2. Regional E-Government Development and the Performance of Country Groupings

Photo credit: pixabay.com

2.1 Introduction

This chapter offers an overview of e-government development at the regional level, identifying important trends and providing an analysis of regional performance as measured by the E-Government Development Index (EGDI).

The sections below present the key findings of the Survey on E-Government Development from a regional perspective, review and assess the state of online services provision in each region, and highlight trends in specific country groupings, including least developed countries (LDCs), landlocked developing countries (LLDCs) and small island developing States (SIDS).

2.2 Regional EGDI rankings

All regions but one (Oceania) have improved their average EGDI values since 2020 (see figure 2.1). Europe remains the leader in e-government development, with an average EGDI value of 0.8305. All of the countries in Europe have EGDI values above the global average of 0.6102; 81 per cent have very high EGDI values (above 0.75),[1] and the remaining 19 per cent have high EGDI values (between 0.50 and 0.75). Similar to the 2020 Survey, 8 of the 15 countries in the highest (VH) rating class of the very high EGDI group are in Europe.

Asia is in the second position in terms of regional average EGDI value (0.6493), followed by the Americas (0.6438), Oceania (0.5081) and Africa (0.4054). For the first time since 2016, the average EGDI value for Oceania declined (from 0.5269 in 2020 to 0.5081 in 2022, or by 3.6 per cent), largely owing to the 29 per cent drop in the average value of the Telecommunications Infrastructure Index (TII) for the region over the past two years.

Africa has made the most notable progress, with a 3.6 per cent increase in its average EGDI value, followed by Asia (1.9 per cent), Europe (1.7 per cent) and the Americas (1.5 per cent). TII value increases of 12 per cent in Africa, 6.5 per cent in the Americas and 4.6 per cent in Asia are largely responsible for the higher EGDI values in those regions. Despite the significant progress in Africa, the EGDI average for this region remains below the global average of 0.6102.

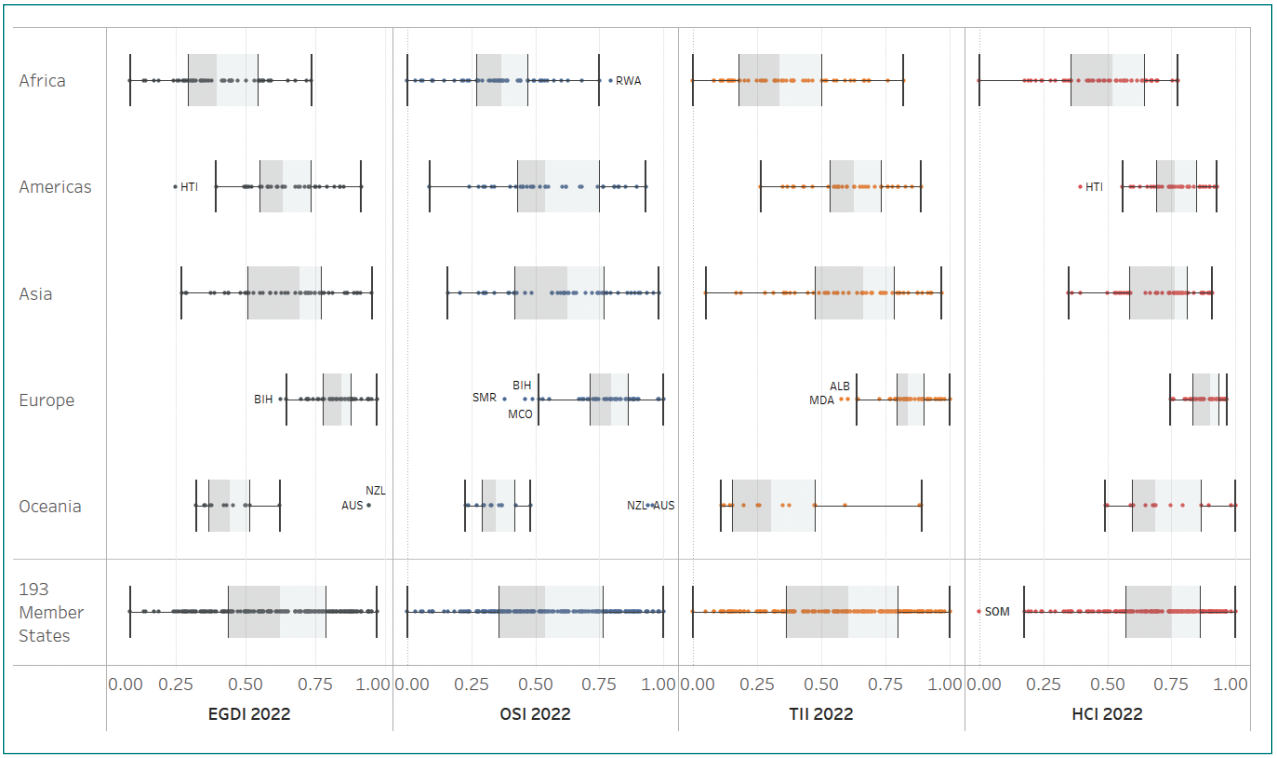
Europe has the lowest variance in country EGDI values (between 0.6256 and 0.9717), suggesting that the region is moving more rapidly than

In this chapter:

Figure 2.1 Regional average EGDI values, 2022

Source: 2022 United Nations E-Government Survey.

Figure 2.2 Regional distribution of EGDI levels and of OSI, HCI and TII subcomponent levels, 2022



Source: 2022 United Nations E-Government Survey.

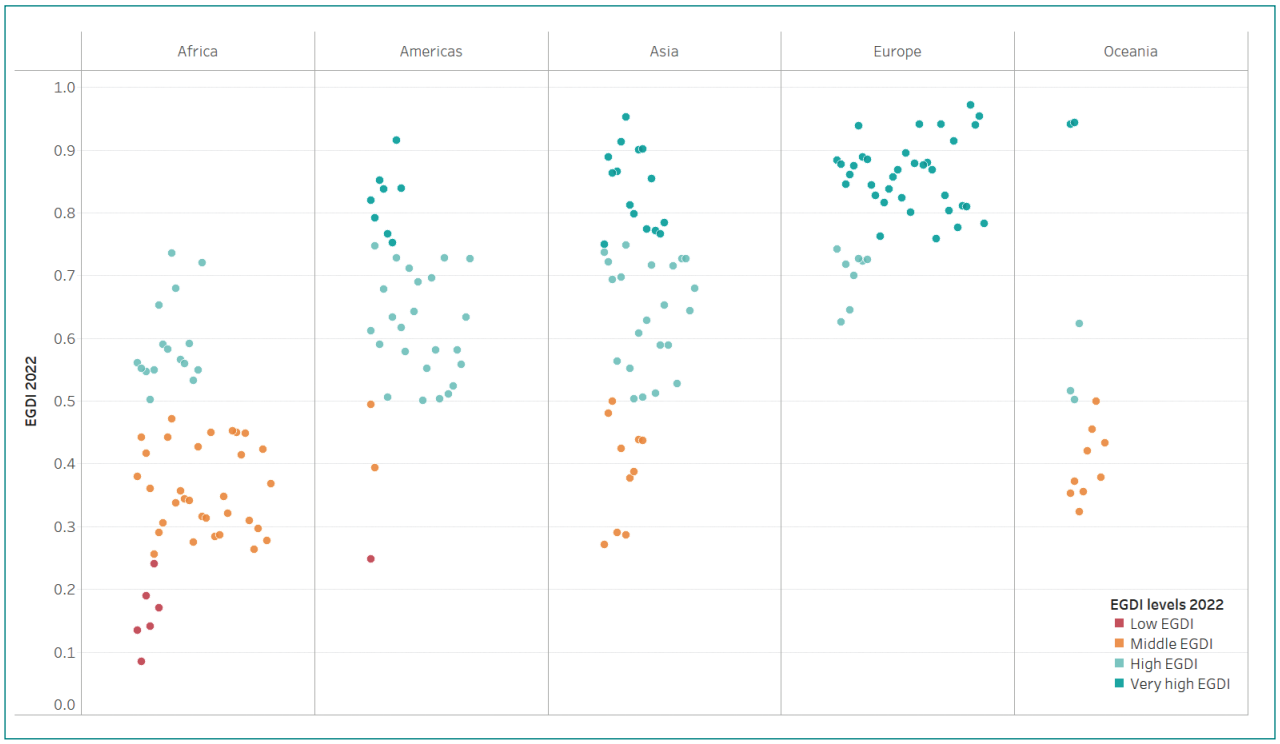
Note: The internationally recognized three-letter country codes can be found here and in Survey annex table 12.

other regions towards convergence in the level of e-government development (see figure 2.3). In Oceania, EGDI values vary from 0.3230 to 0.9432, suggesting highly uneven e-government development. The high variance in Oceania is explained by the fact that while Australia and New Zealand are top performers, the majority (11 out of 14) of the remaining countries have EGDI values below the global average EGDI value of 0.6102. A similar high-variance situation prevails in Africa, where 4 of the 54 countries have EGDI values above the global EGDI average but the remainder have values that are sometimes significantly lower, highlighting gaps in e-government development and the persistence of the digital divide. These regional e-government development patterns are consistent with those in the 2020 Survey.

Asia and the Americas are roughly comparable in their levels of e-government development, with a growing number of countries trending upward. Among the 14 countries that moved to higher EGDI levels between 2020 and 2022, five are in Asia (Democratic People's Republic of Korea, Georgia, Lebanon, Nepal and Tajikistan) and three are in the Americas (Belize, Guyana and Peru).

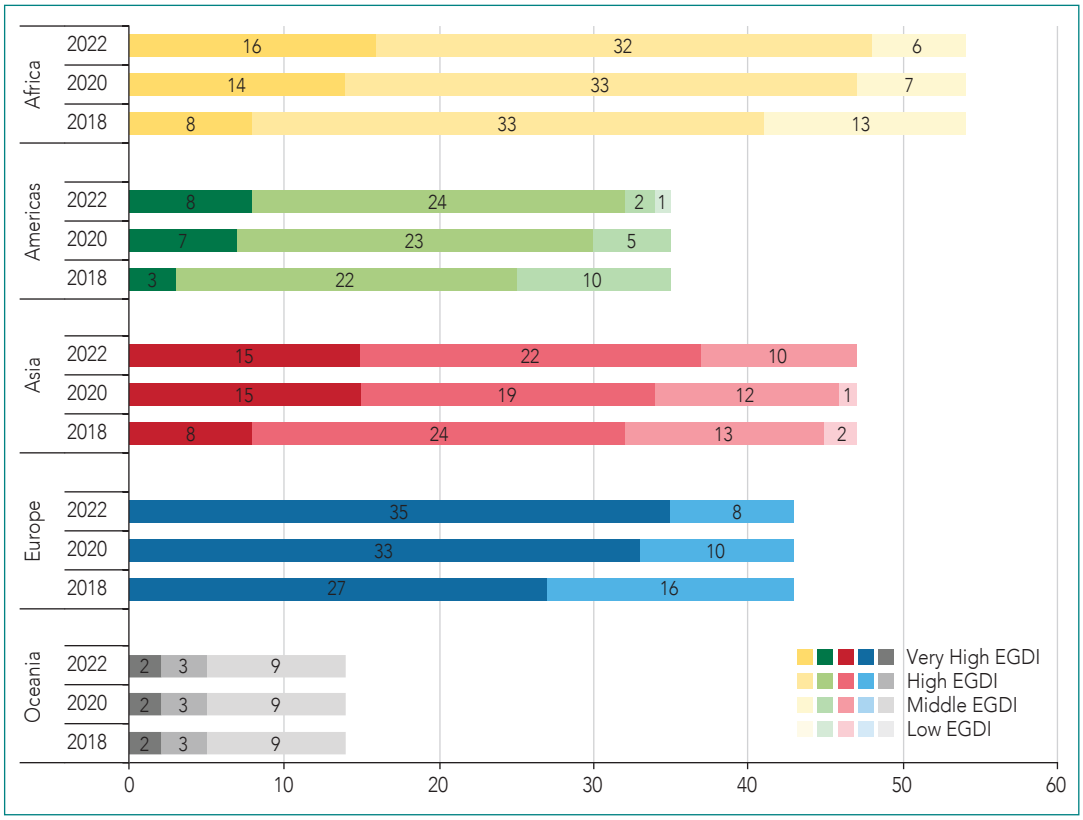
Figures 2.4 and 2.5 show the regional distribution of countries by EGDI level over three consecutive Survey periods. Europe accounts for the highest proportion of countries in the very high EGDI group (58.3 per cent), followed by Asia (25 per cent), the Americas (13.3 per cent) and Oceania (3.3 per cent).

Figure 2.3 Regional snapshot of countries by EGDI level, 2022



Source: 2022 United Nations E-Government Survey.

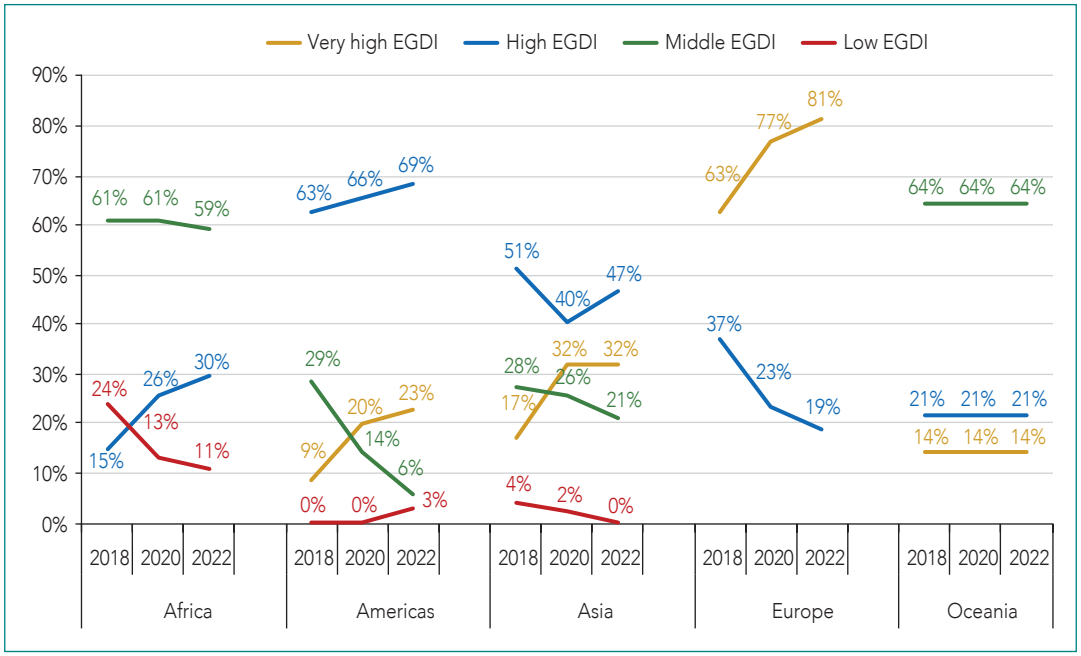
Figure 2.4 Number of countries in each EGDI group, by region, 2018, 2020 and 2022



Sources: 2018, 2020 and 2022 United Nations E-Government Surveys.

Note: The graduated shading for each region signifies distinct EGDI levels, ranging from low EGDI (the lightest shade) to very high EGDI (the darkest shade).

Figure 2.5 Percentage of countries in each EGDI group, by region, 2018, 2020 and 2022



Sources: 2018, 2020 and 2022 United Nations E-Government Surveys.

In Europe, 81 per cent of the countries have very high EGDI values, and the remaining 19 per cent have high EGDI values. If the present trend continues, the small number of countries in the latter group will likely reach the highest level of e-government within a relatively short period of time.

In the Americas, 69 per cent of countries are in the high EGDI group, and 23 per cent are in the very high EGDI group. The proportion of countries in each group is increasing, signifying a steady improvement in e-government development in the region. As a result of this upward trend, the Americas region has seen the sharpest decline in the proportion of countries in the middle EGDI group; between 2018 and 2022, the share of countries in this group declined from 29 to 6 per cent.

In Asia, as in the Americas, the highest proportion of countries (47 per cent) are in the high EGDI group; however, the share of countries in the very high EGDI group is higher in Asia (32 per cent) than in the Americas (23 per cent). Both Asia and the Americas have experienced a significant (14-15 per cent) increase in the proportion of countries in the very high EGDI group since 2018.

In Oceania, 64 per cent of the 14 countries surveyed are in the middle EGDI group, 21 per cent are in the high EGDI group, and 14 per cent are in the very high EGDI group (see figure 2.5). Oceania is the only region that has seen no change in the distribution of countries by EGDI level over the past four years, though as mentioned before, the average EGDI level for the region has declined since 2020 as a result of the sharp downturn in TII performance.

In Africa, 59 per cent of the countries are in the middle EGDI group, and 30 per cent are in the high EGDI group. While there are no countries in Africa with very high EGDI values, the declining trend in the low and middle EGDI groups is encouraging.

2.2.1 Regional performance in online services provision

As explained in the previous chapter, the Online Services Index (OSI) component of the EGDI evaluates the provision of online services by Governments. The 2022 Survey assessed the availability of 22 types of online transactional services on government portals (see chapter 1, section 1.8). The results show that the total number of Member States offering at least one online service increased from 162 in 2020 to 177 in 2022, or by 9 per cent.

At the regional level, online services provision varies in both scope and prevalence. Figure 2.6 provides a visual snapshot of the number of countries in every region offering each of the 22 services assessed in the 2022 Survey.

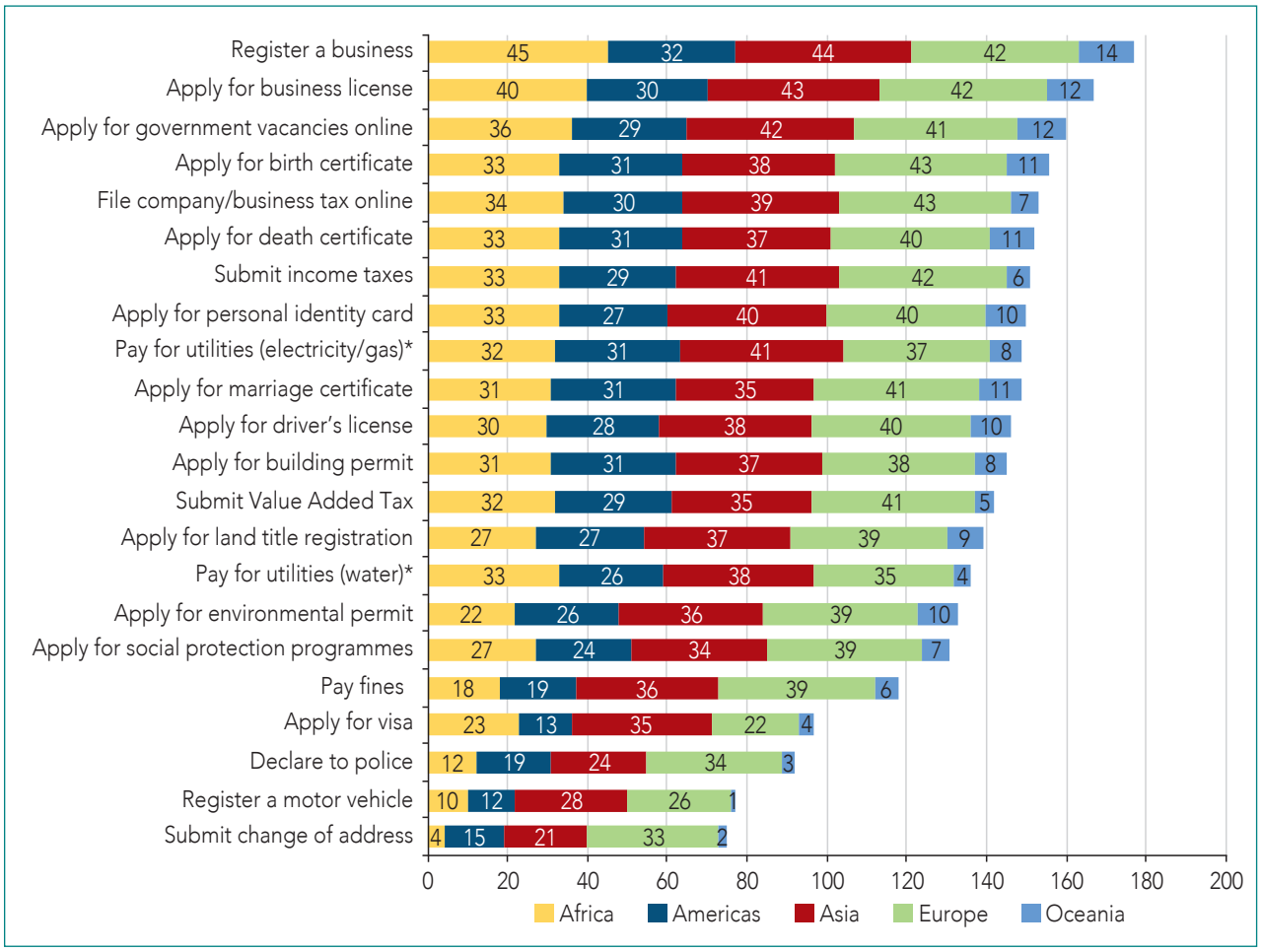
Relatively speaking, Governments in all regions tend to do rather well in providing business-related services online. Registering a business and applying for a business licence are the two online services offered most frequently in every region. Among the least offered online services are submitting a change of address and registering a motor vehicle.

Europe offers the highest average number of services (19), followed by Asia (17), the Americas (16), Oceania (12) and Africa (12) (see figure 2.7). More than two thirds of the countries in Europe offer at least 19 services online, half of the countries offer all 22 services, and one third of the countries offer 14-18 services. Applying for a birth certificate and filing company/business taxes online are options offered in all of the region's countries. The online services offered least in Europe are applying for a visa (51 per cent) and registering a motor vehicle (60 per cent).

Nearly 80 per cent of the countries in Asia offer more than the world average of 16 online services, and 15 per cent offer all 22 of the services assessed in the Survey. However, around 15 per cent of the countries in Asia offer only 1-9 online services.

In the Americas, 63 per cent of the countries offer more than 16 services. The United States is the only country in the region that offers all 22 of the services assessed in 2022. Only 6 per cent of the countries in the region offer 1-9 services; Haiti offers the lowest number (2), while Cuba offers 7 services online.

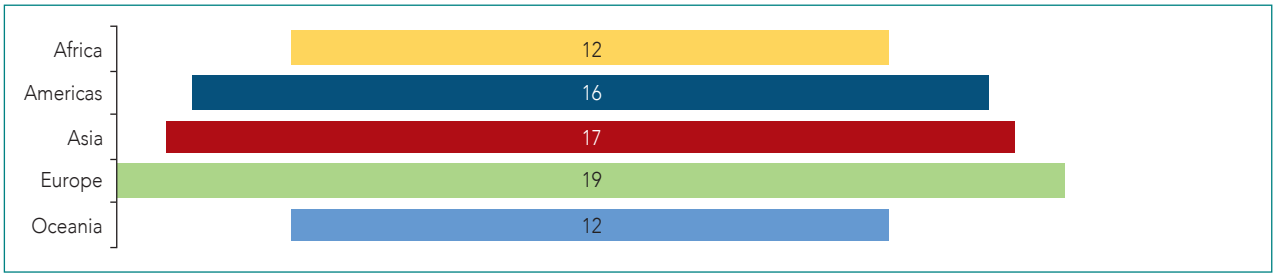
Figure 2.6 Number of countries offering specified online services, by region, 2022



Source: 2022 United Nations E-Government Survey.

*In previous Surveys, utilities were assessed together. Since 2020, the E-Government Survey has collected disaggregated data on utility payments for (a) electricity/gas and (b) water to allow more accurate tracking of services provision in all countries.

Figure 2.7 Average number of services offered in each region, 2022

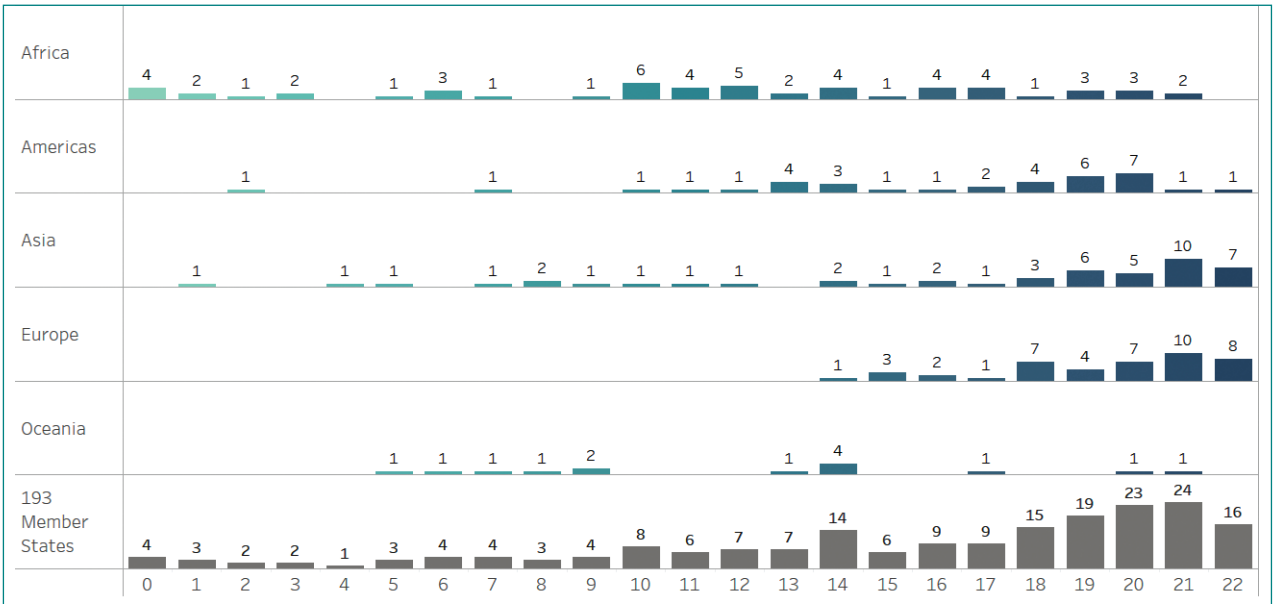


Source: 2022 United Nations E-Government Survey.

In Oceania, the average number of services offered online is 12. As figure 2.8 illustrates, however, 43 per cent of the countries in the region offer 5-9 services, a range well below the regional and global averages. All countries offering fewer than 12 services are SIDS with middle or low OSI levels. Registering a business online is the only service offered by all 14 countries in the region.

In Africa, 61 per cent of the countries offer an average of 12 services online. The 2022 Survey results indicate that, for the first time, five countries in Africa (Nigeria, Rwanda, Angola, Egypt and South Africa) are offering 20-21 online public services. This is noteworthy, given that only 63 of the Member States offer 20 or more of the 22 services assessed (25 countries in Europe, 22 in Asia, 9 in the Americas, 5 in Africa, and 2 in Oceania).

Figure 2.8 Number of online public services offered in different countries, by region, 2022



The x-axis displays the number of services, while the labels display the number of countries in the respective region offering the services. E.g.: there are 10 countries in both Asia and Europe that offer 21 online services.

Source: 2022 United Nations E-Government Survey.

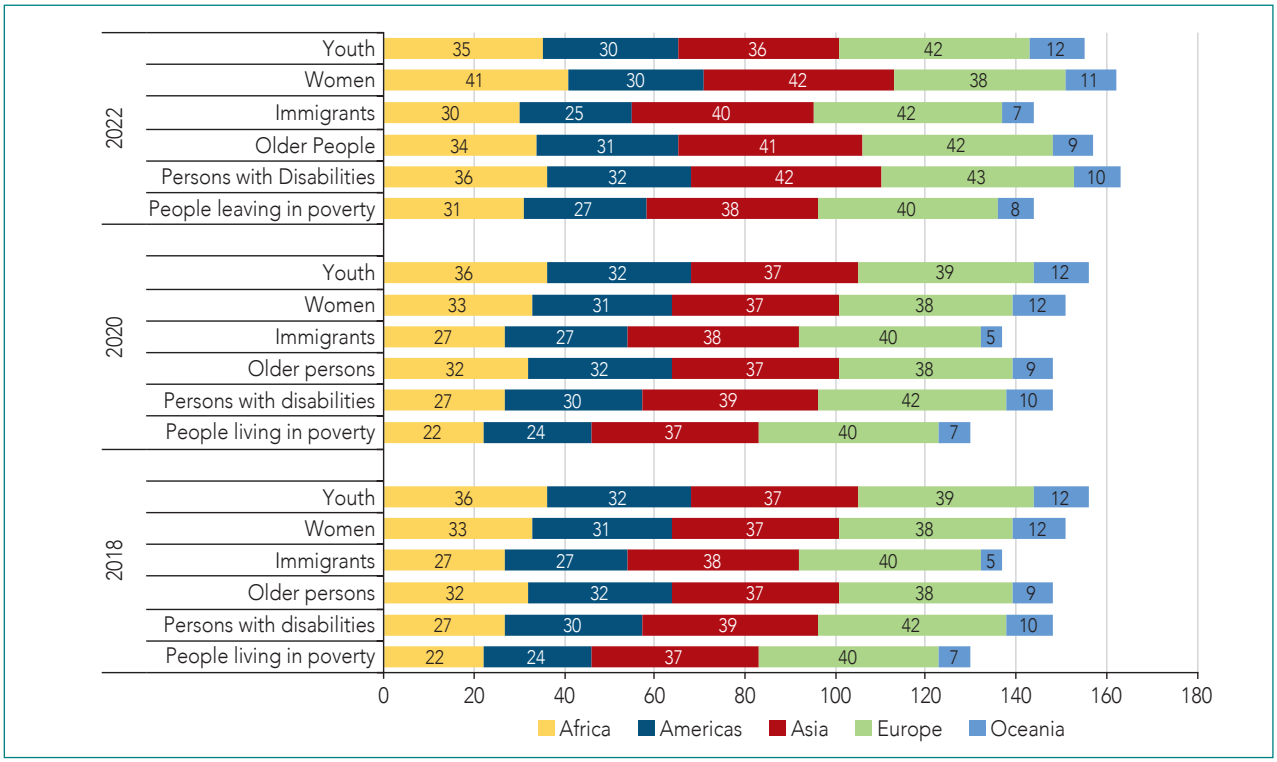
Note: The colour shades of the bars represent countries belonging to different EGDI groups (from low to very high); the lighter shades are for low and middle EGDI groups, and the darker shades are for high and very high EGDI groups.

2.2.2 Online services for people in vulnerable situations

In all regions, the number of countries offering online services for individuals in vulnerable situations—including people living in poverty, persons with disabilities, older people, immigrants, women and youth—has increased since 2020; Africa has registered the most notable increase (9 per cent), though Asia, Europe and Oceania have made solid gains as well, with increases ranging from 3 to 5 per cent (see figure 2.9). Europe has the largest proportion of countries offering services for vulnerable populations (96 per cent), followed by Asia (85 per cent), the Americas (83 per cent), Oceania (68 per cent) and Africa (64 per cent). It should be noted, however, that immigrants and people living in poverty appear to be less well served than other vulnerable populations in terms of e-government services provision.

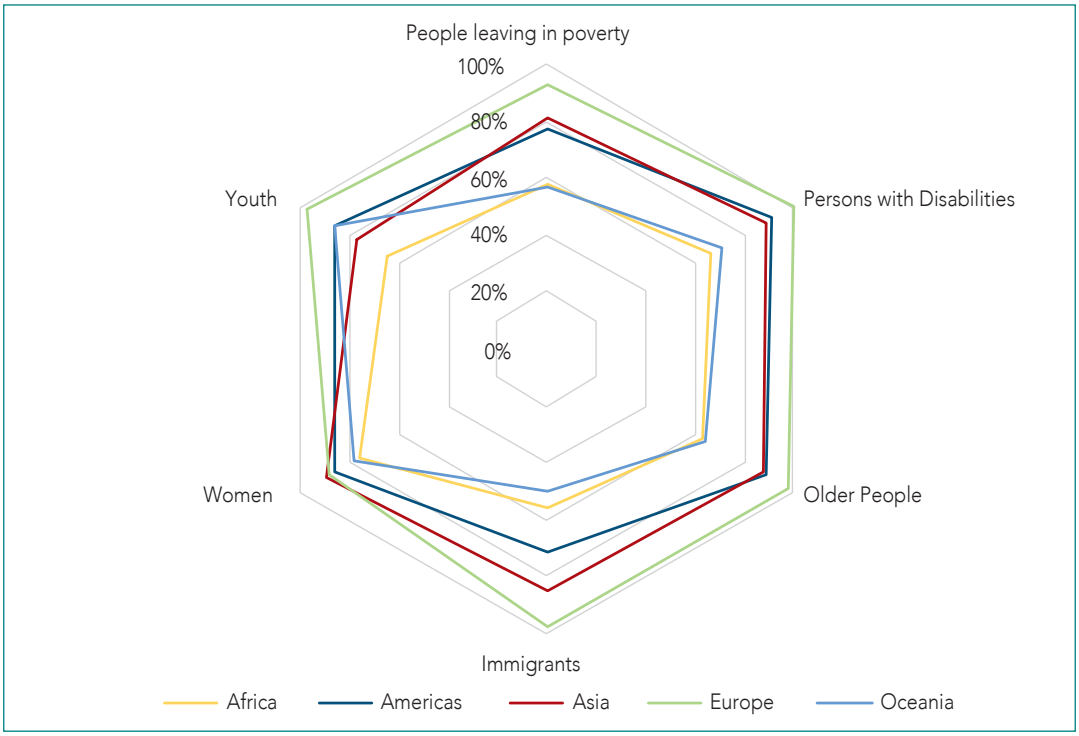
Figure 2.9 shows the progress made since 2018 in online public services provision for people living in vulnerable situations, and figure 2.10 offers a graphic representation of the status of each region in 2022.

Figure 2.9 Number of countries offering online services for vulnerable groups, 2018, 2020 and 2022



Sources: 2018, 2020 and 2022 United Nations E-Government Surveys.

Figure 2.10 Percentage of countries providing online services for vulnerable groups in each region, 2022

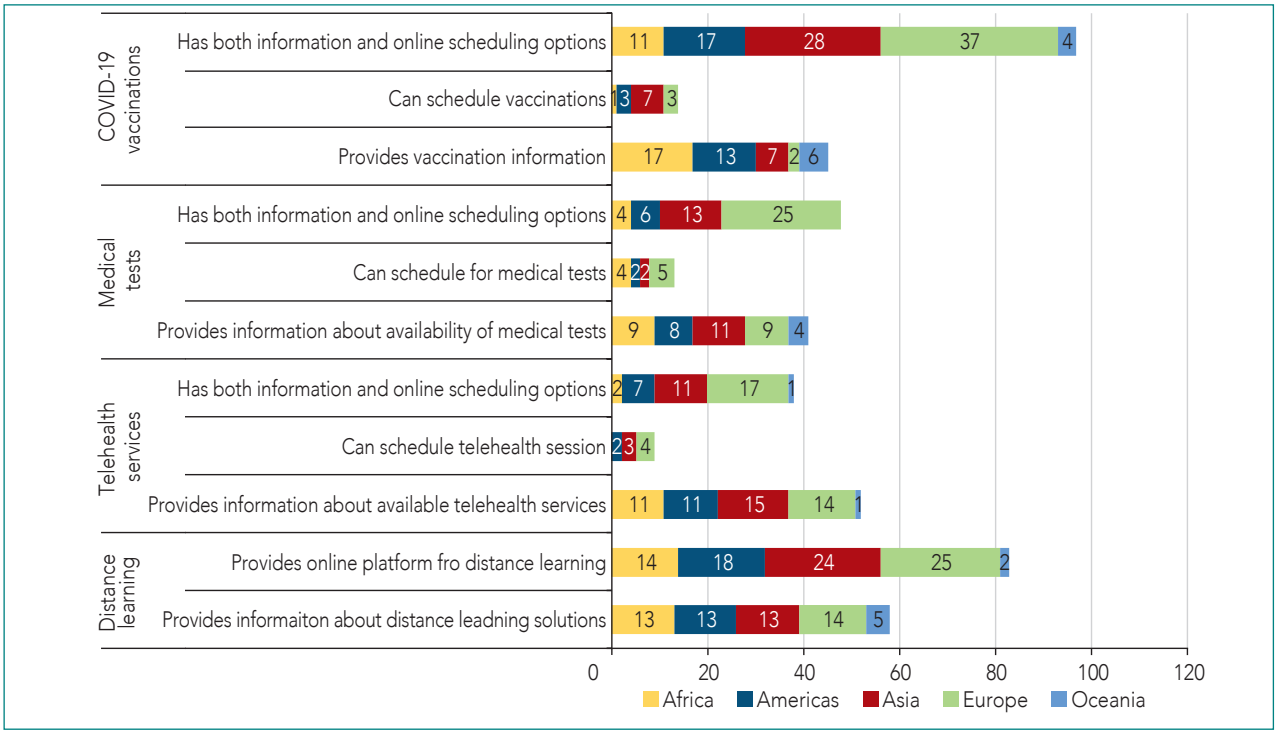


Sources: 2022 United Nations E-Government Survey.

2.2.3 COVID-19 measures

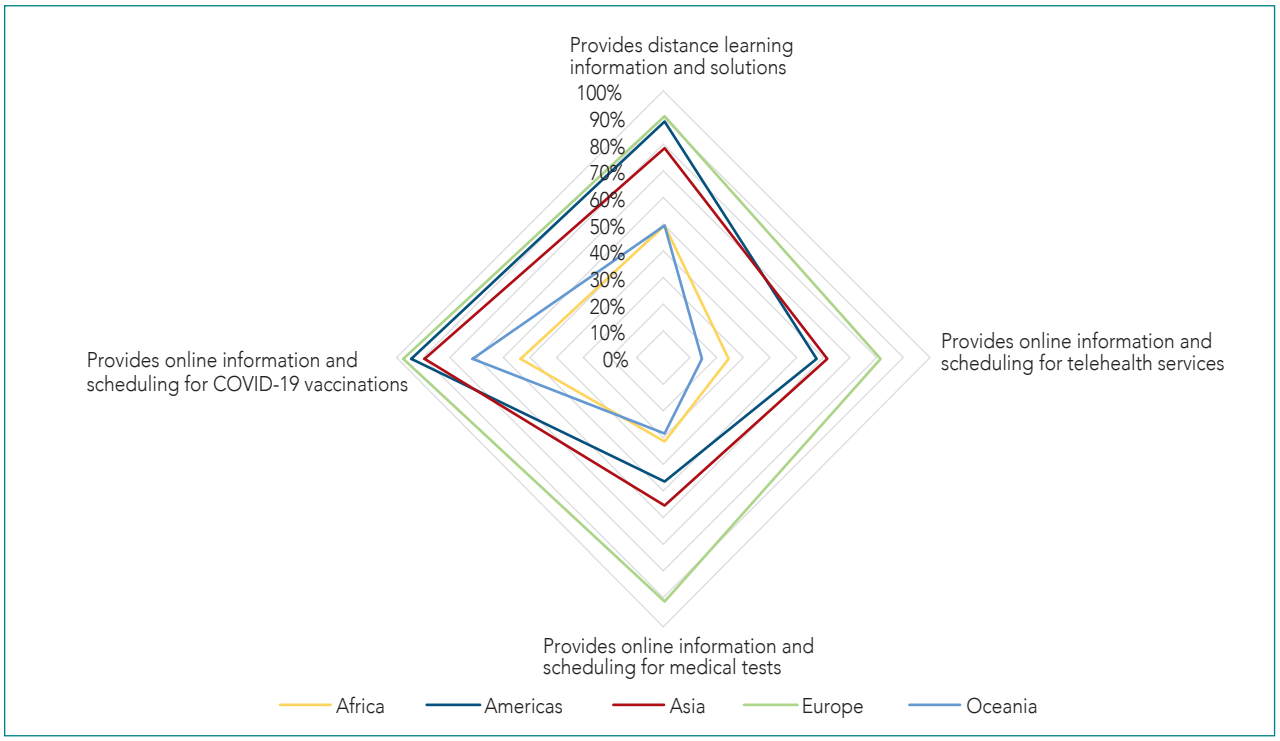
Since 2020, Governments in all regions have taken measures to address the COVID-19 pandemic, though the nature and extent of these efforts have varied widely. Between 91 and 98 per cent of the countries in Europe provide online information and platforms for distance learning and online information and scheduling for telehealth services, COVID-19 vaccines, and medical tests (see figures 2.11 and 2.12). In Africa, the Americas, Asia and Oceania, the majority of national Governments focus on services relating to distance learning and COVID-19 vaccinations, with fewer countries offering telehealth services and scheduling for medical tests. The proportion of countries offering all four types of services is highest in Europe (90 per cent), followed by Asia and the Americas (71 per cent each), Oceania (65 per cent) and Africa (40 per cent).

Figure 2.11 Number of countries offering online information and services in response to the COVID-19 pandemic, by region, 2022



Source: 2022 United Nations E-Government Survey.

Figure 2.12 Percentage of countries offering online information and services in response to the COVID-19 pandemic, by region, 2022



Source: 2022 United Nations E-Government Survey.

2.2.4 Africa: country grouping analysis

Table 2.1 displays the key Survey results for the 16 countries in Africa with the highest EGDI values in 2022. These countries are in the high EGDI group and, in descending order, are further divided into HV, H3, H2 and H1 rating classes. Consistent with the previous two Surveys, only four countries (Mauritius, Seychelles, South Africa and Tunisia) are among the top 100 countries in terms of overall EGDI ranking, with values above the global average of 0.6102.

South Africa has become the regional front-runner in e-government development, with an EGDI value of 0.7357 and a place in the highest (HV) rating class; Mauritius, also in the HV rating class, is next, followed by Seychelles and Tunisia (both H3). Mauritius has the highest TII value in Africa (0.7588) and a very high HCI value (0.7733), suggesting that the country is well positioned to strengthen its overall e-government development if it can improve its online services provision. Although the EGDI values for Rwanda, Côte d'Ivoire and Zambia remain below the global average of 0.6102, these three countries moved from the middle to the high EGDI group for the first time in 2022. Among the 16 countries in the high EGDI group in Africa, 14 are upper-middle-income or lower-middle-income countries; only Seychelles is a high-income country, and Rwanda is the lone low-income country. Rwanda is the only country in Africa that has a very high OSI value (0.7935), though its level of human capital development is modest (as reflected in an HCI value of 0.5322), and the country has a poorly developed telecommunications infrastructure (as reflected in a TII value of 0.3209). This indicates that Rwanda is directing significant investment towards online services development, allowing it to compete with the world's leading countries in this area.

Table 2.1 Countries in Africa with the highest EGDI values

Country	Rating class	EGDI rank	Subregion	OSI value	HCI value	TII value	EGDI (2022)	EGDI (2020)
South Africa	HV	65	Southern Africa	0.7487	0.7733	0.6850	0.7357	0.6891
Mauritius	HV	75	Eastern Africa	0.6282	0.7733	0.7588	0.7201	0.7196
Seychelles	H3	85	Eastern Africa	0.4424	0.7758	0.8198	0.6793	0.6920
Tunisia	H3	88	Northern Africa	0.6031	0.6911	0.6646	0.6530	0.6526
Morocco	H2	101	Northern Africa	0.4721	0.6350	0.6676	0.5915	0.5729
Egypt	H2	103	Northern Africa	0.5730	0.6375	0.5579	0.5895	0.5527
Ghana	H2	106	Western Africa	0.5361	0.6176	0.5934	0.5824	0.5960
Cabo Verde	H2	110	Western Africa	0.4965	0.6507	0.5507	0.5660	0.5604
Algeria	H2	112	Northern Africa	0.3743	0.6956	0.6133	0.5611	0.5173
Kenya	H2	113	Eastern Africa	0.6821	0.5641	0.4305	0.5589	0.5326
Gabon	H2	116	Middle Africa	0.3578	0.6706	0.6279	0.5521	0.5401
Botswana	H1	118	Southern Africa	0.2740	0.6932	0.6814	0.5495	0.5383
*Rwanda**	H1	119	Eastern Africa	0.7935	0.5322	0.3209	0.5489	0.4789
*Côte d'Ivoire**	H1	120	Western Africa	0.5467	0.5748	0.5186	0.5467	0.4457
Namibia	H1	121	Southern Africa	0.4316	0.6516	0.5133	0.5322	0.5747
*Zambia**	H1	131	Eastern Africa	0.4414	0.6744	0.3909	0.5022	0.4242

Sources: 2020 and 2022 United Nations E-Government Surveys.

Note: Countries in italics are LDCs, LLDCs or SIDS.

* Countries that moved from the middle to the high EGDI group in 2022.

Digitalization trends in Africa are positive overall. Fixed (wired) broadband subscriptions have jumped 48 per cent since 2020, rising from 1.80 to 2.67 per 100 inhabitants. Survey results for 2022 indicate that 33 per cent of the region's residents use the Internet, 42.8 per cent are active mobile broadband subscribers, and 83.7 per cent have mobile cellular telephone subscriptions (see chapter 1 for more details). Nevertheless, the values for these indicators remain below the corresponding global averages, and the cost of mobile broadband subscriptions as a percentage of gross national income per capita remains significantly higher in Africa than in other parts of the world, contributing to the digital divide.

Africa faces persistent challenges linked to inadequate investment in e-government development. Low-income and lower-middle-income countries make up 85 per cent of the regional total, and two thirds of these countries are LDCs, LLDCs and/or SIDS. Africa is home to 39 of the 91 countries in special situations worldwide. The lowest EGDI and subindex values are found among the LDCs, including those that are also LLDCs and SIDS (see figure 2.13); the average EGDI value for this group is 0.3233. Among the LLDCs, Botswana has the highest TII value (0.6814) but the lowest OSI value (0.2740). The SIDS in Africa have an average EGDI value of 0.3872; Mauritius has the highest OSI value, and Seychelles has the top TII value.

As noted previously, the regional average EGDI value for Africa is 0.4054, which is well below the global average of 0.6102. Almost two thirds of the countries in Africa (59 per cent) have middle EGDI values, and close to a third (30 per cent) have high EGDI values. While there are no countries in Africa in the very high EGDI group, the declining trend in African representation in low and middle EGDI groups is encouraging.

Figure 2.13 Countries in special situations in Africa, 2022

Source: 2022 United Nations E-Government Survey.

Notes: Countries in special situations include least developed countries (LDCs), landlocked developing countries (LLDCs), and small island developing States (SIDS). The internationally recognized three-letter country codes can be found here and in Survey annex table 12.

Box 2.1 Mauritius, Rwanda, Seychelles and South Africa

South Africa, Mauritius and Seychelles are respectively ranked first through third in the African region in e-government development, and Rwanda has seen significant improvement in its ranking, moving up by more than 10 positions. Though characterized by important differences, these countries have in common rapid progress in e-government development deriving from long-term digital government strategies aligned with national policies and the SDGs.

In **South Africa**, the National Development Plan: Vision for 2030 includes the National E-Government Strategy and Roadmap, which aims at digitalizing government services and creating an inclusive digital society in alignment with SDG 16. Around 150 government services have been consolidated under the national e-government portal to simplify and streamline the flow of information and ensure easy access for users. By increasing the efficacy and cost-effectiveness of the governance structure, the country hopes to be able to promote sustainable economic growth and foster inclusive innovation in accordance with SDGs 8 and 9.

In **Mauritius**, the Digital Government Transformation Strategy contains specific recommendations for government agencies on how to activate the SDGs. The strategy proposes a list of best implementation practices for every Goal and encourages cross-sectoral collaboration between public and private entities to holistically address intersectoral issues. The Ministry of Information Technology, Communication and Innovation has worked together with the business community to align the Digital Government Transformation Strategy with the Public Sector Business Transformation Strategy. To deal with the organizational challenges of a nationwide process and guarantee successful implementation, an oversight and reporting mechanism called the High Level Digital Government Task Force has been created. This group is chaired by the Prime Minister, who also supervises ministerial committees on digital transformation.

Box 2.1 *(continued)*

In **Seychelles**, significant digital transformation has taken place since the beginning of the COVID-19 pandemic. As highlighted by the Vice President of the Republic of Seychelles, the country has used the digitalization momentum created by the pandemic to introduce innovative changes in the education and public administration systems, taking the country one step closer to realizing the Goals set out in the 2030 Agenda. Digital transformation in the country has not reached its full potential, largely due to the slow speed and high cost of Internet services; however, the Government has been working with telecommunications services to extend Internet accessibility to more segments of the population.

The success enjoyed by **Rwanda** in e-government development derives from a long-term vision that was initiated in 2000 and realized in 2020 with the SMART Rwanda Master Plan. The strategy and its focus on digital transformation are intended to contribute to the attainment of the SDGs, in particular Goal 9. Besides significantly increasing access to ICT and striving to provide universal and affordable access to the Internet, the Government has expanded investment to facilitate sustainable infrastructure development and support domestic technology development. By 2024, the Government is committed to making its services available online 24 hours a day and making all citizens and residents digitally literate regardless of their socio-economic or political status.

Sources: 2022 Member States Questionnaires; South Africa, Department of Telecommunications and Postal Services, Notice 886 of 2017, "National e-Government Strategy and Roadmap", *Government Gazette*, 10 November 2017, available at https://www.gov.za/sites/default/files/gcis_document/201711/41241gen886.pdf; Mauritius, Ministry of Technology, Communication and Innovation, Central Informatics Bureau, *Digital Government Transformation Strategy*, 2018-2022, available at https://cib.govmu.org/Documents/Reports/Digital%20Government%20Strategy%202018-2022.pdf; Seychelles, "Accelerating digital transformation in challenging times", message from the Vice President of the Republic of Seychelles on World Telecommunication and Information Society Day, 17th May 2021, available at https://www.ict.gov.sc/documents/2021/WTISD_2021_VP_message.pdf; Rwanda, Ministry of Information Technology and Communications, *ICT Sector Strategic Plan (2018-2024): "Towards digital enabled economy"*, November 2017, available at https://risa.rw/fileadmin/user_upload/Others%20documents/ICT%20SECTOR%20STRATEGIC%20PLAN%202018-2024.pdf.

2.2.5 The Americas: country grouping analysis

The countries with the highest EGDI values in the Americas are listed in table 2.2. Eight of these countries are in the very high EGDI group; the United States (the only member of the VH rating class) is ranked highest, followed by Canada, Uruguay, Chile and Argentina (all V2), then Brazil, Costa Rica and Peru (all V1). In 2022, Peru transitioned from the high to the very high EGDI group for the first time.

The other four countries highlighted in table 2.2 (Mexico, Granada, Bahamas and Colombia) are in the highest (HV) rating class of the high EGDI group and are well positioned for accelerated e-government development, though they may need to modify their policy approaches and strategic investments to achieve sufficient momentum. Mexico and Colombia already have very high OSI and TII values, but their low HCI values point to the need for increased investment in human capital development. Granada has very high HCI and TII values but a relatively low OSI value, indicating that greater attention should be given to strengthening online services provision; a similar situation prevails in the Bahamas, though this country's OSI value is higher than that of Granada.

Table 2.2 Countries in the Americas with the highest EGDI values

Country	Rating class	EGDI rank	Subregion	OSI value	HCI value	TII value	EGDI (2022)	EGDI (2020)
United States of America	VH	10	Northern America	0.9304	0.9276	0.8874	0.9151	0.9297
Canada	V2	32	Northern America	0.8504	0.9260	0.7770	0.8511	0.8420
Uruguay	V2	35	South America	0.7641	0.8980	0.8543	0.8388	0.8500
Chile	V2	36	South America	0.8280	0.8853	0.7999	0.8377	0.8259
Argentina	V2	41	South America	0.8089	0.9173	0.7332	0.8198	0.8279
Brazil	V1	49	South America	0.8964	0.7953	0.6814	0.7910	0.7677
Costa Rica	V1	56	Central America	0.6812	0.8593	0.7572	0.7659	0.7576
Peru*	V1	59	South America	0.8099	0.8207	0.6267	0.7524	0.7083
Mexico	HV	62	Central America	0.8245	0.7874	0.6300	0.7473	0.7291
Grenada	HV	66	Caribbean	0.5507	0.8977	0.7348	0.7277	0.5812
Bahamas	HV	66	Caribbean	0.6214	0.7641	0.7976	0.7277	0.7017
Colombia	HV	70	South America	0.7418	0.7867	0.6498	0.7261	0.7164

Sources: 2020 and 2022 United Nations E-Government Surveys.

* Countries that moved from the high to the very high EGDI group in 2022.

Progress in e-government development remains steady in the Americas region. The proportion of countries in the high and very high EGDI groups has increased by 3 per cent since 2020, rising from 66 to 69 per cent and from 20 to 23 per cent, respectively. As a consequence of this upward trend, the share of countries in the middle EGDI group has declined from 14 to 6 per cent over the past two years.

The vast majority of countries in the Americas region (89 per cent) have remained in the same EGDI groups since 2020. Peru, Guyana and Belize moved from the middle to the high EGDI group in 2022; Haiti is the only country that experienced a downturn, shifting from the middle to the low EGDI group.

Nine out of ten countries in the Americas region are in the high or very high EGDI group—an increase of about 5 per cent since the 2020 Survey. The average EGDI value in the Americas has also increased over the past two years, rising from 0.6341 to 0.6438.

Although Grenada has remained in the high EGDI group, it has made the most notable progress in e-government development in the region, increasing its EGDI value from 0.5812 in 2020 to 0.7277 in 2022; this is largely due to significant improvements in online services provision (reflected in an increase in the OSI value from 0.3421 to 0.5507) and efforts to strengthen the telecommunications infrastructure (reflected in a TII value increase from 0.5738 to 0.7770).

Haiti, ranked 187th, is the only country in the Americas with a low EGDI value (0.2481); its very low OSI value (0.0865) and moderately low TII value (0.2646) reflect the country's ongoing struggle to deal with a chronic lack of resources and the damage to its telecommunications infrastructure caused by natural disasters.

Among the 35 countries in the Americas region, 18 are in special situations, and all but two of the latter are SIDS. The average EGDI value for SIDS in the Americas is 0.6450—higher than the global EGDI average and the average EGDI values for SIDS in Africa (0.4555) and Oceania (0.4301). This can be explained in part by the fact that SIDS in the Americas are mostly upper-middle-income and high-income countries that have more resources to invest in telecommunications infrastructure and human capital development. As figure 2.14 suggests, however, the potential exists in this group of countries for improved online services development.

Box 2.2 Peru, Guyana and Belize

The vast majority of countries in the Americas have remained in the same EGDI groups since 2020. Peru, Guyana and Belize, however, have made notable progress in e-government development, due in part to their willingness to collaborate with partners at many levels to accelerate the process of digital transformation.

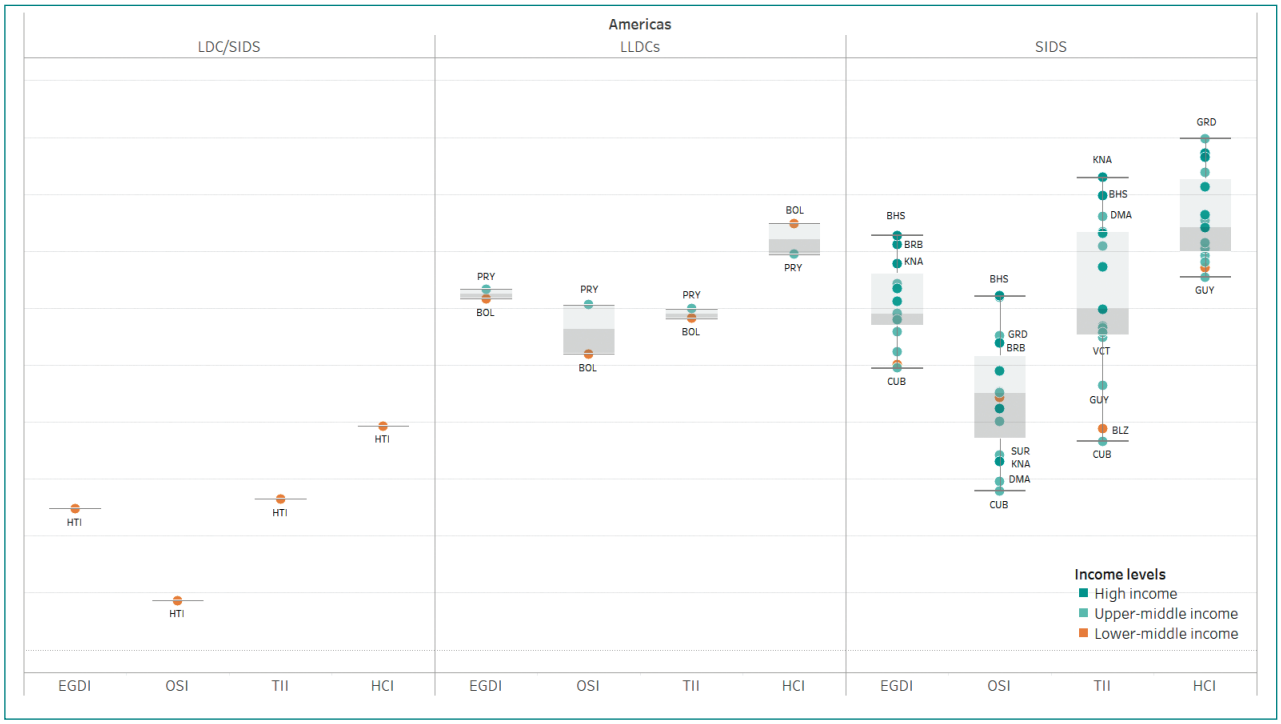
In **Peru**, innovations in e-government have been the product of multiple internal and external collaborations. At the international level, the country joined the Building the Europe Links with Latin America (BELLA) project to establish ultra-high-speed cable connectivity and link 11 European and Latin American research and education networks. At the regional level, the country partnered with Colombia, Mexico and Paraguay to create the Better Than Cash Alliance and facilitate the transition from cash to digital payment systems to reduce poverty and drive inclusive growth. At the national level, various public agencies collaborated to launch the National Policy on Digital Transformation, which included the establishment of a National Digital Talent Platform that provided training for 60,000 residents nationwide in the areas of governance and digital transformation.

In **Guyana**, the Government has committed to becoming digitally driven by 2030 with the help of global organizations. At the beginning of 2022, the country organized a series of events with ministries, United Nations representatives and digital innovation specialists to reflect on how best to implement e-government transformation to achieve the SDGs. The country has also partnered with NRD Companies, a leading enterprise in digitalization projects. As some parts of the country still lack access to the Internet, the Government has launched the ICT Access and E-Services for Hinterland, Poor and Remote Communities initiative to tackle the digital gap in Guyana. Besides expanding Internet connectivity, NRD will contribute to improving the information management system and to the digitalization of the Division of Social Protection and Health of Guyana to ensure the social security of rural communities.

Belize is currently updating its E-Governance Strategy and Action Plan; however, many public institutions have already benefited from various multilateral cooperation initiatives. Working together with APEX, the Caribbean Agency for Justice Solutions, the Government is moving forward with the digitalization of the Court of Appeals. The project has introduced electronic filing and case management systems to help officers monitor, analyse and report on case trends and to increase the transparency and accountability of the judicial system. Through collaboration with the Government of China, the E-Governance and Digitalization Unit has improved the management of the entire transport sector using information technology. The project has integrated the Belize Police Department, Customs and Excise Department and Magistrates Court into the same system as the Department of Transport, facilitating the sharing of data and investigations relating to accidents and violations.

Sources: 2022 Member States Questionnaires for Peru, Guyana and Belize; Organization for Economic Cooperation and Development, review of Peru in *Latin American Economic Outlook 2020: Digital Transformation for Building Back Better*, section on national strategies and international cooperation for digital transformation, available at https://www.oecd-ilibrary.org/sites/4f73e4bf-en/index.html?itemId=/content/component/4f73e4bf-en; Peru, Presidencia del Consejo de Ministros, Laboratorio de Gobierno y Transformaciôn Digital [Governance and Digital Transformation Laboratory] (2022), available at https://www.gob.pe/laboratoriodigital; NRD Companies, "Guyana undergoing major digital transformation to provide online government services to citizens scattered around the country", press release, 18 January 2022, available at https://www.nrd.no/en/press-releases/guyana-undergoing-major-digital-transformation-to-provide-online-government-services-to-citizens-scattered-around-the-country/150; Belize, Press Office, "E-Governance and Digitalization Unit supports Belize motor vehicle registration and licensing system", press release, 23 June 2021, available at https://www.pressoffice.gov.bz/e-governance-and-digitalization-unit-supports-belize-motor-vehicle-registration-and-licensing-system/; Belize, "Belize Government moves to digital transformation of judiciary", Belize.com, 25 February 2021, available at https://belize.com/news/belize-government-moves-to-digital-transformation-of-judiciary/.

Figure 2.14 Countries in special situations in the Americas, 2022



Source: 2022 United Nations E-Government Survey.

Notes: CCountries in special situations include least developed countries (LDCs), landlocked developing countries (LLDCs), and small island developing States (SIDS). The internationally recognized three-letter country codes can be found here and in Survey annex table 12.

2.2.6 Asia: country grouping analysis

The top 22 countries in Asia are in the very high EGDI group (see table 2.3). As reported in chapter 1, the Republic of Korea, Singapore, the United Arab Emirates and Japan are in the highest (VH) rating class and are among the global leaders in e-government development. The United Arab Emirates has joined the VH rating class of the very high EGDI group for the first time in 2022.

Asia increased its average EGDI value from 0.6373 in 2020 to 0.6493 in 2022, remaining the second most advanced region in e-government development. The levels of e-government development among individual countries in the region remain highly diverse, with wide variance in EGDI values and rankings. The Republic of Korea (3rd), Singapore (12th), the United Arab Emirates (13th) and Japan (14th) are global leaders in e-government development, while Yemen (178th), Afghanistan (184th) and the Democratic People's Republic of Korea (180th) are among the countries with the lowest EGDI rankings—though it should be noted that none of the Asian countries are in the low EGDI group. More than half of the countries in Asia have improved their EGDI rankings in 2022; five countries (Democratic People's Republic of Korea, Georgia, Lebanon, Nepal and Tajikistan) have moved up to the next EGDI level.

Asia has the second largest number of countries in special situations after Africa (20 versus 39), though the average EGDI value for these countries is higher in Asia (0.5851) than in Africa (0.3588). As shown in figure 2.15, the LDCs in Asia, including those that are also LLDCs and SIDS, have lower EGDI values than do the LLDCs and SIDS—similar to the findings for Africa. The three SIDS in Asia with high or very high EGDI values are Maldives (0.5885), Bahrain (0.7707) and Singapore (0.9133).

Table 2.3 Countries in Asia with the highest EGDI values

Country	Rating class	EGDI rank	Subregion	OSI value	HCI value	TII value	EGDI (2022)	EGDI (2020)
Republic of Korea	VH	3	Eastern Asia	0.9826	0.9087	0.9674	0.9529	0.9560
Singapore	VH	12	South-Eastern Asia	0.9620	0.9021	0.8758	0.9133	0.915
United Arab Emirates	VH	13	Western Asia	0.9014	0.8711	0.9306	0.9010	0.8555
Japan	VH	14	Eastern Asia	0.9094	0.8765	0.9147	0.9002	0.8989
Israel	V3	16	Western Asia	0.8745	0.8994	0.8915	0.8885	0.8361
Cyprus	V3	27	Western Asia	0.7792	0.8934	0.9253	0.8660	0.8731
Kazakhstan	V3	28	Central Asia	0.9344	0.9021	0.7520	0.8628	0.8375
Saudi Arabia	V2	31	Western Asia	0.8220	0.8662	0.8735	0.8539	0.7991
China	V2	43	Eastern Asia	0.8876	0.7429	0.8050	0.8119	0.7948
Turkey	V1	48	Western Asia	0.8600	0.8722	0.6626	0.7983	0.7718
Oman	V1	50	Western Asia	0.7423	0.8067	0.8012	0.7834	0.7749
Malaysia	V1	53	South-Eastern Asia	0.7630	0.7645	0.7945	0.7740	0.7892
Bahrain	V1	54	Western Asia	0.7523	0.8154	0.7444	0.7707	0.8213
Thailand	V1	55	South-Eastern Asia	0.7763	0.7879	0.7338	0.7660	0.7565
Georgia*	V1	60	Western Asia	0.6111	0.8984	0.7409	0.7501	0.7174
Kuwait**	HV	61	Western Asia	0.6973	0.7706	0.7774	0.7484	0.7913
Armenia	HV	64	Western Asia	0.7221	0.7945	0.6925	0.7364	0.7136
Brunei Darussalam	HV	68	South-Eastern Asia	0.5871	0.7567	0.8372	0.7270	0.7389
Uzbekistan	HV	69	Central Asia	0.7440	0.7778	0.6575	0.7265	0.6665
Mongolia	HV	74	Eastern Asia	0.6263	0.8391	0.6973	0.7209	0.6497
Indonesia	HV	77	South-Eastern Asia	0.7644	0.7438	0.6397	0.7160	0.6612
Qatar	HV	78	Western Asia	0.6094	0.7150	0.8203	0.7149	0.7173

Sources: 2020 and 2022 United Nations E-Government Surveys.

* Countries that moved from the high to the very high EGDI group in 2022.
** Countries that moved from the very high to the high EGDI group in 2022.

As part of the Asia region, the member countries of the Cooperation Council for the Arab States of the Gulf (GCC) share similarities in their e-government development and are thus grouped together in table 2.4.

Four of the six GCC countries are in the very high EGDI group; the United Arab Emirates is ranked highest and is part of the VH rating class, followed by Saudi Arabia (V2) and Bahrain and Oman (both V1). Kuwait and Qatar are in the highest (HV) rating class of the high EGDI group. All of these countries have highly developed telecommunications infrastructure (the average TII for this group is 0.8246). Most also have relatively high OSI and HCI values, though strengthening investment in online services provision could help propel Qatar and Kuwait into the very high EGDI group. Qatar should also consider investing more in human capital development, and Bahrain would likely benefit from further investment in infrastructure.

Box 2.3 United Arab Emirates and Kazakhstan

The United Arab Emirates has joined the very high rating class of the very high EGDI group for the first time and is among the global leaders in e-government development. The country is ranked fourth worldwide in investment in telecommunications services and in the digital adaptation of its legal framework. The Government defines itself as the world's first 100 per cent paperless Government—a feat achieved through the full digitalization of the education, health, community development, economy and security sectors. Among other initiatives, 525 of the country's 589 schools have participated in a self-evaluation process that will lead to their eventual conversion to smart schools. Public administration has also undergone digitalization and simplification processes. At present, the Government provides 500 online services, many of which have been streamlined and made faster and easier for public institutions and users. For example, the processing time for family registration has been reduced from three days to a few minutes, and the Government has calculated that the digitalization of business registration has saved 10 million hours of waiting time for applicants and 45,600 hours for employees.

Kazakhstan has the highest EGDI value among the LLDCs, and the Government is planning to expand and accelerate the digital transformation process under its Digital Kazakhstan programme. Over the past several years, there have been significant improvements in the ICT infrastructure. In 2018, only 100,000 people living in around 55 rural settlements had access to the Internet via fibre optic cable; by 2020, the Government had extended fibre optic lines to 741 settlements, and the number of those served had jumped to 800,000. The transport and logistics sectors have undergone a digitalization process that has led to the introduction of a smart traffic system and the implementation of a highway assets control programme using digital technologies.

Sources: Member States Questionnaires for the United Arab Emirates and Kazakhstan.

Table 2.4 E-government development in the member countries of the Cooperation Council for the Arab States of the Gulf (GCC)

Country	Rating class	EGDI rank	Subregion	OSI value	HCI value	TII value	EGDI (2022)	EGDI (2020)
United Arab Emirates	VH	13	Western Asia	0.9014	0.8711	0.9306	0.9010	0.8555
Saudi Arabia	V2	31	Western Asia	0.8220	0.8662	0.8735	0.8539	0.7991
Oman	V1	50	Western Asia	0.7423	0.8067	0.8012	0.7834	0.7749
Bahrain	V1	54	Western Asia	0.7523	0.8154	0.7444	0.7707	0.8213
Kuwait*	HV	61	Western Asia	0.6973	0.7706	0.7774	0.7484	0.7913
Qatar	HV	78	Western Asia	0.6094	0.7150	0.8203	0.7149	0.7173

Sources: 2020 and 2022 United Nations E-Government Surveys.

* Countries that moved from the very high to the high EGDI group in 2022.

Figure 2.15 Countries in special situations in Asia, 2022

Source: 2022 United Nations E-Government Survey.

Notes: Countries in special situations include least developed countries (LDCs), landlocked developing countries (LLDCs), and small island developing States (SIDS). The internationally recognized three-letter country codes can be found here and in Survey annex table 12.

2.2.7 Europe: country grouping analysis

Europe has the highest average EGDI value (0.8305), as well as the highest average HCI and TII values (0.8825 and 0.8392, respectively). It has topped the global charts since the inception of the E-Government Survey and has the most homogeneous e-government development (see figure 2.2). Of the 43 European countries surveyed, 35 are in the very high EGDI group (see table 2.5); eight of the latter (Denmark, Estonia, Finland, Sweden, United Kingdom, Netherlands, Iceland and Malta) are in the highest (VH) rating class and are among the global leaders in e-government development. In 2022, Serbia and Ukraine moved from the high to the very high EGDI group for the first time.[2]

Eight countries in Europe are in the high EGDI group and have an average EGDI value of 0.7005. In terms of subregional distribution, Albania, Andorra, Bosnia and Herzegovina, Montenegro, North Macedonia and San Marino are in Southern Europe, Monaco is in Western Europe, and the Republic of Moldova is in Eastern Europe.

As shown in figure 2.16, the two LLDCs in Europe have relatively less developed infrastructure, with TII values of 0.5760 for the Republic of Moldova and 0.6417 for North Macedonia. All European countries except Ukraine are in the high-income or upper-middle-income group.

Table 2.5 Countries in Europe with the highest EGDI values

Country	Rating class	EGDI rank	Subregion	EU	OSI value	HCI value	TII value	EGDI (2022)	EGDI (2020)
Denmark	VH	1	Northern Europe	Yes	0.9797	0.9559	0.9795	0.9717	0.9758
Finland	VH	2	Northern Europe	Yes	0.9833	0.9640	0.9127	0.9533	0.9452
Sweden	VH	5	Northern Europe	Yes	0.9002	0.9649	0.9580	0.9410	0.9365
Iceland	VH	5	Northern Europe	No	0.8867	0.9657	0.9705	0.9410	0.9101
Estonia	VH	8	Northern Europe	Yes	1.0000	0.9231	0.8949	0.9393	0.9473
Netherlands	VH	9	Western Europe	Yes	0.9026	0.9506	0.9620	0.9384	0.9228
United Kingdom of Great Britain and Northern Ireland	VH	11	Northern Europe	No	0.8859	0.9369	0.9186	0.9138	0.9358
Malta	VH	15	Southern Europe	Yes	0.8849	0.8734	0.9245	0.8943	0.8547
Norway	V3	17	Northern Europe	No	0.8007	0.9528	0.9102	0.8879	0.9064
Spain	V3	18	Southern Europe	Yes	0.8559	0.9072	0.8895	0.8842	0.8801
France	V3	19	Western Europe	Yes	0.8768	0.8784	0.8944	0.8832	0.8718
Austria	V3	20	Western Europe	Yes	0.8827	0.9070	0.8505	0.8801	0.8914
Slovenia	V3	21	Southern Europe	Yes	0.8666	0.9439	0.8239	0.8781	0.8546
Germany	V3	22	Western Europe	Yes	0.7905	0.9446	0.8957	0.8770	0.8524
Switzerland	V3	23	Western Europe	No	0.7677	0.9128	0.9450	0.8752	0.8907
Lithuania	V3	24	Northern Europe	Yes	0.8347	0.9251	0.8636	0.8745	0.8665
Liechtenstein	V3	25	Western Europe	No	0.7329	0.8726	1.0000	0.8685	0.8359
Luxembourg	V3	26	Western Europe	Yes	0.8319	0.8245	0.9462	0.8675	0.8272
Latvia	V3	29	Northern Europe	Yes	0.8135	0.9284	0.8378	0.8599	0.7798
Ireland	V3	30	Northern Europe	Yes	0.7796	0.9618	0.8287	0.8567	0.8433
Greece	V2	33	Southern Europe	Yes	0.7753	0.9405	0.8206	0.8455	0.8021
Poland	V2	34	Eastern Europe	Yes	0.7929	0.9033	0.8348	0.8437	0.8531
Italy	V2	37	Southern Europe	Yes	0.8659	0.8606	0.7860	0.8375	0.8231
Portugal	V2	38	Southern Europe	Yes	0.7954	0.8665	0.8201	0.8273	0.8255
Belgium	V2	39	Western Europe	Yes	0.6899	0.9614	0.8294	0.8269	0.8047
Serbia*	V2	40	Southern Europe	No	0.8514	0.8332	0.7865	0.8237	0.7474
Russian Federation	V2	42	Eastern Europe	No	0.7368	0.9065	0.8053	0.8162	0.8244
Croatia	V2	44	Southern Europe	Yes	0.8108	0.8500	0.7711	0.8106	0.7745
Czech Republic	V2	45	Eastern Europe	Yes	0.6693	0.9114	0.8456	0.8088	0.8135
Ukraine*	V1	46	Eastern Europe	No	0.8148	0.8669	0.7270	0.8029	0.7119
Slovakia	V1	47	Eastern Europe	Yes	0.7260	0.8436	0.8328	0.8008	0.7817
Hungary	V1	51	Eastern Europe	Yes	0.7465	0.8345	0.7671	0.7827	0.7745
Bulgaria	V1	52	Eastern Europe	Yes	0.7092	0.8221	0.7984	0.7766	0.7980
Romania	V1	57	Eastern Europe	Yes	0.6814	0.8090	0.7954	0.7619	0.7605
Belarus	V1	58	Eastern Europe	No	0.5302	0.9011	0.8426	0.7580	0.8084

Sources: 2020 and 2022 United Nations E-Government Surveys.

Note: The ranking of Ukraine reflects the results of the assessment undertaken at the time of the Survey.

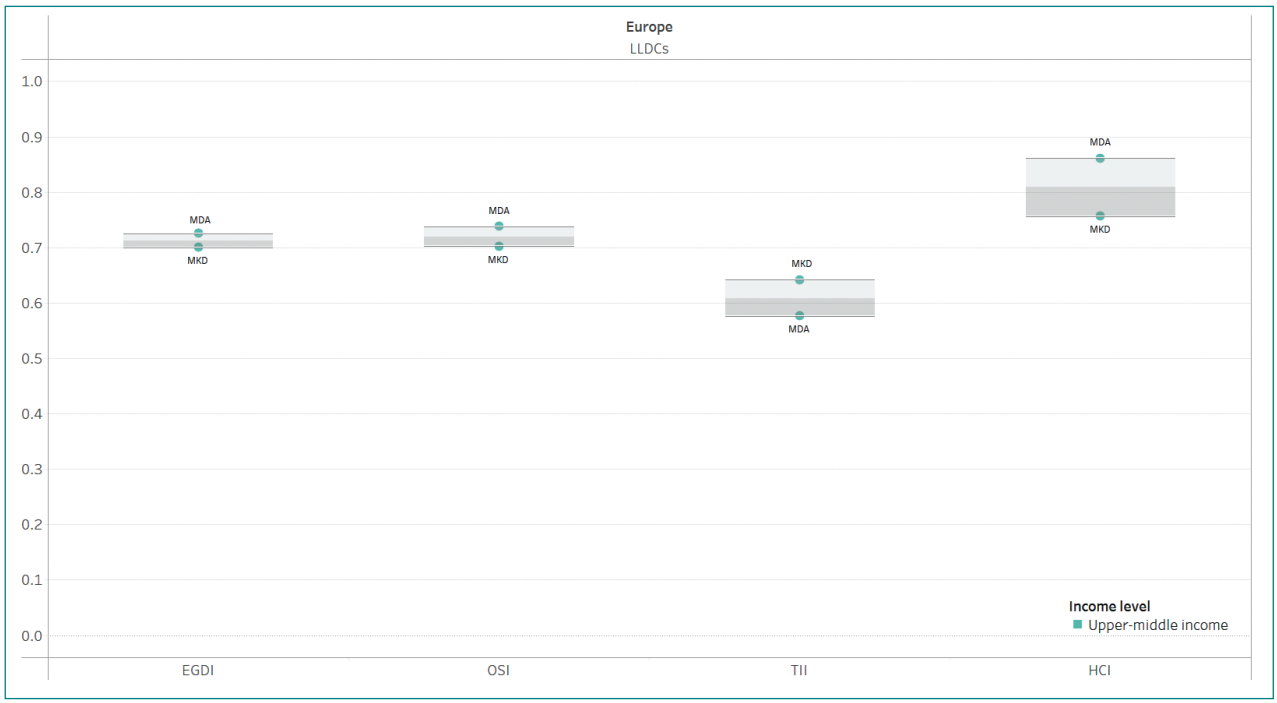
* Countries that moved from the high to the very high EGDI group in 2022.

Box 2.4 Serbia: focusing on digital skills and services delivery

The improved e-government ranking of Serbia may be attributed in part to the Government's renewed commitment to the E-Government Development Programme of the Republic of Serbia 2020-2022 and the Action Plan for its implementation. Although there are still segments of the population that have never used the Internet or a computer, notable progress is being made within the realm of public administration. According to a government survey, only 4 per cent of public sector employees (600 of 15,200) do not have basic computer skills. Most institutions (14 of 21) use the e-Government portal to provide information and services, and the Government is committed to investing in the improvement of digital services delivery. At present, only 35 per cent of the 1,700 public services offered are accessible electronically, though almost all public institutions (19 of 21) have data centres, and the majority (13) have internal information security policies in place.

Sources: 2022 Member States Questionnaire for Serbia; Serbia, Ministry of Public Administration and Local Self-Government, and others, "E-Government Development Programme of the Republic of Serbia 2020-2022 and Action Plan for its implementation", available at e-Government-Development-Programme-2020-2022-FINAL-2.pdf.

Figure 2.16 Countries in special situations in Europe, 2022



Source: 2022 United Nations E-Government Survey.

Notes: Countries in special situations include least developed countries (LDCs), landlocked developing countries (LLDCs), and small island developing States (SIDS). The internationally recognized three-letter country codes can be found here and in Survey annex table 12.

2.2.8 Oceania: country grouping analysis

All 14 countries in Oceania are listed in table 2.6 owing to the small size of the region. Australia and New Zealand—with respective EGDI values of 0.9405 and 0.9432 and global rankings of 4th and 7th—are in the highest (VH) rating class of the very high EGDI group and are among the world leaders in e-government development. The countries in the high EGDI group include Fiji (0.6235), Tonga (0.5155) and Palau (0.5109), and the remaining countries are in the middle EGDI group. The countries in the region other than Australia and New Zealand have an average EGDI value of 0.4358—less than half the corresponding values of the regional front-runners and substantially lower than the global average of 0.6102. These 12 countries are all SIDS, and three of them (Kiribati, Solomon Islands and Tuvalu) are also LDCs. Vanuatu graduated from LDC status in 2020.

Table 2.6 Countries in Oceania listed in descending order by EGDI value

Country	Rating class	EGDI rank	Subregion	OSI value	HCI value	TII value	EGDI (2022)	EGDI (2020)
New Zealand	VH	4	Australia and New Zealand	0.9579	0.9823	0.8896	0.9432	0.9339
Australia	VH	7	Australia and New Zealand	0.9380	1.0000	0.8836	0.9405	0.9432
Fiji	H3	97	Melanesia	0.4813	0.7957	0.5935	0.6235	0.6585
Tonga	H1	124	Polynesia	0.3296	0.8675	0.3496	0.5155	0.5616
Palau	H1	132	Micronesia	0.2373	0.8946	0.3735	0.5018	0.5109
Vanuatu	MH	135	Melanesia	0.4228	0.6009	0.4727	0.4988	0.4403
Nauru	MH	139	Micronesia	0.2952	0.5925	0.4768	0.4548	0.4150
Kiribati	M3	148	Micronesia	0.3686	0.6785	0.2530	0.4334	0.432
Samoa	M3	152	Polynesia	0.3592	0.7470	0.1558	0.4207	0.4219
Tuvalu	M3	158	Polynesia	0.2265	0.6492	0.2607	0.3788	0.4209
Marshall Islands	M3	160	Micronesia	0.3004	0.6903	0.1236	0.3714	0.4055
Micronesia (Federated States of)	M2	164	Micronesia	0.2703	0.6845	0.1102	0.3550	0.3779
Solomon Islands	M2	164	Melanesia	0.3676	0.4925	0.1988	0.3530	0.3442
Papua New Guinea	M2	170	Melanesia	0.3263	0.4996	0.1430	0.3230	0.2827

Sources: 2020 and 2022 United Nations E-Government Surveys.

The least developed SIDS have the lowest EGDI values in the region (averaging 0.3884), mainly because of their poorly developed telecommunications infrastructure (reflected in the low average TII value of 0.2375). For comparison, all other SIDS in Oceania have an average EGDI value of 0.4516 and an average TII value of 0.3110—though the disparities in telecommunications infrastructure development are greater for this group than for the least developed SIDS (see figure 2.17). Oceania struggles to capitalize on its highly developed human capital (reflected in the average HCI value of 0.7268) and achieve meaningful progress in e-government development.

Figure 2.17 Countries in special situations in Oceania, 2022

Source: 2022 United Nations E-Government Survey.

Notes: Countries in special situations include least developed countries (LDCs), landlocked developing countries (LLDCs), and small island developing States (SIDS). The internationally recognized three-letter country codes can be found here and in Survey annex table 12.

Box 2.5 Fiji: expanding the provision of digital services to improve accessibility

In Fiji, the Digital Government Transformation Programme (digitalFIJI) is being implemented as part of the 20-year National Development Plan and focuses primarily on strengthening public administration, government services, and the telecommunications infrastructure. Aiming to enhance the quality and accessibility of public services, the Government is working to achieve full digitalization by the end of 2022. The digitalFIJI website currently allows users to register births, apply for and retrieve birth certificates, and register companies or businesses. Two digital platforms have been created to facilitate communication and engagement. The Government Directory provides contact information for every public agency and public official, and the myFeedback platform provides users with an online space to discuss issues and comment on governance and government services; the latter project is handled by the Feedback Unit, which is responsible for promptly redirecting messages to the appropriate ministries and agencies for response and timely resolution.

Sources: 2022 Member States Questionnaire for Fiji; additional information on the services and platforms is available at https://www.fiji.gov.fj/digitalFIJI and https://carefiji.digitalfiji.gov.fj/about-us/.

2.3 Countries in special situations

The United Nations has identified three groups of countries in special situations that face specific challenges in their pursuit of sustainable development: least developed countries (LDCs), landlocked developing countries (LLDCs), and small island developing States (SIDS).[3] In some cases, these designations overlap.

Around 40 per cent of people living in poverty reside in LDCs, with most situated in countries experiencing or emerging from conflict. LDCs account for 13 per cent of the world population but only about 1.3 per cent of global gross domestic product (GDP) and less than 1 per cent of global trade and foreign direct investment (FDI). Although Internet use is increasing, only a fifth of the population of LDCs have access.[4] LDCs have weak human and institutional capacities, low and unequally distributed incomes, and a scarcity of domestic financial resources. Presently, there are 46 LDCs in various world regions.

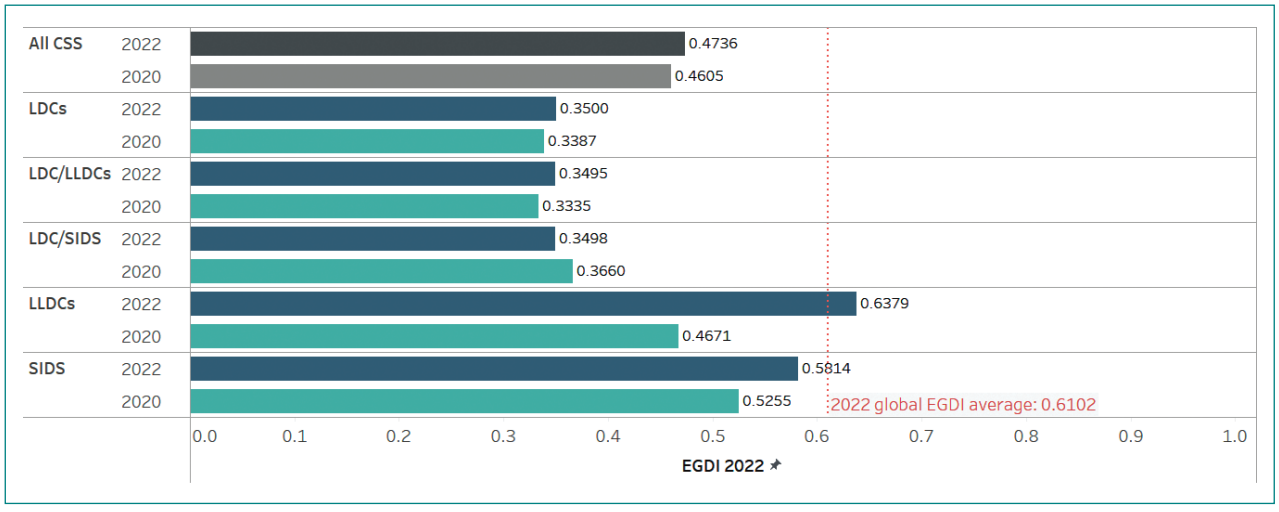
LLDCs tend to face constraints in socioeconomic development due to the lack of territorial access to the sea, remoteness and isolation from world markets, and high transit costs. There are currently 32 LLDCs—16 in Africa, 12 in Asia, 2 in the Americas, and 2 in Europe.

SIDS tend to have a narrow resource base; high costs for energy, infrastructure, transportation, communication and services; little resilience to natural disasters; high volatility in economic growth; limited opportunities for the private sector and a proportionately large reliance of their economies on the public sector; and fragile natural environments. There are 38 Member States in this group.

The combined average EGDI value for LDCs, LLDCs and SIDS rose by 3 per cent between 2020 and 2022 (from 0.4605 to 0.4736) but remains well below the world average of 0.6102 (see figure 2.18). LDCs have the lowest average EGDI value (0.3500) among the three special groups. When LDCs are excluded from the analysis of LLDCs and SIDS, the average EGDI values for the latter two groups are higher—0.5814 for SIDS and 0.6379 for LLDCs.

LLDCs comprise the only group among the countries in special situations that has an average EGDI value above the global average. The LLDCs also have the highest averages for the EGDI subindices (TII, HCI and OSI), followed by SIDS (see figure 2.19).

Figure 2.18 Average EGDI values for countries in special situations, 2020 and 2022

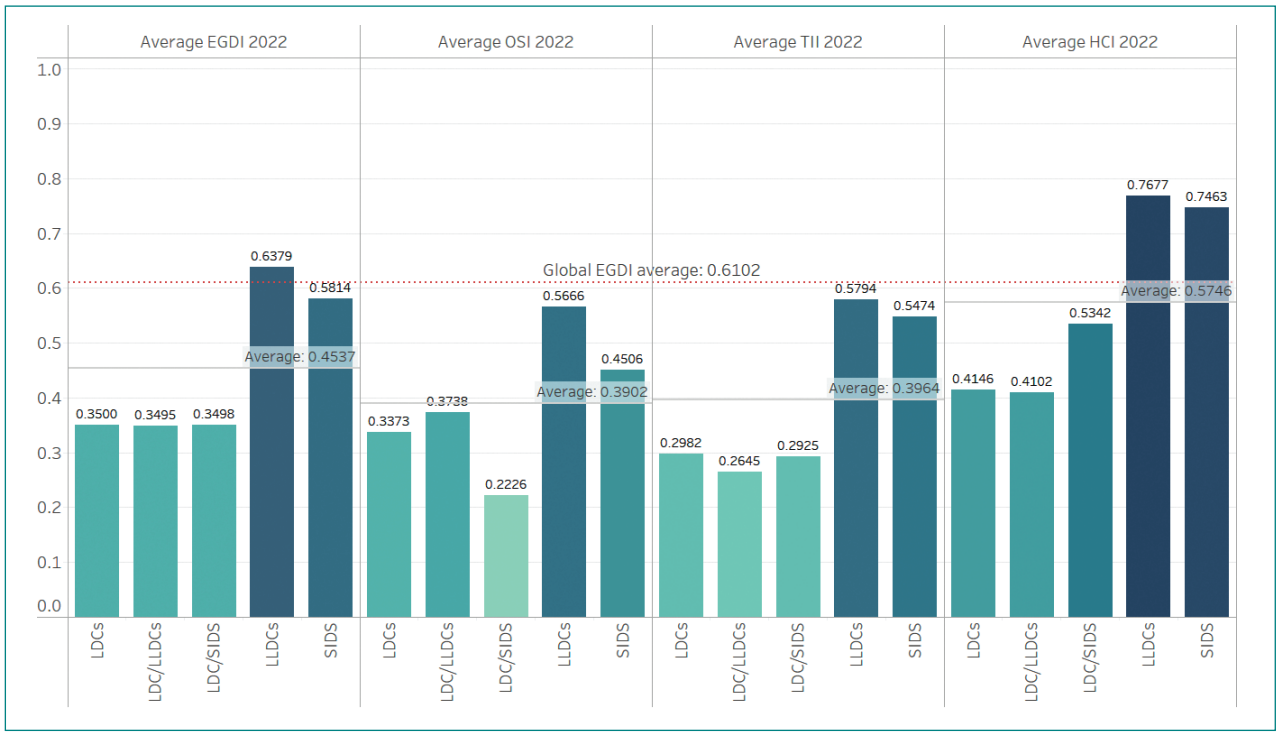


Sources: 2020 and 2022 United Nations E-Government Surveys.

Note: Countries in special situations include least developed countries (LDCs), landlocked developing countries (LLDCs), and small island developing States (SIDS).

As shown in figure 2.19, the variance in subindex values for countries in special situations is pronounced within each distinct subgroup. While average EGDI values are roughly comparable for LDCs, including LDCs that are landlocked (LDC/LLDCs) and LDCs among the small island developing states (LDC/SIDS), the average OSI, TII and HCI values are different for each subgroup. For instance, landlocked LDCs perform significantly better than the LDCs among small island developing States in providing online services, while the latter subgroup has higher average values for human capital and infrastructure development.

Figure 2.19 EGDI and subindex values for countries in special situations, 2022

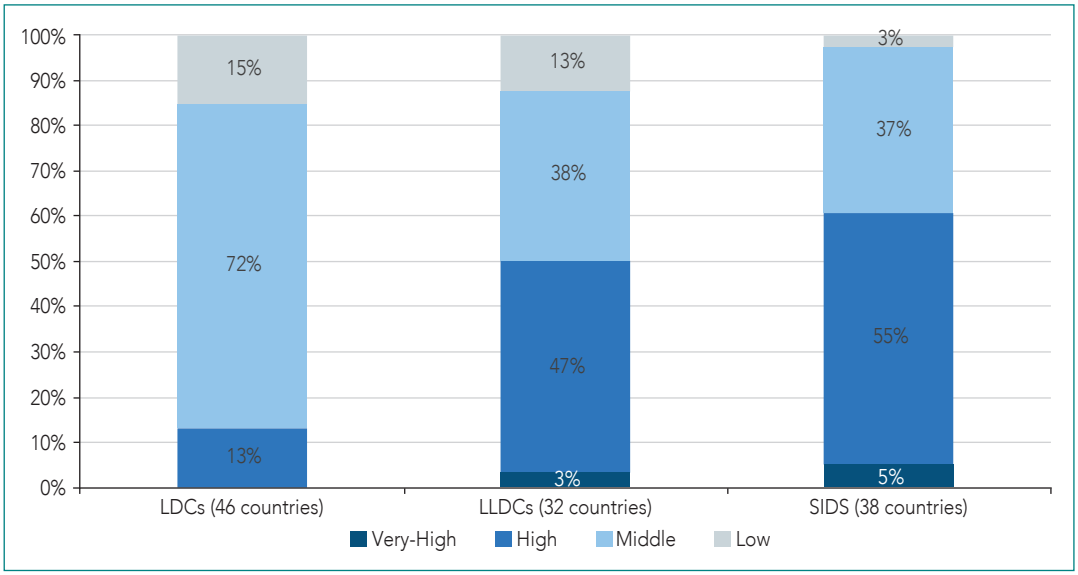


Sources: 2022 United Nations E-Government Survey.

Note: Countries in special situations include least developed countries (LDCs), landlocked developing countries (LLDCs), and small island developing States (SIDS).

LDCs are concentrated in the middle EGDI group, though their share in this group has declined from 79 to 72 per cent over the past two years as their representation in the high EGDI group has nearly doubled, rising from 6 to 15 per cent (see figure 2.20). Among the LLDCs, 47 per cent have high EGDI values (unchanged from 2020) and 38 per cent have middle EGDI values (an increase of 4 percentage points since 2020). The proportion of SIDS in the high EGDI group increased from 50 to 55 per cent between 2020 and 2022, with a corresponding 5-percentage-point decline (from 42 to 37 per cent) in their representation in the middle EGDI group. Only 3 per cent of LLDCs and 5 per cent of SIDS have very high EGDI values, and there are no LDCs in this group.

Figure 2.20 The distribution of countries in special situations among EGDI levels, 2022



Source: 2022 United Nations E-Government Survey.

Note: Countries in special situations include least developed countries (LDCs), landlocked developing countries (LLDCs), and small island developing States (SIDS).

2.3.1 Least developed countries

Among the 46 LDCs, 33 are in Africa, 9 are in Asia, 3 are in Oceania, and 1 is in Latin America. As noted previously, about 40 per cent of individuals living in poverty reside in the LDCs, most of which are experiencing or emerging from conflict. As also noted, LDCs account for 13 per cent of the world population but only about 1.3 per cent of global GDP and less than 1 per cent of global trade and FDI, and only a fifth of the people living in LDCs have Internet access.

Box 2.6 Cambodia

Cambodia is actively engaged in laying a strong foundation for digital transformation. In 2019, the Government adopted the E-Commerce Law and the Consumer Protection Law to guarantee security and fair competition in the electronic market. Draft legislation on information technology crimes, cybersecurity and access to information has also been drawn up to prevent and address cybercrime and ensure freedom of information. This year, the Government has committed to expanding digital development under the Cambodian Digital Government Policy 2022-2035, which aligns with the SDGs and the Digital Economy and Society Policy Framework 2021-2035. The National Council for Digital Economy and Society, one of the most esteemed institutions in the country, is responsible for implementing the latter strategy and has been selected to lead the e-government innovation process.

Sources: 2022 Member States Questionnaire for Cambodia.

With their transition from the middle to the high EGDI group in 2022, Rwanda, Nepal and Zambia join Bhutan, Bangladesh and Cambodia (which had made the same shift in 2020) as the leaders in e-government development among the LDCs. Their EGDI values place all six countries in the H1 or H2 rating class of the high EGDI group. Rwanda has had the sharpest increase in OSI value (from 0.6176 in 2020 to 0.7935 in 2022), making it the top performer in online services provision among the LDCs. The six LDCs in the high EGDI group have a high average HCI value (0.5715) and a middle average TII value (0.4596), signifying that these countries have had some success in advancing e-government development in spite of some limitations in telecommunications infrastructure development. All of the countries except Bangladesh and Cambodia are also landlocked and therefore face additional challenges.

Among the LDCs, Guinea, Myanmar, Rwanda and Zambia have made significant strides in improving their EGDI rankings (each by more than 10 positions), despite being low-income and lower-middle-income economies. Table 2.7 displays the performance of the highest-ranked LDCs.

Figure 2.21 highlights the differences in EGDI and subindex values among the LDCs, including those that are also LLDCs and SIDS; the latter two groups are reviewed in the subsections below. It is worth noting that LDCs in Asia are lower-middle-income countries (with the exception of Yemen) and have a higher average EGDI value (0.4645) than the LDCs in Africa (0.3231).

Table 2.7 Least developed countries with the highest EGDI value

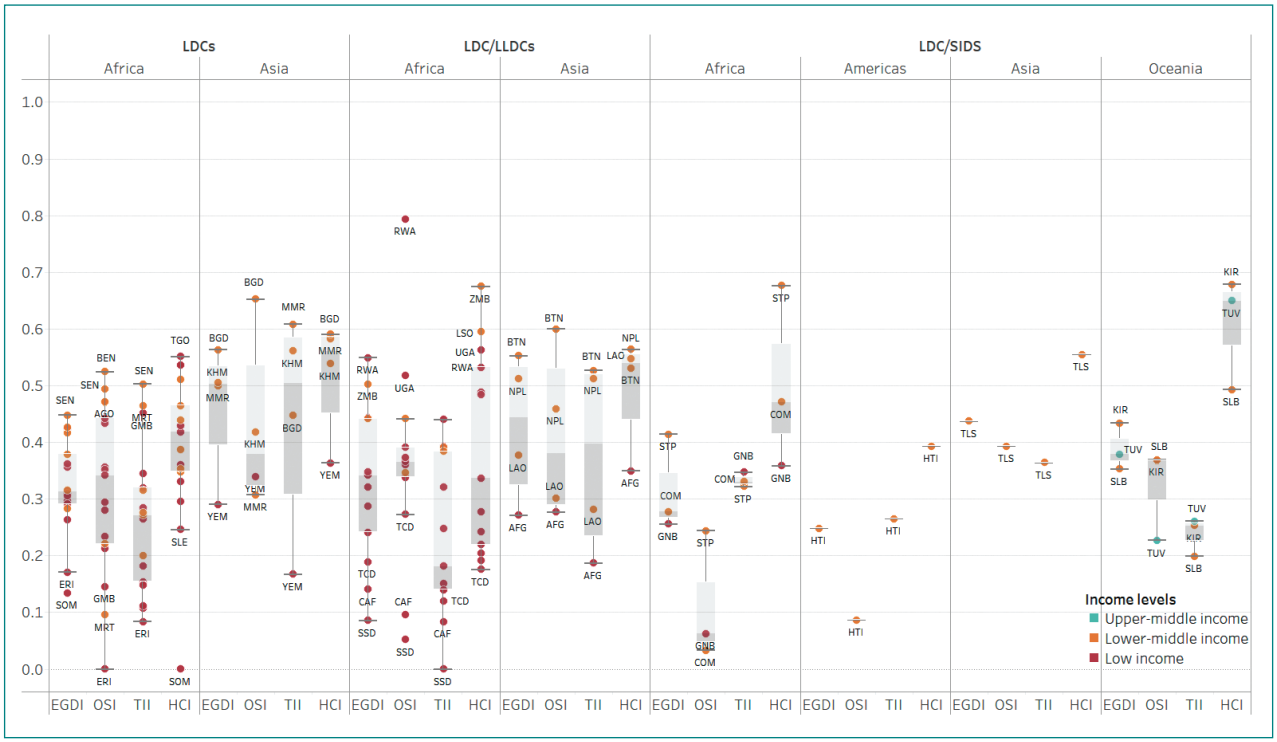
Country	Rating class	EGDI rank	Subregion	OSI value	HCI value	TII value	EGDI (2022)	EGDI (2020)
Bangladesh	H2	111	Southern Asia	0.6521	0.5900	0.4469	0.5630	0.5189
Bhutan	H2	115	Southern Asia	0.5996	0.5305	0.5261	0.5521	0.5777
*Rwanda**	H1	119	Eastern Africa	0.7935	0.5322	0.3209	0.5489	0.4789
*Nepal**	H1	125	Southern Asia	0.4592	0.5636	0.5123	0.5117	0.4699
Cambodia	H1	127	South-Eastern Asia	0.4181	0.5380	0.5605	0.5056	0.5113
*Zambia**	H1	131	Eastern Africa	0.4414	0.6744	0.3909	0.5022	0.4242
Myanmar	MH	134	South-Eastern Asia	0.3073	0.5829	0.6082	0.4994	0.4316
Senegal	MH	143	Western Africa	0.4934	0.3478	0.5025	0.4479	0.4210
Uganda	MH	144	Eastern Africa	0.5169	0.5631	0.2472	0.4424	0.4499
Lesotho	MH	145	Southern Africa	0.3456	0.5950	0.3836	0.4414	0.4593

Sources: 2020 and 2022 United Nations E-Government Surveys.

Note: Italicized countries are LLDCs in addition to being LDCs.

* Countries that have moved from the middle to the high EGDI group.

Figure 2.21 EGDI and subindex performance for the least developed countries, 2022



Source: 2022 United Nations E-Government Survey.

Notes: Countries in special situations include least developed countries (LDCs), landlocked developing countries (LLDCs), and small island developing States (SIDS). The internationally recognized three-letter country codes can be found here and in Survey annex table 12.

2.3.2 Landlocked developing countries

Table 2.8 lists the LLDCs that rank highest in terms of e-government development. Within this category, Kazakhstan has the highest EGDI value (0.8628) and remains the only country in the second highest (V3) rating class of the very high EGDI group. Next are Armenia, Uzbekistan, the Republic of Moldova and Mongolia, which are in the highest (HV) rating class of the high EGDI group and are on the cusp of transitioning to the very high EGDI group. Between 2020 and 2022, Tajikistan, Rwanda, Nepal and Zambia moved from the middle to the high EGDI group (the latter three countries are also LDCs, as noted previously). Mongolia, Turkmenistan, Uzbekistan and Zambia are the LLDCs that experienced the most dramatic improvement in EGDI values and ranking during this period, with each of these countries raising its EGDI rank by more than 17 positions.

There are 17 countries classified as LDC/LLDCs. The average EGDI value is lower for this group than for other landlocked developing countries. Among the 13 LDC/LLDCs in Africa, 85 per cent are low-income countries, and three of the four LDC/LLDCs in Asia are lower-middle-income countries.

Among the remaining 15 LLDCs, 8 are in Asia, 3 are in Africa, 2 are in the Americas, and 2 are in Europe, and their respective average EGDI values are 0.6778, 0.4903, 0.6248 and 0.7125. More than half of these countries (53 per cent) are in the upper-middle income group, and the remainder are lower-middle-income countries.

Table 2.8 Landlocked developing countries with the highest EGDI values

Country	Rating class	EGDI rank	Subregion	OSI value	HCI value	TII value	EGDI (2022)	EGDI (2020)
Kazakhstan	V3	28	Central Asia	0.9344	0.9021	0.7520	0.8628	0.8375
Armenia	HV	64	Western Asia	0.7221	0.7945	0.6925	0.7364	0.7136
Uzbekistan	HV	69	Central Asia	0.7440	0.7778	0.6575	0.7265	0.6665
Republic of Moldova	HV	72	Eastern Europe	0.7380	0.8613	0.5760	0.7251	0.6881
Mongolia	HV	74	Eastern Asia	0.6263	0.8391	0.6973	0.7209	0.6497
North Macedonia	H3	80	Southern Europe	0.7020	0.7562	0.6417	0.7000	0.7083
Kyrgyzstan	H3	81	Central Asia	0.6176	0.8119	0.6637	0.6977	0.6749
Azerbaijan	H3	83	Western Asia	0.6119	0.7932	0.6761	0.6937	0.7100
Paraguay	H3	94	South America	0.6059	0.6947	0.5989	0.6332	0.6487
Bolivia (Plurinational State of)	H2	98	South America	0.5193	0.7483	0.5818	0.6165	0.6129
Bhutan	H2	115	Southern Asia	0.5996	0.5305	0.5261	0.5521	0.5777
Botswana	H1	118	Southern Africa	0.2740	0.6932	0.6814	0.5495	0.5383
*Rwanda**	H1	119	Eastern Africa	0.7935	0.5322	0.3209	0.5489	0.4789
*Nepal**	H1	125	Southern Asia	0.4592	0.5636	0.5123	0.5117	0.4699
Tajikistan*	H1	129	Central Asia	0.3968	0.7380	0.3770	0.5039	0.4649
*Zambia**	H1	131	Eastern Africa	0.4414	0.6744	0.3909	0.5022	0.4242

Sources: 2020 and 2022 United Nations E-Government Surveys.

Note: Italicized countries are LDCs in addition to being LLDCs.

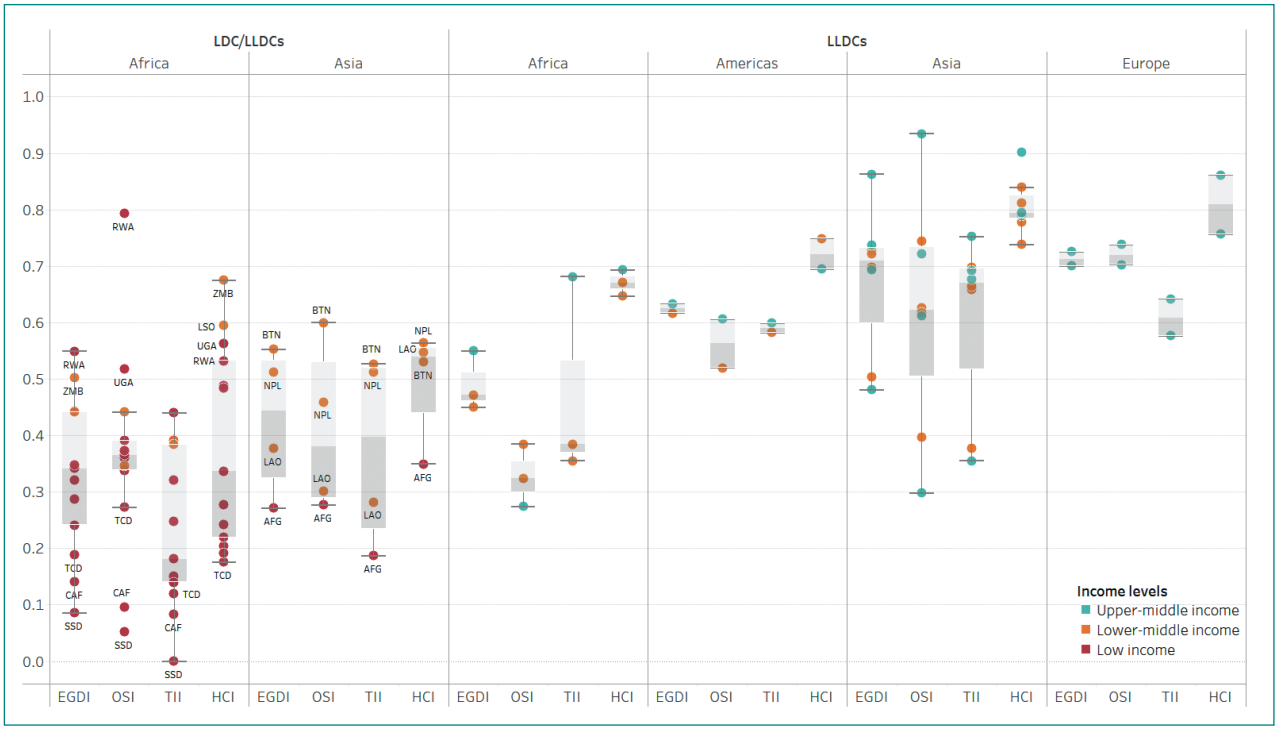
* Countries that have moved from the middle to the high EGDI group.

Box 2.7 Armenia: aligning public administration priorities with SDGs

Armenia has been pursuing its Digitalization Strategy for 2021-2025, whose strength derives to some extent from its alignment with both the Public Administration Reform strategy and the SDGs. With support from the World Bank, e-government innovation projects have been launched this year, but some of the digital transformation initiatives developed to meet the objectives set out in the 2030 Agenda have already been undertaken. The E-Health in Armenia project, now in the implementation phase, provides medical professionals with up-to-date digital records and information on patient health, contributing to time and cost optimization in the health-care sector and allowing Armenia to move closer to achieving SDGs 3 and 10. Digitalization in the agriculture sector has also begun, with the Government using drone imagery and satellite technology to collect real-time data and statistics that can guide decision-making in areas relating to SDGs 2 and 8. One of the next steps is to develop an e-justice system that will contribute to the achievement of SDG 16.

Sources: 2022 Member States Questionnaire for Armenia; National Electronic Health Operator, "E-health in Armenia" (2022), available at https://corporate.armed.am/en/about-system/ehealth-in-armenia; Armenia, "National pathway for food systems transformation in support of the 2030 Agenda", Food Systems Summit 2021 Dialogues, available at https://summitdialogues.org/wp-content/uploads/2021/09/Armenia_National-Pathway_2021_En.pdf; World Bank, "Armenia to improve public sector performance through digital solutions, with World Bank support", press release, 3 March 2022, available at https://www.worldbank.org/en/news/press-release/2022/03/03/armenia-to-improve-public-sector-performance-through-digital-solutions-with-world-bank-support.

Figure 2.22 EGDI and subindex performance for landlocked developing countries, 2022



Source: 2022 United Nations E-Government Survey.

Notes: Countries in special situations include least developed countries (LDCs), landlocked developing countries (LLDCs), and small island developing States (SIDS). The internationally recognized three-letter country codes can be found here and in Survey annex table 12.

2.3.3 Small island developing States

Table 2.9 presents the SIDS with the highest EGDI values in 2022. SIDS are characterized by the highest variance in EGDI values, which range from 0.2481 in Haiti to 0.9133 in Singapore. The latter is in the highest (VH) rating class of the very high EGDI group and is one of the world leaders in e-government development. Bahrain remains the only SIDS other than Singapore in the very high EGDI group, though this country saw its EGDI value decline from 0.8213 in 2020 to 0.7707 in 2022, with a corresponding drop from the V2 to the V1 rating class.

The other 21 countries featured in the table are all in the high EGDI group and have an average EGDI value of 0.6115—an improvement over the corresponding figures for 2020 (19 countries in the high EGDI group and an average EGDI value of 0.5716). Only 12 of the 38 SIDS (Antigua and Barbuda, Bahamas, Bahrain, Barbados, Dominican Republic, Fiji, Grenada, Mauritius, Saint Kitts and Nevis, Seychelles, Singapore, and Trinidad and Tobago) have EGDI values above the global average of 0.6102.

In 2022, Guyana and Belize transitioned from the middle to the high EGDI group, and Guinea-Bissau transitioned from the low to the middle EGDI group.

Table 2.9 Small island developing States with the highest EGDI values

Country	Rating class	EGDI rank	Subregion	OSI v alue	HCI value	TII value	EGDI (2022)	EGDI (2020)
Singapore	VH	12	South-Eastern Asia	0.9620	0.9021	0.8758	0.9133	0.9150
Bahrain	V1	54	Western Asia	0.7523	0.8154	0.7444	0.7707	0.8213
Grenada	HV	66	Caribbean	0.5507	0.8977	0.7348	0.7277	0.5812
Bahamas	HV	66	Caribbean	0.6214	0.7641	0.7976	0.7277	0.7017
Mauritius	HV	75	Eastern Africa	0.6282	0.7733	0.7588	0.7201	0.7196
Barbados	H3	79	Caribbean	0.5388	0.8645	0.7318	0.7117	0.7279
Seychelles	H3	85	Eastern Africa	0.4424	0.7758	0.8198	0.6793	0.6920
Saint Kitts and Nevis	H3	87	Caribbean	0.3307	0.8724	0.8293	0.6775	0.6352
Dominican Republic	H3	92	Caribbean	0.6183	0.7539	0.5567	0.6429	0.6782
Trinidad and Tobago	H3	93	Caribbean	0.4892	0.7409	0.6717	0.6339	0.6785
Fiji	H3	97	Melanesia	0.4813	0.7957	0.5935	0.6235	0.6585
Antigua and Barbuda	H2	99	Caribbean	0.4231	0.8128	0.5981	0.6113	0.6055
Jamaica	H2	102	Caribbean	0.4914	0.7148	0.5658	0.5906	0.5392
Maldives	H2	104	Southern Asia	0.4873	0.6937	0.5845	0.5885	0.5740
Saint Vincent and the Grenadines	H2	107	Caribbean	0.4526	0.7420	0.5486	0.5811	0.5605
Suriname	H2	108	South America	0.3418	0.6921	0.7089	0.5809	0.5154
Dominica	H2	109	Caribbean	0.2954	0.6810	0.7604	0.5789	0.6013
Cabo Verde	H2	110	Western Africa	0.4965	0.6507	0.5507	0.5660	0.5604
Saint Lucia	H2	114	Caribbean	0.4007	0.7049	0.5683	0.5580	0.5444
Guyana*	H1	123	South America	0.4509	0.6546	0.4643	0.5233	0.4909
Tonga	H1	124	Polynesia	0.3296	0.8675	0.3496	0.5155	0.5616
Palau	H1	132	Micronesia	0.2373	0.8946	0.3735	0.5018	0.5109
Belize*	H1	133	Central America	0.4425	0.6707	0.3882	0.5005	0.4548

Sources: 2020 and 2022 United Nations E-Government Surveys.

* Countries that have moved from the middle to the high EGDI group.

Figure 2.23 reflects the persistent challenges that continue to undermine the efforts of SIDS to improve their telecommunications infrastructure, online services provision and human capital development. The eight SIDS that are also LDCs (Comoros, Guinea-Bissau, Haiti, Kiribati, Sao Tome and Principe, Solomon Islands, Timor-Leste and Tuvalu) have a lower average EGDI value (0.3498) than do the other SIDS (0.5814). They also tend to have low TII and OSI values, as nearly all LDC/SIDS are low-income or lower-middle-income countries and lack the resources needed to invest in areas vital for e-government development.

Among the other SIDS, Asia has the highest average EGDI value (0.7339), followed by Africa (0.6551), the Americas (0.6094) and Oceania (0.4516). Most SIDS in Asia and the Americas are upper-middle-income and high-income countries, whereas in Africa and Oceania national income levels vary widely.

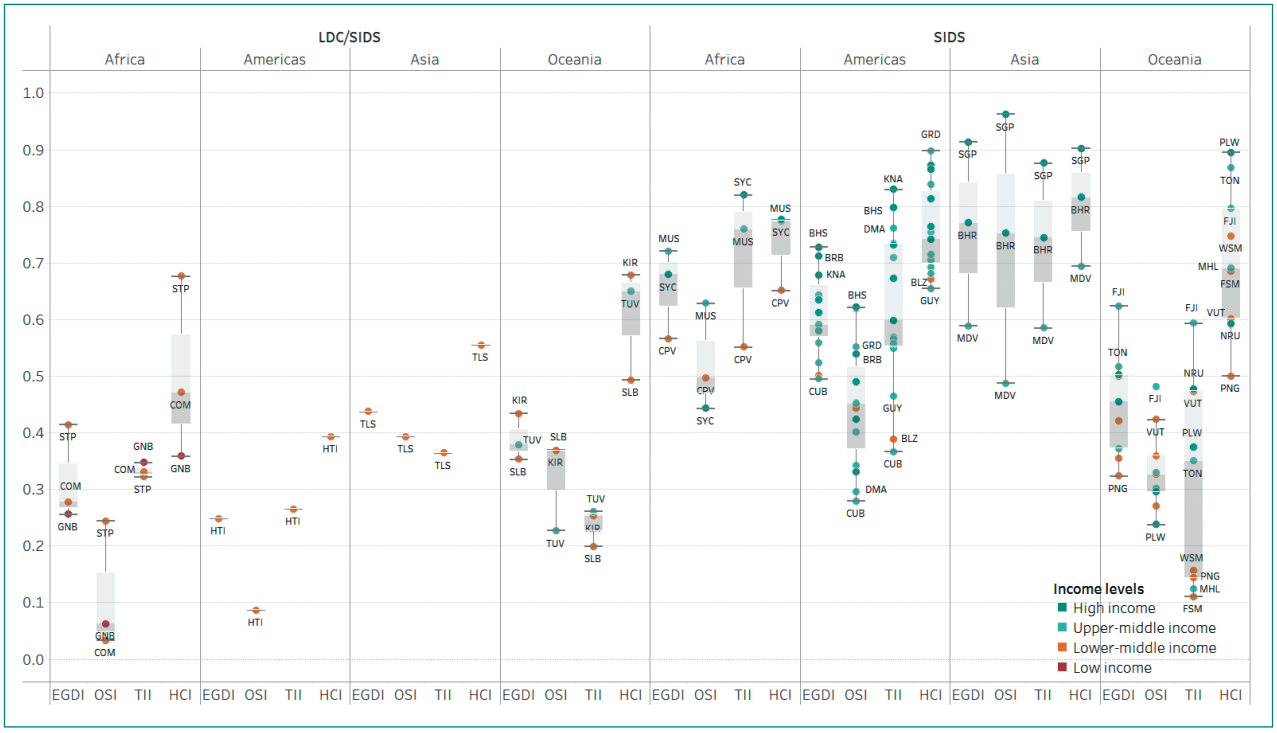
If e-government leaders such as Singapore and Bahrain are excluded from the analysis of e-government performance among SIDS, the average EGDI value for this group becomes 0.5628 (lower than the global average), reflecting the capacity constraints experienced by these countries as a consequence of their small size, remoteness and dispersion.

Box 2.8 Grenada

Grenada is on its way to becoming a Smart Small State, defined by the United Nations Development Programme (UNDP) "as one that leverages the power of data and digital technologies to strengthen the country's resilience, enhance sustainability, and improve the well-being of its people by creating economic opportunity that is led by an agile and efficient Government". Its collaboration with UNDP has allowed Grenada to extend the national digital strategy into the National Sustainable Development Plan 2020-2035, aimed at guiding the country's efforts to become a Smart Small State and achieve the SDGs. Over the past two years, Grenada has launched some innovative initiatives to address climate change. The Blue Bot project uses artificial intelligence to analyse images captured by underwater reef robots and monitor species and climate change patterns to better guide conservation efforts and sustainable fisheries management. On land, data are collected as part of the Climate Smart Agriculture and Rural Enterprise Programme to monitor real-time changes in climate, soil conditions and market prices, and the information gathered is used to guide decision-making across the food supply chain to promote more climate-resilient and sustainable agriculture. As part of the Climate Resilient Infrastructure for Integrated Landscape initiative, the Government has launched an app to provide citizens with real-time information via mobile alerts on how to respond during natural disasters. The next step is a smart government programme to digitalize public administration, provide high-quality online services, and create an innovation hub platform to meaningfully engage citizens.

Source: United Nations Development Programme, Barbados and the Eastern Caribbean, *Grenada Smart Small State: Developing the Vision* (quoted portion from p. 3), available at https://www.undp.org/barbados/publications/grenada-smart-small-state-developing-vision.

Figure 2.23 EGDI and subindex performance for small island developing States, 2022



Source: 2022 United Nations E-Government Survey.

Notes: Countries in special situations include least developed countries (LDCs), landlocked developing countries (LLDCs), and small island developing States (SIDS). The internationally recognized three-letter country codes can be found here and in Survey annex table 12

2.4 Summary and conclusion

All regions except Oceania have improved their average EGDI values in 2022. Europe remains the leader in e-government development, with an average EGDI value of 0.8305, followed by Asia (0.6493), the Americas (0.6438), Oceania (0.5081), and Africa (0.4054).

For the first time since 2016, the average EGDI value for Oceania has declined, largely owing to the 29 per cent drop in the average TII value for the region over the past two years. The opposite is true in other regions, where much of the increase in regional EGDI values derives from improvements in the telecommunications infrastructure; between 2020 and 2022, the average TII value rose by 12 per cent in Africa, by 6.5 per cent in the Americas, and by 4.6 per cent in Asia.

Despite the significant progress made in Africa, the EGDI average for this region remains below the global average of 0.6102. Only 4 of the 54 countries in Africa have EGDI values above the global EGDI average, but the other countries have EGDI values that are sometimes significantly lower, highlighting gaps in e-government development and the persistence of the digital divide.

Asia and the Americas are roughly comparable in their levels of e-government development, with a growing number of countries in these regions moving to higher EGDI levels.

There has been notable progress in online services provision in all regions. Those living in vulnerable situations—people living in poverty, persons with disabilities, older people, immigrants, women and youth—have benefited from these improvements, though additional efforts are needed to ensure that no one is left behind in e-government. In regional terms, Europe has the largest proportion of countries offering services to vulnerable populations (96 per cent), followed by Asia (85 per cent), the Americas (83 per cent), Oceania (68 per cent) and Africa (64 per cent).

The 2022 Survey results indicate that Europe has the highest average number of services offered online (19), followed by Asia (17), the Americas (16), Oceania (12) and Africa (12). In 2022, for the first time, there are five countries in Africa offering 20-21 services (Nigeria, Rwanda, Angola, Egypt and South Africa). In all regions, registering a business and applying for business licence are the two services offered most frequently online.

Governments in all regions have been addressing the challenges associated with the COVID-19 pandemic. Almost all countries in Europe have provided information and online solutions/platforms for distance learning and have offered online information and scheduling options for telehealth services, COVID-19 vaccinations, and medical tests. In Africa, the Americas, Asia, and Oceania, the majority of national Governments focus on services relating to distance learning and COVID-19 vaccinations, with fewer countries offering telehealth services and scheduling for medical tests.

More than a quarter of the United Nations Member States are classified as countries in special situations—a designation that includes LDCs, LLDCs and/or SIDS. The average EGDI value for these countries has increased by 3 per cent since 2020. Among the three special groups, LDCs have the lowest average EGDI value (0.3500). When LDCs are excluded from the analysis of LLDCs and SIDS, the average EGDI values for the latter two groups are higher—0.6379 for LLDCs and 0.5814 for SIDS. LLDCs constitute the only group among the countries in special situations with an average EGDI value above the global average of 0.6102.

While progress has been made in e-government development globally over the past two years, the regions that have been struggling remain vulnerable to deepening digital divides. As noted in this chapter, a number of countries in Africa and Oceania—in particular those in special situations—are progressing at a pace that is too slow to bridge these divides. Africa has made significant improvements in telecommunications infrastructure, building a solid foundation for accelerating the transition to digital government; however, as highlighted in the first chapter, the cost of mobile

broadband subscriptions as a percentage of per capita gross national income remains significantly higher in Africa than in other parts of the world. In Oceania, underdeveloped or unevenly developed telecommunications infrastructure is undermining the region's progress in advancing e-government development. Chapter 4 examines the challenges and opportunities surrounding efforts to leave no one behind in the hybrid digital society, and chapter 5 explores the future of digital government, shedding light on opportunities and global good practices that have the potential to bridge digital divides.

Endnotes

1 The range of EGDI group values for each level are mathematically defined as follows: very high EGDI values range from 0.75 to 1.00 inclusive, high EGDI group values range from 0.50 to 0.7499 inclusive, middle EGDI values range from 0.25 to 0.4999 inclusive, and low EGDI values range from 0.0 to 0.2499 inclusive. In all references to these ranges in text and graphic elements, the respective values are rounded for clarity and are expressed as follows: 0.75 to 1.00, 0.50 to 0.75, 0.25 to 0.50, and 0.00 to 0.25.

2 It should be noted that the Survey assessment took place in 2021, and the ranking reflects the results at the time of the assessment.

3 See the United Nations Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States, available at https://www.un.org/ohrlls/content/what-we-do.

4 United Nations, Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States, "About least developed countries", available at https://www.un.org/ohrlls/content/about-least-developed-countries.