International
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▶ Renewing the social contract through e-formalization in the world of work

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Foreword

Over 2 billion workers around the world earn their livelihoods in the informal economy. Almost 1.6 billion of those workers have been significantly affected by the coronavirus disease (COVID-19) pandemic, leading to an estimated decline in their earnings of some 60 per cent and undermining social cohesion. Calls for a renewed social contract and what has been dubbed a "new deal" for the informal economy are growing. Indeed, transition to formality has become more important than ever for a human-centred recovery, especially in developing countries in Asia and in sub-Saharan Africa, and will bolster the resilience of communities so that they are better able to withstand future crisis.

Transition from the Informal to the Formal Economy Recommendation, 2015 (No. 204) provides policy guidance on facilitating the transition to formality, while the ILO Centenary Declaration for the Future of Work recognizes the role of technological innovation in driving transformative change in the world of work. The Declaration promotes a human-centred approach to facilitate efforts to fully exploit technological progress and productivity growth, with a view to creating decent jobs and promoting sustainable development. Furthermore, the 2019 Human Development Report highlights how e-formalization could open a path to formality, raise productivity and enhance equity, thereby accelerating the achievement of the Sustainable Development Goals.

Before and during the COVID-19 crisis, countries around the world have made increasing use of digital technologies to leapfrog barriers to formalization and reach out to those in the informal economy. These "e-formalization" policies show considerable untapped potential to accelerate trajectories away from informality and provide protection to those who need it most.

This report is being published at a time when there is a pressing need to accelerate transition to formality and leverage digital technologies to bolster formalization policy frameworks. With the help of key real-world examples from developing countries in Asia and sub-Saharan Africa, the report examines barriers to e-formality and the type of public policies that can strengthen the capacity of developing economies to unlock opportunities for inclusive development. The report concludes by proposing several guiding principles and building blocks for e-formalization policy development.

The earlier versions of this publication benefits from technical comments from ILO colleagues: Valerie Breda, Sara Elder, Christoph Ernst, Annamarie Kiaga and Christian Viegelahn.

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Acronyms

3D printing	Three-dimensional printing
5G	Fifth general broadband cellular networks
AI	Artificial intelligence
ASEAN	Association of Southeast Asian Nations
BPO	Business Processing Outsourcing
CGAP	Consultative Group to Assist the Poor
DESA	Department of Economic and Social Affairs
ECA	Economic Commission for Africa
EGDI	E-Government Development Index
ESCAP	Economic and Social Commission for Asia and the Pacific
FinTech	Financial technology
G20	Group of twenty countries
GDP	Gross domestic product
GNI	Gross national income
GSMA	Global systems for mobile communications
HDR	Human Development Report
ICT	Information and communications technology
ID4D	Identity for development
ILC	International Labour Conference
ITU	International Telecommunication Union
MSMEs	Micro, small and medium enterprises
OECD	Organisation for Economic Co-operation and Development
R and D	Research and development
R204	Transition from the Informal to the Formal Economy Recommendation
STEM	Science, technology, engineering and mathematics
TVET	Technical and vocational education and training
U4SSC	United for smart, sustainable cities
UAS	Universal access and service
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
WEF	World Economic Forum

Introduction

Renewing the social contract and forging a "new deal" for the informal economy

The ILO continues to spearhead calls for a reinvigorated social contract in the world of work. Indeed, as early as 2004, with the publication of a key report by the World Commission on the Social Dimension of Globalization, with the adoption in 2019 of the ILO Centenary Declaration for the Future of Work, and more recently with the adoption in 2021 by the International Labour Conference of a resolution concerning a global call to action for a human-centred recovery from the COVID-19 crisis that is inclusive, sustainable and resilient, the ILO has played a leadership role in promoting a global agenda for social justice and decent work that can ensure stability and prosperity for all.

The social contract implicitly articulates the rights and responsibilities of governments and citizens to shape societies and institutions in equitable and fair ways. It therefore underpins the democratic basis for a stable society. The social contract is, in fact, defined in those terms in a report issued by the ILO Global Commission on the Future of Work (ILO 2019a).

▼▼ ….social contracts reflect a common understanding that in return for their contribution to growth and prosperity, workers are guaranteed a just share of that progress, with respect for their rights and protection…

The social contract was forged in the wake of the devastation and lessons learned from the two world wars, and is anchored in a global consensus on basic human rights for all. However, the persistent problem of economic informality, and its related dimensions of inequality and poverty, profoundly illustrates the erosion of the social contract in its current form. Informality is both a symptom and a cause of the fragmentation of societies and a breakdown of people's trust in the institutions and governance mechanisms that underpin social cohesion. The urgency of addressing informality will, moreover, have greater impetus as entrenched inequalities grow.

Using digital technologies as a tool to leapfrog barriers to formalization has immense potential in enabling what has been dubbed "e-formalization" (Chacaltana, Leung and Lee 2018; Divald 2021; Williams 2021). The term encompasses the long-standing commitment of the ILO to help member States combat informality, most notably by facilitating their implementation of the Transition from the Informal to the Formal Economy Recommendation, 2015 (No. 204) (R204), in addition to its call for governments and social partners to develop national digital strategies with appropriate resources, investments and regulations to support decent work outcomes. As stated in the 2019 Human Development Report, technological change does not occur in a vacuum but is shaped by economic and social processes. In other words, technological change is an outcome of human action and policymakers can thus shape its direction in ways that enhance human development.

This resonates strongly with the ILO Centenary Declaration for the Future of Work, which provides that ILO must direct its efforts, inter alia, to harnessing the fullest potential of technological progress and productivity growth, including through social dialogue, to achieve decent work and sustainable development, which ensure dignity, self-fulfillment and a just sharing of benefits. Renewing the social contract requires opening up the benefits enjoyed by those in the formal economy to those in the informal one.

The unprecedented devastation of the COVID-19 pandemic has had a significant impact on policy discourse surrounding formalization and digitalization. Increasingly there are calls for a "new deal" and for "building back better" for the benefit of informal workers and entrepreneurs (World Economic Forum (WEF) 2020a; United Nations Department of Economic and Social Affairs (DESA) 2021a). It should be noted

that governments' responses to the COVID-19 crisis have accelerated the adoption of digitalization technologies to facilitate the disbursement of cash payments, health and safety information and stimulus support measures.

This report is being published at a time when there is a pressing need to address informality through public policies. It explores how digitalization can add to or detract from the goal of transitioning to the formal economy drawing on selected examples from developing countries in Asia and sub-Saharan Africa. Part 1 of the report examines the barriers to e-formality and factors preventing countries from leveraging the digital economy to encourage shifts towards formal economy. Part 2 details examples of public policies which are making an impact in developing economies' abilities to unlock ICT opportunities for inclusive development. Part 3 examines the three policy spheres that link to e-formalization and proposes some guiding principles and building blocks for policy development.

Before that it may be helpful to attempt to clarify some terms, though of course the continually shifting parameters of digitalization do not lend themselves easily to static definition. Nevertheless, some broad conceptual understanding may be useful in navigating the terminology used in the report.

The concept of e-formalization

E-formalization has only recently emerged as a policy term, so the concepts surrounding it may lack clarity. To help clarify certain conceptual parameters, it may be helpful to conceive of e-formalization as straddling three policy spheres. As shown in figure 1, it overlaps, and brings together policy arenas encompassing: comprehensive approaches to formalization arising from R204 (for pre-digital, analogue settings), the digital economy, and e-government strategies. The latter refers to the suite of policies that governments are undertaking in order to make optimal use of ICT and digital innovation with a view to strengthening governance, service delivery, operations and administration, and citizen participation. E-government strategies are often linked to wider national development frameworks that implicitly support formalization, but this has rarely been explicitly expressed.

The digital economy encompasses public policies in addition to broader private-sector developments

at national and global levels, including the growth of e-commerce platforms and financial technology (FinTech). Box 1 provides an overview of the parameters of the digital economy.

▶ **Figure 1. Policy spheres linked to e-formalization**
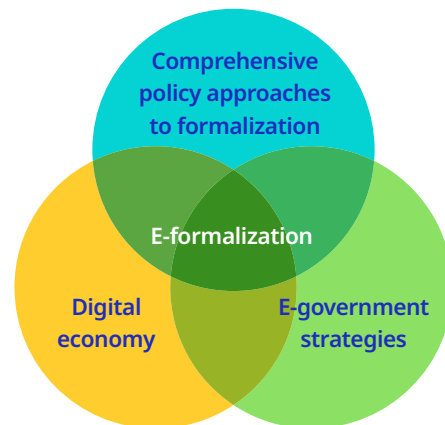
Source: Authors' illustration.

Digitization, digitalization and digital transformation

In literature on the digital economy, terms such as digitization, digitalization and digital transformation are often used interchangeably, sometimes with the same meaning and sometimes with different meanings. A number of business analysts and the Organisation for Economic Co-operation and Development (OECD) have applied those terms to models to situate them as progressive stages on the path to overall transformation (OECD 2019).

▶ **Digitization** is conceptualized as the earliest stage of transformation – the process of converting analogue information into a digital format. Within the concept of e-formalization, it can be understood as the first phase of a comprehensive transformation process. It could, for example, involve the change over from a paper identity registration system to a system that relies, primarily, to information stored in an electronic database.

▶ **Digitalization** can be considered the second stage in that process. Once information has been converted from an analogue format into a digital format, it can be used in meaningful ways to enhance procedures. In other words,

digitalization involves the use of electronic data in a range of applications that enhance its usefulness. In terms of e-formalization, this could refer, for example, to the development of electronic registration processes with a view to establishing an e-identity system.

▶ **Digital transformation** can be understood as the overall strategic transformation. By bringing together digital data and applications to develop new and more efficient processes, and by leveraging digital tools in a comprehensive manner, digital transformation can transcend more cumbersome analogue systems and methods. For example, within the context of e-formalization, the term digital transformation could be applied to the broader socioeconomic benefits stemming from the creation of an electronic identity system: by facilitating the registration of individuals, an electronic identity system can support inclusion, enabling individuals to enjoy their rights and access services and public goods in simplified, manageable ways. The digital transformation of identity systems provides a gateway for individuals to be brought into formal systems that allow them, inter alia, to access health services, file employment contracts, obtain business licences and file tax returns.

▶ Box 1. The digital economy – an elusive concept to define

Given the rapid evolution of the digital economy and the pace of innovation, the digital economy evades strict definitions. Analysts have different understandings of the concept. At the same time, rigid definitions may become obsolete quickly.

Perhaps one of the more useful conceptualizations of the digital economy has been formulated by the United Nations Conference on Trade and Development (UNCTAD), which suggests that the digital economy encompasses several frontier technologies and is fueled by data. In its analysis, UNCTAD considers several innovative technologies, all of which generate vast amounts of data. Relevant technologies include: blockchain, 3D printing, the Internet of Things, fifth generation (5G) mobile broadband, cloud computing, automation and robotics, AI and data analytics. All these technologies could have significant impacts on informal economies.

Blockchain technologies are distributed ledger technologies that allow multiple parties to engage in secure, trusted transactions without any intermediary. There are several domains of importance for developing countries. These include digital identification, property rights and aid disbursement. (United Nations Economic Commission for Africa (ECA) 2017).

In its report entitled "Work for a brighter future", the ILO Global Commission on the Future of Work notes that blockchain technologies could be used to guarantee the payment of minimum wages and to facilitate the portability of skills and social protections for migrant workers or the payment of social security benefits to those working on digital labour platforms. Similarly, blockchain could facilitate private-sector innovation and could, for example, facilitate remittance payments by migrants. There is also growing evidence that blockchain technologies can enhance traceability and transparency in global supply chains.

3D printing, also known as additive manufacturing, can potentially offer developing countries opportunities to leapfrog traditional manufacturing processes. 3D printing is already being used extensively in a number of countries with large informal economies. In Nigeria, for example, it is being used to address import gaps in supply chains, while in India, the country's largest bicycle manufacturer is using 3D printing to ensure that its products reach markets as rapidly as possible. 3D printing capacity remains highly concentrated in developed countries, however, with five countries accounting for some 70 per cent of total capacity.

The **Internet of Things** refers to the growing array of internet-connected devices, including sensors, meters, radio frequency identification (RFID) chips and other gadgets that are embedded in everyday objects, enabling them to send and receive different types of data. Like other technological innovations, Internet of Things applications are overwhelmingly found in developed countries, with developed countries currently accounting for some 75 per cent of spending on Internet of Things technologies.

▶ **Box 1. (cont.)**

Fifth generation (5G) mobile broadband is a type of wireless technology that is faster and able to provide better connectivity than any previous wireless technology system. 5G networks can process around 1,000 times more data than current wireless technology systems. In particular, 5G will facilitate the connection of many more devices, including the linking up of sensors and smart devices to the internet and to each other. A number of developed countries are currently rolling out 5G networks but the technology is still rare in developing countries.

Cloud computing is enabled by higher internet speeds, which have drastically reduced time lags between users and distant data centres. Data storage costs have also plummeted. Some free cloud services provide office-like application tools that are particularly useful for micro, small and medium-sized enterprises (MSMEs) and for countries where the cost of licensed software can be an obstacle to creating applications and providing services. However, in many developing countries, the high costs associated with the additional bandwidth needed to access overseas servers and data centres continue to impede the uptake of cloud services.

Automation and robotics are technologies that lend themselves easily to manufacturing processes and which could have a significant impact on employment. Many studies have revealed their potential to eliminate low-skilled jobs in manufacturing, which could potentially push formal workers into the informal economy. Nevertheless, automation and robotics also have considerable potential for high-skilled job creation (Carbonero, Ekkehard and Weber 2020). There are also concerns that those technologies may limit opportunities for developing countries to adopt export-led manufacturing as a path to industrialization and that more developed economies may increasingly use robots to "re-shore" manufacturing jobs.

AI. Developments in AI, including machine learning, are enabled by the large amounts of digital data that can now be analyzed through the use of algorithms and advanced computer processing power. (International Telecommunication Union (ITU) 2017). However, there is a widening gap between those countries with and those without the capacity to AI technology.

Data analytics, sometimes dubbed "big data", refers to the growing capacity of a range of stakeholders to analyze and process massive amounts of data. Indeed, the aforementioned technologies in this box have one element in common, namely that they are heavily data dependent. Digital data are one of the core elements of value creation in the digital economy. Data is of critical importance for e-formalization because facilitates knowledge acquisition that can support pro-poor labour market outcomes. For example, it can assist labour administrations identify high-risk sectors, poor working conditions and weak labour law compliance in supply chains. Data analytics can thus play an invaluable rule in supporting the work of labour inspectorates.

Source: Adapted from UNCTAD 2019 and ILO 2019a.

What are digital skills?

Defining digital skills is invariably a difficult task given the rapidly shifting frontiers of ICT development. United Nations Educational, Scientific and Cultural Organization (UNESCO) (2018) provides a useful overall framework that recognizes that digital skills go beyond merely knowing how to use ICT. The phrase "digital skills" should be understood in a broad sense: it denotes a wide range of skills, some of which are not strictly skills but relate more to behaviour, expertise, know-how and life skills. These forms of behaviour and skills are complementary and closely interconnected. Critical thinking is also an important soft skill that complements digital skills as the internet and social media can open up channels for deceptive and misleading information. Given the speed of technological change, cutting edge technologies may rapidly become obsolete. A key feature of digital skills is adaptability to change and lifelong learning, which can both have a significant impact on an individual's capacity to reap the benefits of e-formalization.

▶ 1

Barriers to e-formality

Digitalization and ICT have considerable potential to act as drivers of formalization in many policy areas. Considerable advances in the last two decades in ICT development have already seen certain positive outcomes in some parts of the informal economy such as triggering productivity gains, and linking some excluded populations with essential social protection mechanisms and other public goods. ICT also offers a range of possibilities to support the organization of those working in the informal economy and has allowed them to speak with a more unified voice, even when they are located in remote locations or are geographically dispersed (ILO 2019b).

In the context of the ongoing global pandemic, the role that digitalization and ICT have played in mitigating the impact of COVID-19 cannot be over-emphasized. Their widespread use has enabled the dissemination of vital life-saving information, facilitated the delivery of essential services, assisted social protection delivery when human contact is difficult, enabled cashless transactions, and supported the continuation of certain economic activities during lockdowns.

Distinct challenges remain, however, before the potential of ICT to catalyse a transition to formality can be fully realized in the majority of developing countries in sub-Saharan Africa and Asia. The section below considers some of the key barriers impeding the adoption of ICT to promote formalization, as well as the risks and unforeseen consequences that must be navigated in labour markets being profoundly re-shaped by rapidly evolving technologies.

1.1. Underdeveloped physical infrastructure

While ICT can potentially facilitate efforts to address some infrastructural constraints, at the same time inadequate physical infrastructure can impede its widespread adoption. Key technologies such as mobile phones are becoming more prevalent, but the adoption of more advanced technologies such as smartphones, with greater potential to empower informal economy workers and entrepreneurs, require investments in infrastructure. The use of the internet, for example, requires a stable and reliable source of electricity. Inadequate electricity supplies in both rural and urban informal economy settings pose a significant threat to the wide scale adoption and use of ICT.

Similarly, the smooth flow of e-commerce depends on the existence of reliable electricity grids and transport networks. Rudimentary logistics continues to hold back the growth of both domestic and cross-border online commerce. Poor quality roads, rail networks and ports, compounded by weak postal services and cumbersome customs procedures can hamper the growth in e-commerce, which can be of significant benefit to informal economy traders.

1.2. Weak digital ecosystems and virtual infrastructure

Foundational digital systems, such as digital identification systems[1], are essential infrastructure for the operations of digital technologies. Digital identification systems provide a secure way to prove a person's identity, which is fundamental to accessing digitalized services, such as online social protection platforms, and participating in online economic activities, including financial services (GPFI 2018). According to data from the World Bank Identification for Development portal, an estimated one billion people have no basic identity credentials. The majority of those individuals live in sub-Saharan Africa and South Asia. Furthermore, one in two women in low-income countries have no official identity, limiting their access to critical services and hampering their participation in political and economic life.

Digital registries have the potential to overcome identity challenges for many marginalized people because they can streamline the management of identity systems. However, establishing digital identification registries is a complex endeavour and needs to be incorporated into broader national digital strategies and facilitated by adequate soft infrastructure and an effective digital ecosystem (ITU 2018).

About half of the countries in Africa have established digital identification systems to facilitate digital, financial and social inclusion (DESA 2020). According to a 2016 World Bank survey, the vast majority of the 198 countries surveyed had fragmented ID systems. Indeed, the survey revealed that some 18 per cent of developing countries had established platforms for identity purposes only, while 55 per cent had digital ID platforms that were used for specific functions such as voting, cash transfers or health, and only 3 per cent had established foundational digital systems that could be used to access an array of online and offline services. Of more concern, according to a recent survey by the Asian Development Bank, some 24 per cent of developing countries globally had yet to establish any type of digital identity system (Asian Development Bank 2018a).

The advantages and challenges inherent in developing digital identification systems are illustrated in box 2, which details efforts by India to develop a digital identification system with the capacity to address the needs of its vast population.

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1   Identification systems cover foundational identity (a core identity, often used to access government services), functional identity (usually linked to a particular sector), and transactional identity (to conduct financial and other transactions across multiple sectors).

► **Box 2. Digital identity debates and challenges**

The World Bank has summarized three ways in which the digital identity can support socioeconomic goals: (a) as a means of supporting inclusion and access to essential services, including social protection and voting rights; (b) by facilitating the efficient administration of public services, and (c) by enhancing accuracy in the measurement of key development indicators. There is ample evidence that digital identification systems can and do support all of those goals, which can have significant positive impacts on individuals engaged in the informal economy and can thus accelerate the transition to formality

In some cases, however, the roll out of digital identification systems has resulted in the exclusion of certain vulnerable groups rather than promoting their inclusion. Increasing exclusion may result from the technical failure of digital systems; governance failures due to political interference, administrative failures at the field level, weak normative and regulatory frameworks, and inadequate mechanisms to address privacy concerns.

An analysis of the experience of India with digital identification mechanisms highlights some of these issues. India is one of the the global leaders in digital identification due to the sheer scale of its Aadhaar identity system, which uses biometric data to generate a 12-digit number for all 1.3 billion citizens. Without doubt, this identity system has promoted inclusion and achieved numerous objectives in terms of expanding access to public services. The system has facilitated efforts to give a formal identity, and hence citizenship rights, to large numbers of marginalized people and has facilitated national efforts to address poor governance and corruption issues.

However, several unforeseen and worrying outcomes have also been observed by various analysts. These include:

► Exclusion of legally-entitled persons at the registration and authentication of identity stages, resulting in their inability to access essential services, for instance the denial of scholarships for children from vulnerable, lower-caste and other groups who are liable to suffer discrimination. Among those who have experienced exclusion or have had their identity disputed are 1.9 million people from vulnerable groups from Assam state;

► Disempowerment of certain people, including, members of some vulnerable tribal groups, because of a failure to communicate the benefits and modalities of the Aadhaar identity system in local languages;

► Concerns over the misuse of data and privacy violations, which culminated in a Supreme Court judgment (Arudpragrasam 2018) and the drafting of a new data protection bill;

► The perception among some groups of informal workers that their digital identity has contributed to work surveillance rather than job creation;

► The inflexibility of the Aadhaar identity system, to take into account dynamic issues related to changes in identity. Internal migrants in particular, face this problem when moving between states. This challenge was starkly illustrated during the lockdowns imposed in 2020 with a view to combating the COVID-19 pandemic, when some migrants were unable to board trains back to their home states because they had not been categorized as residents in those states.

The aforementioned challenges do not negate the value of digital identification systems, but highlight the importance of addressing system design faults, establishing mechanisms to safeguard the privacy of users, and enhancing system flexibility. They also illustrate how weak capacity building of those officials administering the system at local level can hinder inclusive outcomes. The challenges also underscore the importance of building in robust mechanisms to ensure that vulnerable groups are able to establish their identities. The empowerment aspects of digital identity systems need to be strengthened to enable marginalized groups to have recourse to justice where their identity is disputed. There is much that can be learned from the experience of India, the global leader in rolling out digital identity on a large scale.

Sources: S. Arudpragrasam, "The potential and limitations of India's digital ID" *Government innovators network Blog (blog)*, 23 March 2018.

S. Masiero and S. Bailur, *Digital identity for development: The quest for justice and a research agenda*, Information Technology for Development, 2021.

S. Panigrahi, "Is India's digital identity system, Aadhaar, a tech solution for a socio-economic problem?" *Global Voices,* 16 August 2020.

World Bank, 2019a.

Digital finance systems enable individuals to participate in the digital economy through e-commerce and make a huge difference for local innovators. Digital payments systems, for example, enable informal economy actors to seek work and sell their products or services online (ITU 2020). So far, many developing countries have inadequate foundational digital systems. Many governments have weak security measures to vigilantly guard against data leakage, theft, and misuse. Similarly, governments are insufficiently prepared to protect citizens from risks related to digital finance such as irresponsible lending practices, which may fall outside traditional financial regulation and for vulnerable clients, including internet downtime, non-transferable fees, fraud and interfaces (Consultative Group to Assist the Poor (CGAP) 2015). In Asia, out of 47 selected countries for example, although some 87 per cent have enacted e-transaction laws and 79 per cent have enacted legislation to combat cybercrime, only 57 per cent of countries have adopted privacy laws and fewer than half have adopted consumer protection laws. In Africa, only 22 countries have adopted cybersecurity legislation (DESA 2020).

1.3. Big data challenges

ICT generates vast amounts of data and the amount of data produced is likely to continue to grow at exponential rates. While data alone cannot solve development problems, it can be transformed into useful information to improve lives and livelihoods. The 2021 World Development Report, published by the World Bank, notes however, that many developing countries are too often disadvantaged in that process, and often lack: the infrastructure and skills to capture data and turn them into value; the institutional and regulatory frameworks to create trust in data systems; and the scale and agency to participate equitably in global data markets and their governance (World Bank 2021a).

Even in developed countries, concerns are growing about excessive data collection, insufficient governance of data held by private firms, and inadequate protection of personal data. Many of those concerns revolve around the misuse of personal data. Such misuses include the failure of firms to effectively protect the financial information of clients, or the unauthorized use of, or failure to protect, individuals' confidential data.

Data governance arrangements that facilitate greater use of data while safeguarding data security remain in their infancy. Similarly, the infrastructure that enables interoperability and allows data to flow to a greater number of users is often far from adequate. Even when countries have developed data systems and governance frameworks, a lack of institutional capacity, decision-making autonomy and financial resources often impede their implementation (World Bank 2021a).

1.4. Intractable digital divides

ICT has the potential to either foster inclusion or entrench exclusion. Indeed, ICT can catalyse the inclusion of certain informal economy actors while marginalizing others (Klopp et al. 2017a). Significant differences remain between rural and urban communities in terms of capacity for accessing mobile internet services. According to the Global System for Mobile Communications Association (GSMA), rural populations in lower-middle-income countries are 40 per cent less likely to use mobile internet than urban populations (GSMA 2019). In Bhutan, for example, only 29 per cent of rural households had access to the internet in 2017, compared to 70 per cent of urban households (Economic and Social Commission for Asia and the Pacific (ESCAP) 2020a).

The internet has been acknowledged by the United Nations as a global public good, yet in 2019 only 19

per cent of people in least developed countries were able to use the internet.[2] According to the Broadband Commission for Sustainable Development, established by ITU and UNESCO, globally, women are 23 per cent less likely to use mobile internet services than men. The gap is widest in South Asia, where women are 58 per cent less likely than men to use mobile internet services, followed by sub-Saharan Africa, where women are 41 per cent less likely to do so (Broadband Commission for Sustainable Development 2019).

Research conducted by CGAP has revealed that, despite the perceived neutrality of technology, social norms constrain women's access to technology in many parts of the world. Entrenched gender roles are associated with lower female usage of mobile phones, computers and digital financial services. In remote areas of India, for example, many women are unable to use public internet hotspots despite the launch of national initiatives to strengthen internet access in rural areas. In part, this explains the 26-percentage point gender gap in mobile and internet access in that country (Highet, Salmon and Singh 2020).

Poverty also plays a significant role in impeding access to ICT and is closely linked with discrimination. Lack of affordability can further marginalize those unable to use electronic technologies, preventing them from accessing agricultural apps, mobile money, public goods, such as health and education services. Data collated by the Broadband Commission for Sustainable Development shows that Broadband Commission Advocacy Target 2, namely "By 2025, entry-level broadband services should be made affordable in developing countries, at less than 2 per cent of monthly gross national income per capita," is far from being achieved. Indeed, although some 95 countries have achieved that target, at least 40 countries, predominately least developed countries, have entry-level broadband services that cost 5 per cent or more of average monthly gross national income per capita. Furthermore, for 19 of those countries, the average cost is greater than 10 per cent (Broadband Commission for Sustainable Development 2020).

In sub-Saharan Africa, one gigabyte of data costs nearly 40 per cent of an average monthly wage (Hewett 2020). It is not surprising therefore that in 2017, total bandwidth used in Africa was only 1 per cent of the world's total (Choi, Dutz and Usman 2020). Furthermore, ESCAP notes that some 55 per cent of the population of Southeast Asia remains offline (ESCAP 2020b).

Basic mobile phone access, by itself, is unlikely to economically empower those employed in the informal economy to a significant degree. It is therefore critical to promote access to broadband technologies that can significantly reduce transaction costs. The ongoing COVID-19 crisis has, if anything, drawn further attention to the grim realities of the digital divide. While governments have accelerated the adoption of digital technologies, many marginalized groups have found it challenging to access vital information and support measures. Now, more than ever, the pandemic has made clear that internet access is an essential public good (ESCAP 2020b).

1.5. Digital skills gaps

Digital gaps in access are invariably linked to gaps in digital skills capabilities. Digital skills deficits affect all those groups mentioned in the previous section. In addition, even among those who may have access to ICT, their digital skills may be insufficient. Older people, women and low-skilled youth, for example, often have insufficient levels of digital literacy even when internet penetration is high.

The lack of digital skills among populations is particularly prevalent in sub-Saharan Africa, where countries are ranked between 153 and 176 out of 176 countries in terms of their digital skills. A combination of factors has contributed to sub-Saharan countries' low rankings, including the low quality and quantity of mathematics and science education, low tertiary enrollment rates in mathematics and science, and the limited number of adequately trained scientists and engineers. The dearth of graduates in science, technology, engineering and mathematics (STEM) in sub-Saharan Africa continues to

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2   For further information see: https://www.un.org/press/en/2020/sgsm20118.doc.htm

hinder the development of a critical mass of innovators and entrepreneurs who can harness ICT in order to address local and regional development needs (Choi, Dutz and Usman 2020).

This dearth of digital skills is compounded by the loss of highly skilled individuals from developing countries to developed countries. The global demand for high tech skills results in a 'brain drain' since poorer countries cannot offer the competitive salaries of wealthier countries (World Bank 2021a). E-learning is growing, particularly because of the pandemic. But until getting online becomes more readily affordable and accessible, many segments of the informal economy will be unable to access emerging online education and skills training opportunities (Palmer 2020).

1.6. Weak technology uptake by MSMEs

The adoption of technology by businesses is one of the most crucial mechanisms for translating digital infrastructure investments into products and services at the local level (United Nations Development Programme (UNDP) 2019). Yet most informal businesses lack the capabilities, skills and awareness to use digital connectivity in their operations. Public policies to facilitate access are often lacking, and much could be done in terms of capacity building of MSMEs to leverage digital platforms and other types of training in order to support technological access.

Analysis by the World Bank has highlighted a number of factors that obstruct MSMEs from adopting technology, including the high costs associated with adoption, limited awareness of the potential benefits, a lack of guidance, unfamiliarity with technology, unsupportive business environments, and the fact that many owners of MSMEs lack the capacity and know-how that would

enable them to conduct e-commerce. World Bank surveys of informal businesses have revealed that only 1 per cent of informal businesses in the Lao People's Democratic Republic and Mozambique use computers to facilitate business operations. Figures for internet usage among enterprises operating in the informal economy show similar results, with only 1 in 200 enterprises in Mozambique using the internet and only 2 per cent of enterprises in Zimbabwe doing so (Islam and Jolevski 2019). Even in countries such as Rwanda, which made significant progress in transforming governance through the adoption of digital technologies (see box 7 in Part 3), the adoption of digital tools by MSMEs has been modest.

Furthermore, data on countries in Southeast Asia collated by the World Bank within the context of its global Enterprise Surveys reveal only 31 per cent of business enterprises in the subregion have their own website, compared to a global average of 44 per cent and an East Asia and Pacific average of 36 per cent. Fifty per cent of firms in Southeast Asia use email to interact with clients and suppliers, compared with a global average of 72 per cent and an East Asia and Pacific average of 60 per cent (World Bank 2019c).

Analysis by ESCAP of the broader Asia-Pacific region reveals that only between 2 and 10 per cent of small and medium sized enterprises conduct e-commerce, and the percentage is even lower when it comes to cross-border commerce (ESCAP 2020a).

1.7. Weak social protection mechanisms

ICT is inherently disruptive for labour markets and establishing adequate social protection measures is therefore crucial in order to mitigate risks and smooth economic transformation and the establishment of

digital economies. It is widely recognized that high ICT penetration rates can accelerate the digital transition process, both in rural and urban areas, as well as across jobs, industries and sectors. That transition is likely to create employment opportunities but also to render certain jobs and livelihoods obsolete (UNDP 2019), for example job displacement in low-skilled segments of manufacturing trigged by automation and AI. A recent study found that the use of robots by business enterprises led to a contraction in global employment in certain economic sectors of some 5 per cent between 2005 and 2014. While the impact was low in developed countries, where employment in those sectors contracted by some 0.43 per cent, it was much more pronounced in emerging economies, which experienced a contraction of approximately 11 per cent (Carbonero, Ekkehard and Weber 2020).

The potential for new job creation to offset job losses is reflected in other studies: in Kenya, for example, a country that is rapidly adopting innovative new technologies, the Bank of Kenya recorded the loss of some 6,000 bank staff positions between 2014 and 2017. However, the number of mobile financial services agents increased by 69,342 during that period (Choi, Dutz and Usman 2020). The study did not, however, reveal whether the jobs created were in the formal economy.

The ILO Global Commission on the Future of Work has recognized the job creation potential of emerging technologies, but also cautions that there will not be an automatic transfer between obsolete jobs and emerging jobs. Unless policy levers for upskilling, retraining work experience, and relevant social protection measures are put in place to cushion displacement and help workers to take up emerging higher-value job opportunities, the risks of informalization remain high.

Social protection instruments are more diverse than simple cash transfers. Assistance can take the form of income support or opportunities for retraining and upskilling, in addition to work placement schemes and public works. Social protection instruments are therefore a key part of States' toolkits for advancing structural transformation in labour markets and mitigating the risks associated with the adoption of digital technologies. At present, however, few developing countries have put in place specific measures to navigate the turbulence that technologies can bring to labour markets. The severe fiscal and capacity constraints faced by many

African governments mean that the continent has some of the least effective social protection mechanisms in the world. Indeed, according to the World Social Protection Data Dashboard, a database compiled by the ILO, only 17.4 per cent of the population in Africa is effectively covered by at least one social protection benefit, compared to 43.4 per cent in Asia and the Pacific.[3]

1.8. Inequitable global digitalization patterns are already being established

Digitalization facilitates cross-border activities and can enlarge labour markets to a global scale. Digital disruptions have already led to the creation of enormous wealth in record time, but that wealth is highly concentrated in a small number of countries, companies and individuals. Countries with limited capabilities to turn digital data into digital intelligence and business opportunities are at a clear disadvantage when it comes to value creation (UNCTAD 2019).

Global power centres of governance in the digital economy tend to be located in a very limited number of economies, raising potential concerns for policymakers and regulators about the enforcement of regulations, as well as taxation and social protection responsibilities. There are increasing concerns about the risks arising from the concentration of market power among global digital technology giants, such as unfair business practices, lack of competition and the tax avoidance strategies, which can reduce government revenues (UNCTAD 2019).

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3   For updated statistics, see: ILO, *Social Protection Data Dashboard*, 2021.

The uneven playing field means that digital entrepreneurs from developing countries will face significant challenges as they strive to scale up their activities. In turn, this is likely to stymie local innovation, and make it difficult to combat the monopolistic practices of digital giants. Developing countries may, in fact, find themselves in a "data trap", and find themselves unable to move up data value chains. As such, they are likely to remain dependent on global digital platforms (UNCTAD 2019). The 2019 Human Development Report echoes similar concerns, emphasizing that certain aspects of technology are associated with increasing inequality, which can, for example, worsen as income shifts away from labour and towards capital, and as markets become increasingly dominated by a select group of firms (UNDP 2019).
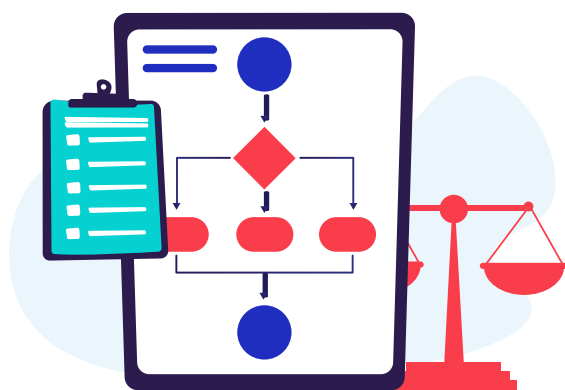
1.9. Weak regulatory frameworks

To shape how technologies impact labour markets, governments need to adopt policies, laws, regulations and incentives and disincentives in a diverse range of fields related to technology. One of the most problematic issues relates to the creation of effective enforcement mechanisms, particularly when ICT has facilitated the extension of labour markets across national and regional borders and where monopolistic practices have made it easier for certain businesses to evade regulatory frameworks as discussed above.

Regulators need to develop robust competition laws, anti-trust legislation and regulations on mergers and acquisitions in order to ensure that early adopters of technologies do not resort to unfair practices in order to maintain their market dominance (World Bank 2019). Preventing horizontal and vertical integration of markets by dominant firms, as well as facilitating the entry and expansion of new businesses offering goods and services are essential if countries are to prevent oligopolistic tendencies, but ensuring compliance by dominant industry players can be very challenging (Choi, Dutz and Usman 2020). With technologies evolving rapidly, regulatory frameworks also need to respond quickly to adapt to evolving work arrangements. In some cases, regulatory frameworks are no longer fit for purpose. For example, employment through internet and mobile based platforms is forcing governments to rethink, clarify and extend the scope of traditional employment relationships embedded in labour laws. There is growing evidence that unregulated platforms in the gig economy can usher in new forms of informality, including through the misclassification of dependent workers as independent contractors. The ILO's World Economic and Social Outlook 2021 notes that the working conditions for those employed through digital labour platforms are largely based on service agreements drawn up by the owners of those platforms, which can result in workers being unable to access entitlements and protections as employees (ILO 2021a).

The challenge of regulation is made more problematic when the impact of emerging technologies may be uncertain. UNCTAD, for example, has suggested that given the uncertainty and novelty of the issues at stake and the rapid pace of technological change, policy experimentation will be necessary in order to assess the benefits and disadvantages of different policy options. For most countries, the digital economy and its long-term repercussions remain uncharted territory, and policies and regulations have not kept up with the rapid digital transformations taking place in economies and societies. The use of regulatory sandboxes could be a first step before moving to fully national, regional or global solutions (UNCTAD 2019).

2

Public policies to support e-formalization

In a myriad of ways ICT can help to: improve working conditions, including occupational safety and health; enhance access to large markets; facilitate the organization and representation of workers and economic units; mine data to support labour administration and improve labour inspection systems; facilitate technology transfer and improve financial access for MSMEs, disseminate information and skills; deliver essential services to remote areas and vulnerable groups; enhance access to social protection; and bypass traditional hurdles to development.

ICT is thus becoming part of an essential tool kit for governments. Its use can leverage improved governance and promote the efficiency of core public functions to facilitate economic transformation. While current efforts to promote formalization through the use of ICT tend to be piecemeal rather than part of a cohesive strategy, the following section looks at some of the many areas where technologies are being used to support the emergence of inclusive labour markets. The focus in this section will be on examples from sub-Saharan African countries, and from developing countries in Asia- and the Pacific.
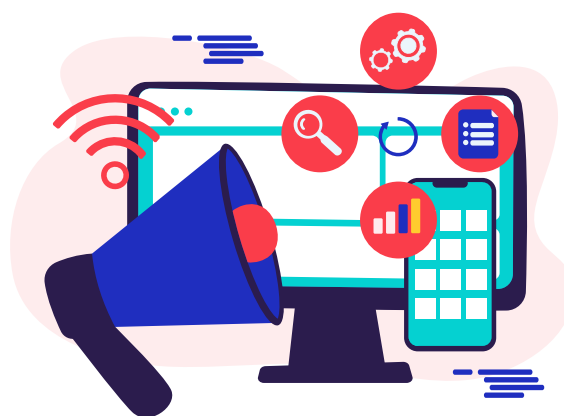
2.1. The adoption of effective regulations to promote formalization

Governments need adaptive, flexible and often proactive approaches to tackle the regulatory challenges stemming from digitalization in order to support formalization. As will be discussed below, regulations are required in all fields that have been affected by digitalization. For example, governments need to facilitate universal access to mobile phones as well as to the internet. Regulators must seek to foster the emergence of effective digital ecosystems that protect privacy and strengthen data management, create an enabling environment for digitalization in the private sector, and prevent uncompetitive practices. Public policies are required to promote financial inclusion and financial and digital literacy, and governments must clarify and

broaden the scope of labour legislation to cover gaps in protection. In many cases regulations must balance equity and efficiency trade-offs, but in ways that promote formalization and decent work for all.

Governments have a wide variety of tools at their disposal and can create incentives and impose sanctions to promote compliance. Public resources need to be directed towards unleashing innovation and transforming economic activities, while maximizing the benefits those in the informal economy. The protection of vulnerable groups and promotion of decent work for all should be the guiding principles in the development of regulatory frameworks supporting formalization. If countries manage digitalization effectively, technology can be a powerful force for transforming the informal economy. Strategies adopted by regulators to address digitalization challenges across a range of fields are discussed below.
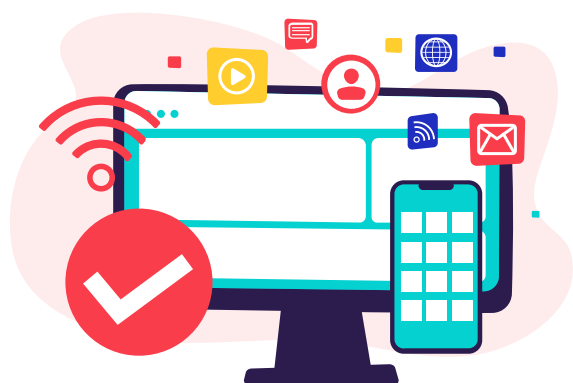
2.2. Ensuring accessibility and affordability

Public policies and partnerships with the private sector have a vital role to play in ensuring universal internet and mobile phone access. A rights-based case for universal access to ICT is well established and has been incorporated into the Sustainable Development Goal 9[4] and the Broadband Commission for Sustainable Development had called on the international community to reach 75 per cent broadband coverage by 2025 (World Bank 2021a). Furthermore, the internet is now fully recognized

as an essential public good in the context of the pandemic.

The business case for universal access to ICT also provides compelling reasons why countries should invest in widespread access. For example, the World Bank estimates that a 10 per cent increase in the penetration of broadband in developing countries is associated with a 1.4 per cent increase in GDP per capita (Kelly 2012). Similarly, the African Union suggests that reaching its Digital Transformation for Africa goals of universal and affordable internet coverage and universal mobile phone penetration would raise real GDP per capita by 2 percentage points annually and would reduce the poverty head count by 1 percentage point per year across sub-Saharan Africa (Choi, Dutz and Usman 2020)

Universal access is a key area in which governments can take a role in guiding markets to promote pro-poor outcomes. Among the tools that can be used to ensure that less economically viable areas and poorer communities are able to benefit from ICT are: the imposition of levies on private-sector providers to fund ICT initiatives in remote and rural areas (combined with public resources), direct infrastructure investments, the roll out of cross-subsidization and flexible pricing schemes, the imposition of minimum coverage obligations on private-sector stakeholders awarded operating licences, and creating space for smaller-scale, community initiatives. With private-sector support, public authorities can also encourage public access solutions such as Wi-Fi hotspots in informal economy communities and the provision of free data for certain digital services.

Many countries have enacted universal access and service (UAS) policies, firstly to promote voice communication, and more recently to increase internet access, including broadband. Around 70 per cent of African and Asia-Pacific countries have included broadband access in their UAS programmes (ITU and World Bank 2020). Indonesia recently launched an ambitious plan to provide public access across many of its 17,000 islands by 2022. In the Philippines, the Free Public Access Program is expanding connectivity through the country: in

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4   Sustainable Development Goal 9, target 9c, refers to "significantly increase access to information and communications technology and strive to provide universal and affordable access to the Internet in least developed countries by 2020".

Renewing the social contract through e-formalization in the world of work
Public policies to support e-formalization

15

2019, 2,677 internet access points were already operational, with 6,000 expected to be added in a second phase. Meanwhile, in Thailand, the Government is extending connectivity to some 4,000 villages (UNDP 2019).

Universal access and service policies have not only promoted access but also digital literacy and the roll out of skills programmes. The Broadband Commission suggested establishing gender equality targets for use and access, developing policies and resources for gender equality, and consulting with and involving women from local communities. Good practice examples include a programme launched by the Ghanaian Government to advance the use of technology and internet-enabled services through its UAS funds. Other initiatives include capacity-building programmes for underserved communities and the training of thousands of girls in coding (ITU and World Bank 2020).

In some countries, public funds mobilized through UAS policies are also used to stimulate local innovation. The Nigerian National Broadband Plan 2020–2025, for example, provides free domain name registration for two years with a view to establishing an online presence for more Nigerian businesses, and digital literacy and awareness-raising initiatives to spur demand. Additionally, the Plan calls for the development of educational, vocational and entrepreneurial content in local languages, and envisions the development and implementation of an enhanced digital virtual e-library with a range of digital resources with translation of foreign-language material into local languages (ITU and World Bank 2020).

A note of caution should, perhaps, be sounded regarding the design of UAS policies as some funds have been less successful than others. Policies that are less successful have often failed to provide for the efficient allocation of resources, have been subject to political interference, or have failed to take into account sustainability concerns in training and maintenance programmes (World Bank 2021a).
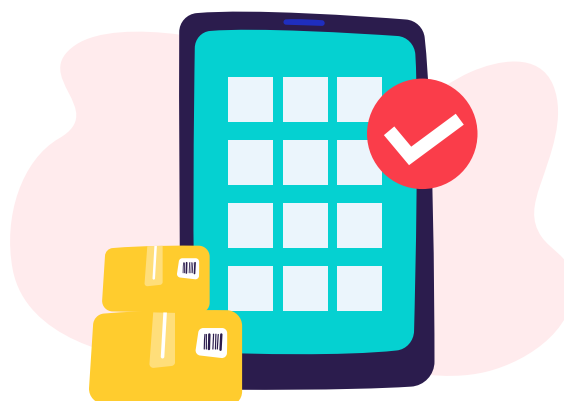
2.3. Fostering the development of innovative pro-poor digital products

Where markets fail to generate adequate returns on investment in informal economy applications, governments can provide subsidies and establish public-private partnerships with a view to achieving inclusive outcomes. Policy packages that deliver strong and broad-based productivity growth while reducing inequality should be formulated (OECD 2017).

There are already numerous products, services and applications that can support micro-businesses and the low-skilled workers, including voice and video-based e-extension services for informal farms and firms, and platforms that do not require reading and numeracy skills. These modalities are particularly well-suited for them who make up a substantial proportion of the workforce in many sub-Saharan African and low income Asian countries (Choi, Dutz and Usman 2020). Designing and creating context-adapted digital technologies, however, requires collaboration with inventors and entrepreneurs, who can be incentivized to promote inclusivity, for example, through fiscal incentives or by ensuring that public contracts incorporate inclusive design elements. Similarly, the establishment of technology parks, investments in research and development and the sponsoring of hackathons for the development pro-poor apps can all help stimulate local content development and the identification of solutions to informal economy challenges.

In the Philippines, the National Broadband Plan provides for the adoption of specific measures to support local innovation. Local content developers are provided with incentives at all stages of the development process, including during the inception, incubation and local application marketing stages. The Plan also encourages the creation of citizen engagement platforms in poor communities and provides for the allocation of resources to ensure applications are available in multiple languages (ITU and World Bank 2020).
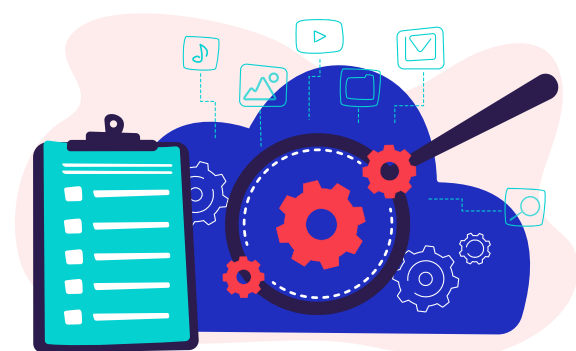
2.4. Harnessing big data for policy diagnostics

Big data analytics can be used to ensure that public policies address the needs of excluded groups in the informal economy. They can be used to complement traditional statistical tools (such as census and household and labour force surveys) (box 3), and can also prove cost-effective in the long term. According to the 2021 World Development Report, improved data can be used to support inclusive outcomes in three main ways: by improving policy making and service delivery; by prioritizing scarce resources and targeting them to reach marginalized populations and areas; and by holding governments accountable and empowering individuals to make better choices (World Bank 2021a).

Databases that combine census, mobile phone and household data can provide proxies for poverty levels. In Uganda, for example, satellite imagery and software applications have been used to count roofs and identify their construction materials with a view to identifying pockets of extreme poverty (ITU and World Bank 2020). In Senegal, big data analytics informed by mobile phone data, satellite imagery and other diverse datasets are being integrated to capture information on poverty and living standards more accurately. Furthermore, the data informing the Multidimensional Poverty Index[5] is being used to accurately assess economic activity, environmental issues and food security, generate poverty maps, improve the diagnostic capacity of policymakers and their ability to draw up effective policies to eradicate poverty (UNDP 2019).

In the United Republic of Tanzania, data from mobile phones has provided greater resolution and timelier maps of poverty than those formerly generated using only data collected as part of the country's household surveys. Indeed, by combining mobile phone and household survey data, it has become possible to estimate poverty across 169 districts instead of across only 20 districts, as was formerly the case. Combining the two data sources has therefore enhanced the poverty picture eight-fold with no loss of precision (World Bank 2021a).

Similarly, in the Gambia, mobile phone data has been used to create maps tracking the effects of lockdowns and other measures imposed to prevent the spread of the COVID-19 virus. The maps revealed that the poorest districts were disproportionately affected by lockdowns and drew attention to the fact that targeted relief and recovery efforts were needed in those areas (World Bank 2021a).

A fundamental prerequisite for trust in data systems is data cybersecurity. While few countries have adopted adequate legal frameworks on cybersecurity, the Kenya Data Protection Act stands out in sub-Saharan Africa as an example of an effective and comprehensive approach to cybersecurity. Regional initiatives are vital too. The Association of Southeast Asian Nations (ASEAN), for example, has adopted the ASEAN Framework on Digital Data Governance to facilitate the coordination of member States' data governance arrangements and promote interoperability (World Bank 2021a).

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5   It complements income-based poverty measures by reflecting the multiple deprivations that people face at the same time.

2.5. Promoting digital skills

Given that skills and education are a public good, governments need to ensure that vulnerable and excluded groups have access to quality education and promote life-long learning and workforce reskilling. Governments can incentivize public and private-sector skills providers and non-profit organizations to update their service provision and delivery to cover the informal economy. In that regard, the capacity of ICT developers to customize content to ensure relevance and take-up by informal economy groups is of critical importance.

An impressive example of an ICT-driven educational initiative targeting informal economy communities is an initiative launched by Barefoot College.[6] A wide range of training courses are offered, including courses in solar power technology and digital literacy. Many Barefoot colleges have continued to operate during the ongoing pandemic by offering courses in digital formats and by making use of solar power.[7]

Addressing digital skills gaps will invariably depend on the adoption of innovative ways to impart those skills among those in the informal economy. Research by Palmer (2020) suggests that a number of non-traditional methods can be used in teach skills to individuals employed in the informal economy. These include broadcasting educational programmes on the radio and television, making use of educational apps on tablets and smartphones, designing educational computer games, involving people in sports and the in creative arts, and encouraging volunteering and participation in community clubs, associations and societies.

Even for those in the lowest skills categories, digital skills can be a lever for increased productivity. Many famers in sub-Saharan Africa and parts of Asia are already reaping the benefits of the widespread use of ICT to disseminate information on a variety of topics. Customized apps can boost numeracy skills for those who may be non-literate and help them upgrade their skills significantly. In the Indian state of Bihar, for example, a series of very effective video apps that communicate short, simplified educational messages have been designed for rural women and have facilitated their retention of key information (UNESCO 2018).

Innovative, complementary schemes, and extending the outreach of technical and vocational education and training (TVET) to the informal economy are also important. In that connection, the success of organizations such as iHub[8] in Kenya and Kumasi Hive[9] in Ghana in driving innovation and skills acquisition is well documented (Klopp et al. 2017a).

Furthermore, as the pandemic has shown, digital capabilities can enable informal economy operators to keep their economic activities open during lockdowns by harnessing opportunities for e-commerce, mobile money and other Fintech products. Rwanda has embarked on a digital journey (box 7) and has led to the launch of a number of innovative programmes, including the Digital Ambassadors Program which has harnessed the energy and dynamism of 5,000 young digital ambassadors to train Rwandan citizens in digital literacy. The training provides basic digital skills to rural Rwandans who have minimal skills in using the internet.

Several regional initiatives in Africa have emphasized the need to strengthen the continent's digital skills base. The African Union has called for a massive online e-skills development programme to teach digital skills, including in the area of online security and privacy, to 100 million Africans per year by 2021 and 300 million per year by 2025.

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6   An organization active in rural communities in 93 countries, for non-literate women and girls.
7   For further information see: www.barefootcollege.org/
8   An organization that promotes innovation and provides mentoring and business support.
9   A similar organization that provides opportunities for entrepreneurs to test prototype ideas and products and access business support.

In Asia, the Go Digital ASEAN initiative has been launched to equip MSMEs and underemployed youth, particularly in rural and isolated areas, with crucial digital skills and expand economic opportunities across ASEAN member States. The initiative aims to provide training to some 200,000 disadvantaged individuals, (with a target of 60 per cent of participants being women) in order to broaden their engagement with the digital economy (Asia Foundation 2020).

2.6. Enhancing social protection mechanisms

Digitalization offers immense opportunities for integrating informal actors into national protection systems, thereby bringing them under sustainable State protection and oversight (Klopp et al. 2017a). Indeed, digitalization is helping to streamline and simplify administrative processes, strengthen the management of large-scale data with a view to coordinating programmes and avoiding duplication; ensure interoperability, which can help prevent fraud and wastage; and enhance service delivery to poor and marginalized groups.

ICT is already being widely used to support universal health access in many countries. E-health solutions in Rwanda, for example, including Tracknet and Onehealth, have enhanced both the quality of and access to healthcare, while in Viet Nam innovative tools such as smartcards that contain users' biometric information have been rolled out to improve the efficiency of social protection platforms (Chacaltana, Leung and Lee 2018).

Integrated social registries through digitalization can harmonize multiple programmes and lower transaction costs. The national social registry in Pakistan now covers some 85 percent of the population, facilitates implementation of approximately 70 different programmes and has contributed to savings of about US$248 million. In South Africa, the harmonization of various social protection programmes has resulted in savings of nearly US$157 million (Choi et al. 2020).

Basic initial steps for harnessing digitalization to support social protection include investing in programmes to: obtain and enhance the information needed by tax and customs administrations; establish mechanisms that allow institutions to share relevant information, and; address capacity gaps in key areas, including data analysis, modeling, and audit selection (Awasthi and Engelschalk 2018).

Many governments have stepped up to the challenge of providing much needed support in the context of the pandemic and, in many cases have made use of digital technologies to extend coverage and reach recipients when physical access has been extremely challenging. In response to the economic repercussions of the COVID-19 pandemic, 51 out of 55 African Union members States launched 227 social protection measures between early February and the end of November 2020. In some countries, including Togo, ICT and mobile phone technologies were used to rapidly distribute cash to the some of the poorest communities in the informal economy (DESA 2021b).

> ▶ **Box 3. Harnessing technologies to identify informal sector households in the context of the COVID-19 pandemic in Nigeria**
>
> The National Cash Transfer Programme, also known as the Household Uplifting Programme is one of several social safety net programmes launched by the Government of Nigeria. The Programme, which began in 2016, was conceived as part of the Nigerian Government's broader growth and social inclusion strategy, formulated with a view to addressing key social challenges within the country. The Programme focuses on poor and vulnerable households whose members are employed in the informal economy, as identified through a combination of geographic and community-based targeting mechanisms. Household socioeconomic data is processed to identify poor and vulnerable families, which are recorded as such in the National Social Register.
>
> When the COVID-19 pandemic struck the country, the Programme made use of innovative technologies to establish a rapid response register that feeds data into the National Social Register. High-resolution satellite images were used to estimate poverty levels at a specific geographical level. Big data mining and machine learning were then employed to identify extremely poor areas, which were then targeted for social protection programme support. The Programme was able to register the following poor and vulnerable groups:
>
> ▶ Informal sector households (including households whose members included persons with disabilities, orphans and vulnerable children, chronically ill individuals and pregnant and breastfeeding women) that had never received any form of social assistance;
> ▶ Individuals without bank accounts;
> ▶ Bank account holders with an average bank balance of less than 5000 naira over a six-month period;
> ▶ Individuals who regularly recharge their mobile phones by 200 naira or less over a six-month period.
>
> Source: Nigerian National Social Safety Net Coordinating Office. https://nassp.gov.ng

Similar measures have been adopted in Asia. Thailand, for example, launched a three-month programme whereby it transferred US$153 each month through digital payment platforms to approximately 10 million farmers and 16 million workers who were not covered by social security programmes (Oxford Business Group 2020).

2.7. Increasing productivity in agriculture

Given that most agricultural jobs are informal, improving productivity in agriculture and establishing linkages with the formal economy should be an essential component to transform their economies and combat poverty. In Nepal, for example, ILO has been working with the United Nations Capital Development Fund (UNCDF) to support the introduction of cloud-based automated digital milk ledgers to help farmers' cooperatives efficiently manage record-keeping and their day-to-day operations. Cloud-based core banking has also been developed to help cooperatives manage their savings and credit operations. Cooperatives use digital wallets accessible on mobile phones to make and receive payments. This in turn leaves financial footprints and can open up opportunities for additional financial services, such as insurance, credit and savings (UNCDF 2020).

Digital platforms and other ICT applications can also improve traceability in value chains by increasing the visibility of input flows. They can also enable farmers and rural traders to obtain reliable information about prices and other vital information that can facilitate their integration into formal value chains, and help them learn about quality standards and transition from less lucrative commodity production into higher value differential production (Klopp et al. 2017a). ICT can also help cooperatives to organize their members and participate in group-led upgrading and certification programmes. Furthermore, information

about climate and environmental change (including data obtained by drones) can help farmers bolster their climate resilience while avoiding practices that further exacerbate climate change.

Instructional videos and simple-to-use applications are having a profound impact in many parts of the world. Research in Ethiopia, for example, has shown that video-mediated extension services reach a wider audience than is usually the case when using conventional extension approaches, and can lead to higher levels of agricultural knowledge and uptake (Abate et al. 2018). Similarly, research (Sousa et al. 2019) has indicated that some 60 per cent of farmers in Mali who watched instructional videos adopted the innovative agricultural techniques they promoted. Furthermore, marketing applications, such as E-Soko in Ghana, provide platforms for farmers to access price data via text message, while the modified transport app Sendi in Kenya allows women market traders to use their mobile phones to arrange the delivery of their goods by motorcycle, thereby avoiding the need to leave their homes (Klopp et al. 2017a).

By working with the private sector and agribusinesses, local and national authorities can promote more effective coordination among firms, domestic research institutions, public extension services, and farming groups and agricultural cooperatives. Government responsibilities also include upholding national health and safety standards, providing an enabling environment for the emergence of market opportunities, enacting public financial access measures, and ensuring compliance with labour legislation applicable to agricultural workers. ICT information platforms can, moreover, be used to raise awareness of all the aforementioned measures.

In Sri Lanka, for example, a public-private partnership comprising a range of relevant stakeholders has established the national Govi Mithuru platform, which provides timely advice to small informal producers via mobile phone on standards and regulations, in addition to information regarding business and e-learning opportunities. The platform produces large amounts of data, which can be analyzed to inform policy design with a view to providing additional support to rural producers (FAO and ITU 2017).

Multilateral organizations also play a significant role in fostering the digital transformation of agriculture. In Kenya, for example, the World Bank Group, the Korean-World Bank Partnership Facility and other development partners are providing financial support to create an innovation ecosystem of agritech start-ups, entrepreneurs and innovators. The aim is to connect one million Kenyan farmers to agricultural digital technologies and scale up their impact to boost the productivity, market links, and financial inclusion of smallholder and women farmers (Choi et al. 2020).

2.8. Supporting financial inclusion

An ICT development with a significant impact on the informal economy has been the digitalization of finance, and the rapid development of financial technology (FinTech). ICT has significantly enhanced access to formal finance, leading to a transformation of financial architecture for poor communities. Basic technologies, including mobile phones, have facilitated the expansion of FinTech platforms, which has in turn led to a rapid expansion of credit and savings opportunities for marginalized individuals and communities, in addition to providing access to insurance products, social protection systems and pensions. ICT has also accelerated formalization by facilitating compliance with regulatory and tax obligations and it has promoted women's economic empowerment by enabling women to maintain control over income that is paid into e-wallets and other secure accounts (Klapper 2017).

Through facilitating the direct and transparent transfer of funds, FinTech can help curb leakage and poor governance. It can also enhance the resilience of household safety nets. Recent evidence from Burkina Faso shows that mobile money users, and in particular, women, less educated individuals, and rural populations, are more likely to save for health emergencies (Choi et al. 2020). The empowerment impact of FinTech and mobile money platforms is considerable for those who cannot meet the requirements of formal financial institutions.

More than one in five adults in the sub-Saharan Africa has a mobile money account, and more than half of all mobile money services in the world take place there (GSMA 2019), making sub-Saharan Africa a global leader in mobile money usage. East African countries, and particularly Kenya, were early adopters of mobile money platforms, which are now used widely across the subregion. The use of mobile money platforms is less common in West Africa.

The financial landscape in sub-Saharan Africa continues to evolve. In Sierra Leone, for example, a blockchain-enabled digital credit bureau has been established by UNCDF and Kiva, an online lending platform. The Kiva Protocol, a secure, open-source technology platform, enables users to record their financial transactions, transfer information among institutions, and gain access to formal bank accounts. When deployed on a national scale and implemented within regulatory frameworks, the Protocol enables a country to advance its financial inclusion goals, bringing together individuals, government agencies, informal economy actors and formal financial institutions (Kiva Protocol, n.d.).

M-Pesa, one of the first and most successful mobile money services in Africa, has enabled the number of Kenyans included in the formal financial system to grow by some 50 per cent. Access to M-Pesa has enhanced occupational choice in Kenya and has significantly reduced financial exclusion, which is now only 17.4 per cent. In particular, the adoption of M-Pesa and other mobile money services has enabled women-headed households to increase their savings by more than one fifth and allowed some 185,000 women to transition from agriculture into business or retail. Extreme poverty among women-headed households has fallen by 22 per cent (Suri and Jack 2016).

African countries are now customizing mobile money platforms for their own circumstances. Kenya and Somaliland have designed telecom-led mobile money platforms while Nigeria has adopted a bank-led model (Klopp et al. 2017a). In collaboration with the private sector, Ghana has developed a voluntary mobile money pension contribution system for informal workers (Chacaltana, Leung and Lee 2018). The State benefits by bringing informal transactions into the formal economy and workers in the informal economy benefit by gaining access to affordable financial services.

In Asia, governments have also made use of ICT to promote financial inclusion, including in partnership with the private sector and civil society organizations. The Mobile Financial Service Programme in Bangladesh aims to reach the entire population of the country, including in remote areas. Participants in the programme numbered 42 million in 2017, including 80 per cent of rickshaw drivers in Dhaka, who are now able to transmit remittances to rural villages. In India, government initiatives such as Pradhan Mantri Jan Dhan Yojana aim to expand financial services to the poor, enabling them to open savings and remittance accounts, apply for credit, take out insurance and open pension accounts (African Development Bank 2018).

In Indonesia, e-money use quadrupled between 2014 and 2017, while revenue from e-commerce grew by some 22 per cent between 2016 and 2017. In combination with digital ecosystem growth in the private sector, a number of government programmes and projects, including the Laku Pandai project on branchless banking, the SimPel project on student savings and the National Strategy for Financial Inclusion, have supported the increased use of digital payments. (Better than Cash Alliance 2020a).

China is one of many countries promoting digital payment systems for wages through its Enterprise Wage Payment Online Supervision System, which combines elements of its e-government and e-banking strategies. Digital payments are being piloted in Zhejiang Province for migrant workers in the construction sector, enabling them to open e-banking accounts into which their employers pay their wages. Through the use of internet and QR scan codes, the Government is able to ensure that wages are paid in full to migrant workers by their employers (Huang et al. forthcoming).

As a necessary prerequisite, governments must establish regulatory frameworks to protect data and consumers, safeguard against fraud and breaches of privacy, and prevent data misuse. (Asian Development Bank 2018). They must also ensure fair competition and guard against monopolistic practices, which can impede market access by smaller players and undermine competition. Governments must, moreover, promote inclusion by facilitating the diffusion of financial innovations and incentivizing providers to customize their services to clients' needs and particular circumstances (Asian Development Bank 2018). In the context of COVID-19 pandemic, ICT is playing a vital role in curbing the spread of the virus, enabling traders and retailers to keep economically active and safeguarding access to food supplies (box 4).

▶ **Box 4. Mobile money in the fight to curb the COVID-19 pandemic**

In the early stages of the COVID-19 pandemic, the World Health Organization voiced concern that cash could act as a conduit for spreading the virus. Around the world, the use of mobile money and e-commerce has been a major way for citizens to continue to enjoy access to basic goods and services during lockdowns and it has also enabled traders, including those operating in the informal economy, to continue to run their business enterprises. Major financial service stakeholders have offered support to facilitate the implementation of public policies to combat the pandemic. In Kenya, for example, leading telecom operator Safaricom temporarily waived all services fees for M-Pesa transactions under a certain value. It also increased daily transaction limits for MSMEs. On 1 March 2020 alone, a million new users joined M-Pesa, increasing the number of subscribers to some 25 million. In Ghana, the Government made use of mobile money platforms to provide support to some 100,000 MSMEs. According to the Central Bank of Ghana, mobile money transactions reached a record high in March 2020 and continues to grow (International Finance, 2020).

2.9. Smart cities

In developing countries, the majority of urban workers continue to earn their livelihoods in the informal economy (Chen 2016). For informal economy communities, local authorities are usually the first point of contact with public structures. Transition from the Informal to the Formal Economy Recommendation, 2015 (No. 204), calls, for the promotion of local development strategies, both rural and urban, including regulated access for use of public space and other public resources to support livelihoods. This will by necessity require transforming often fractured relationships between local authorities and urban informal economy communities (Chen 2016). Informal settlements are often underserved in terms of basic services, including decent housing, water, sanitation and electricity, which are all critical prerequisites for decent working and living conditions. Additionally, marginalized communities are sometimes compelled to pay unofficial fees to continue their economic activities.

ICT has great potential to accelerate the development of inclusive cities and support actions to promote formalization. The concept of "smart cities" posits technologies as an enabler to facilitate urban inclusion through the improved targeting of public policies, the provision of universal access to public goods and utilities, the establishment of more equitable public procurement, broad-based engagement with citizens and more democratic local government.

To date, notable smart cities progress has been achieved in only a handful of cities in developing countries. Successful innovations include Airtel Congo's fleet tracking devices, Sweetsense, the installation of smart water meters in Rwanda, smart fire detection technology in Cape Town, South Africa, and solar powered water dispensers in India. In Kenya, Internet of Things technologies are being used effectively to enhance the reliability of water and electricity grids in informal settlements in Nairobi (Chambers and Evans 2020). A major positive outcome of research into the potential use of Internet of Things technologies in informal settlements in the latter study has been the rebuilding of trust between informal communities and the public authorities.

It is not only in urban areas that "smart city" approaches can be undertaken. In the Niger, for example, the

Government has partnered with a number of United Nations agencies to develop "smart villages" With private sector support, the "smart villages" concept is framed within a whole-of-government approach, facilitating internet access in remote areas, promoting the digitalization of health and education services, promoting entrepreneurship, and facilitating the provision of agricultural information and services (ITU 2019).

In Lesotho, Namibia and Rwanda, digitalization is being used to develop land registry systems as part of those countries' e-government strategies, while in India, a number of cities are developing digitalized labour market information systems that can respond rapidly to new skills needs through e-training platforms and match suitably-qualified individuals with job openings (U4SSC n.d.).

> ▶ **Box 5. "Smart cities" fighting COVID-19**
>
> The Internet of Things is being deployed around the world in the fight against COVID-19 and is being used to contain and eradicate the virus, getting people back to work safely and restarting economies. Some cities have made use of self-driving, remote controlled robots and drones for sanitization, and many are using contact tracing and quarantine enforcement apps that use Bluetooth technology, mobile phone networks and the Global Positioning System (GPS). In densely populated urban areas, 5G and data analytics are being used to determine hot spots for crowd gathering and remote monitoring of situations to support public policies to combat the pandemic. The Internet of Things is also likely to be increasingly used to accelerate the restarting of economic sectors that have been badly hit by lockdowns, including the tourism sector.

Some critics of smart cities have noted their heavy reliance on sophisticated digital technologies, complex software and high-end technical solutions. Of more concern is that the policy approach is often top-down, and therefore fails to take into account the needs or views of informal economy communities in their design (Klopp et al. 2017b). In contrast, the private transportation sector, as a key source for informal economy entrepreneurs and workers, in Nairobi has adopted a bottom-up approach. Using simple mobile phone-based technologies, the Digital Matatu project was launched in Nairobi with the aim of improving urban transport by working with informal economy communities to improve their

transport needs. The project mapped the existing network of informal transport vehicles to find locally driven solutions to urban transport challenges. The success of the project stemmed, to a large extent, from the involvement of informal economy communities in its development and the use of mobile phones, which are used by the vast majority of urban residents. This illustrates the importance of involving local stakeholders in the design of urban policies, including disadvantaged groups with specific issues, such as women, underserved populations, young people and persons with disabilities, and providing them with an opportunity to articulate their specific needs (Klopp et al. 2017b).
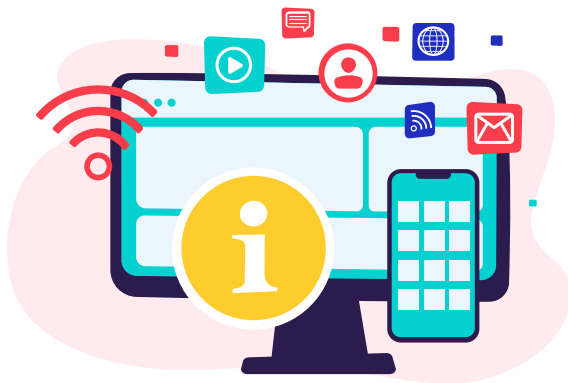
2.10. Managing platforms and the gig economy

Digital platforms have generated a range of issues for regulators to address. The challenges include: the complexities of ambiguous employment relationships; ensuring that digital platforms are consistent with data privacy and protection laws and regulations; ensuring that platforms are not used as a means to avoid paying taxes and other responsibilities; and ensuring respect for fair competition laws to address the tendencies of digital platform businesses to establish winner-takes-all monopolies (World Bank 2020). Another key issue for policymakers, as labour markets become regional and global through digital platforms, is to ensure effective regulation across national boundaries.

At present, few digital platforms offer significant assistance to users who wish to formalize their working arrangements, nor do many platforms take steps to facilitate compliance with regulations. Digital platforms can generate vast amounts of data that could potentially be used for policy diagnostics and policy development. Yet platforms do not face the same reporting requirements as traditional employers and thus do not release relevant information. Appropriately anonymized data for example, could assist in minimum wage policy making. Such data would also help regulators assess whether compliance with labour regulations is taking place (Bissinger, forthcoming).

Despite the complexities in regulating platforms to ensure fairness and decent work, this new type of working procurement allows informal economy workers to offer their labour, services and products within much larger markets. Indeed, digital platforms can broaden the scope of local labour markets to national, regional and even global levels.

Jumia, a Nigerian e-commerce company, for example, has successfully expanded from a medium-sized local firm in Lagos to become an e-commerce company with a continental reach. Pinduoduo, a Chinese e-commerce start up, enables farmers in remote areas to sell fresh produce directly to customers in cities. More than 5.5 billion kilograms of agricultural commodities have been sold on the platform since 2015, and some 50,000 migrant workers in cities have returned to their villages to engage in e-commerce activities via Pinduoduo. Meesho, an Indian company, provides an online platform that is now used by more than 200 million individuals and firms to sell new and used products through social media (World Bank 2020). Lynk, a Kenyan company, has broadened markets for artisans, and Domestly in South Africa offers a broader labour market for domestic workers (Mastercard Foundation n.d.).

The gender dimensions of platforms have yet to be adequately explored. The same gender inequalities and challenges that plague the rest of the economy are prevalent in platform-based work, including gender pay gaps, occupational segregation, precarious own-account work and imbalances between paid and unpaid care work (ILO 2021a). To unleash the efficiency and job growth potential of digital platforms and ensure there are no trade-offs with essential labour protections and rights, ILO has advocated for the development of a governance system for digital labour platforms that sets minimum rights and protections and requires platforms to respect them (ILO 2019a). To reinforce this drive towards the regulation of platforms, Berg and others (2018) have proposed 21 criteria to promote fair microwork to avoid informality and promoting the transition to formal economic activity.[10]

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10   Some included in this list are: ensuring correct classification of employment status if it is a dependent work situation; ensuring workers' rights to organize and collective bargain; ensuring minimum wages are paid; enforcing strict rules on payment and non-payment for services; promoting codes of conduct for platform operators; adapting social insurance protection to cover both dependent and self-employed workers; and using technology to ensure contribution and benefit payments for social protection.

Given the complexities of effective and responsive regulation of the gig economy, there are currently few examples of good practices within either the African or Asia-Pacific regions. However, countries are increasingly recognizing gaps in legal protections for gig economy workers. Malaysia, for example, has indicated that it will direct policy and legislative attention to preventing exploitative practices in the gig economy. A number of countries, including Kenya, the Philippines and Viet Nam have also designed social protection instruments for the self-employed (ILO 2021b).
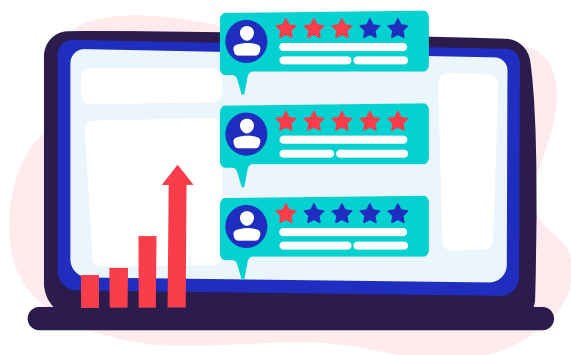
2.11. Improving the business environment

There is ample evidence that the adoption of digital technologies boosts the productivity and employment capacity of firms. For example, a study in Senegal concluded that the level of employment among informal firms who used inventory control and point of sale (POS) software was 1.6 times that of nonusers, while employment in firms who used digital tools to recruit workers was 2.3 that of nonusers. Additionally, the average wage of firms using digital transactions technologies was 1.5 to 2.4 times that of nonusers (World Bank 2021b). In general, conducive business environments that support entrepreneurship and bolster productivity can help curb informality. R204 suggests six areas where MSMEs can be encouraged to move towards formalization.[11] Digitalization and ICT can make these tasks considerably more efficient and less burdensome.

Digitalization of public procurement processes provides numerous benefits for those in informal work and for the economy, including making processes more efficient and transparent. Bhutan has introduced a point/score based online evaluation e-tool that expedites the government's procurement processes, standardize project appraisals, and promote efficient and transparent selection of public investment projects (DESA 2020).

According to the WEF, governments around the world devote around US$9.5 trillion each year to public procurement. However, estimates suggest that between 10 and 30 per cent of the value of these contracts are lost due to poor governance. The WEF notes the effectiveness of blockchain-based procurement given that it enables governments to, "disinfect or de-corrupt their procurement processes through technologically induced sunlight" (Wahba 2020). Blockchain enables permanent and tamper-evident record keeping, real-time transparency and auditability, and automated smart contracts.

The digitalization of public procurements also enhances public service delivery and contributes to private sector development. According to a World Bank blog, using digital interfaces for procurement can yield benefits and savings due to streamlined administration and increased competition, translating to up to 20 per cent in cost savings and 80 per cent in time efficiencies(Tayler and Wright 2018).

To improve procurement outcomes in Uganda, local government entities harnessed data end-to-end, from the bidding process to the execution of contracts, to identify areas of mismanagement of resources by contractors and government officials. This data analysis led to reforms to ensure that local contracts were complying with national procurement standards. Subsequently Uganda became the first African country to upgrade its procurement portal in line with international open contracting standards (World Bank 2021a).

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11 Three of those areas have been discussed here (access to social protection, skills and training, and financial inclusion). The other three areas are: access to public procurement contracts, streamlining and reducing costs of registration and administration, and reducing costs for taxation and social protection. For social protection discussion, see relevant sections on social protection and tax digitalization.

Similarly, an enabling environment for formalization and private sector development includes reducing compliance costs and simplifying compliance procedures. The move towards 'one-stop shops' for registration of enterprises has made great strides, providing a single portal to register entrepreneurs. According to the United Nations E-Government Survey, registering a business and applying for a business license online are services offered by 65 to 70 per cent of countries in Africa. In Asia, approximately 90 per cent of countries offer business registration and business license application services online (DESA 2020).

Cambodia has transformed what had been a cumbersome and complex business registration system by creating a single portal called Online Business Registration, with interoperability between different ministries responsible for business development. The portal runs through CamDX, a central digital infrastructure for data exchange. Not only has the business registration process been reduced to just seven steps but the costs of starting a business have been reduced by 40 per cent.[12]

Along with relevant incentives for compliance with regulations, enforcement measures have also been put in place. The limited capacity of labour inspectors to reach informal economy actors contributes to high levels of informality. Digitalization can support increased outreach and more efficient management of labour inspection tasks. In Sri Lanka, the Labour Inspection System Application (LISA) was developed to facilitate access to several information databases of relevant agencies (Chacaltana, Leung and Lee 2018). Bangladesh has developed a similar system known as the Labour Inspection Management Application (LIMA) launched in 2018.

2.12. Tax digitalization

Paying taxes is one of the biggest disincentives for participating in the formal economy for many informal firms, particularly at the MSME level. This is not only because of the cost burden that an enterprise must bear but also because of a lack of trust in the taxation system, lack of transparency of taxations systems, and the difficulties of complex administrative procedures. This reduces tax revenue for national and local authorities and limits their ability to provide essential services and infrastructure.

While digitalization is not a panacea for fiscal problems it can be an important tool for driving down the compliance costs of businesses and can support transparency and accountability, thus building trust in taxation systems. It can also be used to enhance the cost-effectiveness of tax authorities' processes by improving administrative efficiency and operational productivity, thus increasing net revenue.

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12   ILO, *What works in e-formalization for Asia and the Pacific*, South-South Knowledge Sharing Forum, May 2021. For further information see: Cambodia Data eXchange https://camdx.gov.kh, Online Business Registration https://registrationservices.gov.kh and Techo Startup Center https://techostartup.center.

Digitalization of tax systems involves the use of digital and data-driven approaches to optimize the functions and operations of revenue authorities (Better than Cash Alliance 2020b). In Nepal, for example, outreach to taxpayers and simplifying tax compliance through e-registration and e-filing has effectively broadened the tax base and tax revenue. Between 2010 and 2016 registrations increased six-fold, value added tax returns doubled, and the number of returns filed more than doubled (Better than Cash Alliance 2020b).

Similarly, several countries have experienced a significant lowering of operational costs for tax collection because of digitalization. For example, in the Philippines, between 2015 and 2017 the cost of collecting 100 units of tax revenue fell from 0.64 to 0.41.[13] In Ghana, the same cost reduction went from 2.07 to 1.39. This level of cost savings can enable governments to invest in expanding access to digital government services to more people, especially those in poor or remote communities (Better than Cash Alliance 2020b).

Digitalization of tax facilitates enterprise compliance through streamlined procedures. A study found that between 2004 and 2017, the average time businesses spent on tax obligations fell by 84 hours per year, mostly as a result of technological innovation. The same study found that businesses spend, on average, 237 hours annually in tax-related activities. In Côte d'Ivoire, the average time to prepare and file taxes decreased by 24 per cent per business in 2017 following the introduction of an e-filing system for corporations. In South Africa, e-taxation reduced firm's compliance time and costs by more than 22 per cent on average (Better than Cash Alliance 2020b).

Rwanda's digital innovations have delivered highly impressive results and provided valuable lessons for other countries (see Box 7). Some of these key lessons from its digitalization of taxation include the importance of: (a) leveraging strong government support to increase compliance and drive uptake of new systems and processes; (b) collaborating effectively with the private sector to create commercially viable delivery models for tax digitalization; (c) adopting an agile approach to software implementation (Better than Cash Alliance 2020c).

Indonesia has also achieved significant progress in its digital tax processes, despite the administrative and geographic complexities of managing a system across several levels of government, thousands of islands and communicating to citizens speaking different languages and belonging to more than 600 ethnic groups. A vital component of Indonesia's success has been the dissemination of information through varied channels including social media, roadshows, and public information booths – all of which aim to reach a maximum number of people, including those in the informal economy. The successful outreach has enabled significant capacity building of registration for tax identification numbers and tax responsibility compliance by individuals and businesses (Better than Cash Alliance 2020a).

The digitalization of taxation systems is an important component of multi-policy frameworks that encompass incentives for compliance, capacity building and relevant deterrents to remain informal. Without an adequate combination of awareness raising regarding taxation and a range of other incentives to support transitions, informal operators may feel the costs of formality still outweigh the limited benefits of being part of the informal economy.

As digitalization becomes common across many parts of the economy, it creates momentum for the use of digital payments including tax payments. For example, in Indonesia, where the digital economy is expected to reach 1.483 trillion rupiah (US$100 billion) by 2025, a favorable business environment has been created for digital taxation including among all sizes of enterprise (Better than Cash Alliance 2020a).

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13 This is a financial resource efficiency measure of the costs of administering the tax system and collecting revenue. This indicator is the ratio of the cost of administering the tax system to the total revenues collected by the tax administration. It is expressed as a percentage or as the cost of collecting 100 units of tax revenue (Better than Cash Alliance 2020b).

▶ 3

Establishing policy frameworks for e-formalization

As shown in Figure 1 at the beginning of this report, e-formalization straddles three main policy spheres. E-formalization builds on comprehensive and analogue policy frameworks that address formalization, and particularly the guidance contained in R204. It also integrates with e-government strategies to use new technologies to enable better governance and it is embedded within broader developments related to the digital economy in general. The three policy domains are separately discussed in this section to draw out guiding principles for developing frameworks to support e-formalization. Suggestions for basic public policy pre-requisites to unlock the potential of technologies that support shifts to the formal economy are also included.

3.1. Comprehensive approaches to formalization grounded in R204

Policy discussions regarding transitions to the formal economy have reached many milestones, most notably with the guidance provided by R204,

which was developed in 2015 through tripartite discussions and negotiations. The R204 provides advice to countries on a multi-policy approach for a transition to the formal economy and recognizes that piece-meal policy approaches generally only have a modest impact. It provides a framework to facilitate integrated policies that are anchored in the diversity of characteristics, circumstances and needs of workers and economic units in the informal economy, and the necessity to address such diverse needs with specifically crafted approaches.

The framework enables countries to design their own policies based on their specific national circumstances and drivers of informality and acknowledges the array of available policies. It also emphasizes the need for coherence and coordination with the broad suite of national development policies. In addition, particular attention must be given to the most vulnerable groups in the informal economy, with targeted approaches.

R204 also provides a non-exhaustive list of policy areas that enable an integrated approach. Governments and social partners are encouraged to balance incentives to formalize and capacity building support for informal actors with effective deterrents and disincentives to remain informal. Similarly, a balance must be found between protection and the need to retain the flexibility and dynamism of the informal economy. This underscores the emphasis that R204 places on social dialogue between tripartite partners to formulate and implement formalization policies.

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What digitalization adds to the guidance from the Recommendation is the possibilities to accelerate progress, and leapfrog obstacles in every policy area related to formalization.

3.2. E-Government strategies for better governance

E-government strategies refer to the use of ICTs to enhance the operations, administration, responsiveness and delivery of services from governments to their citizens. Digital enhancements can support interactions in a number of domains: between citizens and their governments, between central governments and other government agencies, and between governments and businesses. E-government can operate at city, state and national levels, facilitating better governance, ensuring information dissemination and making all aspects of public administration more transparent and efficient. In ideal conditions, digital technology can: transform the way governments respond to citizens, build trust in public institutions and strengthen democratic participation in all aspects of society and the economy.

The United Nations has been tracking e-government developments globally through its E-Government Development Index (EGDI) in order assess how a country is using ICTs to promote access and inclusion for its people. The EGDI is a composite measure of three dimensions of e-government: (a) the provision of online services, (b) telecommunications connectivity and (c) human capacity. A biannual survey provides a ranking of 193 countries.

One of the striking features of the EGDI results is that it reveals that the level of development and income of a country is not necessarily a determinant of progress in e-government (Chacaltana, Leung and Lee 2018), as discussed in Box 6 below. Rwanda's digital leadership in sub–Saharan Africa is discussed in Box 7.

▶ **Box 6. Cambodia emerging as e-government leader among least developed countries**

According to the United Nations E-Government Survey 2020, Cambodia has made significant progress towards e-government, becoming a leader in digital transformation among the group of least developed countries.

Cambodia began its digital transformation after its civil conflict ended. Cambodia detailed its intention of developing a digital economy through the Rectangular Strategy Phase Plans and the announcement of their goal to transform Cambodia into a digital economy by 2023. The vision is that digitalization can provide a means for Cambodia to advance rapidly in its economic development.

With very little infrastructure to support fixed lines, Cambodia embraced mobile technologies. This leapfrogging strategy helped the country in building a robust telecommunications infrastructure that has enabled widespread use of mobile phone technologies. The Cambodian digital ecosystem is undergoing rapid and fundamental changes to tackle long standing issues, including low broadband penetration, weak adoption of technologies among MSMEs, incomplete legal frameworks, limited digital skills capacity and fragmented digital governance efforts.

Successful digital expansion will need to include the development of guiding frameworks, a plan for closing digital gaps, elaboration of a digital skills readiness strategy and adopting laws in e-commerce, cybersecurity and data protection and privacy. In addition, the country will need to ensure that all digital policies are coherently aligned.

▶ **Box 6. (cont.)**

Recently, the government has stepped up efforts, particularly in relation to the COVID-19 crisis, to not only deliver online access to relief efforts but also to develop pro-poor solutions to address effects of the crisis. In April 2020, several Cambodian start-ups showcased pandemic-driven digital solutions in a hackathon dubbed HacKHtheCrisis.

Even prior to the COVID-19 pandemic, efforts to put in place a responsive ecosystem for digitalization in both the private and public sectors were gaining momentum, including measures to improve the capacity of the postal service to manage e-commerce. Furthermore, a cross-ministry e-commerce strategy has been drafted and a recently passed law on e-commerce has reduced the costs of business registration by 40 per cent to ease formalization costs for start-ups. These gains have been accompanied by a single platform that delivers information on registering a business. In parallel, a consumer protection law has been passed and a draft cybersecurity bill is under review for adoption. Funds have also been made available to support a bootcamp for MSMEs for grants to launch online operations.

Although Cambodia has only just begun to develop a vibrant, secure and effective digital economy, its efforts are reaping rewards. This is a result of political commitment to digitalization and the allocation of resources to e-government, as well as nascent digital support for the private sector.

Sources: The World Bank, *Benefiting from the digital economy: Cambodia policy note*. 2018.
DESA, *E-Government survey*. 2020.
A. Klöckner and R. Hör, eds., *Lead in: E-governance in Cambodia* (Conrad Adenauer Stiftung, n.d.)

Another example of a developing country which is progressing on its digitalization policies is the United Republic of Tanzania. It has established the E-Government Agency to coordinate, promote and enforce public digitalization policies. The framework outlined by the authority includes a public-private partnership to support e-government implementation and monitor results and impacts.

Uganda has also developed a rigorous legal framework for e-government that includes an architecture compatible with data management and the facilitation of technology adoption by the private sector. The country's e-Government Master Plan is updated every two years.

Notably, in all these cases, public investments into e-government are taking place with only an implicit understanding that they will improve the lives and livelihoods of informal economy actors. However, if those aspects of e-government strategies that address the labour market make formalization an explicit goal, there is immense potential for greater policy precision and accelerated momentum towards shifting unprotected workers and economic units towards the formal economy. It can also assist with more effective coordination of labour market outcomes with other national priorities such as SDG commitments, climate change initiatives, pandemic mitigation and other large-scale public policies.

3.3. Harnessing developments in the digital economy

The digital economy encompasses private sector developments at national, regional and global levels and thus has broader implications than digital developments taking place within e-government strategies. The gig economy, e-commerce, and the growth of FinTech are just some aspects of the rapid proliferation of the digital economy.

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In many cases, ICT innovations have already penetrated the informal economy, generating both threats and opportunities. On the one hand they have spurred the development of new products and services, transformed economic activities and fostered home-grown innovation for solving local problems. On the other hand, the disruptions caused by ICTs can also entrench inequalities within the informal economy between those who have the access and skills to unleash the potential of new technologies and those who do not. How these technologies are used for supporting inclusive goals is a matter of political will, strategic planning, policy development, investments in resources and appropriate regulations.

Gaps are already emerging both between countries and regions and within them in different facets of the digital economy. This phenomenon both reflects and reinforces existing inequalities. There is already significant disparity between countries in the deployment of artificial intelligence, automation, machine learning and blockchain and other advanced technologies. Similarly, while in some countries, smart cities and the growth of e-commerce have already reached a significant state of maturity and refinement, in others, even the challenge of universal internet coverage remains unresolved.

In the same way as e-government strategies, the pace of change and integration into the digital economy is not based on the level of development of a country. For instance, Rwanda and Kenya have overcome weak infrastructure to become digital leaders and technological powerhouses in sub–Saharan Africa. Their success derives in part from enabling the private sector to take advantage of digital innovations as an engine of growth. To site one example, Kenya environment for business growth, spearheaded pioneering developments in Fintech, which have supported the financial inclusion of large segments of the population.

As the digital economy makes advances in countries around the world, good practices suggest that countries should take pro-active approaches by developing comprehensive plans and roadmaps for digital transformation. An important part of that process is developing contextual and situational analyses to identify gaps and opportunities for both private and public sectors.

Stakeholder input and social dialogue is vital component in avoiding a top-down approach and ensuring that inclusiveness, accountability and transparency are integral to the processes, thus offsetting the risk of low uptake of new technologies. Additionally, capacity building needs and gaps also must be identified so that a strategy and accompanying road map for digital transformation can be put in place.

Rwanda's experience is highlighted as an example of good practice, and its public investments into the digital economy have seen it emerge as a robust regional hub for technology (box 7). It is noteworthy however, that while e-commerce is thriving and there has been a successful rollout of a broad range of digital innovations, the digital uptake by smaller private sector units remains muted for a variety of reasons.

▶ **Box 7. Rwanda's emergence as a regional leader in digitalization**

Rwanda's digital transformation has been remarkable and it is now a leader on the African continent because of its comprehensive approach to digitalization.

Policy commitments for a holistic digital transformation are stated in overarching policy architectures including the Vision 2050 Strategy, the National Strategy for Transformation (NST) and the Smart City Rwanda Master Plan. Those policy documents uphold the vision to use digitalization to accelerate growth, reduce poverty and create a knowledge society.

Digitalization has transformed public institutions and public services. Expansion of the government's e-service offerings and regulatory reforms have helped Rwanda emerge as a top African performer in both global "e-government" and "doing business" rankings. Rwanda's ICT sector has grown rapidly over the last five years, with an impressive 12.7 per cent value added increase in 2014-2018.

▶ **Box 7. (cont.)**

Examples of measures Rwanda has put in place include the Irembo e-service portal, which enables citizens to access 96 public services, make online payments and submit documents. Rwanda's experience with tax digitalization was highlighted in section 2.12 as a public policy but other innovations from both the private and public sectors include mobile money and mobile banking services, digital services for agriculture (e-Soko) and health (Mobile e-Health).

The country has achieved some of the highest 3G and 4G network coverage rates in Africa, meaning almost all Rwandans have access to mobile broadband. The government has also launched an innovative initiative to expand digital literacy (see Rwandan's Digital Ambassadors programme in section 2.5 on digital skills development). It has also created a favorable environment for tech start-ups.

Source: The World Bank, *Rwanda Economic Update: Accelerating Digital Transformation in Rwanda,* 2020.
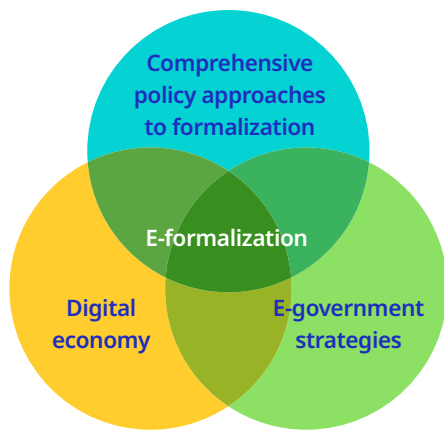
3.4. Bringing the three different policy spheres together for e-formalization

E-formalization sits at the crux of the three policy arenas discussed above. By combining these spheres it is possible to derive some guiding principles and the basic building blocks for e-formalization as outlined below.

Comprehensive, multi-policy approaches to formalization that are guided by R204 are most likely to have the largest impact. Integrating digitalization into a comprehensive approach can add new dimensions to policies and speed up the trajectory towards formalization.

Diverse drivers of informality and the composition of the informal economy require different policy responses. A country's approach to e-formalization will vary depending on their own contexts, the level of maturity of labour market institutions, the range of drivers of informality, and the heterogeneity of the composition of the informal economy. Both universal policies and targeted policy interventions will be required to enable the most marginalized members of the economy to reap the benefits of the digital economy. Women and other economically excluded groups, such as certain religious, ethnic and caste groups, will require additional, complementary policy measures to ensure they can overcome entrenched disadvantages regarding digital access and skills.

Social dialogue in policy development not only supports democratic principles in decision making and the design of digital solutions, but also their effective implementation and ongoing monitoring and impact assessment.

Coordination and policy coherence is required between the aforementioned policy spheres. While ministries of labour are not always directly involved in the development of e-government strategies and the development of the digital economy, the fact that these areas affect formalization gives them an entry point to engage with other relevant ministries and agencies. Many other stakeholders, including the financial sector and private sectors must also be engaged to support e-formalization interventions.

Outcomes of digitalization are not pre-determined. They are the result of how the initiatives are managed and guided towards pro-poor, inclusive outcomes. E-formalization requires leadership and strategic vision developed through tripartite and other stakeholder input. In addition, appropriate investment of resources, involvement of the private sector, and the strengthening of the capacities of relevant labour market institutions to manage digital processes are all key components.

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E-government strategies offer opportunities for building trust with the informal economy. By using new technologies to better manage public functions and services, digitalization can enable transparency, accountability, responsiveness and expanded outreach to the marginalized. This can therefore promote a virtual cycle of good governance and trust, enabling those previously excluded to exercise their rights. In turn, this can elicit a greater commitment by informal actors to comply with regulations and responsibilities. Thus, in broad terms, digitalization of public functions can help repair some of the torn fabric of the social contract.

Making universal access a priority. E-formalization cannot fully realize its potential for inclusive labour market outcomes while vast segments of the informal economy remain off-line and unable to access ICTs. Governments have a key role to play in overcoming digital divides in terms of access and the development of relevant digital skills. Implementing such changes will require investments in both physical infrastructure and digital ecosystems and in education and skills development aligned with the future of work priorities.

Opening e-commerce to the informal economy will expand markets and enable enterprises to grow. A variety of measure are required to enable those in the informal economy to reap the benefits of e-commerce, including infrastructure investments; regulations that ensure protection and fair competition while fostering dynamism; the simplification of processes and registration; measures that support FinTech growth; and general improvements in the business environment.

Making social protection a central plank of e-formalization can offset many inherent risks of technological disruptions, while recognizing the already existing range of vulnerabilities, which informal economy actors face.

Establishing responsive regulations will help shape the outcomes of digital penetration into the informal economy. Policy makers and regulators have various incentives, disincentives and enforcement

mechanisms to define the rules of the game towards a specific vision of formalization.

Unleashing local innovation and making local authorities a key part of e-formalization is vital since progress towards formalization often occurs at the local level. Bringing together digital innovators, MSMEs, local informal economy communities and local governance structures to identify needs and constraints and potential digital solutions and innovations, is vital for bottom-up approaches to e-formalization. It is only by ensuring that informal communities are engaged in this process that needs-led design of interventions can be developed.

The considerations outlined here may be appropriate for countries at the beginning of their digital journeys. For those countries with advanced digital infrastructures, a thriving digital economy and populations with strong digital capacities, the opportunities for advancement in inclusive growth and decent work are virtually limitless. Increased digital enhancements are already taking place in multiple fields such as healthcare, agriculture, education, the justice system, labour inspection and social protection, targeted smart city initiatives for informal communities, unlocking the potential of big data to refine the policy cycle and research and development calibrated towards pro-poor objectives. The topics discussed here are only some of the suggested guiding principles and necessary basic building blocks for the development of e-formalization. As developments in the digital revolution continue to evolve across the globe, many additional guiding principles will emerge.

While the digital economy and e-government strategies are expanding rapidly, at present very few countries have initiated explicit e-formalization policies. However, Mongolia has emerged as a country seeking to explore the potential of e-formalization in its e-government and labour market strategies. The country has previously been a leader in addressing the informal economy, given its distinction as one of the first to develop a national action plan for transitioning to the formal economy.

> ▶ **Box 8. The Mongolian journey of e-formalization**

Mongolia's e-formalization journey started with the recognition of informal employment in the labour market. The national development plans in Mongolia, including the Vision-2050 Long-Term Development Policy of Mongolia and the Mongolia Sustainable Development Vision 2030, recognize the issues surrounding informal employment and prioritize the registration of informal employment as an expected outcomes for supporting employment and decent work for all.

Furthermore, Mongolia implemented the E-Mongolia national programme between 2005 and 2012 and created an integrated system of registration between 2008 and 2012. Subsequently, the National Program on E-Government started in 2016 and continued the digital transformation process to convert public service delivery into a digital format. The State Policy on the Development of Information and Communications Technology (2017–2025) was adopted to support the development of the ICT sector in which one of the objectives was to enhance e-governance. The national e-governance programme was initiated in 2019 with the objective of increasing the efficiency and effectiveness of public organizations activity.

In October 2020 the Government of Mongolia launched the E-Mongolia electronic platform that integrates 181 government services and allows citizens to access these services through a mobile application and online website. A certain number of formality related services, including E-barimt (VAT promotion system under the Ministry of Finance), E-halamj (social welfare services under the Ministry of Labor and Social Protection), e-ID, e-business, e-receipt and e-payment (Monpay, Q-pay, Socia-pay), have also been integrated into the E-Mongolia platform. The government is also working to enact bills to ensure digital transition, including ones that address information security and data protection.

With a commitment towards transition to formality, the Government of Mongolia is keen to move towards e-formalization. It has recently requested technical assistance fromthe ILO to develop an e-registration system for facilitating the registration of small and informal enterprises and operators as a first step towards formality.

Source: Government of Mongolia, *Sustainable Development Vision 2030,* 2016.
Government of Mongolia, *State Policy on the Development of Information And Communications Technology (2017-2025),* 2017.
Government of Mongolia, *National E-Governance Programme*. 2019.
Government of Mongolia, *Vision-2050 Long-Term Development Policy*. 2020.

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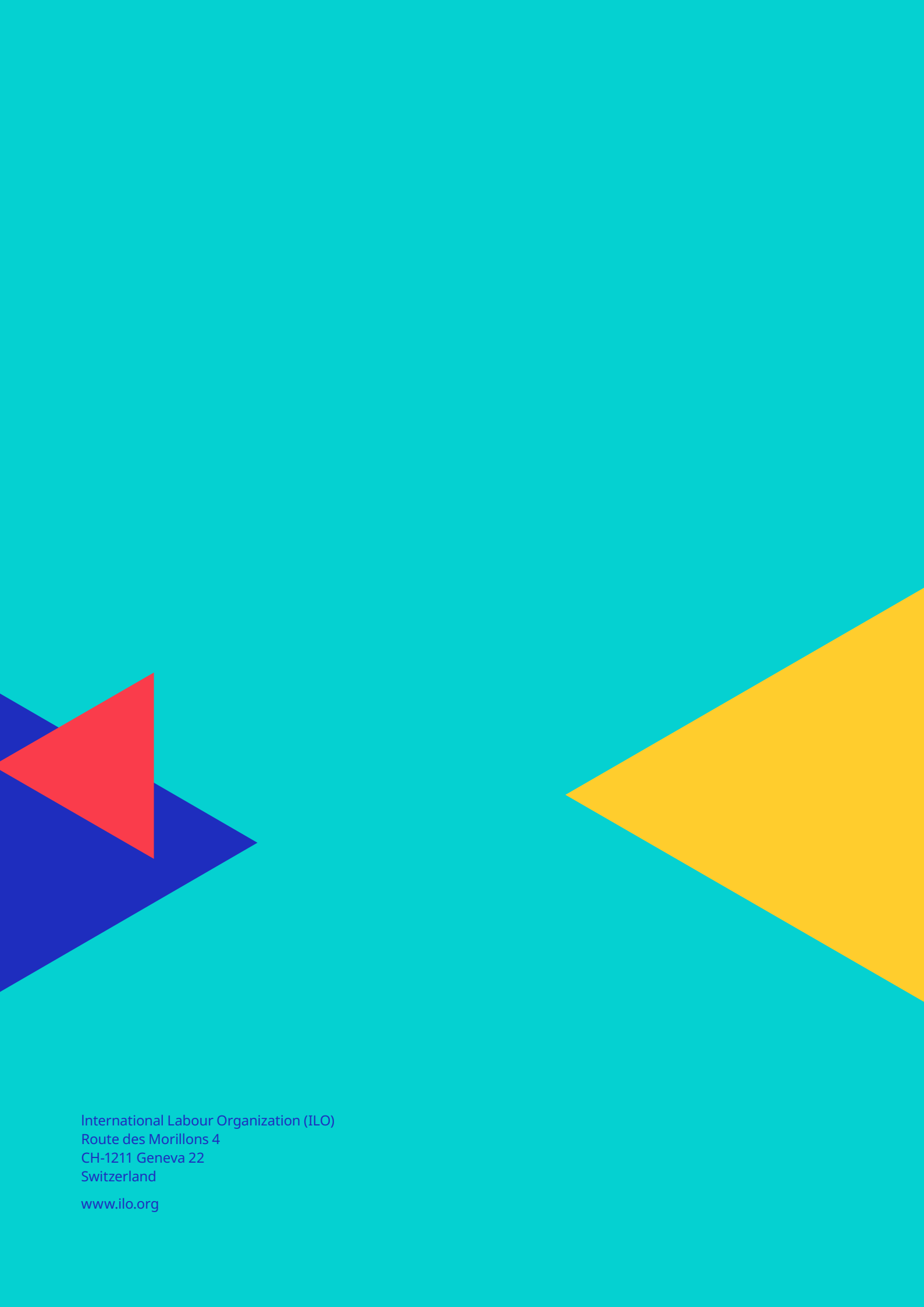———. 2019b. Inclusive and trusted digital identity can unlock opportunities for the world's most vulnerable.

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