



International
Labour
Organization

▶ Digital solutions and formalization

E-formalization case study on the Republic of Korea

Sriani Kring and Sara Elder

Regional Programme on Formalization Pathways



▶ Digital solutions and formalization

E-formalization case study on the Republic of Korea

Sriani Kring and Sara Elder

Copyright © International Labour Organization 2022

First published 2022

Publications of the International Labour Office enjoy copyright under Protocol 2 of the Universal Copyright Convention. Nevertheless, short excerpts from them may be reproduced without authorization, on condition that the source is indicated. For rights of reproduction or translation, application should be made to ILO Publishing (Rights and Licensing), International Labour Office, CH-1211 Geneva 22, Switzerland, or by email: rights@ilo.org. The International Labour Office welcomes such applications.

Libraries, institutions and other users registered with a reproduction rights organization may make copies in accordance with the licences issued to them for this purpose. Visit www.ifrro.org to find the reproduction rights organization in your country.

ISBN: 9789220366165 (web PDF)

The designations employed in ILO publications, which are in conformity with United Nations practice, and the presentation of material therein do not imply the expression of any opinion whatsoever on the part of the International Labour Office concerning the legal status of any country, area or territory or of its authorities, or concerning the delimitation of its frontiers.

The responsibility for opinions expressed in signed articles, studies and other contributions rests solely with their authors, and publication does not constitute an endorsement by the International Labour Office of the opinions expressed in them.

Reference to names of firms and commercial products and processes does not imply their endorsement by the International Labour Office, and any failure to mention a particular firm, commercial product or process is not a sign of disapproval.

Information on ILO publications and digital products can be found at: www.ilo.org/publns.

Cover photos: © ILO

Foreword

The informal economy is ever present in the Asia and the Pacific region, with millions of workers earning a livelihood within its realm. Two in three of the region's workers were working informally in 2018, according to the ILO's most recent estimates. The precarity of the region's 1.3 billion informal workers was exposed when the COVID-19 pandemic began in 2020. While the jobs of many formal workers were sustained through labour laws and expanded government wage subsidy programmes, most informal workers were left to their own devices to sustain themselves and their families. Many were pushed over the threshold into conditions of poverty when lockdown periods blocked their capacity to generate sales or take up the daily jobs that had formerly sustained them. The situation was further exacerbated with formal workers who lost their jobs during the crisis swelling the ranks of the informally employed, a situation that will continue until recovery eventually revives the expansion of formal job opportunities.

The growth of informal employment and the unequal suffering of informal workers during the crisis is not surprising. What is surprising, however, is the incapacity of the region to shrink the informal sector despite years of impressive growth that preceded the crisis. Growth in the developing economies of Asia and the Pacific has been driven primarily by investment, increased consumption and the spread of higher-value added manufacturing and services. Formal sector jobs have increased, usually filled by workers with higher skills levels. However, job growth in the informal sector has kept pace. The result is a continued dichotomy of the formal and informal economy and labour market duality that does not disappear with growth.

This situation is not acceptable. Action in support of the ILO Recommendation [Transition from the Informal to the Formal Economy Recommendation, 2015 \(No. 204\)](#) must be scaled up so that all economic units and workers are brought under the umbrella of public services, regardless of their status. Such is the aim of the recent initiative of the ILO Regional Office for Asia and the Pacific's **Regional Programme on Formalization Pathways (FORAP)**. This initiative seeks to accelerate the scope of support to constituents – governments, employers' and workers' organizations – on the integrated policies needed to support formalization. Building evidence and learning lessons on what works in policymaking to promote transitions to the formal economy is another focus of FORAP. This study focuses on what new technologies can bring to the table for enabling formalization. It draws lessons from the digitalization of public services in the Republic of Korea, an ongoing process that ultimately increases the scope of labour protections to vulnerable workers and enterprises sitting on the fringe of the informal economy. This output, like the others to follow from the FORAP initiative, promotes further action in the area of formalization to bring about the objective of increased inclusive growth in Asia and the Pacific as pledged under Goal 8 of the 2030 Sustainable Development Agenda.



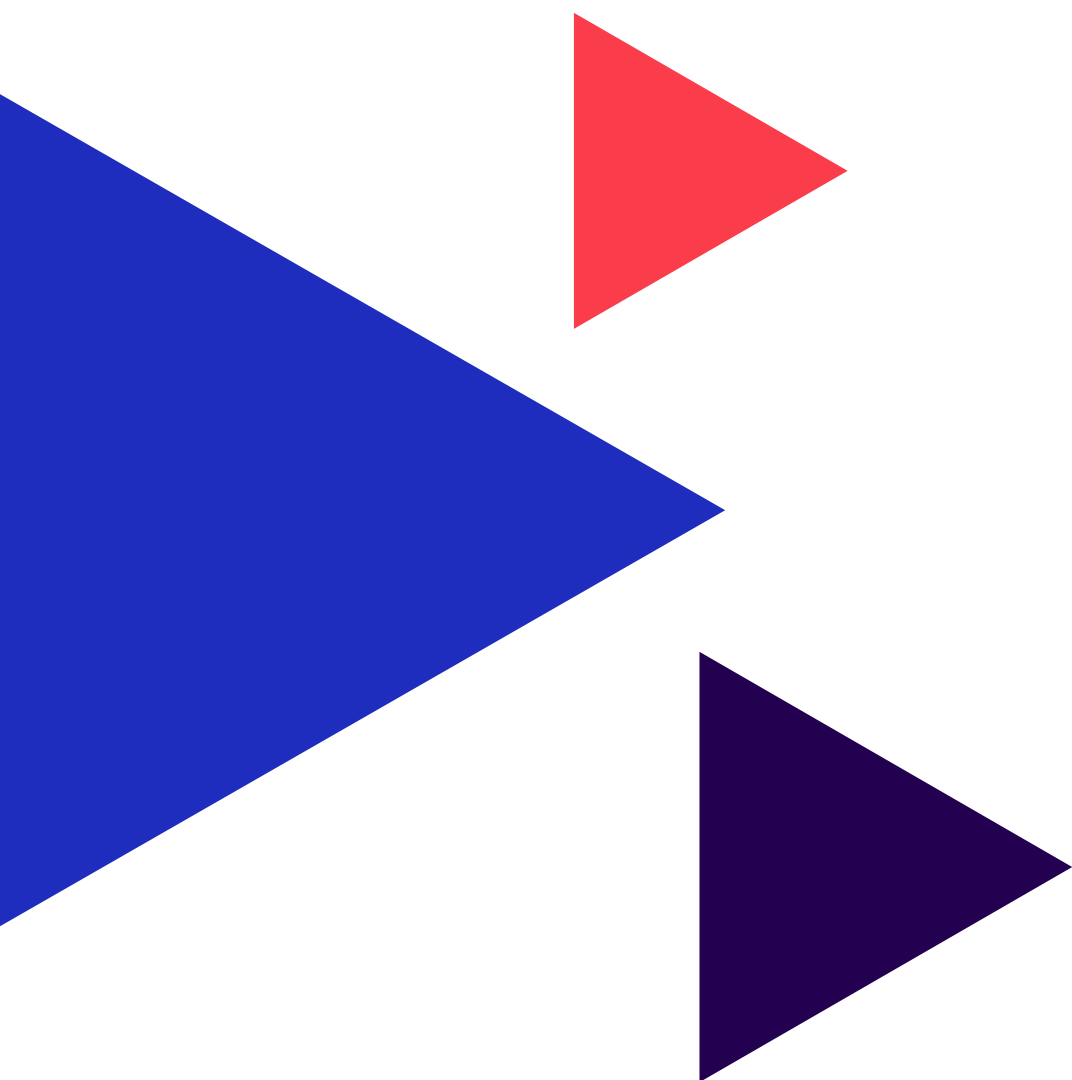
Chihoko Asada-Miyakawa
Assistant Director-General and
Regional Director for Asia and the Pacific
International Labour Organization

Table of contents

▶ Foreword	i
▶ Acronyms	v
▶ Acknowledgments	vi
▶ 1. Introduction	1
▶ 2. E-formalization: Where technology, digital governance and formalization policies coincide	4
▶ 3. The Korean pathway to e-governance	8
▶ 4. Digital government and public services for all	12
4.1. An enabling environment for formalization	12
4.2. Factors for success in effective e-government	20
4.3. Evaluating impact	23
▶ 5. Recommendations	24
▶ References	26

List of boxes

Box 1.	South-South cooperation for digital transformation	3
Box 2.	Labour market dualism in the Republic of Korea	10
Box 3.	Digital aids to fight the pandemic in the Republic of Korea	11
Box 4.	Cultivating hybrid skills in public officials	21

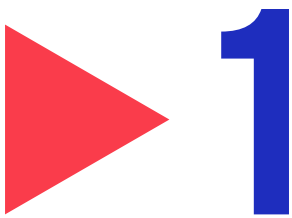


Acronyms

APEC	Asia-Pacific Economic Cooperation
ASEAN	Association of Southeast Asian Nations
EGDI	E-government Development Index
ESLC	Economic, Social and Labor Council
EPS	Employment Permit System
GDP	gross domestic product
G4C	Government for citizens
ICT	information and communication technology
KCTU	Korean Confederation of Trade Unions
KEF	Korean Employers' Federation
KEIS	Korea Employment Information Service
KOICA	Korea International Development Cooperation Agency
MOEL	Korean Ministry of Employment and Labor
MOHW	Ministry of Health and Welfare
OSH	occupational safety and health

Acknowledgments

This study was supported by a South-South and triangular cooperation programme on “Knowledge sharing on what works in e-formalization for Asia”. The authors would like to thank Vicky Leung, Sunggil Son and Sandra Yu for providing helpful comments on the draft. Thanks are due also to Dong Eung Lee and Yuki Otsuji for their introduction to key informants in relevant Korean ministries and workers’ and employers’ organizations. Finally, we express our sincere gratitude to the officials in the Korean Ministry of Employment and Labor, the Korean Employment Information Service and the Korean Employers’ Federation who took the time to share their expertise and, in so doing, greatly enriched the content of the paper.



Introduction

At first sight, it might appear that the Republic of Korea, with its advanced economy (now the 10th largest economy in the world) may have little in common with countries struggling with intractable levels of informality that persist next to burgeoning modern sectors primarily in urban areas. However, it is important to remember that within the scale of a single lifetime, the Republic of Korea has transformed from a poor, war-torn country to one of the most digitalized, advanced states in the world. In 1945, 78 per cent of adults in the Republic of Korea were non-literate, and in 1953, gross national product (GNP) per capita was as low as US\$67. Although the country had already embarked on the transition from an agricultural economy, even in 1970, over 50 per cent of employment was still in the agricultural sector.

The Republic of Korea's remarkable development journey has been subject to much analysis, which will not be repeated here. Rather, the focus of this paper is on the most recent decades during which the country invested heavily in building the foundations of its digital economy and e-government systems, and in so doing, bolstered economic growth and inclusion. **Viewed through the lens of "e-formalization", Korea's digital transformation offers much in the way of valuable experiences to other countries in the Asia-Pacific region** (and beyond), with hints as to how the application of digital solutions can enable them to leapfrog traditional formalization¹ barriers and foster labour market inclusion.

Digitalization is high on national agendas as a result of the COVID-19 pandemic. With overwhelming evidence that those in the informal economy around the world have suffered the most devastating impacts from the crisis, governments have been striving to accelerate digitalization to reach those most in need of support and relief.

¹ Formalization refers to the process of transitioning marginalized workers and economic units to the formal economy. As discussed in section 2, coordinated, multi-policy pathways are needed to enable people who are in informal employment to be sufficiently covered in law and in practice by formal arrangements.

Harnessing the power of information and communication technology (ICTs) has never been more important in helping those at greatest risk. The Sustainable Development Goals (SDGs) call to ensure no-one is left behind is intricately linked with the urgency to ensure that “no-one is left offline” (UNDESA undated).

Objectives and methodology

The objective of the case study is to document the pathway that the Republic of Korea has taken in the design, implementation and adaptation of its digital governance systems and related applications as they relate specifically to labour market formalization. Information presented here were generated through a based on a desk review of secondary sources and verified through key informant interviews with officials from various departments in the Korean Ministry of Employment and Labor (MOEL), the Korea Employment Information Service (KEIS), as well as the Korean Employers’ Federation (KEF).²

The case study is a sister study to a previous e-formalization assessment of [e-Estonia](#) (Divald 2021). The impressive digital governance achievements of Estonia have amassed great interest as a model for other countries. The government of Estonia has done a lot to document its e-government processes, including the architecture of its digital infrastructure and online services with open sourcing, which makes it especially appealing to other countries that seek to learn lessons for replicating in their own national digitalization programmes. A representative of the government of Estonia joined an [ILO South-South Knowledge Sharing Forum on “What works in e-formalization for Asia and the Pacific”](#) in May 2021 to share lessons with governments, employers’ and workers’ organizations from six Asian and Pacific countries on the e-Estonia model. It was from this event that the idea arose to seek other possible models for e-formalization that are “closer to home”, that is, in the Asia region.³ With countries throughout the region at differing stages of their digital government processes and eager to learn from each other through peer exchanges, the secondary aim of this case study is to document a regional e-formality storyline that can augment examples coming from other regions.⁴

For this reason, the Republic of Korea was chosen to showcase digital processes that can be potentially replicated by other countries in the region to support their efforts towards formalizing their economies. The country has already been working with neighbours to support digital government efforts as illustrated in Box 1. Making formalization an explicit target of ongoing and future cooperation could be a logical next step.

2 Officials from the Korean Confederation of Trade Unions (KCTU) and the Federation of Korean Trade Unions (FKTU) were not available to provide input at the time of drafting.

3 For more good practice examples of e-formalization from the African and Asia-Pacific regions see Kring and Leung (2021).

4 For an examination of e-formalization practices in Europe, see Williams (2021).

▶ Box 1. South-South cooperation for digital transformation

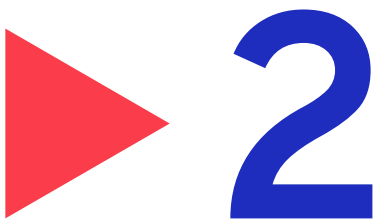
Since becoming a global leader in e-governance, the Republic of Korea has been reaching out to developing and emerging countries through South-South cooperation. With a rich pool of expertise and ample experience, the country aims to contribute in meaningful ways to concerted efforts by governments to advance digital cooperation and build the architecture for technological progress that supports inclusive development and well-being (Song 2021).

As part of its multilateral cooperation activities, the Republic of Korea has been supporting the 2017 [Asia-Pacific Economic Cooperation \(APEC\) Internet and Digital Economy Roadmap](#) for the purpose of sharing basic principles among APEC member States. The roadmap encompasses 11 areas of cooperation. The Republic of Korea plays an active role in many areas, including “Development of digital infrastructure” and “Promoting innovation and adoption of enabling technologies and services”. In addition, the Korea International Development Cooperation Agency (KOICA) has been working with Mekong countries to build developmental momentum within the agricultural sector including through supporting advances in connectivity. Furthermore, under the country’s [New Southern Policy Plus](#), the Republic of Korea has been expanding cooperation with the ten countries of the Association of South-Eastern Asian Nations (ASEAN) and with India, particularly in areas of the digital economy.

In July 2021, the government signed an agreement with the Government of Cambodia for a two-year programme of cooperation to implement the jointly developed [Cambodian Digital Government Masterplan 2020](#). Prior to this, the Development Cooperation Division of the Korean Ministry of Employment and Labor (MOEL) worked closely with Cambodia to create an Employment Service Information Portal that is modelled on Korea’s WorkNet public employment services portal.

Similar interest in WorkNet has been shown by other Asian countries. For instance, the Republic of Korea has provided support to Viet Nam’s employment service computer network construction project and work in Mongolia to develop a digitalized employment service. Plans are also underway to support a computer network construction project in Sri Lanka beginning in 2022, which will be carried out directly by the KEIS. KEIS also conducts training courses in setting up employment insurance for developing countries.

Sources : Information from correspondence with MOEL and KEIS officials.



E-formalization: Where technology, digital governance and formalization policies coincide

E-government strategies are profoundly changing the way governments manage their operations and services. Through digitalization and the use of ICTs, public authorities are finding ways to make their core functions more efficient, transparent, inclusive and accountable to their citizens. Together with the astounding array of innovations that have emerged from the digital economy, e-government strategies offer new opportunities to reach those segments of the population that have been largely excluded from the protections of the state and the prosperity of the formal economy. It is through this connection, the extension of services to segments of the population that were previously excluded, that the rubric of e-formalization emerges.

E-formalization is about what technology can bring to the table to entice or impel more informal enterprises and workers into the realm of formality, and in so doing, bringing the typically more vulnerable workers under the umbrella of public services and labour protections. The topic acknowledges that technology has the potential to lessen the duality that exists between the two groups on their adherence to labour standards and protections. It examines how various digital solutions can be applied in ways that increase economic capacity (productivity) of economic units, improve the application of norms or regulations, implement incentives and improve enforcement systems and measures (Chacaltana, Leung and Lee 2018).

E-formalization is a relatively new policy area, encompassing a complex interplay between three different policy spheres: e-governance development of e-services that relate to the labour market and inclusive development; technology and innovation investment, especially in relation to the digital economy; and the existing multi-policy frameworks to support transitions to the formal economy (Kring and Leung 2021).

The latter refers in particular, to the policy breakthroughs from the [ILO Recommendation concerning the Transition from the Informal to the Formal Economy \(No. 204\)](#), adopted at its 104th Session of the International Labour Conference in 2015. The instrument (R204) provides guidance on developing comprehensive approaches to formalization that go beyond mere registration of enterprises, but rather addresses the diverse characteristics and constraints of marginalized enterprises, workers and sectors. It also encourages stakeholders to take into account the specific drivers of informality in national circumstances. The Recommendation places emphasis on social dialogue in the development of policies, and in finding the balance of incentives and capacity building of enterprises, with appropriate disincentives to remain informal.

Three objectives are framed within the instrument, each of which can be influenced in the positive direction through technological advancements:

- ▶ facilitating transition from informal to formal economy for workers and economic units;
- ▶ the creation of formal jobs; and
- ▶ preventing the informalization of formal jobs.

E-government strategies can add new layers to each of the multi-policy pathways to formalization described in R204, and catalyse transformation in new ways. Among the myriad of ways that ICTs can support formalization are: improving working conditions such as occupational health and safety, harvesting data to support labour administration, including labour inspection and minimum wage systems,⁵ disseminating simplified information and encouraging democratic participation, providing a new interface for skills development, facilitating social protection access, and streamlining business registration with taxation, social protection processes and digitalization of salary payments (Chacaltana, Leung and Lee 2018). Additionally, digital identification systems are proving to be a gateway to a variety of citizenship rights and benefits that have been previously out of reach for excluded communities (World Bank 2019).

Importantly too, for informal economy actors who may have little trust in public institutions, **digitalization can shut down opportunities for poor governance and corruption, and enable the outreach of essential public goods and services to remote or marginalized communities**. Building trust between informal economy communities and public authorities is an essential part of the enabling environment for formalization.

It would be remiss not to mention some of the risks and threats that digitalization poses for the informal economy along with the advantages. For example, with a considerable overlap in being informally employed and being part of the digital divide, the risks of further economic and social marginalization as a result of increased digitalization are acute unless appropriate measures are taken to ensure more equitable access. Digitalization also brings with it concerns about privacy, cyber-security and surveillance. In many developing countries, digital eco-systems have weak infrastructure to safeguard against violations and misuse of private data.

Digital technologies can also add even greater complexity to the matter of unclear employment relationships. While the technology itself is not directly responsible, an indirect consequence of their application in the gig economy has been the proliferation of new forms of informalization. New technologies such as automation and AI can also render some jobs obsolete, which, without adequate retraining opportunities, can result in those made redundant seeking work in the informal economy.

5 See Gallo and Thinyane (2021) for developments in the use of technologies to promote more effective labour inspection, and section 4.

Also of concern, is that first movers adopting new technologies in the informal economy are likely to have considerable advantages over those without access to technologies, resulting in additional layers of stratification in marginalized work. These patterns are also reflected between countries, as digital advancements are concentrated in a few core countries resulting in vast disparities in the wealth generated by the digital economy.⁶ **Despite these concerns, there is nothing deterministic about the impacts of technologies on the labour market. How ICTs are managed and guided towards inclusive outcomes through public policies will shape the impacts on the informal economy.**

Alongside the transformations in public policies enabled by new technologies are the rapidly evolving innovations from the broader digital economy. New technologies such as artificial intelligence, robotics, 3-D printing, cloud computing, blockchain, big data and machine learning, and the Internet of Things (IoT) are disrupting traditional economic processes and labour market patterns. **Governments around the world are recognizing that by both advancing on the digitalization of their own functions and supporting private sector developments in the digital economy, they can drive economic growth.** Value created by the digital economy is growing at a phenomenal rate. Although hard to quantify, estimates suggest that in 2019, the size of the digital economy was somewhere between 4.5 and 15.5 per cent of global GDP (UNCTAD 2019).

The diffusion of ICTs into the world of work offers both threats and opportunities, creating value and wealth, while making some jobs obsolete and generating new types of employment. New technologies have already penetrated the informal economy, albeit in fragmented ways. Among other things, these developments have facilitated the expansion of markets for informal economy units through e-commerce, opened new job opportunities through the proliferation of platforms, enabled financial access through digital wallets and other financial technology (FinTech) products, and improved productivity through more efficient operation of businesses and access to resources.

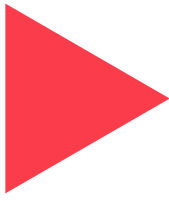
With digital technologies continuing to decrease in cost they are becoming more accessible to poor communities. Mobile phone penetration is high in most parts of Asia and the Pacific at around 2.8 billion subscribers in the region (GSMA 2020), though there are still significant gender gaps in some regions, particularly South Asia. Access to more advanced technologies (such as smart phones and computers) and broadband are, however, far more limited, holding back the potential for e-formalization. According to ESCAP (2020), over half of the population in Asia and the Pacific still do not have access to the internet, and a disproportionate number of them are women, rural inhabitants, disabled persons and others with intersecting disadvantages.

The urgency of promoting digitalization and digital access has been starkly revealed by the unprecedented destruction of informal economy livelihoods in the pandemic around the world. Those who earn their living in marginalized work have been the most exposed to life-threatening and poverty risks (ILO 2020a, 2020b). Recognizing this, governments have been leveraging digital technology in numerous ways to fight the pandemic. Among these are: enabling the continuation of economic activities under lockdowns, ensuring the transmission of lifesaving information and the disbursement of vital stimulus support and social protection services (cash vouchers, digital transfer of social assistance). In the context of the pandemic, the use of the internet has now been acknowledged as an essential public good, and efforts are increasing around the world to overcome the digital divide and promote digital literacy.

⁶ These and other issues related to the barriers to e-formalization are discussed further in Kring and Leung (2021).

While the immediate policy focus is on managing the pandemic,⁷ in the longer term the harnessing of digital technologies to fight poverty and other long-standing problems such as climate fragility will be vital for achieving a sustainable future. The global calls for “renewing the social contract”, “building back better” and a “New Deal for the Informal Economy” look to access to technologies and digital processes for e-governance one of the key means of addressing widening inequalities and deepening poverty. Such sentiments are also present in the [ILO Global Call to Action for a Human-centred Recovery from the COVID-19 Crisis that is Inclusive, Sustainable and Resilient](#), adopted by member States at the International Labour Conference in June 2021.

⁷ For a discussion specific to the use of technology in direct response to the COVID-19 pandemic in the Republic of Korea, see Asia Society Switzerland (2020). See also Box 3.



3

The Korean pathway to e-governance

The Republic of Korea has been a global leader in e-government for nearly two decades. It currently ranks in second place in the 2020 United Nations' E-government Development Index (EGDI), having held first place in 2010, 2012 and 2014 (table 1). The index combines three important dimensions of e-governance: the provision of on-line services, telecommunication connectivity and human capacity. The Republic of Korea has a similarly high ranking in the World Bank's Doing Business Index, which is in part attributable to the digitalization of its environment for private sector growth. Finally, the country came out on top of the OECD's 2020 Digital Government Index, measured in 2019.

▶ **Table 1. Republic of Korea and digitalization rankings**

Index	Ranking
UN E-government Development Index (UNDESA 2020)	2 (1st in 2010, 2012, 2014)
OECD Digital Government Index (OECD 2019)	1
World Bank Doing Business Index (World Bank 2020)	5

The Republic of Korea's drive towards digitalization of its governance structures has taken place over several decades. At the onset, the use of ICTs was conceived as a way to enable greater efficiency of public administrations and operations, and to shift the national economic paradigm towards a knowledge-based society. Although formalization and addressing the growing dualism in the labour market was not an explicit strategy in its e-government expansion (see Box 2), nevertheless digitalization was seen as a means of fostering a more inclusive and fairer society, and recalibrating government operations to be more responsive to citizens' needs.

Kim (2013) traced a paradigm shift in the public administration landscape of the country as e-government evolved. In the earliest stages, the drive towards efficiency still conceived of citizens as mere subjects of governmental control. Eventually this gave way to a recognition of citizens as customers of public services. By the time Government 3.0 (see details below) was established, the paradigm had shifted significantly again, this time to the recognition of citizens as collaborators with government. According to Kim (2013), this change propelled the drive for enhanced citizen accessibility to public information and the promotion of citizen participation in improved delivery of public services.

The transformations in the public administration in the Republic of Korea have been driven by the value of expanding democracy (ESCAP 2018). Government services are now delivered in an interactive way and customized to individual needs, using the possibilities opened up by new technologies. Moreover, citizens are actively encouraged to express their views in policymaking through various mechanisms (see Section 4). Four factors continue to catalyse the transformation in public policies: digitalization, responsiveness, flexibility and governance. Digitalization is facilitated by new technologies, while responsiveness seeks continuous innovation and response to rapid changes. Flexibility refers to accelerating and adapting to change, and finally governance contains the changes in the government's role from a governor to a coordinator (ESCAP 2018).

Digital transformation has been oriented around different constituencies: G2G (government-to-government), G2B (government-to business), G4C (government-for-citizens), and G2C (government-to-citizens). In each of these areas, the broad environment for supporting vulnerable segments of the labour force has been enhanced. This will be discussed further in section 4.

While there were setbacks and challenges in Korea's e-government expansion, including a few digital projects which did not reach fruition, the overall direction has been steady. This is all the more striking, given the numerous changes of government, and the impacts of global and regional economic crises. Notably, the Asian Financial Crisis in 1997 did not hinder the momentum of digitalization, rather the unparalleled levels of unemployment and business failures acted as a spur to accelerate digitalization as a means of creating jobs and re-skilling the labour force.

► Box 2. Labour market dualism in the Republic of Korea

Vulnerability in the labour market takes different forms in different contexts. Discussions around informality in the Republic of Korea are centered around labour market dualism between regular and non-regular work. Non-regular work accounts for 30 per cent of all employees in the country (ILO 2020c). Contingent workers (workers with a prescribed contract period) make up the largest proportion of non-standard work. Self-employment also makes up a significant portion of the labour market (one-quarter of total employment in 2020).¹

There is some overlap between non-regular work and informality because some types of the former are also not adequately covered by legal frameworks. In-house contracting, for instance, is poorly protected under the law, and there are coverage gaps in social protection for unpaid family workers and the self-employed. Wage penalties are also associated with non-regular work (Ha and Lee 2013).

Another growing phenomenon within the realm of non-regular work are gig workers. This category of work is of particular interest in discussions of informality around the world because the ambiguous nature of the employment relationship may be depriving dependent workers of basic labour rights. The proliferation of platforms linking workers and employers, producers with consumers and retailers, and service providers with clients has seen the numbers of platform workers increasing globally. According to the Korean Labor Institute, using a strict definition of the role of platforms in coordinating transactions, platform workers account for 0.92 per cent of all employed workers aged 15-64 years, or around 220,000 workers. However, using a broader definition that encompasses all those who search for jobs and provide labour using digital platforms as platform workers, the numbers are higher at 1.79 million workers (Chang 2021).

Recognizing that gig workers face a range of vulnerabilities, in particular the risks of accident and injury for delivery drivers, amendments were passed to the Employment Insurance Act, Occupational or Industrial Accident Insurance Act and a third law that covers employee benefits in late 2020. The amendments include provisions of benefits for contractors equivalent to paid maternity leave. The revisions also give more rights for gig workers to request documentation from employers to apply for various benefits (Shim 2020).

¹Data from [ILOSTAT](#); retrieved 29 October 2021.

The construction of a digital society has taken place over several stages and continues to evolve, taking advantage of the rapid expansion of ICT capabilities and the reduction in costs in setting in place digital processes. While different analysts have categorized the various phases of Korea's digital transformation in different ways, the broad patterns remain the same. The following uses terminology from Kim and Choi (2016) to characterize the distinct points along the digitalization trajectory:

- In the earliest stages (**Foundation phase**) from the 1980s to 1995, the country undertook the digitization of national databases. Through the Five National Computer Network project of the early 1980s, the Comprehensive Plan for Korea Information Infrastructure project and the National Basic Information System project, the groundwork was laid for transformation.
- From 1996 to 2002 (**Full promotion phase**), high-speed broadband networks were established across the country. After a period of consultation, 11 high-priority ICT projects were undertaken and completed, among them initiatives concerned with building function systems and establishing common requirements across systems, such as e-authentication and an integrated government data system. The success of the 11 projects propelled the shifts towards the next phase.
- During the **Diffusion stage** (2003–07), the government pursued its G4C strategies, including sharing administration systems. A total of 31 key e-government projects were implemented.

- ▶ The **Integration stage** from 2008 to 2012 saw the launch of an integrated e-government platform.
- ▶ What has been described as the **Maturity and co-producing stage** from 2012 to 2017 enabled service integration to be prioritized through “E-government 3.0”. Investments were made to ensure ICT-enabled growth through collaboration with the private sector and citizens. Through the vision of openness, sharing, communication and collaboration, E-government 3.0 had two high-level goals: providing services customized to various needs and demands, and creating new jobs using ICTS as an engine of growth.

More recent developments have seen the design of the **Korean New Deal** – a national development strategy to transform the country into a first-mover, low-carbon, inclusive county (Ministry of Economy and Finance 2020). The three pillars of the New Deal encompass the Green New Deal, the Digital New Deal, and a stronger social protection system. Under the Digital New Deal, the government intends to expand ICT infrastructure, including the construction of a “data dam” to support big data development throughout the economy. Ten projects have been identified under the three pillars, including one on employment creation. In response to the pandemic, the government unveiled a new version of the Korean New Deal, which among other things, targets the creation of 2.5 million new digital and green jobs by 2025.⁸

One aspects of Korea’s digital transformation that makes it an invaluable example for other countries is the overall drive towards integration and interoperability of systems. **With many countries’ digital journeys characterized by fragmentation and lack of coordination of efforts across institutions, the Korean whole-of-government experience provides important lessons in integration.** From building functional systems to connecting them to each other, and then forming a base platform of government information, interoperability has been the driving force for progress. Jungwoo Lee (2016) uses the metaphor of developing information islands which in turn are joined together to form archipelagos and finally brought together in continents upon which new and innovative services can be developed.

▶ Box 3. Digital aids to fight the pandemic in the Republic of Korea

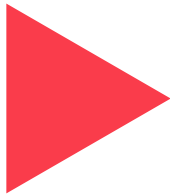
The Republic of Korea has been able to harness its vast reservoir of digital innovations to support its fight against the COVID-19 pandemic. Partnerships with the private sector enabled the quick rollout of high-tech digital tracing applications, as well as the rapid production of sophisticated testing kits. These quick wins in controlling and managing the virus in the early stages of the pandemic were enhanced by data analytics from mobile phones, credit cards and CCTV which enabled local governments to provide digital alerts wherever outbreaks were detected.

The widespread use of drones contributed to efficient distribution of personal protective equipment and later vaccines to remote areas and helped with sanitization of public spaces. With an already elaborate digital architecture, education and economic activities were able to continue to a considerable extent despite lockdowns. Furthermore, the digital disbursement of social protection alleviated societal disruption and labour market distress.

While the Republic of Korea was not able to emerge unscathed by the virus, it fared better than many countries in the region, at least during the first stages of the pandemic, due in part to the embrace of digitalized aids.

Sources: ITU (2020) and Hoon Sang Lee (2020).

8 Government of Korea, “Government announces Korean New Deal 2.0”, Press Release, 14 July 2021.

 **4**

Digital government and public services for all

4.1. An enabling environment for formalization

The Korean e-government experience has not been explicitly directed towards e-formalization. Nonetheless, the country has developed numerous digital processes which will be beneficial for countries looking to digitalization to bring about shifts towards the formal economy. Among them are measures that foster inclusion (for example, public information portals), measures that promote efficiency (for example, streamlined single windows for a variety of purposes), measures that expand democracy (for example, interactive mechanisms in policy making), and measures that ensure transparency (including taxation and public procurement). A number of such formalization-friendly initiatives are discussed here.

Digital identification

According to the World Bank, nearly one billion people lack an official identification around the world, depriving them of essential citizenship rights and access to public goods and services (World Bank 2019). Digital solutions can offer an opportunity to leapfrog cumbersome and complicated analogue methods of establishing identity. Since legal identity is an important channel for social and economic inclusion, digital identification systems can be a vital means of enabling the informal economy to come under the protection of the state assuming digitally registered entities are made clientele of the public services.

The Republic of Korea was not without its challenges in establishing digital identity systems in the early stages,⁹ but its experiences can provide important lessons for other countries to learn from and avoid similar pitfalls. Most recently, the piloting of blockchain technologies, one of the most secure forms of technology available, will assist the country's efforts to ensure tamper-proof cyber-security. Importantly too, the use of blockchain signals an end to the centralization of data of the previous system to a de-centralized system where an individual controls her/his own personal data (Lim 2021). With pilot systems in place in Seoul in 2020, the country is now one of the leaders in Self Sovereign Identity, a significant advancement that overcomes the lack of privacy and weak cyber-security which have plagued some digital identity systems around the world.

Access to information

A variety of barriers inhibit many informal economy actors and communities from accessing information related to their rights and benefits. Among them are the complexity of information, the fragmentation of information linked to different institutions and Ministries, language barriers, the time involved as well as geographical distance and intimidation, presumed or otherwise, involved in visiting government agencies, among others. Enabling easy access to simplified information through a single portal can be an essential conduit for communities to access information without ever having to visit a government office.

In the Republic of Korea, **Government24** offers this solution through a one-stop civil service portal that provides access to government services and information. The portal provides access to some 90,000 public services including 1,500 application forms. Built on G-cloud, the interface also has a mobile-based service design.

Streamlined social protection access and administration

Limited access to social protection is a defining feature of informality around the world. In many cases, beneficiaries may be unaware of their entitlements, and even where informal economy actors may be aware of their rights to social protection, a variety of barriers prevents their access. Using digitalization to expand access can help informal communities alleviate the multitude of risks and vulnerabilities they face. **Digitalization, particularly through database registries is a major tool in the social protection toolkit to enhance access, reduce costs and avoid duplication.**

In the Republic of Korea, the online portal **Bokjiro** provides information and access to all social protection benefits through a customized lifecycle-based notification system. The platform links to services from nearly 350 central government ministries and over 6,000 local government institutions. Citizens can apply online, and access is also enabled through mobile phones.

Interoperability between systems is generated through data linkages which help avoid duplication and wastage of resources. For instance, the comprehensive digital database of MOEL, Baro-one,¹⁰ and the Social Security Information System of the Ministry of Health and Welfare (MOHW) are inter-connected. This enables MOEL to confirm whether an individual is eligible for specific benefits or belongs to a near-poverty group to verify the eligibility of employment support services. MOHW uses the employment information such as insured status from MOEL to identify beneficiaries. In the same way MOEL actively uses MOHW data to identify and support vulnerable groups in the labour market.¹¹

9 In the early stages of developing digital identity, the country was subject to cyber-attacks and had problems of data leakage. Like all countries, the Republic of Korea has also grappled with balancing privacy concerns with the utility of digital identity. A more detailed examination of Korea's experiences in the evolution of secure digital identity would be beneficial for countries seeking to develop digital identity systems.

10 According to correspondence with MOEL, Baro-ONE was launched in 2012 to provide employment centers with comprehensive information about job seekers. The system enables employment counsellors to have accessible information on individuals to assist them in the job search and counseling process.

11 Information from correspondence with MOEL official.

An official from MOEL highlighted the importance of sharing of information across ministries and agencies:

By establishing interoperable registries with other public institutions or private companies to link relevant information [data on individuals and enterprises], administrative processes can be streamlined through minimizing documents required for claiming complaints, and implementing the automatic screening system on the requirements, depending on the scope of the programme.

One-stop business support and registration

Complex registration and licensing processes are a major disincentive for informal economy enterprises to shift towards formality. Digitalization can replace time-consuming visits to government offices, provide readily available information relevant to businesses, and can act as a conduit to the variety of services available to entrepreneurs. While the vast majority of countries have moved towards one-stop shops for businesses, in many cases there are still problems of lack of interoperability between different arms of government. **Providing a single online window for businesses is essential to encourage informal enterprises to progress towards the formal economy.**

In the Republic of Korea, the **G4B.go.kr** is a one-stop business support system. The portal provides a wide range of information and services to support business activities such as civil service information, policy information and additional services via a single online window. Detailed information on 1,887 corporate services and industrial information from 205 different organizations related to business operations, such as government approval, certification, and help on business matters, have been provided through this integrated portal since 2006. Various additional services essential for corporate activities are provided by linking to the national networks, including for procurement, tax and four major social insurance networks.

Efficient labour market information systems

Well-functioning labour market information systems are vital to match labour supply and demand and help to prevent workers from resorting to informal economic activities. In many countries with high rates of informality, reliable and timely information on job opportunities is unavailable, forcing jobseekers to rely on personal contacts to find work. Many of them are also ill-prepared for the requirements of gaining and keeping a job in the formal sector. Digitalization, with interfaces easily accessible by mobile phones can enable those seeking work to find employment, counselling, work experience and training opportunities, with relevant supporting features to enable their entry into formal jobs.

The **Korea Employment Information Service** (KEIS) is a specialized agency associated with the MOEL. It is responsible for collecting, analyzing and publishing a wide variety of information on the labour market including trends and forecasting of demand and supply of labour, and is therefore able to provide precise and timely data for policymaking within the Ministry. KEIS also operates eight major digital systems including **WorkNet**, the Employment Permit System, the Vocational Training Computer Network and the Employment Insurance Employment Network. WorkNet has the highest usage at 800,000 users per day.¹² WorkNet is a digital platform that connects 31 public and private job search websites in a one-stop shop for all information related to careers, jobs, vocational training, overseas employment, among other areas. It enables customized job search by location, age, salary, working conditions and numbers of employees. A key feature is the variety of supports offered to young jobseekers transitioning into the labour market.

12 Information from correspondence with KEIS official.

An official from KEIS explained the use of big data to support customized job search in the WorkNet platform:

Apart from simply searching for jobs, KEIS operates a system called “The Work” which automatically recommends jobs through big data analysis using artificial intelligence. In addition, “JobCare” is an intelligent care counseling and career guidance support system based on AI and big data.

KEIS also runs a single window for vocational training opportunities, www.HRD.go.kr. This provides an array of information on training courses at local and national level and with one-stop services for attending the programmes. Training courses include developing basic to advanced digital skills and capacities.

Support for migrant workers

Migrant workers in receiving countries can be among the most vulnerable groups in the labour market, and at high risk of falling into informality. Part of the reasons behind this is the lack of information about rights and responsibilities throughout the migration cycle, including for their eventual return and reintegration.

In the Republic of Korea, the web-based platform, **Employment Permit System** (EPS), run by KEIS, contains information and services to support migrant workers throughout the migration cycle. A range of free training and reintegration services are offered to migrant workers, one example being the Happy Return Program. In preparation for return to their home countries, migrant workers can participate in vocational training and receive advisory services on entrepreneurship or other skills areas, access pre-return recruitment services such as assistance with job applications to Korean companies in their home country and receive administrative support (for example, guidance and support for insurance benefit claims such as departure guarantee insurance and return cost insurance).

Through the EPS platform, the status of returned migrant workers can be checked, and more detailed information (including procedures and eligibility) on the aforementioned services can be verified. The platform can be navigated in different languages. It is also highly relevant at the pre-migration and during migration stages as it offers online information and services related to employment procedures, legal rights and obligations of migrant workers, skills tests (including language), and language learning materials. The EPS is implemented in partnership with 16 migrant origin countries, including ASEAN member states (ABD-OECD-ILO 2021).

A recent analysis by IOM and ILO suggests that EPS has been a vital part of upholding the rights of migrant workers. The use of digital technology has enabled easier oversight by MOEL, enhanced transparency and efficiency, and facilitated access to recourse to justice mechanisms for migrant workers (ILO and IOM 2020).

Supporting labour inspection

An important driver of informality is weak enforcement of regulations. Labour inspectorates play a critical role in facilitating compliance, yet in many countries labour inspectorates are stretched beyond capacity. As a consequence, those in ‘invisible’ workplaces such as domestic workers and industrial home workers, or mobile workers in construction and transport, or those working in remote and rural areas, are often more at risk of being informal.

Digital innovations and apps can play a critical role in helping labour inspectorates to access “hard-to-reach” workers and locations. In the Republic of Korea, the MOEL has developed an **Electronic Civil Petition System** that makes it possible for workers or employers to send online petitions to its offices without needing to make a physical appearance. Various types of services are available under the online petition system, including wage arrears claims, petitions for labour inspection and occupational safety and health complaints. It also offers services such as registering collective agreements, establishing new trade unions and issuing employment permits for foreign workers. The overall capacity of labour inspection is strengthened through the Information System of Labour Inspection Administration which collects a wide variety of workplace information through its database. Data analytics from this system guide decisions on selection of workplaces for inspection.¹³

13 Information from correspondence with MOEL official.

A MOEL official noted the near limitless potential of digital innovations to support labour inspection systems in the future:

Going forward, the next generation information system of labor inspection administration will be established, and we will push ahead with online submission of materials, management of virtual labor instruction, and mobile field inspection by establishing a non-face-to-face and online nationwide labor administration system using the latest IT technology.

Enhancing occupational safety and health (OSH)

Strengthening OSH is an essential part of improving working conditions in the informal economy. Lack of awareness, weak capacity and costs are among the factors that contribute to hazardous workplaces for many informal economic units. The risks not only endanger informal workers but contribute to the weak productivity levels and insufficient growth of enterprises. For many enterprises these factors contribute to their limited capacity to increase productivity and make progress towards the formal economy.

In the Republic of Korea, technology has been harnessed to ensure a high degree of safety in workplaces. For instance, the government built a database of accidents and hazardous risks to guide its monitoring, prevention and capacity building strategies on OSH.¹⁴ Furthermore, resources are continually invested in research and development to towards the advancement of safety innovations. Each year the country hosts the K-Safety Expo to exhibit and share knowledge with local businesses as well as stakeholders outside the country. In addition to showcasing the latest technological advances in a wide variety of safety applications, awards are presented for safety innovations in business.¹⁵

Digitalized public procurement

Worldwide, governments devote around US\$9.5 trillion each year to public procurement for public goods and services. However, estimates suggest that between 10 and 30 per cent of the value of these contracts is lost to poor governance (WEF 2020). Digitalization can reduce opportunities for leakages through greater transparency. It is thus a vital tool to combat corruption. **Not only does digitalization make public processes more open and transparent, it can enable smaller enterprises, including informal enterprises, to access lucrative contracts.** In fact, access to public procurement is proving to be a vital incentive to encourage registration and formalization of enterprises in parts of the world. Measures can also be put in place to encourage enterprises run by marginalized groups such as youth, women and the disabled to have priority access to contracts, particularly at local levels.

Korea's digital public procurement system, **KONEPS**, has previously won the United Nations Public Service Award (PSA) and was selected by the Organisation for Economic Co-operation and Development (OECD) as one of the best cases for improving transparency. Some developing countries, including Viet Nam and Mongolia in Asia, have benchmarked it for their own e-procurement systems.

KONEPS manages the whole procurement process from bidding, contract signing, payments regarding commodities, services and construction, as needed by central and local governments and public institutions. For maximum convenience, the system is accessible through mobile phones. According to Kang (2018) the system has been a major booster of e-commerce and small enterprise growth in the country. More than 75 per cent of total procurement volume has been awarded to small and medium enterprises (SMEs).

¹⁴ Ibid.

¹⁵ See [K-Safety Expo2021](#) website for more details.

Digital supports for legal literacy

Lack of legal literacy and the obstacles involved in accessing information related to rights and benefits under the law keep many informal economy actors from realizing many of their rights. With dispute mechanisms and judicial processes inaccessible outside the formal economy, few informal economy actors have recourse to justice. Providing a repository of readily available legal information can contribute to the empowerment of informal economy individuals, enterprises and communities.

The Republic of Korea has developed a digital portal, the **National Law Information** (Easylaw.go.kr). The portal provides easy access to information on laws, regulations and court documents, often in simplified forms. The Ministry of Government Legislation runs the digital window and provides personalized, practical legal information according to gender, age, job and other classifications. All rights encompassed under labour legislation are readily accessible. Complementing the portal is the **National Legislation System** (www.lawmaking.go.kr) which provides information on laws being drafted and allows the public to express their opinions on proposed legislation.

Integrated tax administration service

Paying taxes can be one of the biggest disincentives for enterprises and workers to join the formal economy. With poor public service delivery into informal communities, lack of trust in taxation systems, lack of transparency, instances of corruption among tax officials, complex administration processes and taxation policies that are inappropriate for informal enterprises and workers, many marginalized communities see few visible benefits from paying taxes. This, in turn, shrinks resources available for essential services and infrastructure development, generating a vicious cycle of tax avoidance and limited public revenues.

While digitalization is not the panacea for fiscal challenges, it can be an important tool for driving down compliance costs. It prevents opportunities for leakages and poor governance and helps to ensure transparency that can build overall trust in taxation systems. It can also be used to enhance the cost-effectiveness of tax authorities by improving administrative and operation efficiency, thus increasing net revenues and driving down costs of collection.

Digitalization of tax systems involves the use of digital and data-driven approaches to optimize the operations of revenue authorities. While digitalization of taxation is often perceived as an endeavor for advanced economies, developing and low-income countries have also made significant progress in digitalization of tax systems. The greatest successes come with extensive capacity building and digital literacy for informal economy actors and enterprises (Better than Cash Alliance 2020).

Korea's HomeTax system, described by the OECD as one of the best models, offers an example of an integrated tax administration services for other countries to emulate. Using data-driven and digital approaches to optimize its operations, the platform covers taxpayer registration, filing, compliance and payment disputes. The system has evolved over time to take into account the increasing complexity of tax administration, the need to simplify processes for users and to streamline all processes into a single Next Generation Hometax portal. Customized information on taxation and filing is available for enterprises of all sizes and including the self-employed.

Smart cities

Currently, the majority of urban inhabitants in developing countries work in the informal economy. With the urbanization expected to continue its rapid increase in the next decades, the need to urgently address weak infrastructure and services, congestion, pollution, poor living and working conditions becomes even more imperative.

Smart cities use ICTs to facilitate urban inclusion. Among their achievements are: better targeting of local public policies, enabling universal access to local public goods and services, ensuring fairer distribution of public procurement, enhancing citizen participation, and democratizing local government. Around the world, the Internet of Things (IoT) is being used to optimize the use of urban structures and assets for more equitable outcomes for local populations. While smart cities are more prevalent in developed countries, elements of IoT have been targeted to some informal economy settlements to improve the living conditions and livelihoods of these communities. A key feature of successful initiatives is where informal economy enterprises and communities are brought into smart city projects as both participants and implementers to ensure initiatives are demand-driven and meet the needs of marginalized settlements. Given that the development of physical infrastructure is costly in developing countries, using digital technologies to enhance existing operations of utilities and other public assets in local communities can be a cost-effective way of maximizing their efficiency and outreach to the informal economy.

As one of the early movers and innovators in smart cities, the Republic of Korea has accumulated diverse know-how in urban development utilizing new technologies such as AI, Blockchain and 5G. It has not only developed a wealth of experience in designing new cities with smart technologies but also transforming older cities. Korea's experience, beginning in the 2000s onwards, has shown that there is no single strategy for developing smart urban development. Rather, initiatives are based on the needs and characteristics of the different areas (Meyong et al 2021).

In many cases "Living Labs" partner citizens with businesses to identify local urban problems and their potential solutions. Governance of smart cities are guided by the Smart City Act and the use of regulatory "sandboxes" which stimulate innovation and experimentation. Links with the Ministry of Small Enterprises also facilitate start-up support to develop enterprises linked to smart cities. With a wealth of experience in diverse smart city platforms, the Republic of Korea has been actively exporting its models for other countries to share its innovations.

Smart cities are supported by a local e-government information system, **SAEOL**. SAEOL is an integrated local e-government information system, developed initially to handle administrative functions related to rural affairs, environment and social welfare by connecting relevant agencies and systems. Following a number of upgrades and interconnections with other related systems, the modules now include land registry, farming, environment, complaints, health and welfare, local industries, residents, vehicles, finance and tax, construction, local development, culture and athletics, water and sewage, stock farming, forestry, fishery, roads and traffic, operational support, civil defense registry, family register and disaster management.

Facilitating democratic participation

Fostering engagement in democratic process and supporting good governance are essential features of an enabling environment for formalization. With many marginalized communities around the world feeling disenfranchised from policymaking relevant to key aspects of their lives, efforts to facilitate their participation are vital to empower informal economy actors and enterprises. Social dialogue remains the most important conduit for democratic policymaking in the labour market and empowering the informal economy. While digital innovations and portals for citizen engagement are not intended to displace the need for the organization and representation of individuals, workers and entrepreneurs, they can complement and enhance existing social dialogue mechanisms. They can also establish recourse to justice mechanisms and help shore up much-needed trust in public authorities.

Korea's e-participation portal (**E-people**) is a groundbreaking system aimed at enhancing public engagement with authorities. Its success is one of the reasons why the country continues to rank so highly in international e-participation indexes. E-people is a multilingual, bottoms-up platform for citizen-driven proposals, e-petitions and on-line policy discussions. It gives citizens a gateway to influence over 300 government organizations, including central and administrative institutions and local autonomous bodies. Public authorities are required to respond to complaints and suggestions in a timely manner, with responses available through the portal.

Since its inception, the platform has enabled citizens (and foreign residents) to communicate their opinions on various policies, address infringements of their rights, infringements and unfair administrative process and foster the improvement of public institutions. It has also proven to be vital tool in the fight against corruption. Complementing E-people is a direct channel to the Office of the President through which citizens are able to convey proposals and petitions straight to head of government.

4.2. Factors for success in effective e-government

Korea's remarkable success in establishing e-government can be attributed to a number of factors which have supported the roll out of digitalization of public functions and operations over the last decades. The following detail some of those elements.

i. Addressing the digital divide

E-formalization cannot meet its objectives when large segments of the population are unable to access ICTs, nor have the digital skills to make use of their potential to enhance their lives and livelihoods. The digital gap reflects and reinforces wider markers of discrimination and disadvantage, including by gender, age, ethnicity, religion, class, disability and geographical location, among others. There is therefore an invariable overlap between the digital divide and being informal. Eliminating this gap will be essential for countries to reap the benefits of e-formalization.

In the Republic of Korea, in addition to establishing high-speed internet services, computer education was targeted to 10 million citizens in 2001, with special attention given to low-income families, teachers, students, homemakers, seniors, farmers, fisher-folk, persons with disabilities and prisoners (Dator, Sweeney and Yee 2015). Various channels were used, such as formal education institutions, private training centers, learning centers run by public institutions, education institutions abroad and corporations. Recognizing that inhabitants of remote and rural areas were much less likely to use ICTs, the Korean government also developed "digital villages" for social inclusion.

The Korean Agency for Digital Opportunity Promotion used a number of channels for training such as formal education institutions, private training centers, learning centers run by public institutions, education institutions abroad and corporations. In some cases, lessons were even held in private homes. Volunteers helped the agency meet its targets for digital inclusion. With private sector support, special applications such as eye sensors as mouse cursors and speech software were incorporated to ensure that disabled persons were included in training programmes (Woyke 2009).

Recognizing that inhabitants of remote and rural areas were much less likely to use ICTs, the Korean government also developed "digital villages" for social inclusion. Beginning in 2001 over 400 digital village projects were developed over two decades to reduce the urban-rural digital divide, attract younger people into rural areas and modernize farming. Internet connectivity was prioritized under the initiative, along with digital training for inhabitants. Local government implemented various measures under the programme to increase rural incomes using ICTs, depending on the characteristics of the area. For instance, digital apps were used to enhance tourism in some villages, while in others digitalization was tapped to increase farmers' productivity and to develop virtual farmers' markets and e-commerce (FAO undated).

ii. Capacity building of the civil service

Another key factor which has contributed to the success of e-government in the Republic of Korea has been the extensive capacity building of the public service in technical areas related to digitalization. Experts in ICTs, often from the private sector, were brought in to work collaboratively with public officials. In addition, public officials underwent considerable managerial training to support e-government, which helped overcome resistance and inertia.

Korea's extensive investment in IT training for government employees has been institutionalized through the National Computer Centre and other training bodies, as well as emphasized through developing a civil service culture which promotes continual skills development linked to professional evaluation systems. Thus, an important aspect of revitalizing the public service has been through building hybrid skills incorporating both technical/functional skills and digital skills as described in Box 4.

▶ Box 4. Cultivating hybrid skills in public officials

According to Karippacheril et al. (2016), a critical success factor for e-governance is the cultivation of hybrid skills (that, is, both technical and functional/sectoral skill) in public officials. Around the world, the failure of digitalization in public functions can often be a result of a lack of capacity by officials to handle complex projects containing technological as well as non-technological content. Karippacheril et al. (2016) recommends the creation of hybrid capacities which combine IT competencies and public sector competencies to bridge the gap between the technical and the technological.

In the Republic of Korea, extensive training was given to public officials in public institutions. Early resistance to digitalization of public operations was addressed by bringing IT experts to work with various government departments. Working groups were often formed, comprising private sector IT advisors, public policy technical specialists and administrators to forge the pathway to e-governance in various public bodies. With the transformation of the civil service towards technical specialization imbued with a meritocratic ethos, the expansion of the technological skills of public officials has accelerated in the country. Opportunities for continuous learning by the civil service, including in technology, are available in various public training institutions.

Source: Karippacheril et al. (2016).

iii. Public-private partnerships

Developing partnerships with the private sector as well as ensuring dynamic relationships with academia and civil society organizations were important in driving forward e-government initiatives. With the focus on digitalization as a support for national development and economic growth, the Korean government worked closely with the private sector to deliver on its targets. Working groups, which brought together both private and public actors, facilitated collaboration in designing, planning, constructing and operating ICT infrastructure. As a consequence, this generated both stronger government capacity and stronger private sector capacity, as evidenced by the numerous Korean companies that have now become digital giants in the global ICT industry.

iv. High-level leadership

One of the most important drivers of e-government over the several decades of implementation has been leadership through the Office of the President (Chung 2015; Karippacheril et al. 2016). They provided the necessary authority and mandate to ensure continuity of purpose despite numerous changes of government. **This vital leadership enabled a whole-of-government approach, and established the vision, priorities and tasks for continual evolution of digitalization.** The formation of supervisory bodies under the auspices of the President, such as the **Special Committee on E-government** from the early 2000s and later, the **Presidential Committee on Government Innovation and Decentralization**, have been able to ensure inter-Ministerial cooperation, address conflicts between agencies and overcome bureaucratic resistance to transformation.

v. Institutions and laws for digitalization to guide processes

In addition to the supervisory bodies, a regulatory framework for digitalization was established early in the process of development. Among the types of legislation enacted were those covering civil engagement such as information disclosure and electronic voting; regulations for digital work processing; legislation for e-government infrastructure; legislation for prioritized projects such as public finance information and local e-government ordinances; and laws guaranteeing safety and reliability such as the protection of privacy for data possessed by public institutions. From 2003, more than 1,200 laws, enforcement decrees, and rules have been revised (Karippacheril et al. 2016). Government's efforts to build a legal infrastructure that responds proactively to the fast-changing environment of e-government have contributed much to the stable and safe use of e-government services by the people.

vi. Stakeholder input and monitoring

Stakeholder committees were involved in design and monitoring of various e-government measures. With regard to digital processes linked to the labour market, the Economic, Social and Labor Council (ESLC) continues to play a role in the development of e-government features.¹⁶ Similarly, stakeholders are represented on the Board of Directors of the KEIS.¹⁷

vii. Sequencing the development of core infrastructure for a whole-of-government approach

Giving the complexity and scale of e-government transformation, sequencing has been identified as an important factor in managing the overall process (Karippacheril et al. 2016). The evolution of digital governance in the Republic of Korea began with basic steps in the early stages such as the computerization of internal government service systems including finance and payroll and other core public functions. Key national databases were digitalized and each government agency constructed digital networks.

Initially, 11 key e-government projects were implemented and their successful implementation created momentum for 31 additional priorities. Once the groundwork was laid, processes moved towards developing webpages for citizens for outreach and communication, leading to the streamlining of services into one-stop shops and re-engineering service delivery. Two-way communication followed between government and citizens and businesses. Continuous learning from implementation resulted in broader understanding of the needs for stakeholder analysis, feasibility assessment and a roadmap for prioritizing short- and long-term projects. A project-based evolution enabled prioritization and eased resource burdens by taking a gradual approach to digitalization. Strategic plans were established every few years to enable a dynamic environment that could respond effectively to rapidly changing processes.

Early efforts also involved the development of appropriate infrastructure such as high-speed broadband network development. This in turn enabled the push towards interoperability of various systems. By 2011, an integrated e-governance platform had been developed for use by all central government departments which standardized and systematized planning, management, and decision-making, as well as the creation of a single integrated public data center.

¹⁶ Information from correspondence with KEF official.

¹⁷ According to correspondence with KEIS. In addition to KEIS directors, there are eight non-executive directors on the Board of KEIS. Six are in the private sector and two are ex officio directors of MOEL and the Ministry of Economy and Finance. One of the directors in the private sector is appointed by KCTU and one by KEF.

4.3. Evaluating impact

By any metric, the Republic of Korea has made striking progress in digitalizing its public services and, as a result, enhancing inclusion, fairness and efficiency. However, assessments of the impacts of digitalization on vulnerable segments of the labour market are rare. Nevertheless, it is possible to speculate on the types of impacts that e-governance mechanisms are bringing to overcome some of the blockages to formalization and to generate some lessons learnt for emerging economies to make the e-formalization an explicit strategy and practice.

There can be no doubt that e-government measures in the Republic of Korea have eliminated red-tape and bureaucratic blockages in a vast array of linkages with citizens (Joohe Lee 2016). Digitalization has enabled citizens and businesses to significantly reduce the amount of time needed to engage with and visit government offices. Streamlining, simplification and integration of service portals have reduced costs and time for enterprises, big and small alike, to register and fulfil legal requirements on payroll and taxes. The online business services are partially responsible for the country's consistently high ranking in the World Bank's Doing Business Index.

Nevertheless, simplification and streamlining may not be sufficient on their own to encourage businesses to formalize. Evidence from around the world suggests that the range of incentives to formalize and disincentives to remain informal also play a vital role, which in turn resonates with the guidance from R204. The following comment from a representative of the KEF reinforces the importance of a wider incentive framework:

G4B provides various information and services to help companies' business activities such as civil service and related policy information through a single online window. Such digitalization of government service is considered as more convenient and easy access to business support service. However, it is difficult to say that could be a critical factor for companies to register or comply with regulations. For encouraging enterprises to formalize their business activities further, more substantial and practical benefits and incentives are needed.

Similarly, there are indications that digital dialogue platforms, while useful, may have limitations over other forms of more traditional dialogue processes. Again, a representative from KEF indicated:

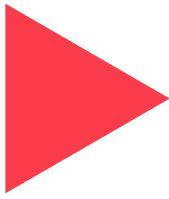
Currently, many ESLC [Economic, Social and Labor Council] partners go online and this trend is likely to continue in the future. However, there is no official platform for online social dialogue, and face-to-face communication is still preferred for better interaction and communication between labour and management when it comes to collective bargaining and other negotiations.

KEIS also noted the importance of continuing to use complementary analogue methods while the digital divide continues to exist. With regard to supporting vulnerable groups' access to employment, a KEIS official noted:

Digital services operated by KEIS generally focus on targets with high accessibility to the Internet and smartphones. In the case of vulnerable groups, however, they generally visit the employment center in person. WorkNet aims to provide services suitable for this target.

E-governance has enhanced citizen participation in democratic processes and enabled transparency and accountability. In areas such as e-participation, the country has scored highly in the UN's EGD I for several years. Furthermore, it can be extrapolated that digitalization has enabled the country to significantly tackle corruption and poor governance. It has made steady progress in Transparency International's Corruption Perception Index, achieving its best ranking ever in 2020 at 33rd out of 180 countries.

E-formalization relies heavily on eliminating the digital divide. The Republic of Korea was able to make massive strides in enhancing digital access and promoting digital literacy and skills from the earliest stages of e-governance initiatives, targeting the most vulnerable groups. These measures have now been institutionalized and expanded. Since 2002, the National Information Society Agency has been tracking the digital divide in the country using a nationwide survey. Recent results show that online services are more likely to be used by the young, educated, urban and financially better-off. Older cohorts are much less likely to use online services and have been shown to have less capacity in digital skills, suggesting that analogue methods and processes are still an important part of ensuring inclusion, and further, that digital literacy efforts still need to be targeted more precisely to older groups.

 **5**

Recommendations

Through distilling lessons from the Korean experience, the following recommendations can be identified where developing countries with large informal economies can unleash e-formalization processes.

1. Address the digital divide in access to ICTs and internet and promote digital skills

An essential pre-condition for e-formalization to realize its potential is to reduce and eliminate the digital divide among the economically excluded. This involves not only ensuring that the whole population has access to affordable and reliable broadband internet, but also enhancing the capacity of citizens to use ICTs through digital literacy programmes. While ICTs have penetrated parts of the informal economy, digital divides continue to exacerbate existing inequalities. Targeted efforts will be required for providing digital access and training in digital skills to disadvantaged groups in the informal economy, including women, persons with disabilities, rural inhabitants, older groups, marginalized ethnic and religious groups, among others. Social partners will have a strong advocacy role for ensuring that public policies for access to ICTS and digital literacy programmes reach vulnerable segments of the labour market.

2. Support capacity building of civil servants in both digital skills and processes and policies that can support formalization

Ministries of Labour/Employment, and social partners are among those who would benefit from intensive capacity building in digital skills in order drive forward the digitalization of labour market policies and institutions. Opportunities for continual learning and upgrading of digital skills will help strengthen civil servants' ability to advocate for and implement e-formalization projects and initiatives. Similarly, digitalization generates vast amounts of data that can be used to support formalization. It will therefore be necessary to build technical capacity in managing data analytics to support labour market institutions.

3. Ensure that Ministries of Labour/Employment are part of the working groups that drive e-governance and engage social partners in any area of e-government strategies linked to the labour market

Given that Ministries of Labour/ Employment are often not at the core of e-government efforts, ensuring coordination with relevant ministries will ensure a whole-of-government approach. It will also enable relevant agencies to continue to advocate for economic inclusion and eliminating vulnerability in the labour market.

4. Develop and implement pilot e-formalization projects

The Korean experience has shown the importance of prioritizing projects, particularly in the early stages of e-government development. This can lead to early success and also build momentum for institutionalizing e-formalization. Such projects will require forecasting, stakeholder analysis, participatory design with social partners and coordination with other ministries. Most importantly, it will require a vision that puts the needs of informal economy individuals, units and sectors at the core of the project design. Implementation at the local level with local government support may be the most effective in reaching informal settlements.

5. Advocate for strong executive leadership

The example from the Republic of Korea, as in the Estonia case study, shows the importance of leadership at the top level of leadership – the President's office – in the e-government design and implementation. This overarching framework in the Republic of Korea brought the necessary authority to ensure coordination between different arms of government and had the mandate to push ahead with mid and long-term master plans. Ministries of Labour/Employment can advocate for such a whole-of-government approach and push for leadership to ensure that e-formalization projects are prioritized and able to continue regardless of changes of government.

6. Develop partnerships with the private sector

The Korean experience showcases the need for strong partnerships between the private and public sectors in setting in place digital infrastructure and systems. Additionally, those private sector entities that are immersed in the digital economy can be engaged in developing customized, pro-poor applications to support the needs of informal economy groups and sectors. Partnering informal economy communities with digital innovators will ensure that the design and development of applications are needs-based.

References

- Asia Society Switzerland. 2020. “Webcast: How South Korea is Using Technology to Fight Coronavirus”.
- Asian Development Bank Institute, OECD and ILO (ADBi-OECD-ILO). 2021. *Labor Migration in Asia: Impacts of the COVID-19 Crisis and the Post-Pandemic Future*.
- Better than Cash Alliance. 2020. *Success Factors in Tax Digitalization*.
- Chacaltana, Juan, Vicky Leung and Miso Lee. 2018. *New Technologies and the Transition to Formality: The Trend towards E-Formality*, Employment Working Paper No. 247.
- Chang, Jiyeun. 2021. *Platform Workers: Their Numbers and Characteristics*, Working Paper 2021-03. Korean Labour Institute.
- Chung, Choong-Sik. 2015. “The Introduction of e-Government in Korea : Development Journey, Outcomes and Future”. *Gestion et management public*, Vol. 3/4, No. 2: 107–22.
- Dator, James, John Sweeney and Aubrey Lee. 2015. *Mutative Media: Communications Technologies and Power Relations, Past, Present and Future*. Switzerland: Springer International Publishing.
- Divald, Susan. 2021. *E-Formalization Country Case Study: E-Estonia – A Digital Society for the Transition to Formality*. ILO.
- ESCAP (United Nations Economic and Social Commission for Asia and the Pacific). 2018. *Historical Trajectory of E-government in Korea*. E-government for Women’s Empowerment in Asia and Pacific.
- . 2020. *Promoting Regional Cooperation for Inclusive Broadband Connectivity through the Asia-Pacific Information Superhighway Initiative*. ESCAP/CICTSTI/2020/2.
- FAO (Food and Agriculture Organization). Undated. *Republic of Korea. Case 16: Smart Village Initiative of Republic of Korea – Cases of PyeongChang, Jeju Island and Cheongdo*.
- Gallo, Michael, and Hannah Thinyane. 2021. *Supporting Decent Work and the Transition towards Formalization through Technology-Enhanced Labour Inspection*, ILO Working Paper No. 41.
- GSMA. 2020. *The Mobile Economy Asia Pacific 2020*.
- Ha, Byung-jin, and Sangheon Lee. 2013. *Dual Dimensions of Non-regular Work and SMEs in the Republic of Korea: Country Case Study on Labour Market Segmentation*, ILO Employment Working Paper No. 148.
- ILO (International Labour Office). 2020a. *Impact of Lockdown Measures on the Informal Economy*.
- . 2020b. *Asia-Pacific Employment and Social Outlook: Navigating the Crisis towards a Human-centred Future of Work*.
- . 2020c. *Republic of Korea: A Rapid Assessment of the Employment Impacts of COVID-19*.
- and IOM (International Organization for Migration) 2020. *Promoting Fair and Ethical Recruitment in a Digital World: Lessons and Policy Options*.
- ITU (International Telecommunications Union). 2020. “Covid-19: How Korea is using innovative technology and AI to flatten the curve.” *ITU News*, April 2.
- Kang, Heehoon. 2018. “Korea E-Procurement System: Continuous Improvement & Innovation.” Presentation of Public Procurement Services, Government of the Republic of Korea for UNCTAD E-commerce Week, 17 April.

Karippacheril, Tina George, Soonhee Kim, Robert P. Beschel Jr, and Changyong Choi (eds). 2016. *Bringing Government into the 21st Century: The Korean Digital Governance Experience, Directions in Development*. Washington DC: World Bank Group.

Kim, Sang-wook. 2013. "The Government 3.0 and a Paradigm Shift in the Information Services", paper presented at the 85th Women's Policy Forum: The Government 3.0 and Tasks for Policies on Women and Family, Seoul.

Kim, Soonhee and Changyong Choi. 2016. "Institutional and Managerial Dimensions of Digital Government Development in Korea." In *Bringing Government into the 21st Century: The Korean Digital Governance Experience*, edited by Tina George Karippacheril et al. Washington DC: World Bank Group.

Kring, Sriani and Vicky Leung. 2021. *Renewing Social Contract Through E-formalization in the World of Work*.

Lee, Joho. 2016. "Digital Government Impacts in the Republic of Korea: Lessons and Recommendations for Developing Countries." In *Bringing Government into the 21st Century: the Korean Digital Governance Experience*, edited by Tina George Karippacheril et al. Washington DC: World Bank Group.

Lee, Jungwoo. 2016. "Evolution of Digital Government Systems in the Republic of Korea." In *Bringing Government into the 21st Century: the Korean Digital Governance Experience*, edited by Tina George Karippacheril et al. Washington DC: World Bank Group.

Lee, Hoon Sang. 2020. "The COVID-19 situation and response measures of Republic of Korea." Presentation at the World Bank webinar *Learning from Korea's digital response to COVID-19*, 10 December.

Lim, Jamilah. 2021. "South Korea's Brilliant Decentralized Approach to Citizen Identity Management." *Techwire Asia*, 25 June.

Ministry of Economy and Finance, Government of the Republic of Korea. 2020. *Korean New Deal: National Strategy for a Great Transformation*.

Ministry of Interior and Safety, Government of the Republic of Korea. 2018. *E-Government systems of Korea, 100 Acknowledged Worldwide*.

Myeong, Seunghwan, Younhee Kim, and Michael J. Ahn. 2021. "Smart City Strategies—Technology Push or Culture Pull? A Case Study Exploration of Gimpo and Namyangju, South Korea." *Smart Cities 4 (1)*: 41–53.

OECD (Organisation for Economic Co-operation and Development) 2020. *Digital Government Index: 2019 Results*, OECD Public Governance Policy Papers, No. 03.

Shim, Elizabeth. 2020. "South Korea Passes a Law to Protect Delivery Workers." *UPI*, 9 December.

Song, Tae-Eun. 2021. *UN Agenda for Digital Cooperation and Korea's Role*. Institute for Foreign Affairs and National Security (IFANS).

UNCTAD (United Nations Conference on Trade and Development). 2019. *Digital Economy Report 2019. Value Creation and Capture: Implications for Developing Countries*.

UNDESA (United Nations Department of Economic and Social Affairs). 2020. *E-Government Survey 2020: Digital Government in the Decade of Action for Sustainable Development*.

———. n.d. "Leaving no-one behind means leaving no-one offline."

WEF (World Economic Forum). 2020. "How Governments Can Leverage Policy and Blockchain Technology to Stunt Public Corruption", 15 June.

Williams, Colin. 2021. *E-formalization in Europe*. ILO.

World Bank. 2019. *Inclusive and Trusted Digital ID Can Unlock Opportunities for the World's Most Vulnerable*.

———. 2020. *Doing Business: 2020*.

Woyke, Elizabeth. 2009. "Korea bridges digital divide." *Forbes*, 3 April.

▶ **Digital solutions and formalization**
E-formalization case study on the Republic of Korea

This report focuses on what new technologies can bring to the table for enabling formalization. It draws lessons from the digitalization of public services in the Republic of Korea, an ongoing process that ultimately increases the scope of labour protections to vulnerable workers and enterprises that sit on the fringe of the informal economy.

ILO Regional Office for Asia and the Pacific

United Nations Building, Rajdamnern Nok Avenue
Bangkok 10200, Thailand

T. +662 288 1234

F. +662 280 1735

E. BANGKOK@ilo.org

www.ilo.org/asia

