. More broadly, the historical path and evolution of a country makes us think that economic growth, longer lives, and the very idea of progress are rooted into creating assets. These assets are important as they are meant to last and be leveraged to bring progress at scale. The very idea of infrastructure is at the core of sustainable economic progress and technical innovation. We now are at a stage of digital maturity where we can start building data assets and infrastructure on top of existing data environments and digital assets. This has already been done in the past, for example around the FinTech industry directly resulting from the Payment Services Directive (PSD2) regulation. Such regulation aimed at creating an entire data ecosystem for FinTech in Europe by requiring banks and financial institutions to open their data backend to foster the emergence of new services and business models.

However, with data comes 'the trust question' combined with questions around reputation and liabilities of data holders. These questions can be addressed by creating stable institutions, forward looking regulation and inclusive communities. This translates into a strong governance and market place where different sides can meet. Such vision has been promoted by the European Union over the last decade when it comes to digital and market for data, namely from the General Data Protection Regulation (GDPR) to the Data Governance Act.

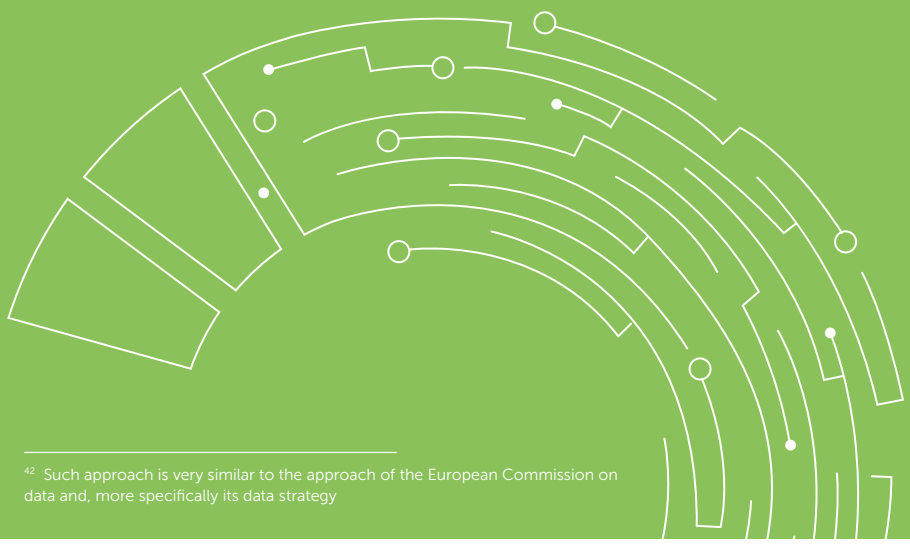


Integrating the creation of additional layers of infrastructure and services and the building of governance and community lead to a more holistic approach that we define as 'creating data ecosystems'. Such ecosystems can be classified in three pillars: (i) being smart on technical tools and assets; (ii) creating the supportive governance; and (iii) ensuring that there is a strong and vivid community of users and data holders.[42]

Some critical ingredients

To build a data ecosystem means to be visionary in terms of funding but still intentional about specific strategic investments, such as:

- *Pick relevant topics or questions and develop relevant data governance models*, as different topics might require different types of governance, for example personal health data (to support mental health questions) vs. satellite images (to support agriculture questions).
- *Invest in creating reliable and standard data sources*. Leveraging non-standard data sources can be insightful but long-term sustainability requires generating more standard data (e.g. administrative data).
- *Create data hubs/spaces* for each relevant topic, with, for example actual data, data access points, etc.
- *Create a community* of organizations and stakeholders for a given data space/topic to ensure mobilizing the relevant organizations with the right set of incentives.
- Move from monitoring and evaluation analytics to **predictive analytics**.



[42] Such approach is very similar to the approach of the European Commission on data and, more specifically its data strategy