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Summary of the *Asia-Pacific Countries with Special Needs Development Report 2024: Leveraging Digitalization for Productivity and Decent Employment*

Note by the secretariat

Summary

Against the backdrop of automation and digitalization, the traditional path of labour-intensive industrialization is becoming less viable for countries in special situations, in other words for least developed countries, landlocked developing countries and small island developing States, in Asia and the Pacific. This is because more technology-driven processes are being introduced in economic activities, reducing the reliance on manual labour and enhancing the tradability of services across borders. In countries in special situations, where a significant proportion of the labour force is concentrated in low-productivity agricultural sectors and in the informal economy, digitalization presents opportunities for leapfrogging, as digital technologies require less capital than traditional technologies and bring efficiency benefits in doing business and providing public services. However, harnessing the benefits of digitalization will require adequate infrastructure, adaptive capabilities and supportive policy frameworks.

In the present document, the secretariat examines the transformative potential of digitalization and automation for enhancing the productive capacities of least developed countries, landlocked developing countries and small island developing States. It focuses on the services sector, as well as on agricultural and industrial activities that have been "servitized" through digitalization, offering new avenues for productivity growth and employment generation. It also highlights the risks associated with these technologies, such as the displacement of traditional jobs and cybersecurity threats. The policy approaches discussed in the document to navigate these challenges include improving connectivity and infrastructure to bridge the digital divide; prioritizing education and training approaches that are aligned with industrial or investment strategies to enhance digital literacy and skills; and fostering regional cooperation for trade and investment in the digital economy.

The Economic and Social Commission for Asia and the Pacific may wish to consider the findings, possible solutions and recommendations contained in the present document and provide guidance on the future work of the secretariat in that regard.

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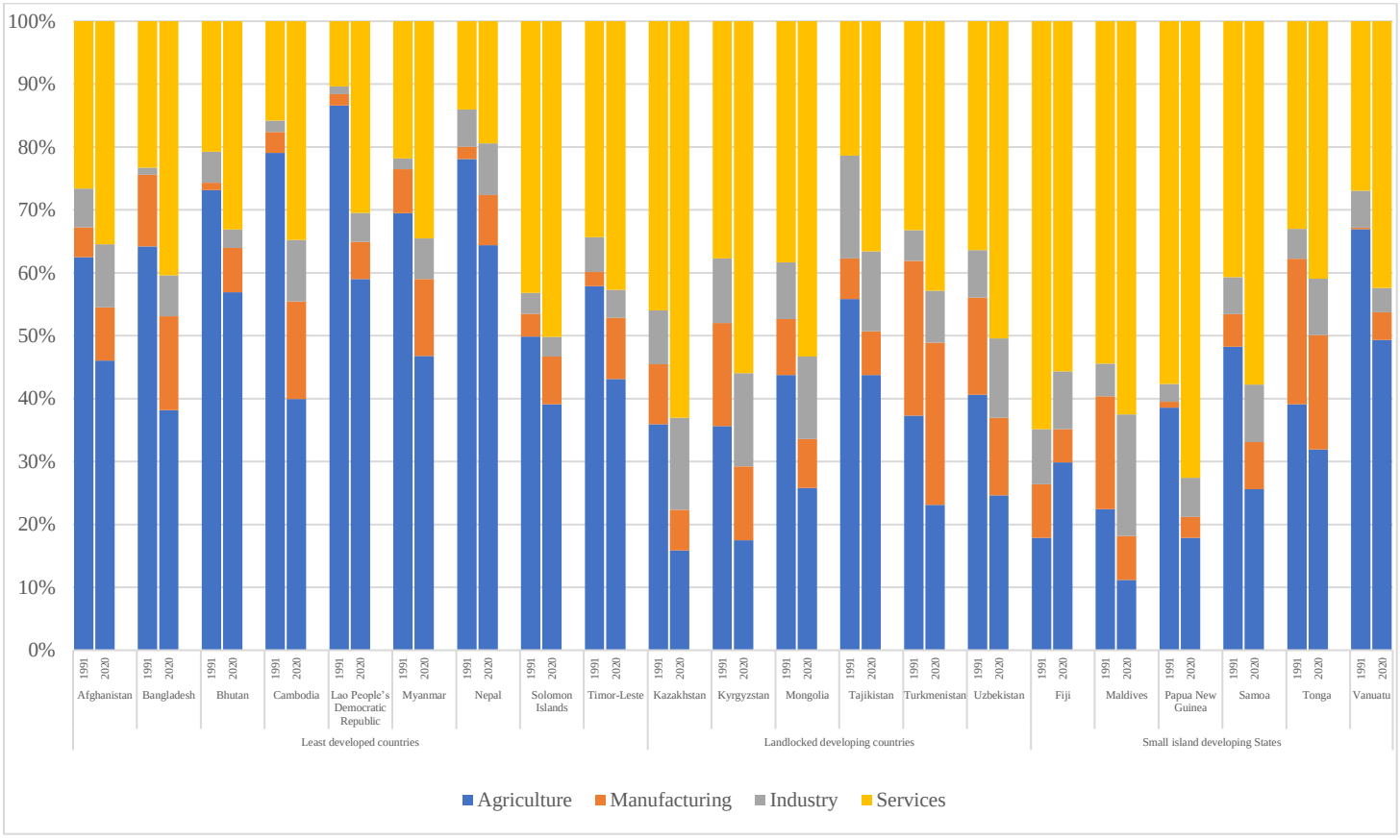
I. Introduction

1. Advances in digitalization and the evolving potential of the services sector present unprecedented development opportunities for countries in special situations. To foster the development of an ecosystem conducive to a digital economy, foundational infrastructural and skills requirements must be met. The above-mentioned opportunities have come in parallel with the automation of labour and the megatrend of digitalization, which are making the earlier pathways of labour-intensive industrialization increasingly unlikely to foster development. Earlier patterns of transformation for developing countries typically involved a gradual shift in employment from agriculture to industry and then to services. Manufacturing played a pivotal role in delivering the dual outcomes of productivity growth and employment, especially for relatively unskilled workers. More recently, employment has shifted directly to the services sector (figure I), which tends to have relatively fewer opportunities owing to its largely non-tradable nature, the limited opportunities for mechanization, the intrinsic role of labour and lower economies of scale. Furthermore, workers in countries in special situations have mostly transitioned to activities in the services sector where informality is widespread and productivity is relatively lower.

Figure I
Changes in employment in countries in special situations, by sector



Source: International Labour Organization (ILO), ILOSTAT. Available at https://ilostat.ilo.org (accessed on 8 August 2023).

2. However, the evolving nature of the services sector coupled with advances in digitalization mean that countries in special situations can now benefit from leapfrogging opportunities. Consequently, many of the positive attributes of manufacturing are also increasingly being exhibited by the services sector.[1] First, advances in digital technologies and communications have made many services more tradable than before. For example, information technology services, online education and telemedicine can be provided globally without suppliers and users being in each other's physical presence. Digital platforms also expand markets, allowing smaller countries in special situations to benefit from economies of scale. Importantly, service-based businesses typically require less capital investment than manufacturing businesses, thus enabling countries to develop despite a scarcity of financial resources. Moreover, the services sector can quickly adapt to new technologies, making it more responsive to digitalization trends and more agile in leveraging new opportunities.

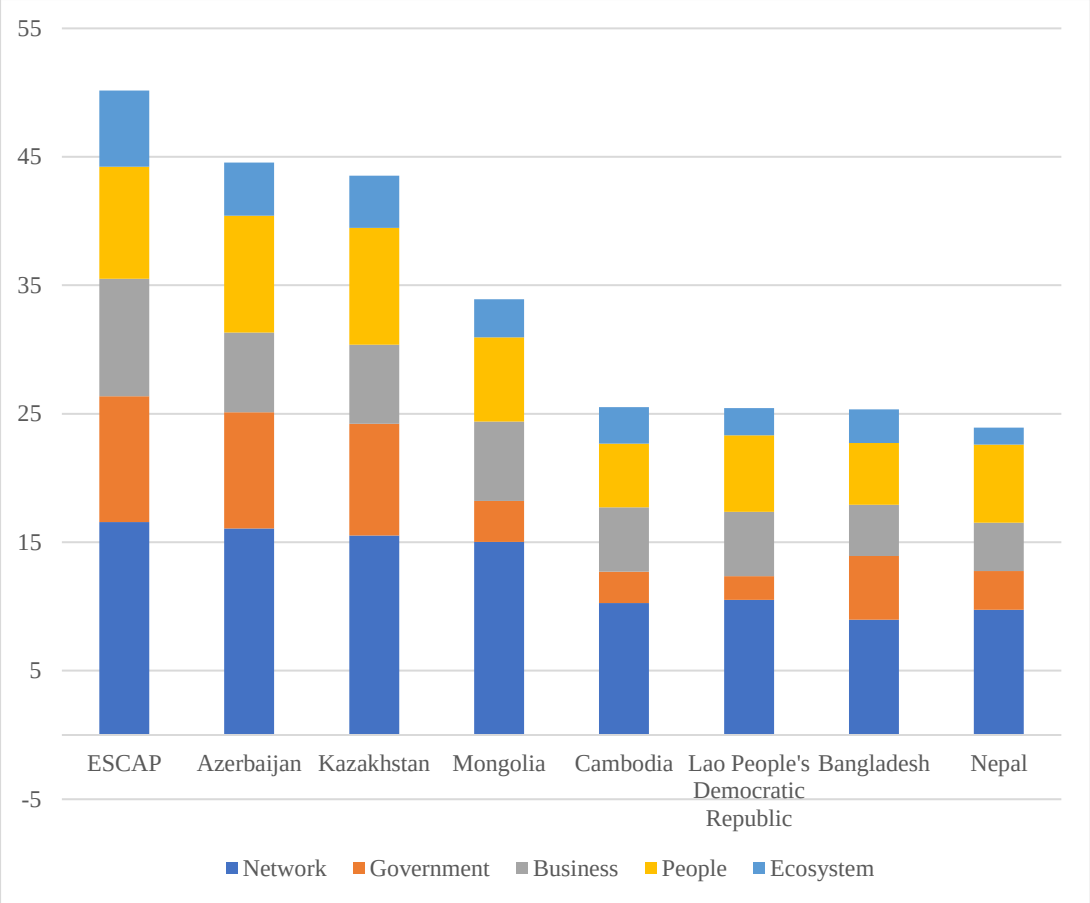
3. Harnessing the benefits of digitalization, however, requires addressing the underlying challenges. First, a limited digital infrastructure results in lower rates of Internet utilization, stability and affordability. In most countries in special situations, users still have limited access to high-speed fibre-optic and broadband Internet connectivity, or to high-speed mobile networks. Poor digital literacy, low levels of adoption of digital technologies and weak regulatory frameworks on data protection and online transactions, which drive up operational costs for digital enterprises, pose additional challenges. On the Digital Transformation Index of the Economic and Social Commission for Asia and the Pacific (ESCAP), least developed countries do not score well under any of the five pillars – network/infrastructure, government, business, people and ecosystem – and score especially poorly under the government pillar (see figure II). Landlocked developing countries, on the other hand, exhibit a higher level of readiness to benefit from digitalization.[2] The low scores achieved by least developed countries also explain why these countries are less competitive in the digital economy, as shown by the fact that Asia-Pacific least developed countries received only 0.10 per cent of the digital foreign direct investment inflows in the region in 2021. Similarly, these countries accounted for less than 1 per cent of the region's exports of digitally deliverable services in 2022.[3]

[1] Richard Baldwin and Rikard Forslid, "Globotics and development: when manufacturing is jobless and services are tradeable", *World Trade Review*, vol. 22, special issue No. 3–4 (October 2023), pp. 302–311.

[2] Jongsur Park, Seunghwa Jun and Jeong Yoon Kim, "Methodology for data analysis of digital transformation", Information and Communications Technology and Disaster Risk Reduction Division, ESCAP Working Paper Series (Bangkok, 2022).

[3] *Asia-Pacific Trade and Investment Report 2023/24: Unleashing Digital Trade and Investment for Sustainable Development* (United Nations publication, 2023).

Figure II
Digital Transformation Index scores for selected countries



Note: The figure reflects the composite score on the Digital Transformation Index for each country based on the latest available data.

4. In the *Asia-Pacific Countries with Special Needs Development Report 2024: Leveraging Digitalization for Productivity and Decent Employment*, ESCAP explores how digitalization and automation affect productivity and decent employment in countries in special situations. Understanding these linkages is important for formulating consistent policies.

II. Impacts of digitalization on productivity and employment and the emerging role of the services sector

5. The impacts of digitalization on productivity and employment are dynamic and multifaceted. While digitalization can significantly boost productivity in a range of domains, from agriculture to manufacturing and services, the impacts it can have on employment depend on several factors, such as the nature of the workforce and the adaptive capacity of economies.

A. Impacts of digitalization on productivity

6. Digital technologies can automate routine tasks, speed up processes and reduce the room for human errors. Digital solutions can also enhance supply chain management and resource allocation. Importantly, they foster innovation by enabling the development of new ways of working, new products and new business models in a range of sectors. The positive effects of digitalization on firms' productivity are well documented. For instance, the World Bank has

found that labour productivity is 3.7 times higher in African firms that have access to the Internet than in those that do not.[4]

7. In agriculture, which accounts for the largest share of employment in several least developed countries, technologies such as the Global Positioning System, the Internet of things and drones can make farm management more efficient. Farmers can not only access real-time information about the weather, diseases and best practices to improve the yield and quality of crops, they can also use digital platforms to facilitate business-to-business and business-to-consumer interaction, thereby bypassing intermediaries and improving pricing. One example is iPAGE, a technology start-up in Bangladesh that has won a United Nations award and that uses data, machine learning and artificial intelligence to provide small farmers and other stakeholders with critical information to improve their operations. It has collaborated with more than 10,000 small farmers and has helped reduce fertilizer usage by 25 per cent. Furthermore, on average the initiative has improved yields by 12 per cent, slashed capital costs by 75 per cent, lowered sourcing costs for buyers and boosted sales for input vendors and machine suppliers. It has contributed to a reduction of 2 million kg in carbon emissions annually.[5]

8. In Asian landlocked developing countries, where mining and commodity exports constitute a large share of the economy, digitalization can enhance productivity and create decent employment. For instance, automated and remote-controlled mining technologies increase efficiency and safety. Digital tools can optimize logistics and supply chain management, reducing costs and improving transparency. Three-dimensional mapping software can be used to create digital underground maps and machine automation can improve efficiency, reliability and cost-effectiveness. For instance, in Kazakhstan, businesses are pursuing digital transformation to adapt to increasingly complex and competitive conditions in the mining industry, which accounts for 13 per cent of the gross domestic product.[6]

9. Beyond having commercial benefits, digitalization also has significant productivity dividends in the area of government services, in particular for small island developing States, which have limited avenues for expanding economic activities. By improving efficiency and accessibility, digitalization is especially important for countries with geographically dispersed populations, as it can promote interoperability, facilitating the smooth integration of a range of government and private sector services.[7] For instance, in expanding its digital infrastructure, Papua New Guinea adopted a digital platform to simplify access to services, strengthen data security, minimize fraud and enhance the overall user experience. The digitalization of financial services has significantly increased financial inclusion, in particular in countries where the banking infrastructure is limited, by enabling a range of additional transactions that empower those working in the informal sector by enabling them to gain access to banking services and securely save money and conduct transactions. These benefits are also felt by street vendors and other

[4] World Bank, *World Development Report 2016: Digital Dividends* (Washington, D.C., 2016).

[5] See www.ipageglobal.com/.

[6] Farida M. Issatayeva and others, “Fuel and energy complex of Kazakhstan: geological and economic assessment of enterprises in the context of digital transformation”, *Energies*, vol. 16, No. 16 (August 2022).

[7] Digital Watch, “Papua New Guinea rolls out platform for management of digital IDs”, 4 May 2023.

small retailers who, through mobile payment systems and e-commerce platforms, can gain access to broader markets. Digital finance allows for more efficient inventory management and the receipt of electronic payments, offering a safer and more convenient alternative to traditional cash transactions. Furthermore, digital finance has reduced the cost of remittances, an important source of financial flows in many States, including Fiji and Samoa.

B. Impacts of digitalization on employment

10. The impacts of digitalization on employment depend critically on the skills level of the workforce and the availability of new opportunities. Automation and artificial intelligence can often replace human labour, in particular in routine and manual jobs. While this leads to job losses in some sectors, new opportunities will emerge in digitally oriented sectors, which tend to require higher skills. For instance, while the advent of generative artificial intelligence has rendered certain low-end programming jobs obsolete, it has created new jobs – such as prompt engineers – that did not previously exist.

11. Digitalization may heighten the risk of wage stagnation and widen the digital divide within and between countries. The rapid pace of digitalization may outstrip the local workforce's ability to acquire the necessary digital skills, leading to job displacement for many, in particular for those employed in traditional industries. Furthermore, income disparities may widen as skill-biased technical advancements increase the demand for high-skilled workers while diminishing the demand for those lacking such skills. Countries in special situations, especially least developed countries, may become dependent on low-wage, low-skill jobs in global digital supply chains, limiting the potential for higher-value job creation.

12. Digitalization will probably transform the service economy, especially in the informal sector, which accounts for 37 per cent of employment in services in countries in special situations.[8] This could come about by: (a) providing access to online training and education platforms; (b) creating new job opportunities, for example in the areas of e-commerce, deliveries and digital administration; and (c) formalizing informal workers, offering them access to digital financial services (e.g. mobile banking), greater job security and more benefits.

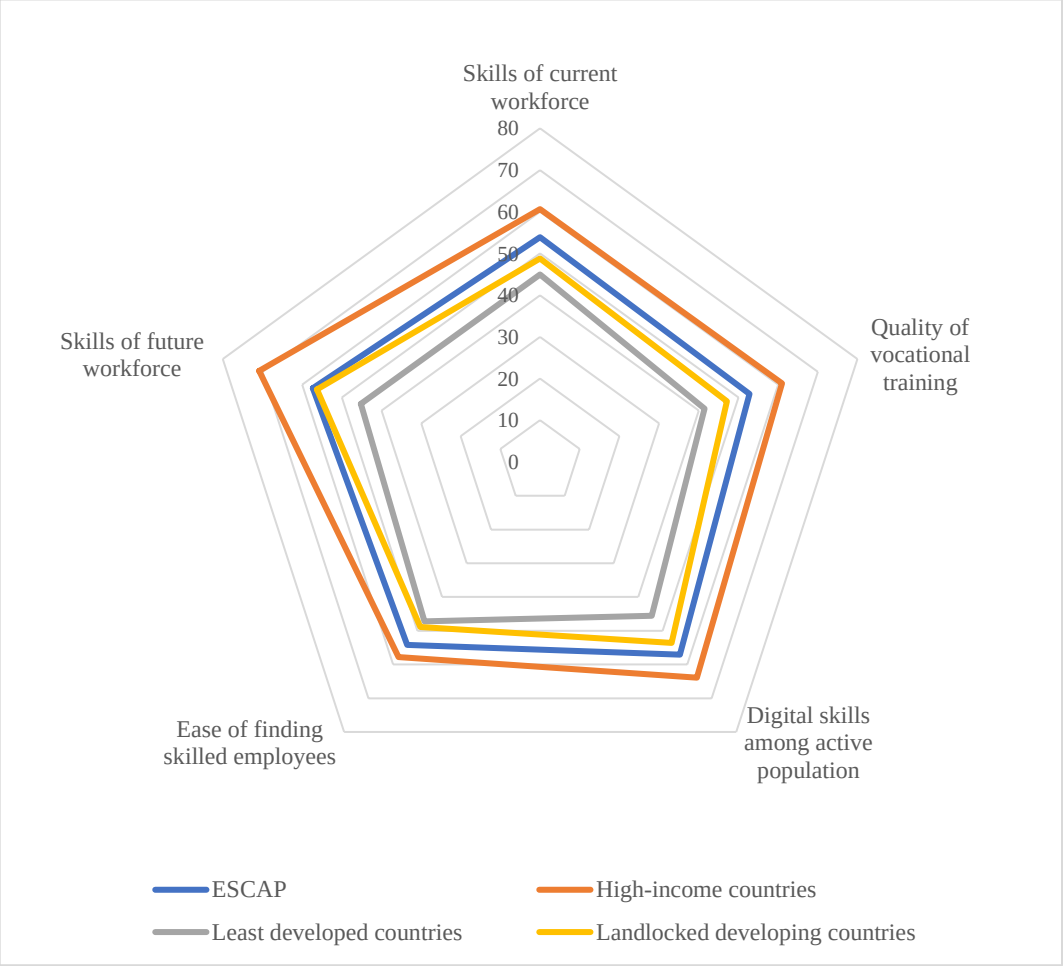
13. Ensuring access to a reliable digital infrastructure and skills training is a prerequisite for harnessing the benefits of digitalization. Small island developing States, for instance, have on average only 2.0 fixed broadband subscriptions per 100 inhabitants and least developed countries have on average only 4.0 fixed broadband subscriptions per 100 inhabitants, while the regional average is of 17.2 fixed broadband subscriptions. The same trend applies to mobile broadband subscriptions per 100 inhabitants: in the least developed countries in the region the number is 64.7, compared to 85.2 for the region as a whole.[9] Investment in a digital infrastructure, i.e. in fixed broadband and mobile broadband networks, is therefore crucial. Least developed countries lag in their preparedness to harness the benefits of a digital transformation in respect of several indicators, in particular in terms of the

[8] ILO, ILOSTAT. Available at https://ilostat.ilo.org (accessed on 8 August 2023).

[9] *Asia-Pacific Countries with Special Needs Development Report 2023: Strengthening Regional Cooperation for Seamless and Sustainable Connectivity* (United Nations publication, 2023).

skills of the future workforce (figure III), highlighting the importance of digital literacy.

Figure III
Competitiveness of the workforce



Source: World Economic Forum, *The Global Competitiveness Report Special Edition 2020: How Countries are Performing on the Road to Recovery* (Geneva, 2020).

14. In summary, digitalization has the potential to have a significant impact on informal economies by providing new opportunities in the areas of income, market access and financial inclusion. However, fully harnessing these benefits requires a supportive ecosystem that requires infrastructure development, digital literacy and appropriate policy frameworks.

C. Emerging role of the services sector

15. Bolstered by digitalization, the services sector is increasingly exhibiting the development attributes of the manufacturing sector, which includes tradability, economies of scale, productivity growth and innovation. However, unlike in the manufacturing sector, the dual outcomes of productivity growth and the employment of unskilled workers are less prevalent in subsectors within services. For instance, while some subsectors of business services, such as information and communications technology, are characterized by extremely high levels of productivity, their employment generation potential for the unskilled is limited. On the other hand, the traditional services sector, which encompasses activities such as retail trade, is

characterized by limited productivity growth but absorbs most of the unskilled labour.

16. The diffusion of digital technologies in services offers significant opportunities in countries in special situations. First, starting and scaling up service-oriented businesses, especially those based on digital platforms, often requires less capital and infrastructure than businesses based on manufacturing. Second, services, in particular in the areas of information technologies, finance and tourism, can reach global markets through digital channels, offering significant growth potential. Third, the services sector, boosted by digitalization, can create a wide range of jobs that require varying levels of skills, including high-skilled jobs in information technologies and finance, and more accessible jobs in areas such as digital marketing and customer service. Fourth, the services sector can quickly adapt and innovate with new technologies, making it more dynamic and responsive to digitalization trends.

17. Digital platforms also enable workers in the informal sector to gain access to wider markets and thus increase their incomes. Utilizing online marketplaces and social media, artisans can showcase their products and reach customers globally. This can boost income and reduce reliance on traditional intermediaries, as exemplified in Nepal, where digitalization and online market access has benefited local artisans. In Cambodia, transport and delivery platforms have integrated motorbike taxis and tuk-tuks into their services, offering workers access to a formalized system of employment. Also, the rise of global freelancing platforms creates opportunities for workers in countries in special situations.

III. Policy considerations and regional cooperation to harness digitalization

18. Digitalization offers a transformative pathway for countries in special situations, which have the potential to leapfrog traditional development stages by, for instance, adopting mobile technologies and renewable sources of energy, including solar power. Thus, they can bypass the need for extensive landline and centralized grid systems, which will in turn provide them with significant advantages in the areas of finance, education and health care, among others.

19. To effectively harness the benefits of digitalization, it is essential for countries in special situations to implement tailored policies. This includes building robust infrastructure for reliable electricity and Internet access, which is vital for reducing the rural-urban divide. Ensuring equitable access for all, including women and those in remote areas, is crucial. Moreover, developing a digitally literate workforce is imperative to maximize the benefits of digital technologies and prevent the gap between skilled and unskilled workers from widening further.

20. While presenting opportunities, digitalization also presents risks, including exploitation in the informal sector, privacy breaches and dependence on certain digital platforms. Addressing these challenges requires the establishment of strong regulatory frameworks, effective cybersecurity measures and stringent data protection laws to safeguard equitable growth and protect individual and collective rights.

21. A strategic approach involves balancing rapid digital advancements with the gradual development of foundational sectors. This means prioritizing the development of the mobile banking and e-commerce sectors, for example, for immediate growth, while slowly building capabilities in areas, such as manufacturing, that require robust transportation, power and telecommunications infrastructure to facilitate exports.

22. It is essential to prioritize education and the expansion of the digital infrastructure in countries in special situations to prevent the digital marginalization of lower-skilled workers. Such an approach could help to narrow the rural-urban divide by addressing rural poverty and informality. Coordinating policies that align industrial or foreign direct investment strategies with educational initiatives is key to creating an environment conducive to digital entrepreneurship and business growth.

23. Examples of the successful implementation of digital policies in least developed countries include: a focus on improving digital literacy in Bangladesh to meet global technology demands; efforts in Cambodia to improve the digital infrastructure to facilitate digital market access; and the development in Nepal of policies supportive of digital entrepreneurship, which have spurred a significant growth in digital start-ups.

24. For landlocked developing countries, focusing on rural digital infrastructure, public-private partnerships and skills development programmes is crucial. Examples of such efforts include: initiatives in Mongolia to enhance rural connectivity; and collaborative efforts in Kazakhstan to connect schools to the Internet, demonstrating the impact of targeted digital strategies.

25. Digital strategies that are tailored to the unique challenges and opportunities of small island developing States have proven effective. These include strategies for improving digital connectivity to boost tourism, promoting e-commerce for economic diversification and ensuring inclusive access to technology to avoid widening the digital divide. International support is essential in enhancing the digital capabilities of small island developing States.

26. Regional cooperation is critical for countries in special situations to leverage digitalization in trade and investment. Emphasizing digital trade in regional agreements can address regulatory barriers and enhance interoperability, aligning the digital competencies of countries in special situations with global standards. While digital foreign direct investment is key for fostering the digital economy, investment in countries in special situations, especially in least developed countries, lags owing to skills shortages and regulatory challenges. Addressing these challenges is crucial for attracting more digital investment inflows. Furthermore, regional cooperation is vital for optimizing the digital transformation of rail networks in the region. Enhancing digital capabilities in traffic management, rail business processes and border crossings can significantly improve the transport sector, leading to broader economic benefits.

IV. Issues for consideration by the Commission

27. A more detailed examination of the challenges, opportunities and recommendations mentioned above is provided in *Asia-Pacific Countries with Special Needs Development Report 2024: Leveraging Digitalization for Productivity and Decent Employment*, which will be made available online prior to the eightieth session of ESCAP.

28. ESCAP may wish to discuss the policy priorities and cooperation needs highlighted in the present document and provide the secretariat with guidance on which of these should be explored further. The guidance would shape the future analytical work of the secretariat and inform its planning and formulation of technical cooperation and capacity-building assistance for least developed countries, landlocked developing countries and small island developing States.