Palestinian Digital Economy Assessment

WORLD BANK GROUP

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Acknowledgments

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Acronyms

ACH	automated clearing house
ADSL	asymmetric digital subscriber line
API	application programming interface
AQAC	Accreditation and Quality Assurance Commission
ATM	automated teller machine
B2B	business to business
B2C	business to customer
COD	cash on delivery
COGAT	Coordinator of Government Activities in the Territories
COVID-19	coronavirus disease of 2019
CPMI	Committee on Payments and Market Infrastructures
DSL	digital subscriber line
e-GP	e-government procurement
E-IDAS	Electronic Identification, Authentication and trust Services
EU	European Union
FDD	frequency division duplex
FMIS	financial management information system
FTTH	fiber to the home
G2B	government to business
G2C	government to citizen
G2G	government to government
GCC	Gulf Cooperation Council
GDP	gross domestic product
GNI	gross national income
GOI	Government of Israel
GPSS	Global Payment Systems Survey
HCPPP	High Council for Public Procurement Policies
ICT	information and communication technology
ILO	International Labour Organization

IMF	International Monetary Fund
IP	intellectual property
ISP	internet service provider
IT	information technology
ITU	International Telecommunication Union
IXP	internet exchange point
JDECO	Jerusalem District Electricity Company
JTC	Joint Technical Committee
LED	light-emitting diode
LTE	long-term evolution
mbits	megabits per second
MDAs	ministries, departments, and agencies
MENA	Middle East and North Africa
MHz	megahertz
MOC	Ministry of Communication
MOE	Ministry of Education
MOF	Ministry of Finance
MOHESR	Ministry of Higher Education and Scientific Research
MOI	Ministry of the Interior
MOL	Ministry of Labor
MONE	Ministry of National Economy
MSMEs	micro, small, and medium-size enterprises
MTIT	Ministry of Telecommunications and Information Technology
MTO	money transfer operator
NIS	Israeli new shekel
NPA	National Policy Agenda
NDP	National Development Plan
NPS	National Law for Payment Settlement
OECD	Organisation for Economic Co-operation and Development
PA	Palestinian Authority
PAFI	Payment Aspects of Financial Inclusion
PCBS	Palestinian Central Bureau of Statistics
PCMA	Palestinian Capital Market Authority
PFM	public financial management
PITA	Palestinian Information Technology Association
PKI	public key infrastructure

PMA	Palestine Monetary Authority
PMO	Prime Minister's Office
POS	point-of-sale
R&D	research and development
RTGS	real-time gross settlement
SDG	Sustainable Development Goals
SMEs	small and medium-size enterprises
STEM	science, technology, engineering, and mathematics
TEI	tertiary educational institution
TIMSS	Trends in International Mathematics and Science Study
TVET	technical and vocational education and training
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNRWA	United Nations Relief and Works Agency for Palestine Refugees in the Near East
VLP	virtual landing point
VLS	virtual landing station
WB&G	West Bank and Gaza

Executive Summary

Background

The world of tomorrow will be driven by digital transformation across sectors and industries, and the global COVID-19 pandemic is accelerating this process. Digital technologies are disrupting traditional industries, changing business models, expanding access to global markets, fostering innovation, and delivering enormous productivity gains. In 2020, the value of global e-commerce was estimated at more than US$3.5 trillion. The digital economy's contribution to global gross domestic product (GDP) is expected to grow from 15.5 percent in 2016 to about 25 percent in 2025. Estimates from the upcoming World Bank regional flagship on the Digital Upside in the Middle East and North Africa (MENA) suggest that widespread improvements in digital infrastructure can increase GDP by 46 percent in MENA countries on average. Technology diffusion has also provided new tools to improve public service delivery, including in health and education, and to address emergency situations. For example, digital technology has been essential for monitoring the epidemiological situation, providing telemedicine services, raising awareness, and distributing vaccines during the ongoing COVID-19 pandemic.

Digital technology is already playing an important role in the West Bank and Gaza (WB&G), and development of the digital economy is among the national priorities. Internet access has increased significantly in recent years, with 80 percent of households having access to the internet at home in 2019 (compared with 52 percent of households in 2017), while 86 percent of households own a smartphone. The Palestinian information and communications technology (ICT) sector contributes about $493 million in annual value added to the economy and accounts for approximately 3.2 percent of GDP. Employment in the ICT industry almost doubled between 2008 and 2018, while ICT service exports increased from less than US$2 million in 2000 to more than US$85 million in 2017. Development of the digital economy is among the priorities of the *National Development Plan (2021-2023),* the recent *ICT Sector Strategy 2021-2023,* and many sectoral strategies.

This report aims to assess the state of digital economy development in WB&G, identify opportunities for further growth, and inform reforms and donor support programs in WB&G. The report is based on the World Bank's Digital Economy Assessment methodology, which was initially piloted in African countries and is now applied in other regions. In line with this methodology, the report provides a comprehensive overview of digital economy development in WB&G across the five foundational pillars – digital infrastructure, digital platforms, digital financial services, digital businesses, and digital skills. The report is based on several fact-finding missions, structured interviews, surveys, focus group discussions and analysis of secondary data.

The findings show that despite recent progress, the potential of the digital economy in WB&G is not fully exploited. WB&G ranks 123rd of 176 economies on the latest International Telecommunication Union ICT Development Index published in 2017. It also ranks below the average of other Arab countries in the World Bank's MENA Tech Digital Economy Assessment. Only about a third of formal firms in WB&G have their own website compared with half of the firms in MENA on average (as of 2019) and only 14 percent of adults have made or received digital payments (as of 2017).

Several internal and external factors contribute to the relatively slow development of the digital economy in WB&G. These include the following:

- **Restrictions imposed by the Government of Israel (GOI)** are among the key impediments to development of the digital economy in WB&G. They involve building infrastructure, spectrum allocation, ICT equipment import and deployment, and rights of way in Area C. These measures have a highly negative impact on connectivity and therefore impact all five pillars discussed in this assessment. Furthermore, pervasive restrictions on movement and trade impede the ability of Palestinians to develop the private sector, export and import goods, and create jobs, with a major negative impact on overall economic development.

- **Deficiencies in the regulatory environment and capacity constraints:** weaknesses in the legal framework (including lack of laws on cybersecurity, personal data protection, and regulations specific to digital business registration), differences in the regulatory frameworks between the West Bank and Gaza, weak coordination among ministries on the digital agenda, lack of data on key elements of the digital economy, and inadequate monitoring and evaluation of the progress in implementation of different ICT-related strategies.

- **Socioeconomic factors (resulting from external pressures and internal constraints):** During 2017–19, annual GDP growth averaged 1.3 percent, lower than the population growth, resulting in decreasing per capita income. Based on the latest available data, 22 percent of Palestinians lived below the US$5.5 a day poverty line in 2016–17, and projections suggest that poverty increased to 28.9 percent in 2020. The economy has not been creating enough jobs and over a quarter of the population (26.4 percent) was unemployed in 2021 Q2 (16.9 percent in the West Bank and 44.7 percent in Gaza). Women are particularly disadvantaged: only 17 percent of women compared with 68 percent of men participate in the labor market, and women's unemployment of 42 percent is almost double the unemployment rate of men.

The COVID-19 pandemic has increased the use of technology in many domains but also worsened preexisting inequalities in access to digital opportunities. Public sector employees and many businesses have switched to working from home during lockdowns. Based on the recent Palestinian Central Bureau of Statistics Business Pulse Survey, 12 percent of enterprises have increased the use of digital technology solutions (primarily for marketing, business administration, and sales) during the COVID-19 pandemic. Schools and universities have introduced online learning, but uptake has been uneven due to inadequate access to computers and internet. Only 35 percent of households have computers or tablets, while 80 percent have internet connection. As a result, only 51 percent of families with children ages 6-18 that were part of the education system before the pandemic participated in remote activities in March-May 2020. The Ministry of Education had to adopt a cohort system dividing students into small groups to receive face-to-face instruction at school at least three times per week. At the same time, the pandemic has incentivized development of digital content at Palestinian tertiary educational institutions (TEIs):

57 percent of TEIs have digitized educational materials for nearly all their courses, compared with only 5 percent of TEIs prior to COVID-19.

The armed conflict between Israel and the de-facto authority in Gaza, which erupted in May 2021, has exacerbated many socioeconomic challenges faced by the Palestinians in Gaza. In addition to civilian casualties, significant damage was caused to infrastructure (water, electricity, and internet networks), housing, education, health, and to productive sectors. The Gaza Rapid Damage and Needs Assessment (RDNA) estimates economic damages from the conflict at between $US290-380 million and economic losses between US$105 -190 million. Educational activities at all levels were interrupted in Gaza due to safety concerns, damages to educational facilities, and interruptions of electricity and internet connection. Many office buildings (including offices of the IT companies and startups) and factories in Gaza's industrial zone have been severely damaged or destroyed. Business activity across sectors was disrupted and the economic consequences of the conflict will likely be felt for years to come. According to RDNA, the immediate and short-term recovery needs (during the first 24 months) are estimated at between US$ 345-485 million.

Accelerating digital transformation and building a well-connected Palestinian economy will entail strengthening both analog and non-analog foundations. Enabling widespread access to high-speed internet for all Palestinians is critical to unleash the benefits of the digital economy and should be an important priority. However, internet access alone is not sufficient for digital transformation. As argued in World Bank Group (2016c), the digital economy requires a strong analog foundation consisting of regulations that create a vibrant business climate and encourage innovation, skills that allow the population to take advantage of digital opportunities, and strong institutions that use technology to empower citizens. This approach is echoed in the Word Bank Group's Country Assistance Strategy for WB&G (2022–2025), which underscores the importance of strengthening institutions and updating the regulatory framework, harmonizing regulations between the West Bank and Gaza, modernizing infrastructure, improving firm capabilities and supporting internationalization of firms, and connecting WB&G to the regional and global economy through expanded market linkages, trade, and investment.

Digital transformation will require upgrading the skills of Palestinians, facilitating broader digital adoption by the Palestinian Authority (PA) and businesses (including in traditional industries), and strengthening the entrepreneurship ecosystem. Improving digital skills will necessitate updates to the curriculum, teacher training, and stronger linkages between TEIs and industry. Development of e-government can help reduce transaction costs and increase the quality and outreach of government services (particularly in the presence of movement restrictions). The PA should identify the high-impact services to be prioritized for digitization and increase the availability of public services online. Digital technologies can significantly enhance the productivity of traditional industries. The PA should consider working with academia and the private sector to identify the technologies and applications that are best suited for small and medium-size enterprises (SMEs) in different traditional industries and supporting technology transfer and/or encouraging the local IT industry to develop solutions to address the specific needs of the Palestinian private sector. Furthermore, it will be important to strengthen the quality of entrepreneurship support programs and link the current service providers to regional and global counterparts. Similarly, programs should be introduced to link local startup founders and high growth potential SMEs with international mentors and investors as well as connect them to regional and international markets. Implementation of these policies should include targeted efforts to reach out to women to address the long-lasting gender disparities in the Palestinian labor market.

Three key areas that require the immediate attention of Palestinian policy makers are (1) improving the digital infrastructure, (2) updating the legal and regulatory framework, and (3) ensuring institutional coordination and resource mobilization. Key measures to facilitate development of fast and affordable internet are (1) working with the GOI to remove constraints on broadband development (for example, in spectrum allocation) and introducing a more efficient mechanism for imports of dual use goods to enable reconstruction of Gaza and broader economic development in WB&G, as well as (2) implementing domestic reforms to strengthen competition in the market. The legal and regulatory framework should be updated to enable development of the digital economy. In the short term, it will be important to adopt the Competition Law, update the law on e-transactions and the taxation

framework (taking into account digital business models), and develop regulations to strengthen competition among providers of digital financial services, as well as the law on consumer protection. It will also be important to implement the recently signed Telecommunications Law and Companies Law. Lastly, it is recommended to form an inter-ministerial committee on digital development to ensure institutional coordination, map resource needs, and identify funding sources for implementation of cross-cutting and sectoral priorities under each of the five pillars. In addition, working with the international community and the GOI on the reconstruction of Gaza will remain an important priority.

The narrative below summarizes key findings across the five digital economy pillars and identifies opportunities for further growth.

Findings on the Five Digital Economy Pillars

WB&G has made significant progress in development of digital infrastructure. The introduction of 3G to the West Bank in 2018 resulted in a sharp increase in mobile broadband penetration. About 64 percent of the population is estimated to be covered by 3G networks (as of 2021Q1). Mobile broadband is more affordable in WB&G relative to other countries in the region: the price of 1 gigabyte of mobile broadband data is equivalent to 1.8 percent of gross national income (GNI) per capita, compared with 3 percent in MENA on average. Although the average mobile download speed is far lower than the average in the region at only 7.1 megabits per second (mbit/s), which is the maximum speed for 3G, average fixed broadband speed is 16.3 mbit/s, which is higher than the MENA average (excluding Gulf Cooperation Council countries). High-speed internet is in the nascent stages of development, with about eight fixed broadband subscriptions per 100 inhabitants. The cost of broadband is high in proportion to per capita income (13.5 percent of GNI per capita) but comparable to other countries in the region. Estimates suggest that achieving universal broadband coverage in WB&G will require an investment of approximately US$155 million to $183 million.

The restrictions imposed by the GOI are a major impediment to the development of digital infrastructure in WB&G. The restrictions on infrastructure, spectrum, and equipment imports are the key constraint to improvements in digital infrastructure. As a result of the GOI's policies, the bandwidth in Gaza is still limited to 2G. At the same time, Palestinians who can access Israeli providers due to geographic proximity can use 4G/LTE networks. This undermines the competitiveness of Palestinian operators, particularly with the planned deployment of 5G in Israel. In addition, domestic factors such as lack of a sound regulatory framework and transparent competition regime also impede the development of the sector. The fixed broadband market is dominated by Paltel, while the mobile market is more competitive, with two Palestinian operators, Jawwal (Paltel's subsidiary) and Ooredoo, competing for market share. Until recently, the sector has been governed by the outdated Telecommunications Law No. 3 of 1996, which did not provide for a sound competition regime. A new law was adopted on October 2, 2021 but remains to be implemented.

Strengthening digital infrastructure will require a political resolution with the GOI to remove the current restrictions as well as internal policy reforms. Addressing bilateral issues in the relationship with Israel, particularly on spectrum allocation, import of telecommunications equipment, and obtaining access to infrastructure and transmission sites in Area C, will be critical for the development of digital infrastructure and the digital economy more broadly. In addition, several domestic reforms could have a positive impact. Implementing the new Telecommunications Law and establishing an independent regulatory authority will strengthen competition in the market and provide the private sector a more predictable regulatory regime. Lastly, in the presence of the current restrictions, WB&G may pursue alternative ways to expand connectivity. For example, the Ministry of Telecommunications and Information Technology (MTIT) may consider implementing a virtual landing station, building on the existing internet exchange point. This will enhance the reliability of WB&G's international bandwidth capacity and decrease the costs of accessing the submarine fiber optic cables to connect to the internet.

Furthermore, MTIT should encourage the use of fiber over the grid, leverage the excess fiber optic capacity of the Jerusalem District Electricity Company, and establish a wholesale broadband provider with a wholesale-only license to expand access to fixed broadband.

DIGITAL PUBLIC PLATFORMS

The PA has laid the foundation for provision of e-government services through public platforms. A centralized government data and IT center was created at MTIT to assure the operation of the PA's intranet, e-mails, web pages, as well as backup and archiving for some PA entities. Several shared government-to-government systems are available throughout all ministries. These include an e-mail platform and ministry websites provided by MTIT, and financial, human resources applications, and payroll systems provided by the Ministry of Finance. A data exchange layer (X-Road) and an interoperability framework (Zinnar) have been in place since 2013 to allow automated data exchange between various public sector agencies. At present, 53 agencies are connected to the X-Road platform.

Despite these positive developments, some challenges remain. In 2013, a Cabinet decision stipulated Zinnar as the official data interchange framework, and its adoption across all ministries and PA institutions. However, PA agencies encode similar data in different ways (for example, name order, gender, and currency) in their databases, which causes problems with data exchange and validation. Furthermore, there are important gaps in legislation, with no laws on access to information, protection of personal data, cybersecurity, digital signatures, or certificates. The recently adopted E-Transactions Law has deficiencies in regulating the use of digital IDs and digital signatures. Furthermore, the absence of a disaster recovery site has left the MTIT data center vulnerable to attacks.

Several measures are recommended to strengthen digital public platforms. It will be important to develop a comprehensive e-government strategy to guide digital transformation[1], building on the recently adopted ICT Sector Strategy. Key stakeholders should be included in the development of this strategy to facilitate coordination and ownership. More work is needed to ensure consistency of data naming and coding according to the Zinnar standard and facilitate data exchange between digital public platforms and services. The design and implementation of a whole-of-government ICT enterprise architecture will be vital to provide the blueprint for digital government. This architecture should establish shared IT services using a platform approach, clearly spell out guidelines for building and operating data centers and disaster recovery centers and include policies on promotion of e-signatures. More could be done to facilitate the uptake of digital services, for example by using the post office network to provide digital access points to those without internet or those needing assistance in the use of public e-services, increasing the use of social media to communicate with businesses and citizens (as is already done by some ministries), and adding citizen feedback channels to the unified portal. Lastly, it will be important to centralize procurement of ICT services for PA agencies to ensure better coordination and more effective use of resources as well as to strengthen the capacity of MTIT and line ministries on key aspects of e-government.

DIGITAL FINANCIAL SERVICES

The PA has laid the key building blocks for the development of digital financial services in WB&G. Several strategies and regulations have recently been adopted to encourage the development of the market, including a Comprehensive National Payment Development Strategy (2018–2023), National Strategy for Financial Inclusion (2018–2025), regulations on licensing of payment service providers (2018) (which have facilitated opening the market to nonbanks and strengthened competition), and regulations in support of specific stored value products (e-money), with an initial focus on e-wallets and prepaid cards (2020). Based on Findex 2017 data, 25 percent of adults in WB&G have a transaction account (compared with 43 percent in the MENA region on average). There are significant gender differences, with 16 percent of women versus 34 percent of men having a transaction account. Only 14 percent of adults have debit cards, although card ownership is growing.

1. The development of an overarching e-government strategy is planned under the Digital West Bank and Gaza project supported by the World Bank.

Wider adoption of digital financial services is hampered by several factors. Deficiencies in the legal framework reduce competition and hinder the development of digital financial services. For example, (1) there is no broad regulatory framework for payment services to facilitate competition in the market through the entry of new providers and to create common standards on transparency and user protection; (2) different financial services (for example, e-wallets and prepaid payment cards) are subject to separate regulations, which adds complexity and makes compliance more difficult; (3) exclusivity clauses in agency agreements on money transfers are allowed, with negative impacts on competition, particularly in rural areas with limited agent networks; and (4) the existing regulation does not provide a level playing field between new payment providers (such as mobile wallet providers) and banks. Furthermore, interoperability between the new types of payment services is not mandated and faster payment capabilities (for real-time payments) are not supported by the current payment infrastructure. Lastly, government payments are done primarily by checks, which does not incentivize the development of digital financial services.

Efforts should focus on improving the regulatory framework, strengthening the national payments infrastructure, and creating incentives for the use of digital financial services. The PA should consider implementing regulatory reforms to strengthen competition in the market, ensure that a common set of rules is applicable across different types of payment services (rather than regulating each of them separately), and ban exclusivity practices in agency contracts. The national payments infrastructure can be strengthened by mandating interoperability and upgrading the national payment card switch to enable fast payments and support e-wallets and mobile payments. Several measures could be introduced to incentivize the use of digital financial services. For example, the usage of digital payments could be promoted through incentives for merchants to accept e-wallets and acceleration of payments to and from the government. Implementation of the financial inclusion strategy should have a strong focus on vulnerable communities and incorporate the use of new payment products.

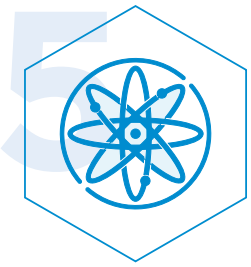
DIGITAL BUSINESSES

Digital business activity has been on the rise in WB&G. Startups and established firms are driving the growth of digital activities across WB&G. Estimates suggest that there are approximately 250 tech startups in WB&G. The activities of Palestinian startups include cutting-edge areas such as artificial intelligence, big data and analytics, as well as enterprise solutions and retail/e-commerce. Digital startups are a source of job growth, with estimates of as many as 8,500 new (direct and indirect) jobs linked to startups in WB&G. Private digital platforms have been gaining popularity. For example, there were more than 1,000 e-commerce pages operating on various social media sites as of 2019, processing 20,000-40,000 deliveries. Most digital platforms are focused on mixed business-to-business and business-to-customer models. E-commerce platforms have a high reliance on cash on delivery due to weak consumer trust in online payments. Outsourcing and nearshoring activities also hold promise, and some regional and global corporations (such as Cisco and Nvidia, for example) have already established operations in WB&G.

Several key challenges cut across segments of digital businesses. Global connectedness to international partners is lacking, resulting in low funding, knowledge exchange, and scaling potential for operations. Scarce access to financial services and funding as well as challenges in receiving digital payments are proving to be a bottleneck for early-stage startups as well as established firms seeking to expand operations. For instance, 14 percent of firms in WB&G have a bank loan or line of credit, compared with 25 percent in MENA and 31 percent of firms globally. Furthermore, weaknesses in the entrepreneurship ecosystem result in inadequate support to digital businesses. Although there are some strong players, such as Ibtikar, which provides venture capital funds to startups, and support programs such as Gaza Sky Geeks and uMake, many incubators are of varying quality or have a short life span due to the fragmented nature of donor funding and an overall lack of experience with providing financial and nonfinancial support to startups. There are also deficiencies in regulation, which does not accommodate innovative business models, particularly in registration, taxation, and consumer protection.

Supporting the growth of digital businesses will require action on several fronts. Global connectedness could be strengthened through support programs to increase international market reach and by enacting new intellectual

property, trademark, copyright, and cross-border transfer regulation. The public and private sectors can play a stronger role in improving access to finance for digital businesses through early-stage funding (grants, seed funds, and series A) and credit guarantees. Measures to address fragmentation of the ecosystem include the following: (1) holding regular public-private dialogues between digital businesses and policy makers to ensure that challenges reported by businesses are addressed in public policy, (2) supporting the capacity and sustainability of high-performing organizations in the startup ecosystem (for example, incubators, venture capital, and funds), (3) organizing annual industry events, and (4) systematically measuring digital business growth trends and making the necessary policy adjustments. It will also be important to improve the regulatory environment, including updating legislation on business registration and taxation (taking into account digital business models), consumer and platform supplier protection, digital identity, and personal data privacy.



DIGITAL SKILLS

Digital skills are essential for facilitating the digital transformation of the Palestinian economy, and demand for digital skills has been rising across different sectors. Palestinian children start studying digital skills at school in grade 5, when technology education classes are introduced as part of the formal curriculum. By grade 10, over two-thirds of students can create a PowerPoint presentation and copy and paste information within a document; however, other basic digital skills are lacking: less than half of the students can use a basic algorithm in a spreadsheet, and only 13 percent know how to send an e-mail with an attachment. WB&G ranks 85th (of 176 economies) in the skills subindex of the Global ICT Development Index – ahead of several economies in the region. The tertiary enrollment rate is somewhat higher in WB&G than in the MENA region on average (42 and 39 percent, respectively), although the share of graduates of science, technology, engineering, and mathematics programs is lower (16 and 27 percent, respectively), particularly among women. The number of graduates in ICT-related specializations has declined in recent years. However, the demand for digital skills has been rising across different sectors and the COVID-19 pandemic has accelerated this process as more businesses and PA agencies started using digital solutions. Furthermore, the ICT industry grew at 6 percent annually over 2010–17, creating strong demand for specialized digital skills.

Development of digital skills in WB&G has been constrained by several factors. Access to computers and internet at educational institutions is inadequate for developing digital skills, particularly in Gaza. For example, on average, there are 14 students sharing one computer in a school computer lab in the West Bank, compared with 43 students in Gaza. The theoretical nature of the school curriculum, lack of focus on "soft skills" (teamwork, problem solving, and creativity), and weak foundational skills are among the key constraints to developing digital competencies. For example, on average, grade 5 students scored less than 50 points of 100 on the standardized national math, Arabic, and science tests. Furthermore, employers across different industries report that their employees do not have sufficient basic digital skills. The tertiary education system is not producing the cadre of leaders (for example, in software engineering, management, education, and science) needed to drive the digital transformation of the Palestinian economy. The quantity and quality of computer science graduates is not adequate to meet the demands of the growing ICT industry. Lastly, evidence-based policy making on digital skills is constrained by lack of digital skills strategy, performance indicators, and data.

A complex of measures needs to be introduced to strengthen the education system and improve digital competencies. It will be critical to strengthen foundational skills by updating curricula to ensure that digital competencies are taught in all subjects and the teaching methodology is modified to include sufficient focus on practical skills, problem solving, and teamwork. Strengthening digital education at the tertiary level and developing digital leadership will involve defining digital skills competencies by specialization across TEIs; establishing partnerships with foreign TEIs; strengthening the accreditation and licensing system; and facilitating collaboration between TEIs and the private sector in curriculum design, practical training, and research and development. Lastly, it will be important to prepare a national strategy for digital skills, ensure regular monitoring of implementation progress, and improve donor coordination.

Summary of Recommendations to Accelerate Digital Transformation in WB&G

Table ES.1 provides a summary of key cross-cutting and sector-specific recommendations to promote growth of the digital economy in WB&G. More detailed recommendations for each of the five pillars can be found in the respective chapters.

Table ES.1. Key Cross-Cutting and Sector-Specific Recommendations

Digital Economy Pillars	Time	Priority	Agency
Cross-cutting recommendations			
Improve the legal and regulatory framework to facilitate digital transformation: adopt the Competition Law; update the E-Transactions Law (in the areas of digital ID/signature and establishment of the certification authority) and the taxation framework, taking into account digital business models; develop the law on consumer protection; and implement the new Companies Law.	Short term	High	MONE, MOF, MTIT
Develop laws and regulations on cybersecurity, personal data privacy, digital identity, and platform supplier protection and update the Law on Intellectual Property.	Medium term		
Incentivize the use of digital financial services by digitizing payments to and from government, incentivizing merchants to accept e-wallets, promoting the use of bank accounts and e-wallets for receiving and sending remittances, and introducing a streamlined process for businesses and freelancers to open bank accounts and use digital payments by adjusting the requirements (for example, proof of employment, proof of steady income).	Medium term	High	PMA, PCMA, banks, payment service providers, line ministries
Ensure strong political leadership on the digital agenda by the President or Prime Minister to facilitate institutional coordination and strengthen the regulatory framework.	Short term	High	Offices of the President and Prime Minister, MTIT
Strengthen resource mobilization: map out resource needs and identify funding sources for implementation of sectoral strategies under each of the five pillars; strengthen donor coordination; and conduct regular coordination meetings with PA agencies, the private sector, and the donor community.	Short term	High	MTIT, MONE, MOF, MOE, MOHESR
Improve data collection, monitoring and evaluation: systematically collect data on developments across the five pillars and measure the impact of reforms.	Medium term	Intermediate	MTIT, PCBS, line ministries
Digital Infrastructure			
Work with the Government of Israel to remove restrictions on development of digital infrastructure: allocate 4G and 5G spectrum to Palestinian operators, allow import of telecommunications	Medium term	High	COGAT, GOI, MOC

Digital Economy Pillars	Time	Priority	Agency
equipment while applying a risk-based approach to inspections, empower the JTC to take action on key bilateral issues as well as implement its recommendations, and allow access to infrastructure and transmission sites in Area C.			
Improve the regulatory framework by implementing the new law on telecommunications and establishing an independent telecommunications regulatory authority.	Short term	High	MTIT
Expand broadband internet coverage by implementing a virtual landing point, leveraging the Jerusalem Electricity Distribution Company's fiber optic capacity, and establishing a wholesale broadband provider with a wholesale-only license.	Medium term	High	MTIT
Digital Public Platforms			
Develop a comprehensive e-government strategy and adopt a whole-of-government ICT enterprise architecture, establishing shared IT services such as an e-services portal, interoperability platform, and data warehouse and business intelligence.	Short term	High	MTIT
Centralize procurement of ICT services for PA agencies: prepare a centralized database on all existing assets in the public sector and develop an ICT procurement strategy.	Medium term	Intermediate	HCPPP
Promote development of digital services and uptake by citizens and businesses: use the post office network to provide digital access points to those without internet access, add citizen feedback channels to the unified portal, and increase the use of social media for communicating with businesses and citizens.	Medium term	High	MTIT, PMO, participating line ministries
Build the capacity of MTIT and government stakeholders on key aspects of e-government. Priority areas for training for MTIT staff include IT policy, standards, ICT procurement, quality assurance, and cybersecurity.	Short term	Intermediate	MTIT
Digital Financial Services			
Increase financial inclusion of vulnerable communities. Accelerate implementation of the financial inclusion strategy and incorporate a special focus on the use of new payment products (for example, electronic wallets and mobile money).	Medium term	High	PMA/Banks/ payment service providers
Strengthen competition in the market by establishing general regulations in support of payment services, including e-money, expanding access to the national payment system for nonbank financial institutions, and banning exclusivity practices in agent agreements.	Short term	High	PMA
Strengthen the national payments infrastructure by (1) mandating interoperability and (2) upgrading the national payment card switch to enable fast payments and support e-wallets and mobile payments.	Medium term	High	PMA

Digital Economy Pillars	Time	Priority	Agency
Digital Business			
Increase access to funding through credit guarantees and early-stage funding – grants, seed funds, and series A (to startups).	Medium term	High	MONE, MTIT, PMA
Enhance global connectedness by (1) encouraging digital businesses to network with founders, mentors, support organizations, and investors outside the West Bank and Gaza; (2) developing and implementing new intellectual property, trademark, and copyright legislation to protect intangible assets developed by digital businesses; and (3) enacting cross-border data transfer regulation.	Short term Medium term	High	MONE, Incubators, accelerators/ funds
Address fragmentation of the entrepreneurial ecosystem by (1) supporting high performers in the startup ecosystem (incubators, venture capital, and so forth), (2) promoting structured dialogue between digital businesses and policy makers, and (3) organizing annual industry events for key players and stakeholders in the West Bank as well as Gaza.	Short term Medium term	Intermediate	MONE, private sector
Digital Skills			
Strengthen foundational skills by updating curricula to ensure that digital competencies are taught in all subjects and the teaching methodology is modified to include sufficient focus on practical skills, problem solving, and teamwork.	Medium term	High	MOE, MOF
Strengthen digital education at TEIs and develop digital leadership by defining digital skills competencies by specialization across TEIs; establishing partnerships with foreign TEIs; and strengthening the accreditation and licensing system and facilitating collaboration between TEIs and the private sector in curriculum design, practical training, and research and development.	Medium term	High	MOHESR, MTIT, AQAC, PITA, TEIs
Prepare a national strategy for digital skills development and set specific targets for monitoring implementation progress.	Short term	Intermediate	PMO, MOE, MTIT, MOHESR, PITA

Note: The timeframes for implementation are short term – less than three years; medium term – three to five years. AQAC = Accreditation and Quality Assurance Commission; COGAT = Coordinator of Government Activities in the Territories; GOI = Government of Israel; HCPP = High Council for Public Procurement Policies; ICT = information and communications technology; IP = intellectual property; IT = information technology; JTC = Joint Technical Committee; MOC = Ministry of Communication; MOE = Ministry of Education; MOF = Ministry of Finance; MOHESR = Ministry of Higher Education and Scientific Research; MOI = Ministry of the Interior; MONE = Ministry of National Economy; MTIT = Ministry of Telecommunication and Information Technology; PCBS = Palestinian Central Bureau of Statistics; PCMA = Palestinian Capital Market Authority, PITA = Palestinian Information Technology Association; PMA = Palestine Monetary Authority; PMO = Prime Minister's Office; TEIs = tertiary educational institutions.

1

Introduction

1.1. Context

The West Bank and Gaza (WB&G) is a small economy with lower-middle-income status and a population of 5.1 million in 2020. The Palestinian economy is driven by services, which accounted for 60 percent of gross domestic product (GDP) in 2019 and a significant share of employment. Indeed, 35 percent of the population is employed in services; 23 percent in commerce, hotels, and restaurants; 19 percent in construction; 12 percent in mining and manufacturing; 7 percent in agriculture; and 5 percent in transport and communications.[2] Services exports have also been on the rise over the past decade, having grown from US$330 million in 2009 to US$769 million in 2019.[3] WB&G's main export partner is Israel.

The long-lasting political instability, restrictions on movement and trade imposed by the Government of Israel (GOI), and internal divide between the West Bank and Gaza are among the key constraints to economic development in WB&G. The restrictions imposed by the GOI are beyond the control of the Palestinian Authority (PA). These are, for example, access to Area C, mobile spectrum, infrastructure, and trade policy. The restrictions on access to key inputs and equipment that fall into the category of "dual use"[4] have a highly negative impact on economic development in WB&G. This list includes a broadly defined category of communications equipment, communications supporting equipment, and equipment containing communication functions, which impact access to different types of equipment, including home

2. PCBS (2021).
3. World Bank World Development Indicators (Balance of Payments, current US$).
4. Dual use goods are products and technologies normally used for civilian purposes, but which may have military applications. Similar to other economies, Israel controls its exports of dual use goods. However, when it comes to exports to the Palestinian territories, the GOI enforces additional controls on top of those established by the relevant international treaties and includes a broad range of products from fertilizer to communications equipment. For more information, see World Bank Group (2020a).

appliances, medical equipment, and communications equipment, which are essential for development of the digital economy. Restrictions on trade have severely limited export-led growth, which is critical for a small economy, and hence hampered development of the private sector. Most Palestinian imports and exports pass through Israeli ports and incur costly procedures and delays (such as customs clearance and storage fees and cumbersome inspections) that can increase costs by an average of US$538 per shipment.[5] Restrictions on movement have a highly negative impact on economic activity and women are disproportionately affected. Women face additional safety and security concerns during travel or work commute, which often result in women choosing to work from home, close to home, or not at all. Furthermore, differences in legal, regulatory, and policy frameworks between the West Bank and Gaza create a major obstacle to private sector development. And WB&G does not have its own monetary policy and is dependent on the Israeli new shekel.

Deficiencies in the domestic business climate are also an important constraint for private sector activity. Most formal enterprises are micro or small, with a significant level of informality involving up to an estimated 140,000 workers.[6] Although there has been progress on improving the business climate, WB&G ranked 117th of 190 economies in the Doing Business 2020 report. The recent World Bank Enterprise Survey (2019) in WB&G shows that political instability, access to finance, and practices by informal firms are among the top three business environment constraints identified by formal small, medium-size, and large enterprises.

WB&G faces a persistent unemployment crisis and the private sector has not been creating enough jobs. Weak private sector growth has led to low demand for labor. Furthermore, discrepancies between the skills required by the labor market and those provided by the educational institutions contribute to low employability of young people. In 2021Q2, over a quarter of the population (26.4 percent) was unemployed (16.9 percent in the West Bank, and 44.7 percent in Gaza).[7]

Women are particularly disadvantaged in the labor market and in access to economic opportunities. There are significant differences in the labor force participation and employment rates of men and women. Only 17 percent of women, compared with 68 percent of men, participate in the labor market, and women's unemployment rate of 42 percent is significantly higher than the unemployment rate among men, which is 23 percent.[8] The situation persists despite the fact that girls complete school at a higher rate than boys at all levels and are more likely to enroll in universities. Almost half of highly skilled women are unemployed. The disparities in access to economic opportunities are exacerbated by a 40 percent gap in daily wage rates. Furthermore, women are disproportionately concentrated in the public sector, comprising 43 percent of public sector employees, and are less likely than men to start a business. Women own approximately a quarter of all enterprises in WB&G; however, most of these businesses are informal and unregistered. Disparities are also present in access to digital opportunities. Only 45 percent of female-headed households have access to the internet and 25 percent own a laptop, compared with 61 and 35 percent, respectively, of male-headed households.[9]

The fragile socioeconomic situation has been further aggravated by the COVID-19 pandemic. The COVID-19 pandemic contributed to a sharp decline in GDP by an estimated 11.5 percent in 2020 (with respect to 2019) in an economy that had already been weakened by three years of slow economic growth and persistent fiscal deficits. Based on the latest available data, 22 percent of Palestinians lived below the US$5.5 a day poverty line (2011 purchasing power parity) in 2016–17. Projections based on GDP per capita growth suggest that the poverty rate increased to 28.9 percent in 2020.[10]

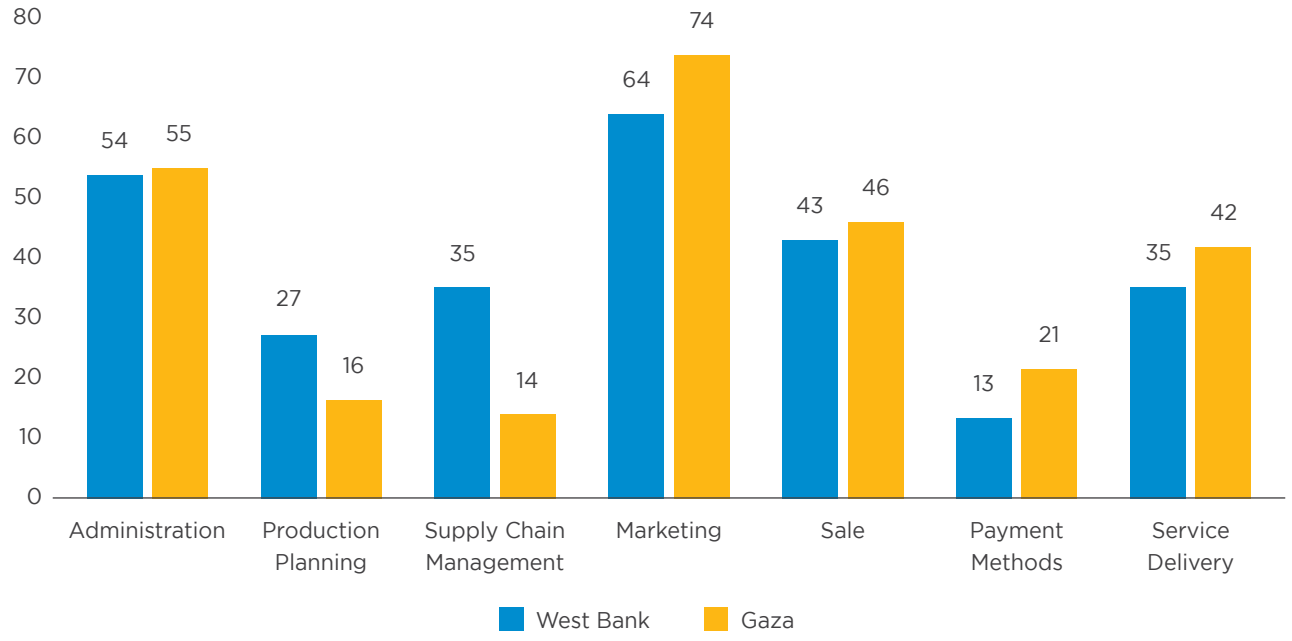
5. World Bank Group (2018).
6. World Bank Group (2021a).
7. PCBS (2021).
8. PCBS (2021)
9. World Bank (2021b).
10. World Bank (2020a).

The pandemic has underscored social inequalities. Access to education has worsened, threatening the continuity of learning for all 1.3 million Palestinian students. The Ministry of Education (MOE) reopened schools for all grades in September 2020; however, the situation remains volatile. E-learning channels leave behind the most vulnerable children, and therefore the ministry adopted the cohort system, dividing students into two small groups to receive face-to-face instruction at school at least three times per week.[11] About 20 percent of households do not have internet access at home, which has reduced their ability to study and work from home or engage in online social interactions during the lockdowns. People and businesses in remote areas are particularly disadvantaged, and municipal government buildings often lack internet connectivity themselves. Those with internet connection often have to deal with low speeds – just 7 percent of Palestinians owned a fixed broadband subscription in 2019. As a result of spectrum restrictions imposed by the GOI, users are limited to 2G mobile broadband in Gaza and 3G in the West Bank. In the absence of reliable internet connectivity and a citizen-centric e-government platform, many citizens and businesses have found it difficult to access essential information and services.[12]

Despite challenges with connectivity, digital solutions have played an important role in mitigating the impact of COVID-19. Based on the recent Palestinian Central Bureau of Statistics (PCBS) Business Pulse Survey, 12 percent of enterprises have increased the use of digital technology (social media networks, specialized apps, or digital platforms) to mitigate the impact of COVID-19 on their businesses.[13] Most businesses used digital solutions for marketing (67 percent), business administration (54 percent), and sales (44 percent) (figure 1.1). Furthermore, many businesses increased their use of digital solutions to enable work from home arrangements.

11. World Bank (2021a).
12. World Bank (2021b).
13. PCBS (2020a).

Figure 1.1. Establishments That Used Digital Solutions in Response to the COVID-19 Outbreak, by Purpose (%)



Source: Palestinian Central Bureau of Statistics Business Pulse Survey, 2020.
Note: Digital solutions include the internet, online social media networks, specialized apps, or digital platforms.

The May 2021 conflict in Gaza resulted in significant human and economic losses. More than 260 Palestinians died, and thousands were injured. Major damage was caused to civilian infrastructure in Gaza. Around 1,600 housing units were totally destroyed and 2,500 partially damaged. Health and education institutions were severely impacted: 116 kindergartens, 140 public school buildings, 104 United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA) schools and 9 colleges and universities were damaged. Educational activities have been suspended in Gaza. Furthermore, water and sanitation, power, and digital infrastructure (copper and fiber optic networks, data centers and data storage facilities) were also damaged, undermining access to basic services for the population and businesses. Many commercial buildings and factories were severely damaged or destroyed: 109 firms in services, trade and industry incurred full destruction of their facilities and 175 firms suffered partial damage. The Gaza Industrial Estate, which houses many businesses, suffered significant damage, estimated at US$20-25 million. Damage incurred by firms in service, trade and industry is estimated as leading to losses of US$5-10 million in sales, US$3-5 million in productivity and US$ 5-10 million in costs for alternative locations for firms that incurred heavy structural damage. The total damages to infrastructure and social and productive sectors in Gaza are estimated at between US$ 290-380 million, the economic losses at US$ 105-190 million and the immediate and short-term reconstruction needs (during the first 24 months) at US$ 345- 485 million.[14]

14. World Bank Group (2021c).

1.2. Background on the Digital Economy in WB&G

WB&G has made significant progress in developing the digital economy over the past decade. Internet usage increased by 40 percent in five years, with 71.1 percent of the population having access to the internet in 2018.[15] Although average mobile download speeds stood at only 7.1 megabits per second (mbit/s), far lower than the Middle East and North Africa (MENA) average, average fixed broadband speeds performed much better, at 16.3 mbit/s, which is higher than the MENA average, excluding Gulf Cooperation Council countries (GCC). Most households have mobile or smartphones (97 and 86 percent, respectively), although only a third have computers.[16]

Digital businesses are playing an increasingly important role in the Palestinian economy. There were 677 ICT firms in 2018, which was 34 percent more than in 2008.[17] Furthermore, employment in the ICT industry almost doubled over the same timeframe.[18] About half of the ICT firms are in the telecommunications industry, and 144 are in computer programming and consultancy-related activities (table 1.1). The Palestinian ICT sector contributes about US$493 million in annual value added to the economy, accounting for approximately 3.2 percent of GDP.[19] ICT service exports comprised 15 percent of service exports in 2017, up from 0.6 percent in 2000.[20] Furthermore, the value of the ICT service exports increased significantly, from less than US$2 million in 2000 to more than US$85 million in 2017.[21]

Table 1.1. Number of Enterprises and Employment in the Information and Communications Industry, 2018

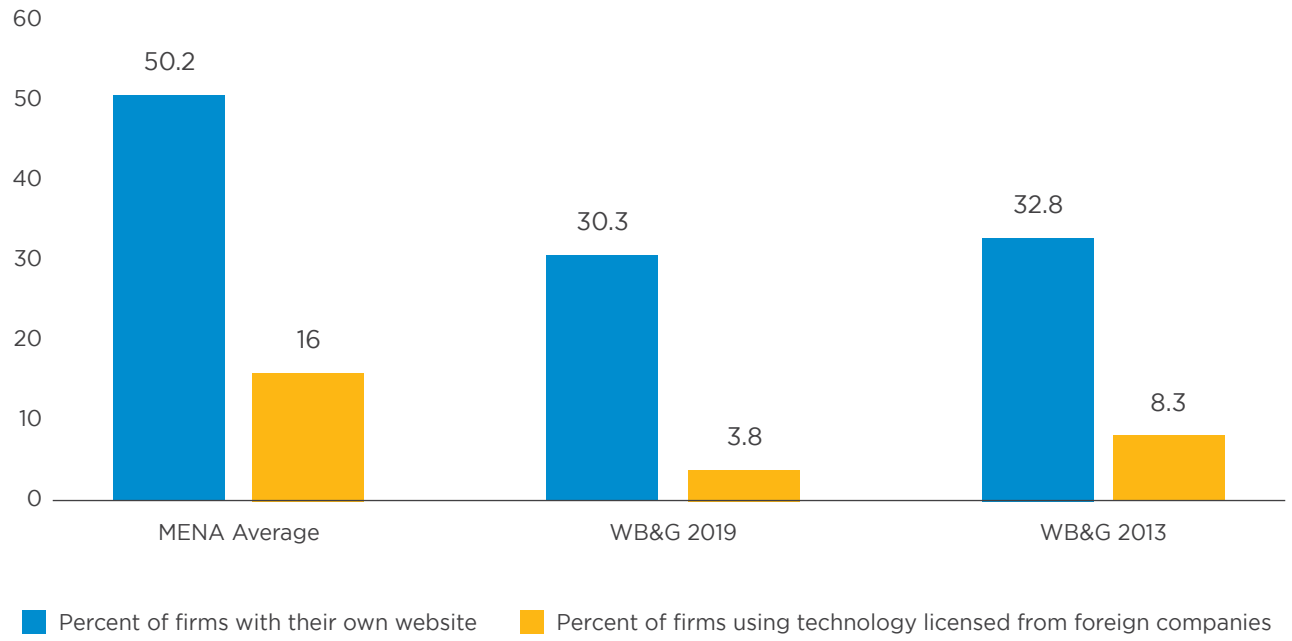
Activity	No. of Enterprises	Employment
Publishing activities	38	655
Content and media: motion picture, video, and television program production; sound recording; and music publishing activities	58	348
Programming and broadcasting activities	85	1,052
Telecommunications	320	4,808
Computer programming, consultancy, and related activities	144	1,677
Information service activities	32	275
Information and communications activities (total)	**677**	**8,815**

Source: PCBS 2018.

15. World Bank (2021b).
16. PCBS (2020b).
17. PCBS (2018b).
18. PCBS (2018b).
19. PCBS (2020c).
20. World Bank World Development Indicators.
21. World Bank World Development Indicators.

At the same time, the Palestinian private sector makes limited use of digital technologies. Digital technology can help achieve economies of scale faster and facilitate matching of buyers and sellers in a competitive marketplace, particularly through e-commerce and digital payments. Shifting cash into digital accounts for government payments, remittances, and business-to-business transactions can enable broad-based participation in the digital economy. Data from the World Bank Enterprise Surveys show that only about a third of formal firms in WB&G have their own website, compared with half of firms in MENA on average (figure 1.2). Furthermore, only 4 percent of firms in WB&G used technology licensed from foreign companies in 2019, which was much less than in 2013 and significantly less than the average in MENA. The use of digital financial services is low, with only 14 percent of adults making or receiving digital payments in 2017 (Findex 2017). Inadequate digital and foundational skills (for example, in math, Arabic, and science) may also contribute to the low use of digital technologies.

Figure 1.2. Share of Firms That Have a Website or Use Licensed Technology from Foreign Companies (%)



Source: World Bank Group 2019c.

WB&G has taken initial steps to develop e-government, yet progress has been slow. WB&G has started to modernize its public sector platforms by leveraging digital technologies. In 2013, WB&G implemented the X-Road data exchange layer and the Zinnar interoperability framework to allow automated data exchange between various public sector agencies and provide the basis for integrated e-service delivery. Core public digital systems are also in place with basic functionalities such as those for public financial management (PFM), human resource management, and additional sectoral management information systems (for example, health and social protection) and data registries for citizens, vehicles, and businesses. However, lack of enforcement of interoperability standards results in inefficient use of public resources, and deficiencies in the legislative and regulatory environment constrain the development of public platforms.

Growth of the digital economy is among the priorities of the *National Development Plan (2021-2023),*[22] and many sectoral strategies. The National Development Plan (NDP) targets attracting domestic and foreign investment in ICT sectors, enhancing ICT's role as a business enabler, and strengthening cybersecurity. The Sectoral Strategy for the Development of National Economy 2021–2023 considers ICT an important tool for coping with the COVID-19 pandemic, and views ICT as a platform for development of other sectors and an enabler of comprehensive economic development. The recently adopted ICT Sector Strategy for 2021–2023 outlines four key priorities surrounding aspects of telecommunications infrastructure: creating an enabling legal, legislative, and regulatory environment; advancing electronic services; fostering competitive digital industry; and fostering qualified and productive human resources. Unlike many other sectoral strategies, the ICT Sector Strategy has clear indicators, baselines, and targets. The sectoral strategies of most ministries (for example, on transport, justice and the rule of law, education, health, public works and housing, and social development) include measures to digitize the agencies' work, deliver public services online, and strengthen the capacity of PA staff to provide digital services.

Widespread adoption of digital technology can lead to enormous economic gains for WB&G and the MENA region at large. Findings from an upcoming World Bank report show that widespread adoption of digital technologies can have a strong positive impact on the economy of MENA countries (World Bank Group 2021c). For example, GDP per capita could rise by 46 percent, manufacturing revenues per unit of factor of production by 37 percent, employment in manufacturing by 7 percent, and tourist arrivals by 70 percent; long-term unemployment rates could fall to negligible levels; and female labor force participation could double to over 40 percent.[23] The impacts are expected to be larger for economies that are currently farther from the frontier on digital adoption.

1.3. Objectives and Methodology

This report aims to evaluate the state of digital economy development in WB&G, identify challenges and opportunities for further growth, and inform PA reforms and donor support programs. The report leverages the diagnostic framework developed by the World Bank in the context of the Digital Economy for Africa initiative, which analyzes digital economies across five key foundations using an ecosystem approach (figure 1.3). This approach has also been applied in other regions.

Digital infrastructure. This consists of connectivity (such as high-speed internet and internet exchange points), the internet of things (such as mobile devices, computers, voice-activated devices, and geospatial instruments), and data repositories (such as data centers and clouds). It also includes all the active and passive infrastructure that is necessary to develop the digital economy downstream (for example, sites, towers, and spectrum).

Digital public platforms. These can boost service quality and accountability, including through providing new channels for public engagement and feedback and reducing opportunities for corruption. When built using open technology and standards, they can also catalyze private sector innovation.

Digital financial services. These provide individuals and households convenient and affordable channels by which to pay, as well as to save and borrow. Firms can leverage digital financial services to transact more easily with their customers and suppliers, as well as to build digital credit histories and seek financing. Governments can use digital financial services to increase

22. Prime Minister's Office (2021).
23. World Bank (2021b).

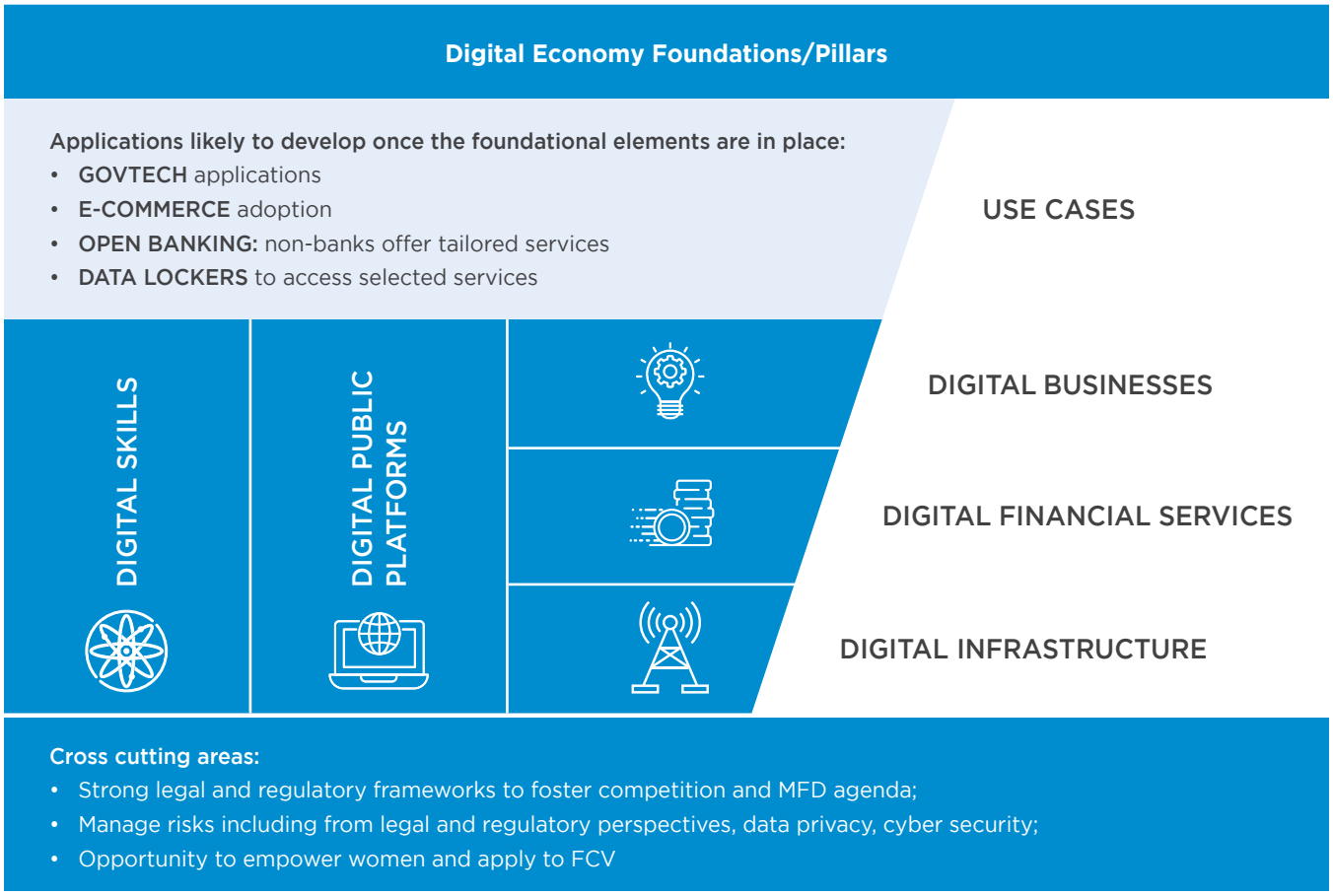
the efficiency and accountability of various payment streams, including for the disbursement of social transfers and receipt of tax payments.

Digital businesses. These can nurture micro, small, and medium-size enterprises (MSMEs), increase efficiency, generate more and better jobs, and promote integration of lagging regions.

Digital skills. These constitute technology skills, together with business skills for building or running a startup or enterprise. Greater digital literacy enhances the adoption and use of digital products and services among governments and the larger population.

The foundations of the digital economy also involve several cross-cutting themes. All areas of the digital economy require competition and market contestability. Equally important is a favorable legal and regulatory framework, which protects people's personal information, ensures cybersecurity, and provides equal opportunities for men and women.

Figure 1.3. Key Components of the Digital Economy Ecosystem

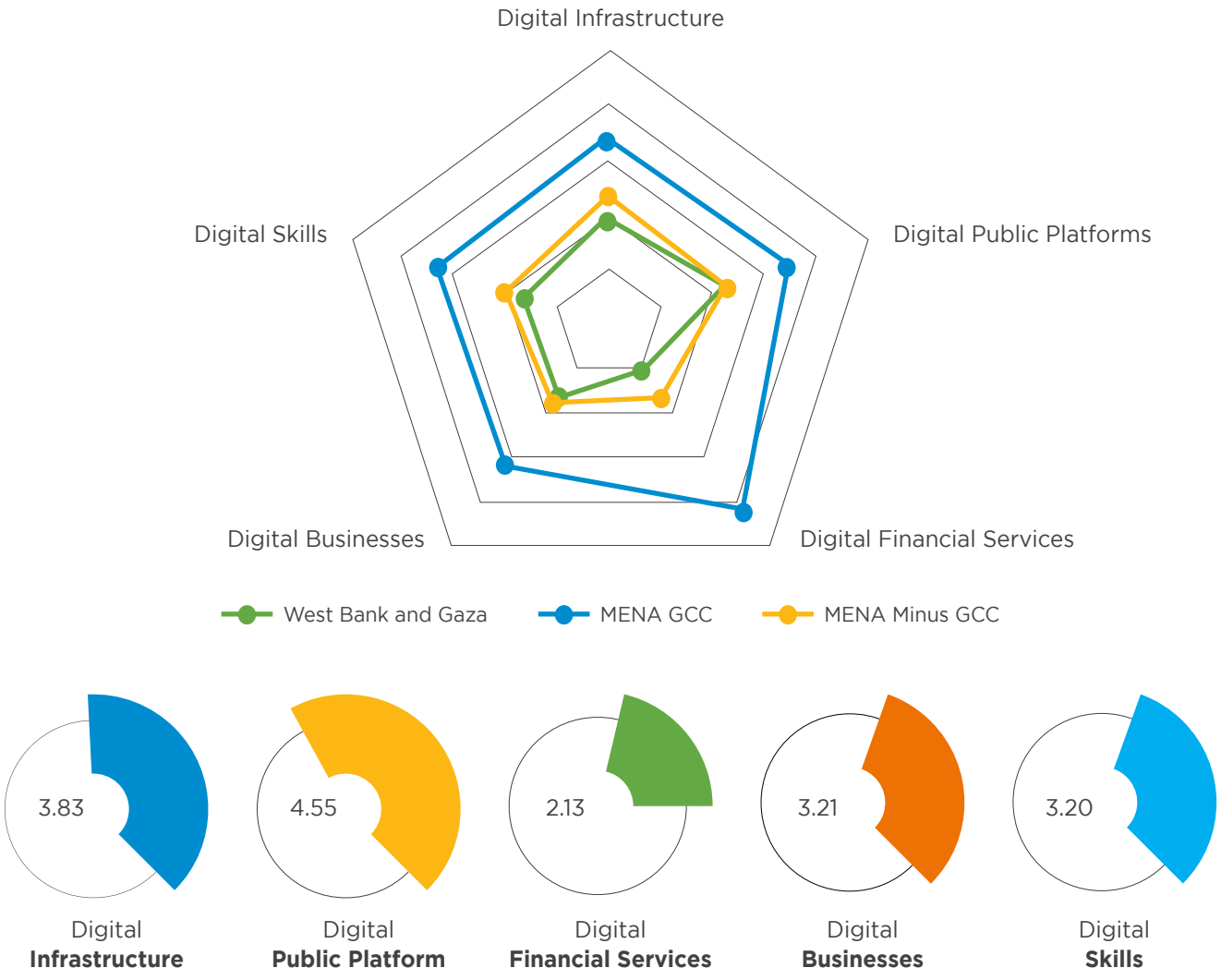


Source: World Bank Group 2020d

This report builds on the conceptual approach presented above. In addition, it benefited from the recent World Bank MENA Tech Rapid Digital Economy Assessment and Analysis. MENA Tech analyzes the digital economy in 19 MENA countries across the five pillars of the digital economy with a selected set of benchmark indicators, using data from 2014–19. Within each pillar, countries are designated as "nascent," "emerging," "advanced," or "very advanced," depending on their performance. This analysis is completed with the economy's standardized results across the data sets and compares them with the regional averages in each data set.

MENA Tech findings suggest that WB&G lags regional peers in digital economy development. WB&G appears to be "emerging" in the digital infrastructure, digital public platforms, digital businesses, and digital skills pillars, while development of the digital financial services sector is still at the "nascent" stage (figure 1.4). These findings are corroborated by the International Telecommunication Union's (ITU's) latest ICT Development Index published in 2017, where WB&G is ranked 123rd of 176 countries, well below the average compared with other Arab states.

Figure 1.4. MENA Tech Rapid Digital Economy Assessment of WB&G



Source: World Bank Group 2019a.
Note: The scale ranges from 0 to 10, with scores of 0 to 2.4 for nascent, 2.5 to 4.9 for emerging, 5.0 to 7.4 for advanced, and 7.5 to 10.0 for very advanced.

This report relies on extensive primary data collection (through structured interviews, focus group discussions, surveys, and stakeholder consultations) as well as analysis of existing data sources. The report was prepared by a multidisciplinary team of World Bank experts and involved extensive consultations with PA agencies, private companies in different sectors, digital startups and small and medium-size enterprises (SMEs), management of incubators, business associations, district school administrations, teachers, students, professors and management of vocational institutions and universities in WB&G, as well as donor agencies. Data collection for the report was undertaken during March 2020 to March 2021.

The report is structured as follows. Chapter 2 describes the access, affordability, and usage of digital infrastructure; chapter 3 examines the development of e-government and digital public platforms; chapter 4 assesses the state and uptake of digital financial services among individuals, businesses, and government; chapter 5 discusses the state of digital business development in WB&G; chapter 6 focuses on digital skills; and chapter 7 concludes.

2

Digital Infrastructure

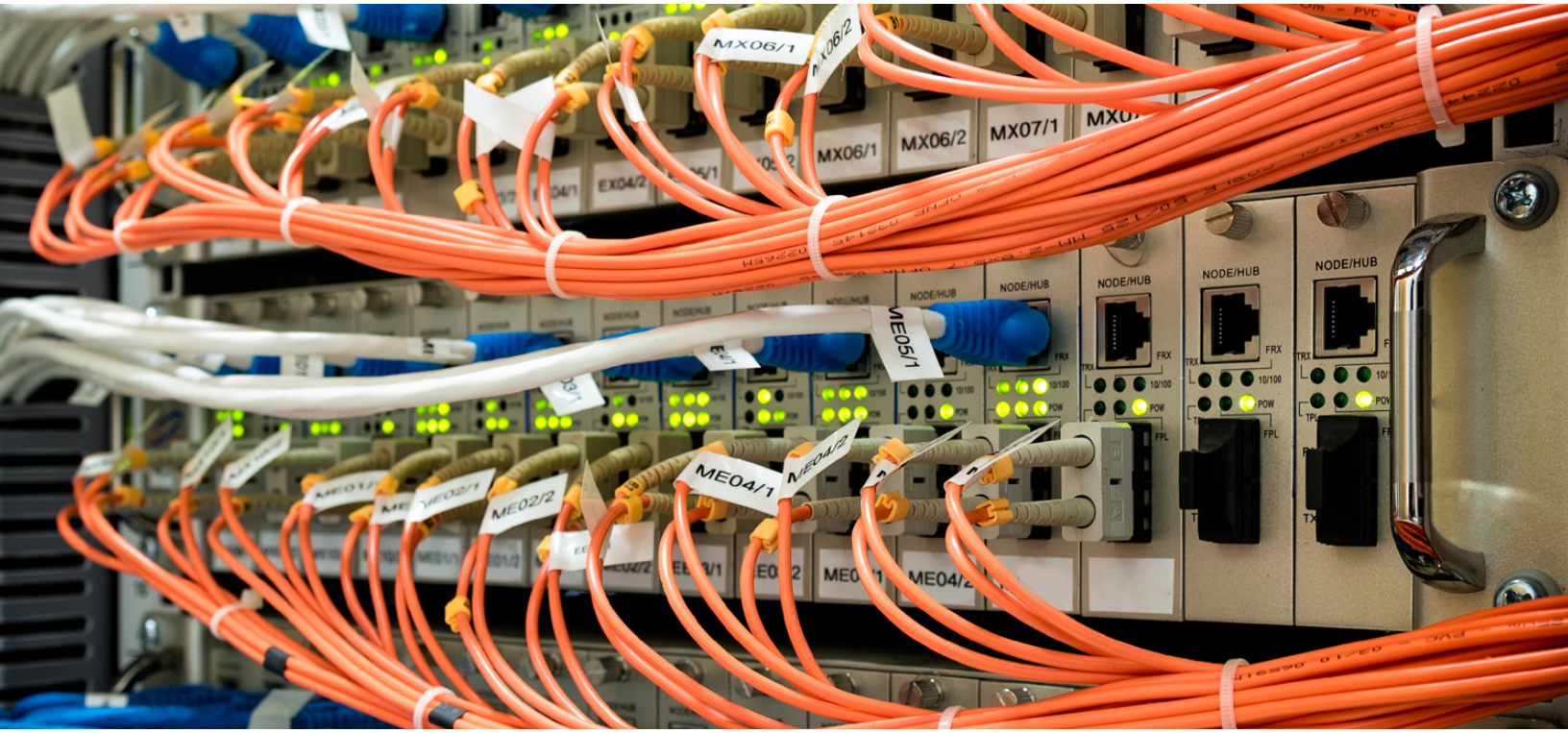
2.1. Importance of Digital Infrastructure

Universal, affordable, and good quality high-speed (or broadband) internet has the potential to accelerate WB&G's socioeconomic development. An extensive body of research shows a positive impact of increased investment in broadband on economic growth. World Bank Group estimates show that a 10 percent increase in broadband penetration in developing countries is associated with an increase in GDP of between 0.8 and 2.46 percent. This positive correlational link has been confirmed by country-specific studies based on historical data. For example, in Senegal, mobile broadband coverage has been associated with 14 percent higher total consumption for covered households as well as 10 percent lower extreme poverty rates compared with noncovered households. At the enterprise level, firms using basic digital rather than analog technologies report 14 percent higher growth rates of jobs, confirming that affordable digital infrastructure can be a potent enabler of economywide, inclusive growth of productivity and jobs.

Internet connectivity is a key enabler to harness the digital economy transformation, and the need to develop broadband infrastructure in WB&G runs high. The digital economy is providing unprecedented opportunities for countries to create jobs and transform people's lives. Fast internet provides a platform for innovation and entrepreneurship, for example by enabling businesses and individuals to develop new applications and services in e-commerce and financial services. It also enables game-changing digital service delivery in sectors that are critical for inclusive growth, such as education, health, and agriculture. Likewise, fast internet allows the public sector to deliver services to citizens and businesses more effectively and more inclusively. Connectivity can shape countries' development path through

several interrelated channels: (1) it can bridge the information gap, alleviate asymmetry problems, and improve communication; (2) it is the most cost-effective and fastest means of connecting all citizens – especially those living in remote areas – to markets and services; and (3) it increases productivity, lowers transaction costs, and optimizes supply chains (Aker and Blumenstock 2015). Therefore, broadband has the potential to transform WB&G's economy and help WB&G leapfrog development stages, provided that effective policies are put in place that encourage broadband use by all sectors of the economy.

Digital infrastructure has significant potential for growth in WB&G. Digital infrastructure, which is currently mostly developed through the private sector, opens a wide range of opportunities for investment and growth, particularly in broadband and wireless networks, which could experience steady demand growth from the current low levels of penetration.

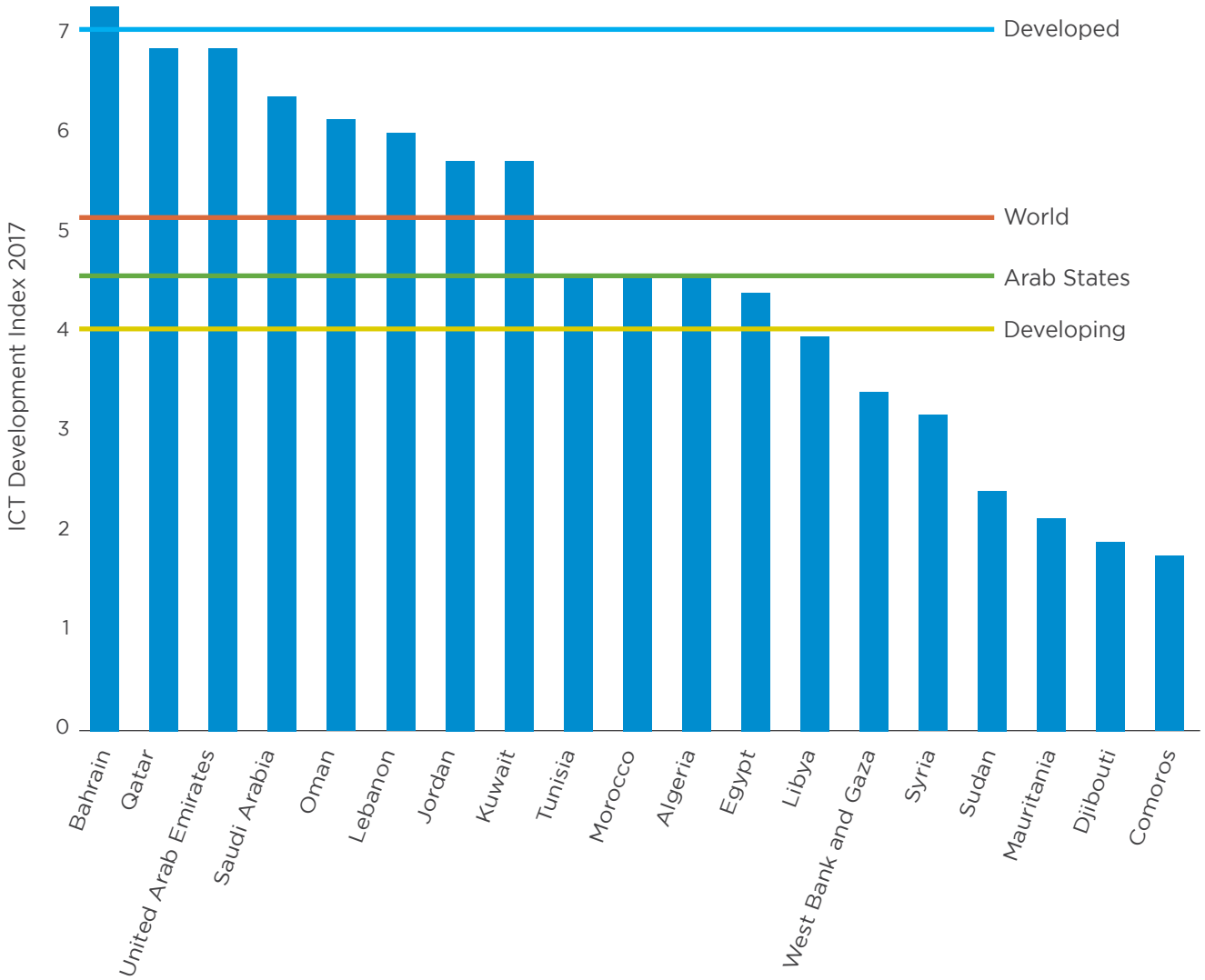


2.2. Diagnostic Findings: The Current State of Digital Infrastructure

The development of broadband in WB&G has been delayed compared with other countries in MENA. As a result of spectrum restrictions from the GOI, WB&G was among the last economies in the MENA region to launch 3G and was only permitted to do so in the West Bank in January 2018.[24] In Gaza, only 2G technology is available. As a result, WB&G has one of the lowest broadband penetration rates in MENA, at 20.77 percent in 2021, and in the ITU's latest ICT Development Index, WB&G placed below the developing country average (figure 2.1). The geographical separation of Gaza and the West Bank as well as restrictions on access to area C have impeded network continuity and information flows. Furthermore, the ongoing blockade on Gaza has made the import of communications equipment increasingly difficult. In the presence of spectrum restrictions on mobile broadband connectivity, the fixed broadband sector provides WB&G several alternative opportunities to increase connectivity and access to the internet.

24. In addition, allocation of insufficient and limited frequencies to mobile operators forced them to install additional sites and towers, which led to high capital and operational expenditure to meet increasing consumer demand.

Figure 2.1. ICT Development Index Values, Arab Region, 2017



Source: ITU 2017.
Note: The ICT Development Index (IDI) is a composite index that combines 11 indicators into one benchmark measure. It is used to monitor and compare developments in information and communications technology (ICT) between countries and over time and has been published by the International Telecommunication Union since 2009. The latest available data are from 2017.

WB&G appears to be "emerging" in the Digital Infrastructure pillar based on the World Bank MENA Tech analysis of 16 indicators across topics related to broadband access, quality, affordability, market competition, government ownership, and legal frameworks. Its overall score of 3.30 is lower than both the MENA and the MENA excluding GCC averages, 5.01 and 4.17, respectively. The MENA Tech Rapid Digital Economy Assessment measured the performance of all MENA countries with standardized scores from 1 to 10 (0 -2.4: needs development; 2.5-4.9: emerging; 5.0-7.4: advanced; 7.5-10: very advanced).

WB&G has made significant progress in developing digital infrastructure, despite the sociopolitical and economic challenges. Internet access has increased significantly in recent years, with 80 percent of households having access to the internet at home in 2019 compared with 52 percent in 2017. Although average mobile download speed is far lower than the MENA average at only 7.1 mbit/s (which is the maximum speed for 3G), average fixed broadband speeds performed much better, at 16.3 mbit/s, which is higher than the MENA average excluding GCC countries. Table 2.1 shows the data for WB&G that were analyzed under the MENA Tech Benchmarking Analysis.

Table 2.1. MENA Tech Benchmarking Results: Digital Infrastructure Pillar

Component	Indicator	WB&G	MENA average	MENA average excluding GCC
Access	Internet users (per 100 inhabitants)	70.6%	71.7%	56.3
	Mobile broadband capable market penetration	19.1%	90%	67%
	Fixed broadband subscriptions (per 100 inhabitants)	7.3%	10%	7%
	Fiber to the premise broadband penetration	0.0%	15%	2%
	Total used international bandwidth per internet user		146.3	67.4
	% of population covered by 3G networks	63.7%	95%	93%
	% of population covered by 4G networks	0.0%	75%	64%
Quality	Mobile broadband download speed (Mbit/s)	7.1	30.9	18.3
	Fixed broadband download speed (Mbit/s)	16.3	29.7	14.5
Affordability	Mobile broadband price - price of 1 GB % GNI per capita	1.8%	3%	4%
	Entry level fixed broadband basket price % of GDP per capita	13.5%	8%	12%
Market Composition	Mobile market concentration index (HHI index)	4,286.5	4,473	4,492
	% of government ownership in the mobile market and fixed markets	30.8%	46%	47%
	% of government ownership in the fixed market	37.7%	61%	65%

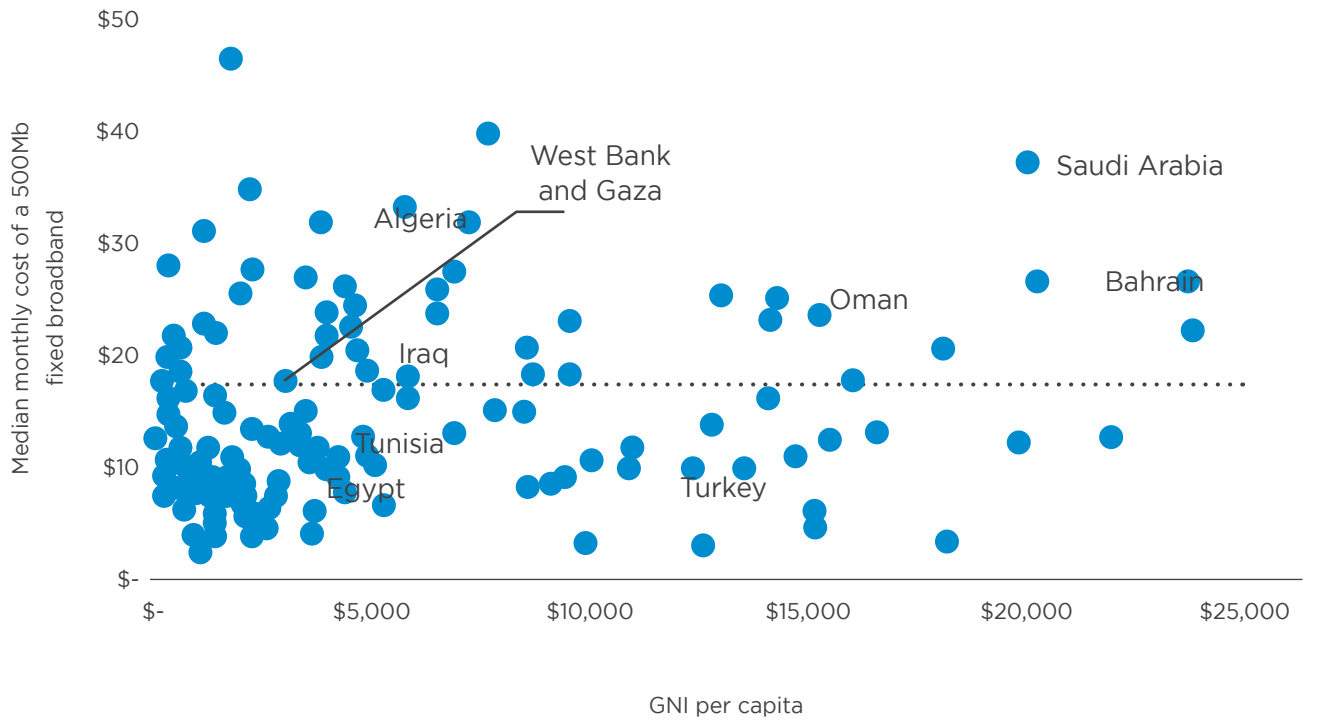
Source: World Bank Group 2021a.
Note: GB = gigabytes; GCC = Gulf Cooperation Council countries; GDP = gross domestic product; GNI = gross national income; HHI = Herfindahl-Hirschman Index; Mbit/s = megabits per second; MENA = Middle East and North Africa; WB&G = West Bank and Gaza.

2.2.1. Fixed Broadband

Fixed broadband access is available through digital subscriber line (DSL)[25] technology, installed by Paltel, a private company that has a dominant position over fixed-line telecommunications service provision over the existing copper local loop. In 1998, Paltel completed a 140-kilometer fiber optic cable linking the main towns in the Gaza Strip, and a 260-kilometer fiber optic cable linking cities in the West Bank. A microwave connection was subsequently installed between the West Bank and Gaza, connecting the two transmission backbones; however, it quickly became saturated. Today, Paltel provides a complete portfolio of fixed-line services, with telephone and internet narrowband and broadband (especially leased lines and asymmetric digital subscriber line (ADSL)). Paltel's fixed copper network covers most Palestinian households.

Paltel provides internet services directly and via a subsidiary internet service provider (ISP), Hadara, while it also resells its services to private ISPs. There is no local loop unbundling and no fiber to the home (FTTH) regulation, and end-users are required to subscribe to a broadband line to Paltel before selecting an ISP to provide internet access. High-speed internet access is still in the nascent stages of development, with about 7.3 fixed broadband subscriptions per 100 inhabitants per the ITU in 2019. Meanwhile, the cost of broadband remains high in proportion to per capita income but comparable to other countries in the region based on the latest available data (figure 2.2). Cost disparities also exist between Gaza and the West Bank, due to additional restrictions placed on Gaza by the GOI.

Figure 2.2. Affordability of Fixed Broadband Plans



Source: ITU 2017.
Note: GNI = gross national income; Mb = megabytes.

25. DSL is a communications medium used to transfer digital signals over standard telephone lines. Along with cable internet, DSL is one of the most popular ways ISPs provide broadband internet access.

Customers in WB&G can obtain retail broadband access from Paltel or one of the ISP licensees that provide internet services. Paltel provides the ADSL (or very high bit rate digital subscriber line) access line only over its national copper network, while the authorized ISPs provide the internet service. With this model, Paltel is responsible for billing the subscribers (on the same fixed-line bill, which is issued for voice services through explicit mandatory bundling) and collecting the access line fees only, while the ISPs are responsible for collecting the internet service fees from the end-users. In limited geographical areas, Paltel also provides a "Super Fast Internet Service" based on FTTH technology, internet, and fiber access bundle at retail price, which allows customers to benefit from higher download speeds up to 200 mbit/s. (Annex A provides information on prices and speeds for the Paltel DSL and FTTH services.)

There is an opportunity to build on the already existing internet exchange point (IXP) to implement a virtual landing station (VLS). A VLS can enhance the reliability of the economy's international bandwidth capacity and prevent monopolistic access to submarine cables. (See box 2.1. for an example of how this was done in Burkina Faso.) Under open access principles, all ICT operators would gain access on transparent and fair terms, allowing WB&G to have an equivalent physical landing point of the undersea cables. The IXP could be designed to be a neutral exchange point and would house the termination point for international cables, which would allow the operators and ISPs to interconnect on a nondiscriminatory basis. The current IXP, which is located at the Ministry of Telecommunications and Information Technology (MTIT) headquarters, is not being utilized due to a lack of funding at MTIT, as well as difficulty in reaching a clear consensus between all operators, who must agree on the principles of equitable access to the VLS. MTIT is considering ways to host the IXP, including possibly asking the operators to create an association of ISPs.

Box 2.1. Building a Virtual Landing Point in Burkina Faso

With the support of the World Bank under the West Africa Regional Communications Infrastructure Program, Burkina Faso has successfully built a virtual landing point (VLP) based in Ouagadougou and Bobo Dioulasso, to connect the country to the international backbone. The VLP was set up in 2018 with the aim of improving the quality of internet traffic. It consists of a set of equipment allowing access and management of international bandwidth, as well as its distribution to internet service providers (ISPs) and local operators, supporting an international capacity of 100 gigabits per second. The Bobo Dioulasso node is interconnected to the Ouagadougou node via a loop in the national telecommunications backbone.

Security is reinforced by the fact that the international capacity is accessible through three countries (Togo, Ghana, and Côte d'Ivoire) and three submarine cables (Mainone, SAT3, and WACS). The connection from the VLP to Ghana is provided by a state-owned optical fiber company, while the connections to Togo and Côte d'Ivoire are provided by both public and private transport networks (ORANGE and Moov Africa, formerly ONATEL). The operation is entrusted to a cooperative society of operators and ISPs, which is currently chaired by Telecel Faso. The implementation of the VLP reduced the unit rates (per megabit) of Moov Africa by over 50 percent between 2017 and 2019.

The PA is also currently studying the feasibility of leveraging the Jerusalem District Electricity Company's (JDECO's) existing distribution network to expand fiber optic internet in WB&G. The 400-kilometer-long distribution network runs from Jerusalem through Bethlehem, Ramallah, and Jericho. This underground and aerial optical fiber network is used for the management of power substations and has high-performance features that could deliver powerful products to be marketed to retail operators. The utilization of the existing infrastructure will not only be a cost-effective solution, but also pave the way to introduce further competition in the telecommunications sector, particularly in the fixed market. By utilizing fiber over the grid, the PA could leverage JDECO's excess fiber optic capacity with the private sector. So far, MTIT has shown a strong interest in

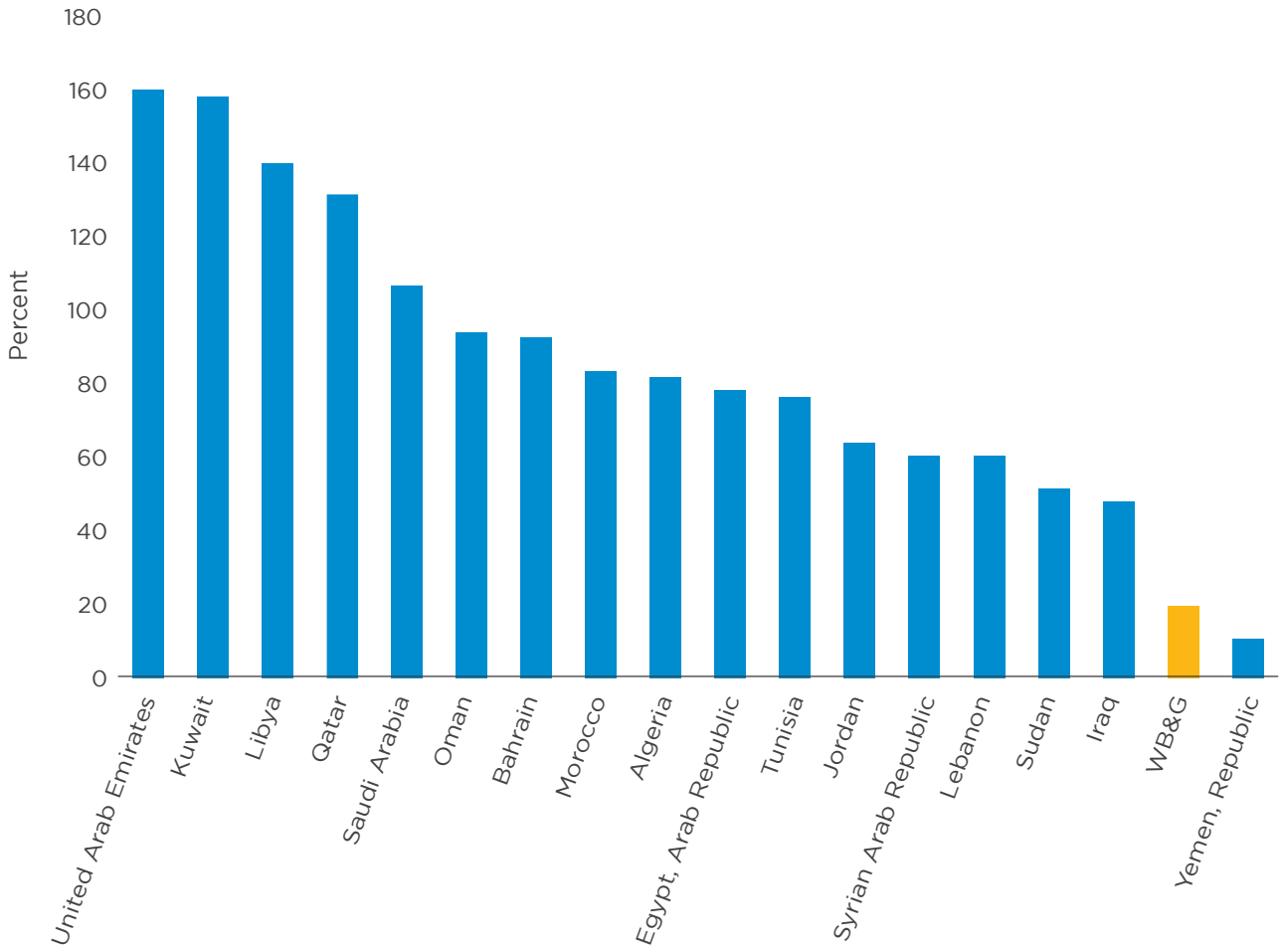
pursuing this solution; however, there has been some resistance from operators whose market share could be negatively impacted by the increased competition.

To support development of fiber optic infrastructure in WB&G, the Prime Minister's Office issued a Decision to establish a National Fiber Optic Company (February 8, 2021, Cabinet Resolutions Session No. 95). The objective of this initiative is to enhance fixed broadband services and improve internet access for citizens. A ministerial committee was created to facilitate this agenda and operationalize the National Fiber Optic Company.

2.2.2. Mobile Broadband

Adoption of mobile phone and mobile broadband connections is increasing in WB&G, given the high demand and general lack of fixed broadband infrastructure. The total number of mobile connections passed 86 percent in 2021Q1 (up from 64 percent in 2011). Most mobile connections rely on 2G technology. Although 63.7 percent of the Palestinian population is covered by 3G networks, the penetration rate of 3G is one of the lowest in the region, at 20.8 percent in 2021Q1 (up from 6 percent in 2018 when it was first introduced in the West Bank) (figure 2.3).[26] The price of 1 gigabyte of mobile broadband data is below the regional average at 1.8 percent of gross national income per capita, compared with 3 percent across the MENA region (table 2.1).

Figure 2.3. Mobile Broadband Penetration (3G), 2021



Source: GSMA 2021.

26. GSMA (2021).

The mobile broadband market is slightly more competitive than the fixed broadband market, with the two Palestinian operators Jawwal (Paltel's subsidiary) and Ooredoo Palestine (former Wataniya Mobile Palestine) competing for market share (table 2.2). In January 2018, the launch of 3G networks in the West Bank by the two main mobile operators was a long-awaited step for the Palestinian telecommunications sector. An agreement was signed three years earlier between the GOI, which has decision-making power over frequency spectrum, and the PA, but the allocation of radio frequencies for 3G deployment was delayed by the GOI; as a result, Ooredoo Palestine and Jawwal were only able to announce the launch of their 3G network in the West Bank in 2018.

Table 2.2. Operator Market Shares, 2018

Operator	Number of subscribers	Market share of subscribers (%)	Revenue (US$, millions)	Market share of revenue (%)	Revenue per subscriber (US$)
Jawwal	3.06 million	70	255.6	72	83
Ooredoo	1.29 million	30	100.4	28	78

Source: MTIT 2020.

The introduction of 3G to the West Bank in 2018 explains the recent upsurge in mobile broadband penetration in WB&G, as Jawwal and Ooredoo deployed 3G networks following the narrow allocation of frequency bands by Israel for access to a national mobile broadband network.[27] However, the GOI has not approved the allocation of frequencies necessary for 4G introduction in the West Bank. In Gaza, the situation is complex and 3G is still not available to Palestinian providers due to Israeli spectrum restrictions. Palestinians who can access Israeli networks (due to their geographic proximity[28]) can receive 3G and 4G/long-term evolution (LTE) when they are available from Israeli operators, placing additional pressure on the local Palestinian operators. Similarly, in the West Bank, Palestinians can access the Israeli operators' 4G/LTE networks, making the future of Palestinian operators uncertain.

The level of investment required to achieve universal broadband coverage in WB&G was estimated to be in the range of US$155 million to US$183 million.[29] This would involve migrating about 0.3 million users from 3G to 4G and connecting another 4.3 million users who are connected to a 2G network or are not connected. These estimates assume that the GOI would approve the release of the necessary spectrum to Palestinian telecom operators to facilitate the introduction of 4G.

27. The launch of 3G networks in the West Bank by the two main mobile operators was a long-awaited step for the Palestinian telecom sector. An agreement was signed in 2015 between the Government of Israel and the Palestinian Authority, but the allocation of radio frequencies for 3G deployment was delayed and Ooredoo and Jawwal were only able to announce the launch of their 3G network in the West Bank in January 2018.
28. Based on rough estimates from the discussions with industry leaders, about 600,000 Palestinians in WB&G are connected to Israeli providers through prepaid SIM cards.
29. A4AI (2020).

2.3. Challenges to Digital Infrastructure Expansion

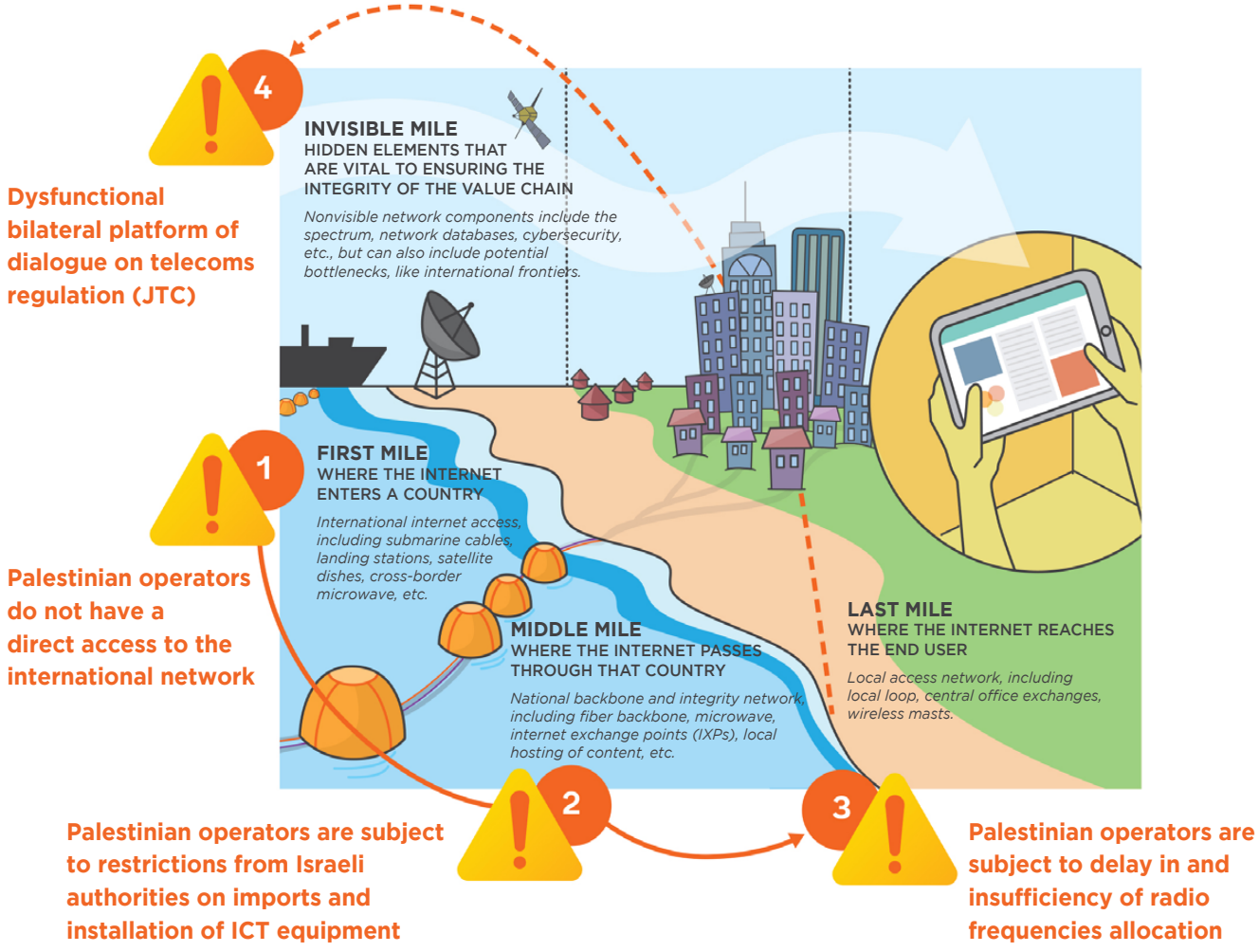
2.3.1. External Challenges Stemming from Unresolved Issues in the Relationship with Israel

GOI's restrictions on spectrum allocation, import of telecommunications equipment as well as market competition from unauthorized Palestinian operators are among the key constraints to accelerating the speed of digital infrastructure development. While under existing agreements the PA has the right to build and operate an independent telecommunications infrastructure along with the right to establish its own telecom policies, the GOI has decision-making power over the frequency spectrum and so far has refused to allocate the necessary spectrum to Palestinian telecom operators to deploy 4G frequencies. Palestinian operators also face import and construction restrictions from the GOI and market competition from Israeli operators, who can offer 4G and LTE and have an estimated 20 percent mobile broadband market share in the West Bank, as a result of Palestinians subscribing with Israeli operators.[30] The ITU's Radiocommunication Conference held in Sharm Al Sheikh in November 2019 passed Resolution 12, which called on Israel to introduce a process to deploy 3G technology and establish an adequate timeframe for the allocation of 4G and 5G frequencies for Palestinian operators. The resolution remains to be implemented.

30. In addition, Bezeq Israel Telecom was awarded its first license to operate in West Bank Area C on October 18, 2020. This will allow it to provide uniform high-speed internet services to settlements and along roads and public areas. https://www.jpost.com/israel-news/bezeq-operating-license-for-area-c-formalized-after-36-years-646149

GOI's policies impact the entire connectivity value chain in the Palestinian territories (figure 2.4). This includes the first, middle, last, and invisible miles of the connectivity value chain and concerns restrictions on building infrastructure, spectrum allocation for 3G/4G and 5G mobile broadband, ICT equipment imports and deployment, rights of way in Area C, and numbering. Palestinian operators also need to go through Israeli companies to access international submarine cables. Neither of the Palestinian operators is permitted to own an international gateway to connect its network directly to the rest of the world; they are instead required by the GOI to go through Israeli registered companies to carry traffic outside WB&G. The middle mile (that is, the backhaul and backbone) is also subject to many restrictions: Bistream Service Access limits the commercial and technical freedom of ISPs, which face difficulties with the import of equipment, including delays in obtaining relevant authorizations, cumbersome procedures, and extra costs resulting from the requirement to go through Israeli importers.

Figure 2.4. Impact of Bilateral Issues on the Palestinian Value Chain of Connectivity



Source: World Bank Group 2016d.

The lack of implementation of the cooperation framework on telecommunications by the GOI has been one of the main constraints to development of digital infrastructure in WB&G. According to Article 36 of Annex III of the "Oslo Accords" Interim Agreement, *"a joint committee of technical experts (hereinafter referred to as the Joint Technical Committee or JTC) representing both sides shall be established to address any issue arising out of this section including the growing future needs of the Palestinian side. The JTC shall meet on a regular basis for the purpose of solving all relevant problems, and as necessary in order to solve urgent problems."* The JTC has not been able to deliver on its promises as the coordination meetings were not regular and there is little reporting on the JTC's agenda. It appears that the JTC has not been able to guard against political interference.

The agreement affirms the right of the Palestinian side to build and operate separate and independent communication systems and infrastructure, including telecommunications networks, but it gives control to the Israeli side over spectrum allocation and access to international cables. For example, since the 2001 Intifada, it has become very difficult to roll out a new network outside cities (Area C) as authorizations are under Israeli authority. Network development in rural areas and linking between the cities in the West Bank have become an issue forcing Palestinian operators and providers to buy capacity from Paltel at a high price (as emphasized by all the stakeholders consulted for this report) or from Israeli operators (at a lower price but outside MTIT control and regulation).

Most internet traffic in WB&G is routed through switches located in Israel. Even in the case of telephone communication, calls must pass by the Israeli backbone. Paltel, Jawwal, Hadara, and Wataniya must receive permission from the GOI for the placement, number, and strength of routers and exchanges; the range of their signals and the equipment that can be used are limited by Israeli restrictions; and the allocation of their bandwidth is decided by the Israeli Ministry of Communication. Israeli providers sell bandwidth capacity to Palestinian ISPs at substantially higher rates than to ISPs within Israel. As a result of these policies, Palestinians have access only to 3G mobile broadband internet and at much higher prices than in Israel.

Restrictions on the import of telecom equipment entering WB&G, and particularly the Gaza Strip, have slowed the introduction of new services and stalled the capacity enhancement of broadband networks. As a result of the Israeli bans on "dual use good" imports, ISPs in WB&G continue to use legacy technologies, which are often nonhomogeneous. This may slow the integration of infrastructure and thus the migration toward broadband. The restrictions imposed by the GOI have affected the imports of core network technologies (mobile exchanges, home location registers, radio network controller nodes, and packet core equipment), as well as ethernet and enterprise networking technologies used for construction in Areas A and B. This has forced Palestinian operators to deploy their switching infrastructure outside WB&G, including in England, Jordan, Israel, and East Jerusalem, which is under Israeli control. Delays in hardware clearances for the import of equipment affect network operations, disrupt expansion plans, and add substantial costs for port storage. The enforcement of import restrictions on selected dual use goods and material has been estimated to account for a 4.5 percent loss in aggregate output value in the West Bank over 2008–12, as well as a disproportionate fall in wages in dual use input-intensive sectors.[31] Restrictions have also been placed on infrastructure development and construction, limiting the ability of Palestinian mobile operators to serve Palestinian residents and provide coverage to the roads in this area and in large swaths of Areas A and B that require connectivity through infrastructure in Area C. (map 2.1 shows areas A, B, and C.)

31. Amodio, Baccini, and Di Maio (2016).

Map 2.1. Oslo II Map Outlining Areas A, B, and C

Source: Oslo II Accord 1995.

The Palestinian mobile sector remains at a significant competitive disadvantage due to spectrum scarcity. The launches of Ooredoo Palestine's 2G network in Gaza (October 2017) and Ooredoo and Jawwal's respective 3G networks in the West Bank have done little to ease past restrictions. (Figure 2.5 shows the availability of 2G-4G networks from Palestinian and Israeli providers.) These milestones took place only after several years of bottlenecks and delays, putting the sector behind regional counterparts and at a large technological and economic disadvantage.[32] As of today, spectrum scarcity due to Israeli restrictions continues to impose a heavy burden on Palestinian mobile operators. A narrow bandwidth: (1) leads to higher deployment cost as additional sites are needed to cope with the increase in traffic, (2) limits the number of customers a mobile operator can serve, (3) leads to higher costs to end-users, and (4) prevents the development of a 4G/LTE system and 5G in the future.

Figure 2.5. Availability of 2G, 3G, and 4G in WB&G, 2021

Territory	Jawwal			Ooredoo Palestine			Israeli Operators		
	2G	3G	4G/LTE	2G	3G	4G/LTE	2G	3G	4G/LTE
West Bank	✓	✓	✗	✓	✓	✗	✓	✓	✓
Gaza	✓	✗	✗	✓	✗	✗	✓	✓	✓

Source: World Bank.

32. As part of an agreement reportedly reached during a meeting between PA President Mahmoud Abbas and Israeli Defense Minister Benny Gantz in August 2021, Palestinian operators will be permitted to introduce 4G in the near future, however details of the agreement and the timeline of implementation remain scarce.

The spectrum issue is now more critical with the conclusion of the tender and the allocation of the 5G spectrum in Israel (the call for bids took place in February 2020) and a launch of 5G to be completed in 2025. If the frequencies in the 700 megahertz (MHz) band, 2600 MHz band, and 3500-3800 MHz band are not made available to Palestinian operators,[33] they run the risk of having their markets eroded below sustainable levels as the demand for broadband increases. This would severely impact and restrict the development of the Palestinian telecommunications sector. Without access to sufficient spectrum bandwidth for 4G and 5G frequencies, Palestinian mobile network operators cannot compete in the delivery of mobile services.

The spectrum assignment to Palestinian operators is lower than average for mobile network operators in comparable economies, which results in higher costs of expansion. Not only have Israeli operators been assigned international mobile telecommunications frequencies that are much more consistent with operator assignments in other countries, but their assignments are also between two and seven times greater than those granted to Palestinian operators. Table 2.3 shows the spectrum assignments of the two Palestinian operators. Lower spectrum allocation to Palestinian operators combined with restrictions on access to Area C, result in higher costs of expansion (due to the need to install more hardware at different sites) and puts Palestinian companies at a disadvantage in terms of pricing and technology offering. Now that the GOI has begun the introduction of 5G to its market, the disparity between Palestinian and Israeli operators will continue to grow. The GOI will make available frequencies in the 700 MHz band (25 MHz frequency division duplex (FDD)), 2600 MHz band (60 MHz FDD), and 3500–3800 MHz band (300 MHz TDD) to its operators.

Table 2.3. Spectrum Assignments for Jawwal and Ooredoo

		Jawwal		
2G	900 MHz	Exclusive	2.4 MHz	2x4.8 MHz
3G	2100 MHz	Exclusive	5 MHz	2x10 MHz
Microwave frequencies in use: 18GHz, 23GHz, 26GHz				
		Ooredoo		
2G	900 MHz	Exclusive	1.8 MHz	2x1.8 MHz
	1800 MHz	Exclusive	2.4 MHz	2x2.4 MHz
3G	2100 MHz	Exclusive	5 MHz	2x10 MHz
Microwave frequencies in use: 18GHz, 23GHz, 26GHz				

Source: Documents shared by the Ministry of Telecommunications and Information Technology, 2019.

33. Especially as other bands popular for deployment of LTE like the 1800MHz, the 2100MHz, and other sub 1GHz bands are already fully utilized.

Box 2.2 discusses the findings of the recent market analysis and study of 4G and 5G spectrum allocation to Palestinian operators, which was conducted by the Office of the Quartet.[34]

Box 2.2. Key Findings from the Office of the Quartet

In 2020, the Office of the Quartet undertook a study that identifies mobile broadband spectrum and infrastructure requirements with considerations of political challenges, to meet the estimated high demand for faster and higher capacity services.

The study finds that the West Bank and Gaza (WB&G) will need an estimated 550 megahertz (MHz) on popular bands in the next 10 years to deploy economically feasible 4G and 5G technologies. If WB&G could secure a minimum spectrum of around 335 MHz, it could meet initial demand but will not be cost-effective for the operators, which will need to make additional network investments. The 115 MHz difference is critical to enable deployment of 5G that meets network coverage requirements.

Israeli operators have access to 538 MHz for utilization in the settlements, which was recently allocated and utilized as a result of the conclusion of the newly tendered spectrum. To meet the needs of the settlements in the West Bank, only 205 MHz is needed. There is therefore the potential for at least 300 MHz to be made available for use by Palestinian operators without affecting the spectrum utilization by the settlements.

Source: Office of the Quartet (2020).

The PA has written to the Israeli government and also informed the ITU in 2018 to advocate and intervene to make this spectrum available to Palestinian operators. The proposal on spectrum made by the Israelis in March 2020 barely meets one-third of the minimum Palestinian spectrum requirements for both technologies for 2020–30 and lacks spectrum on the 700 MHz band and bandwidth allocation on the high 3500 MHz, which is essential to deploy 5G technology. In April 2020, MTIT sent two requests to the GOI to address the increased demand for mobile and fixed broadband during the COVID-19 pandemic. The first request was for the allocation of additional frequencies on the 2,100 MHz band to support the increased demand for 3G-enabled mobile data; it was rejected on the basis that the band was fully utilized, although a similar request on another band by an Israeli mobile operator was approved.

On August 11, 2020, MTIT requested the ITU's intervention to speed up the allocation of the adequate 4G and 5G frequencies by requesting that the GOI abide by all relevant resolutions, particularly Resolution 12 of the World Radio Conference from November 2019. Without access to this spectrum, Palestinian mobile network operators cannot compete with their Israeli counterparts in the delivery of mobile services. Table 2.4 shows the minimum frequency bands/bandwidth needed by Palestinian operators to cater to the increasing demand for 4G LTE mobile broadband.

34. The Office of the Quartet is an international body that was established in 2002 with a mandate to mediate peace negotiations and support WB&G's economy.

Table 2.4. 4G/LTE Frequencies Needed by Each Palestinian Operator

1	1800	2x20 MHz FDD
2	800/1800	2x5 @ 800 MHz FDD
		2x15 @ 1800 MHz FDD
3	1800/2600	Any combination with minimum 2x20 MHz FDD
4	800/2600	2x5 @ 800 MHz FDD
		2x15 @ 2600 MHz FDD
5	2600	2x20 MHz FDD

Source: Documents shared by Jawwal, 2020.
Note: FDD = frequency division duplex; LTE = long-term evolution; MHz = megahertz.

Overall, bilateral issues that have been documented over the past decade are still unsettled and are associated with significant economic costs. In 2016, the World Bank Group estimated that the direct negative impact on telecom operators' revenues over 2013–15 was between US$440 million and US$1.15 billion (1.2 to 3 percent of GDP), due to the constraints imposed by Israel.[35] As for the budget shortfall for the PA, it was in the range of US$70 million to US$184 million over the same period. The indirect impact of these constraints on the economy is, for its part, estimated at nearly US$500 million (of missing GDP) over 2013–15.

The recent conflict has resulted in significant damage to the digital infrastructure in Gaza and all operators reported major losses. The airstrikes caused severe damage to core physical digital infrastructure assets in Gaza, such as copper and fiberoptic networks, data centers, and data storage facilities. Two of the three main fiber optic lines were damaged and assets of several ISPs were destroyed, which resulted in service disruptions across the Gaza Strip, particularly in southern Gaza. In addition to destruction of assets, telecommunication service providers incurred other losses such as delay in payments for services from customers and loss of contracts. The losses to digital infrastructure are estimated at US$5-10 million.[36]

Preliminary calculations based on the data shared by ISPs estimate the damage to digital infrastructure in Gaza at about US$4 million. Most of the damage (about US$3.5 million) is attributed to partial or full destruction of physical assets (table 2.5). Damage to fixed broadband infrastructure, including network cables, distribution cabinets, wood poles, manholes, and street cabinets, is estimated at around US$1.0 million. Damage to mobile broadband networks, including destroyed outdoor sites and towers, is estimated at around US$0.4 million. These calculations do not take into account the potential destruction of other infrastructure, such as electricity lines and fiber optic cables owned by the utility companies. The indirect economic impact of the destruction of digital infrastructure is expected to be much larger as loss of connectivity has impacted the operation of businesses, media, and educational institutions.

35. World Bank Group (2016b).
36. World Bank Group (2021c).

Table 2.5. Estimated Damage to Digital Infrastructure (US$)

	Asset Type	Total Cost
Direct damage to infrastructure	Infrastructure and civil works	2,267,899.45
	Network cables	419,451.60
	Generators and power	595,047.38
	Tools, equipment, and network passive items	171,800.00
Subtotal		**3,454,198.43**
Other losses	Total loss of contracts	300,384.60
	Compensation for distributors	50,069.38
	Other (operational losses)	202,555.93
Subtotal		**553,009.91**
		Total: 4,007,208.34

Note: The table shows estimated damage to digital infrastructure in US$ reported by the following internet service providers: Paltel, Jawwal, Netstream, Speedclick, Digital Communication Company, CoolNet, and NetStream.

2.3.2. Internal Challenges

The lack of a sound policy and regulatory environment in the telecom sector has hampered the development of digital infrastructure in WB&G. Until recently, the telecom sector has been governed by the outdated Telecommunications Law No. 3 of 1996, which does not provide for a transparent competition regime in infrastructure provision and does not regulate Paltel's role in the market. The regulatory regime is thus geared toward service competition only and does not incentivize private operators to make infrastructure investments. Furthermore, the absence of an independent regulator has led to low responsiveness in addressing sector-specific technical and legal issues and has limited the transparency of the licensing process, which has left both telecom operators dissatisfied. The new Telecommunications Law was adopted on October 2, 2021 but remains to be implemented.

Paltel's dominant position in the market has resulted in lack of new products and inconsistent quality of service. Paltel (Jawwal) maintains responsibility for the provision of wholesale fixed broadband services and access lines for end-users and is de facto the dominant operator in most of the relevant markets: the fixed wholesale market, fixed retail market, and mobile fixed market. Table 2.2 shows the market share of Paltel's subsidiary Jawwal compared with Ooredoo. Paltel remains the main, and in most cases the sole, service provider in the corporate market. Although Paltel Group maintains a separation of finances and operations between its different subsidiary companies, without competition in the corporate market, which can represent up to 80 percent of the revenues for an ISP, diversification and introduction of new offers, especially in the broadband area, remain very limited, impairing the development of broadband services in WB&G. Potential anti-competitive practices include (1) limited access to Paltel's infrastructure and (2) differentiated prices for "on-net/off-net".

There is no independent regulator of the sector. Implementation of the new Telecommunications Law will be critical for the development of the market. The new law provides for the establishment of the Palestinian Telecommunications and Information Technology Regulatory Authority, which will serve as an independent regulator of the sector. The establishment of an independent regulatory authority would boost competition in the Palestinian telecommunications sector and provide a strong catalyst for its enhancement. According to 2019 data from the ITU, 162 of its 194 member states (84 percent) have a separate ICT regulatory agency.

2.4. Recommendations

Improving access, quality, and affordability of internet services should be an important priority for WB&G. Faster, cheaper, and more reliable internet can help mitigate the impact of movement restrictions, improve access to information, strengthen connection to markets, and increase productivity. The recommendations below aim to address the key issues inhibiting the growth of high-speed internet in WB&G, namely the bilateral relationship with Israel, weaknesses in the regulatory framework, and deficiencies in infrastructure.

1. Recommendations to address bilateral challenges in the telecommunications sector (Lead authority involved: GOI)

The GOI should consider the following:

- **Establishing a reasonable timeframe for the allocation of adequate 4G frequencies** (and ultimately 5G) for the Palestinian operators, based on the requirements submitted to the recent JTC meetings held in October 2019 and March 2020 (per Sharm el Sheikh Resolution 12 -REV.WRC-19) and allowing contiguous spectrum in each high and low band frequencies. An effort should be made to allocate urgently the needed spectrum for Palestinian 4G and 5G deployments prior to completion of 5G deployments in Israel, in line with the findings of the Office of the Quartet analysis and consistent with the relevant ITU resolutions and Article 36 of Annex III of the Interim Agreement. In addition, Palestinian operators should be allocated the future frequencies for 4G/5G technologies on exclusive basis without sharing with Israeli operators.

- **Addressing the effect of unauthorized Israeli mobile activity presence in the West Bank,** potentially by mandating the use of micro-cells with a smaller coverage radius by Israeli operators to limit the coverage of their cellular towers, compared with the macro-cells that are used now.

- **Amending the current broad-based restrictions on ICT equipment** that have limited the ability of Palestinian telecom companies to introduce new technologies and operate efficiently. This will involve taking a risk-based approach to imports that recognizes the capacity of the companies to ensure that the equipment is used for commercial purposes and will not represent a security risk. Furthermore, the withheld equipment in Israeli ports that was imported in 2016 and 2018 should be released to expand the broadband capacity of the backbone network that supports fixed and mobile data services.

- **Allowing access to infrastructure and transmission sites in Area C** that would facilitate the efficient provision of communications services to the Palestinian population.

- **Facilitating imports of necessary materials and equipment to support reconstruction of Gaza.** The import regime of "dual use" goods, which include communications equipment and construction materials, should be reformed to allow for speedy reconstruction of infrastructure in Gaza and to facilitate the economic development of WB&G more broadly.

- **Empowering the JTC to take action on key bilateral issues** impeding the development potential of the telecom sector in WB&G and implementing its recommendations. Better implemented through a JTC with a new realistic mandate, the existing bilateral agreements provide a sound basis to create a telecom sector in WB&G that is comparable to those in other countries in the region. The mechanisms for the functioning of the revised JTC could be reviewed to build greater trust and efficiency.

If work within the framework of the JTC continues to be unproductive, the PA and the GOI may consider international mediation, for example from the ITU.

2. Recommendations to address internal regulatory challenges (Lead authority involved: MTIT)

MTIT should consider the following:

- **Implementing the telecommunications law and establishing an independent regulatory authority. Implementation should ensure the financial and operational independence of the regulatory authority by, among others, ensuring the separation of the commission's finances from the state budget and appointing members of the board based on objective criteria.** This would align WB&G with international good practice and provide the private sector a more predictable regulatory environment, as it would ensure that regulatory decisions are made based on economic analysis and public consultations with stakeholders. This would also increase the attractiveness of WB&G to national and international investors seeking predictability, legal certainty, and the rule of law.

3. Recommendations to expand broadband internet coverage in WB&G (Lead authority involved: MTIT)

Given current restrictions on movement, trade, spectrum, and infrastructure, it is recommended that the PA pursue several low-hanging fruits to develop its digital infrastructure and expand connectivity. MTIT should consider the following:

- **Implementing a VLS.** There is a possibility of building on the already existing IXP to implement a VLS to enhance the reliability of WB&G's international bandwidth capacity and decrease the costs of accessing the submarine fiber optic cables to connect to the internet. The current IXP is located in MTIT's headquarters, but it is not being utilized. Setting up a VLS enables a landlocked economy to set up an equivalent physical landing point for the undersea cables. The VLS would be designed to house a termination point for international connectivity providers, which would allow the operators and ISPs in WB&G to interconnect on a nondiscriminatory basis. MTIT should continue discussions with operators and ISPs to establish an operating framework for the VLS that will maximize opportunities in an equitable way for all stakeholders.

- **Leveraging JDECO's excess fiber optic capacity** to expand fixed broadband. WB&G is one of the most densely inhabited regions in the world at 800 people per square kilometer, as well as one of the smallest territories in the world. Given the rapid growth and drop in cost in recent years of terrestrial fiber optic infrastructure, WB&G's size and demographics make it feasible to build out a comprehensive terrestrial fiber infrastructure at a comparatively low cost per household. An immediate opportunity would be to encourage the development and utilization of fiber over the grid and to leverage on JDECO's excess fiber optic capacity. JDECO has equipped more than 400 kilometers of its distribution network in Jerusalem, Ramallah, Jericho, and Bethlehem. This underground and aerial optical fiber network is used for the management of power substations and has high-performance features that could deliver powerful products to be marketed to retail operators. The establishment of an independent regulatory authority will be important to solve internal political challenges related to the incumbent operator that are posing an obstacle to implementation.

- **Establish a wholesale broadband provider with a wholesale-only license.** Following the February 8, 2021 Prime Minister's Office Decision to establish a National Fiber Optic Company in WB&G to enhance internet services and facilitate access for citizens, it is recommended that the PA set up a wholesale broadband provider with a wholesale-only license. The current licensing regime with a proposed facility provider license would be adequate but could be improved by moving toward a universal licensing scheme. Given that the facility provider license has not yet been approved, a broadband license could be issued instead; this would require at least two important modifications of current license conditions: (1) license duration should be at least 15 years (better 20 or 25 years), and (2) the license should not include retail services to avoid conflicts with other ISPs. Establishment of the wholesale broadband provider with a wholesale-only license will have major benefits for the telecommunications sector, including increased service penetration, better service quality and end-user choice, and significant contributions to overall economic growth.

3

Digital Public Platforms

3.1. Importance of Digital Public Platforms

Digital public platforms have the potential to transform the way people, governments, and civil society interact with each other. They connect people and organizations and facilitate digital transactions, including the exchange of money, information, goods, and services. E-government services provided through public platforms can serve people and government agencies in all aspects of life, such as health care, education, and taxation services. They can be developed in partnership with the private sector through hybrid models and can help improve access to and the efficiency and quality of service delivery and core government operations. Citizens can use public platforms to access a wide range of government services digitally, including the transfer of monthly pensions, payment of utility bills, access to health records and virtual medical appointments, or simply access to critical public information. These platforms can provide a seamless service delivery experience that increases user convenience, savings, and agency. For governments, digital platforms can increase the efficiency and effectiveness of core functions and services, reduce unnecessary duplication of systems, combat fraud and corruption by increasing the security and traceability of transactions, and improve civic engagement and accountability.

Digital public platforms offer promising opportunities for the response to and recovery from the COVID-19 pandemic. Digital public platforms enable governments and people to coordinate health care and emergency responses, ensure a minimum level of business function, reduce disruptions to schools and universities, and provide a channel for safe social interaction. E-government solutions allow Palestinians to maximize their opportunities in an environment where their physical movement is restricted due to political reasons and health considerations, and in-person transactions are increasingly limited. They allow citizens to access resources, information, and services without leaving their homes.

The 2021–2023 ICT Sector Strategy for WB&G highlights the importance of the sector in advancing e-government. This strategy provides an umbrella for the forthcoming e-government strategy and action plan that will outline the plan to enable achievement of these objectives.

Leveraging shared services and following a "whole-of-government" approach to digital transformation of government has the potential to revolutionize the PA's internal business processes and the delivery of government-to-citizen (G2C), government-to-business (G2B), and government-to-government (G2G) services. Beyond service delivery, digital public platforms can provide new channels for public engagement, feedback, and information sharing – including using CivicTech tools – that can increase civic engagement, transparency, and accountability of government. Public platforms can also catalyze private sector development in WB&G, by supporting the ease of doing business and broadening customer bases (for example, through improved identification), and improve regulatory and tax compliance.

3.2. Diagnostic Findings: The Current State of Digital Public Platforms

The PA has laid the foundation for provision of e-government services through public platforms. A centralized government data and information technology (IT) center (Government Computer Center) was created at MTIT to assure the operation of the PA's intranet, e-mails, web pages, as well as backup and archiving for some PA entities. Several shared G2G systems are available throughout all ministries. These include an e-mail platform and ministry websites provided by MTIT, and financial and human resources applications and a payroll system provided by the Ministry of Finance.[37] Core state data registries (citizens, vehicles, businesses, and so forth) are in place and are managed under a decentralized model through sectoral data centers. A data exchange layer (X-Road) and an interoperability framework (Zinnar) have been in place since 2013 to allow automated data exchange between various public sector agencies. At present, 53 agencies are connected to the X-Road platform, and an upgrade of the platform is planned for 2021 to increase capacity and functionality.

The PA is working on introducing several laws to support the adoption of digital public platforms in WB&G. The legal and regulatory framework to support the digital transformation agenda is incomplete, missing elements such as laws on access to information, protection of personal data, cybersecurity, digital signatures, and certificates. In 2017, a cybercrime law was adopted that addresses legal issues concerning online interactions that could potentially include identity theft and illegal access to data. In July 2018, the PA also announced new regulations for the licensing of payment service providers to pave the way for the introduction of e-payments nationally. MTIT is working on filling the legislative gaps through revisions to the E-Transactions Law, such as e-signature and e-IDAS[38] standards. MTIT is building the foundation for the creation of a Certificate Authority to issue digital certificates and digital signatures. A draft Competition Law was recently approved by Cabinet but remains to be enacted. Further, MTIT is working on development of an e-government strategy and roadmap that will guide the digital transformation and introduction and scale up of e-service delivery.

Despite some positive developments, important challenges remain. The 2021–2023 ICT Sector Strategy does not outline a whole-of-government vision, and past efforts have been fragmented across PA entities, resulting in uneven levels of ICT adoption, experience, and capacity. Many Ministries, Departments and Agencies (MDAs) prefer to set up their own internal IT departments and data centers, some of which are in inadequate condition, resulting in a siloed approach to digital public platforms, duplicate investments in infrastructure, and solutions that are outdated or incompatible with other systems. Data exchange between entities is based on bilateral memoranda of understanding and is facilitated by the X-Road data exchange layer.

37. World Bank Group (2016b).
38. E-IDAS stands for "Electronic Identification, Authentication and Trust Services" and is the commonly used name for the EU regulation, 910/2014, on electronic identification and trust services for electronic transactions in the internal market. See https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv%3AOJ.L_.2014.257.01.0073.01.ENG.

There is little data on digital public platforms in the MENA Tech Benchmarking Analysis for WB&G, which makes it difficult to compare it with regional and international peers (table 3.1). Due to a lack of data, WB&G was not included in two important United Nations E-Government Development Index data sets, namely the E-Government Index and the Online Services Index. As a result, the economy's benchmarking results do not provide a complete picture of the state of e-government. WB&G performed well on two measures where data were available: (1) the "under-five birth registration rate" and (2) the "share of population that cite the lack of necessary documentation as a reason for not having a financial account," where it overperformed the regional comparators. Although WB&G's relatively high birth registration rate for children under five is commendable, the good performance on the second measure could more likely be explained by the presence of other obstacles hindering access to financial services, rather than the development of a strong system for documentation.

Table 3.1. MENA Tech Benchmarking Results: Digital Public Platforms Pillar

Component	Indicator	WB&G	MENA average	MENA average excluding GCC
Government Platforms	Under-5 birth registration rate	96%	93%	92%
	National ID coverage (age 18 and above)	-	97%	97%
	e-Government Index	-	0.54	0.44
	Online Services Index	-	0.55	0.41
	e-Participation Index	0.12	0.53	0.54
	Share of population (age 15+) who cite lack of necessary documentation as a reason for not having a financial account (2017)	4%	8%	9%

Source: World Bank Group 2021a.

3.2.1. Infrastructure for Digital Public Platforms

Access to and quality of the digital infrastructure is one of the fundamental building blocks of a digital government system. The PA has been operating the internal network (GovNet) since 2010, enabling interconnections from all MDAs and the Government Computer Center. More than 850 fiber optic lines connect PA institutions and their branch offices across the West Bank to the network, ensuring adequate speeds and capacity. In PA offices, basic connectivity is present: most civil servants and IT support staff have access to personal computers and adequate internet connections. Most of the ministries have their own server rooms and local IT staff to provide technical support and maintenance. Transaction processing and other automation for carrying out core functions are largely done through a mixture of manual procedures and use of personal computers, connected to mostly stand-alone sector systems.

WB&G is slowly putting in place the infrastructure necessary for digital public platforms to enable e-government service delivery. This infrastructure consists of the public key infrastructure (PKI),[39] physical data centers, servers, and private cloud solutions that enable the storage of data (back-end), as well as the interoperability platform (X-Road) and Zinnar data exchange layer. On the front end, the PA is working to create a unified service portal and mobile application complete with PKI aspects such as single sign-on authentication and digital payment modules that will provide end-user access to the e-government services planned for 2021. More details are provided below.

Back-End Infrastructure

The Government Computer Center under MTIT is the main entity in charge of the e-government infrastructure. The Government Computer Center operates a Centralized Government Datacenter; however, the existing IT infrastructure is not fully compatible with modern technologies and the safe use of public sector cyberspace. Interviews with stakeholders revealed that the IT infrastructure requires further upgrades and strengthening to support transformation and meet current security and business continuity needs.

In the absence of a modern and robust government data center, public sector registries and information systems are hosted in sectoral data centers and have different levels of sophistication. Some MDAs are more advanced and have invested in new data centers. In most cases, MDAs host their own servers in inadequate conditions (for example, lacking required cooling systems, fire protection, and secure access), which do not meet the minimum requirements of a modern data center. These arrangements result in increased costs of procurement, operation, and maintenance of government digital infrastructure compared with a consolidated model.

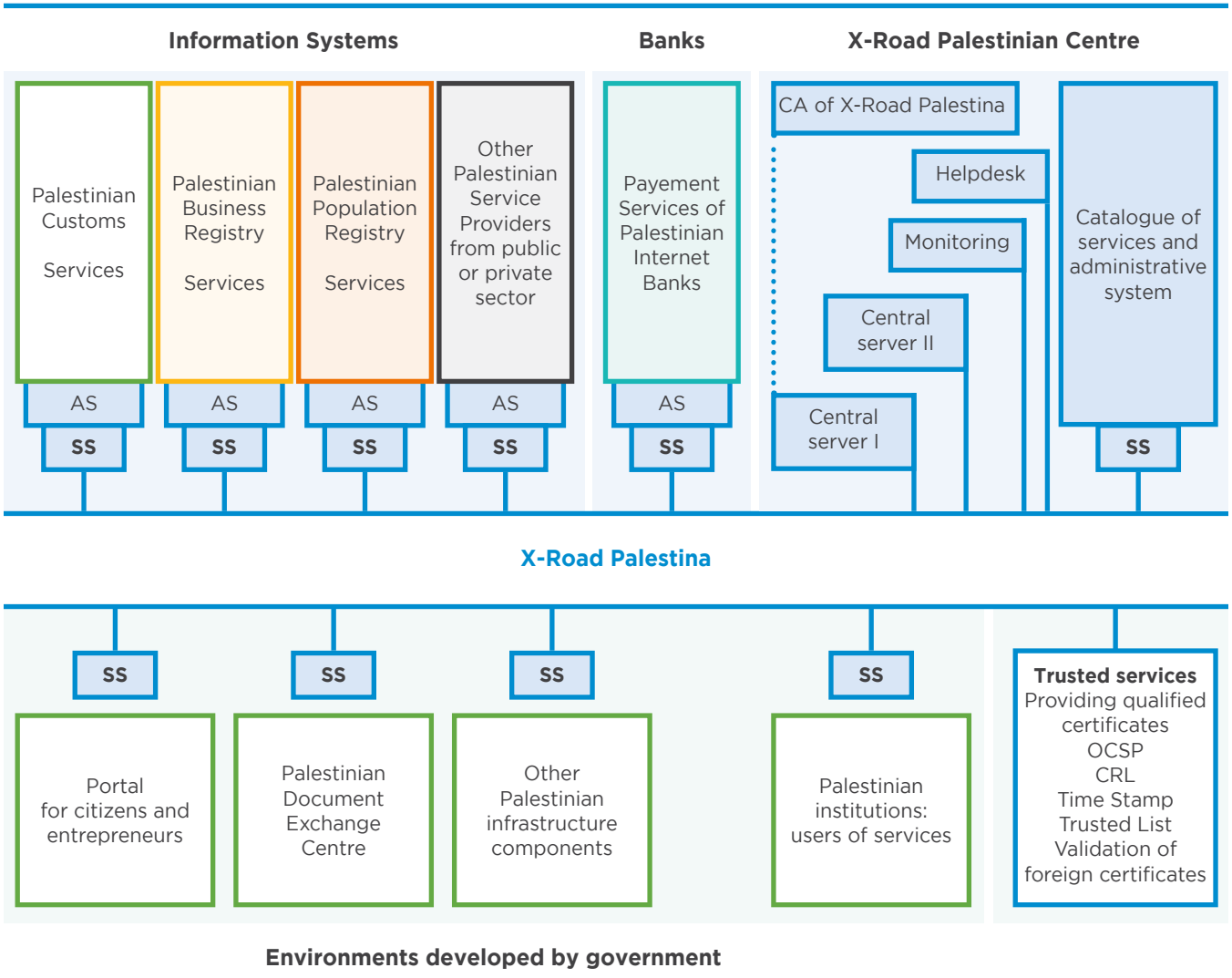
MTIT plans to create its own government wide cloud at its Ramallah headquarters and to establish a disaster recovery site at a mission location abroad. Cloud computing is seen by the PA as a key piece of the overall e-government initiative. The PA is in the process of procuring a private cloud and plans to migrate 20 percent of all government data to the cloud. The cloud storage would help reduce data redundancy by allowing ministries to collect and archive copies of important documents, key databases, and other essential data off-site. Digitizing records and using cloud systems for archiving could also generate fiscal savings, make the economy more resilient to data loss, and enable business continuity. In the future, the private cloud could replace physical servers and be used to host e-government applications and data. While some countries opt for public or hybrid cloud models, the PA selected a private cloud model due to its preferences on data localization, ensuring that all data are kept within its borders.

39. Public key infrastructure is the set of roles, processes, hardware, and software that is needed to produce digital certificates and public key encryption.

Data Exchange Layer (Middleware)

Between 2013 and 2015, the Estonian e-Governance Academy supported MTIT in implementing the X-Road data exchange layer, which facilitates the exchange of data between PA entities. The X-Road model was developed and adopted by Estonia, a recognized leader in e-government development. The X-Road model for e-governance was selected for several reasons: (1) the potential to reduce government fragmentation among connected agencies by "obliging" them to collaborate via data exchange, (2) to allow different digital platforms to communicate with each other and exchange data, (3) to ensure secure data exchange, and (4) to enable the delivery of G2C and G2B services online. Under this layer's architecture, each member of the interoperability network retains ownership and responsibility over its data and information system (figure 3.1).

Figure 3.1. Palestinian e-Governance Architecture



Source: Palestinian E-Government Academy 2014.

MTIT has encouraged the uptake of X-Road across the PA with limited results. Fifty-three agencies are connected to the X-Road platform, but so far, only G2G services have been launched on the platform and many are simple data queries between entities; no citizen facing services are currently available. In 2015, MTIT piloted programs with nine ministries to utilize X-Road to facilitate data exchange between them. The pilots included the provision of a citizen registry for the Ministry of the Interior, and a births and deaths registry for the Ministry of Health. However, data exchange continues to occur outside the system, increasing the time and cost of the service, which puts data security at risk and results in incomplete information as it is not up to date. For example, the Ministry of Interior, which owns the civil registry, shares civil status data with other MDAs only upon request. While the Civil Registry System was designed to be accessible by other MDAs, this functionality is currently not in use due to recent political and security considerations.

Although the current utilization of X-Road is below its potential, MTIT is planning to reinforce the use of X-Road by moving it from the intranet and making it available for nongovernmental stakeholders. MTIT is planning to expand the use of X-Road to provide additional G2C and G2B services, and in late 2020, it secured funding from the European Union to upgrade X-Road to the latest version. The upgraded system is planned to launch in 2021.

Public Key Infrastructure

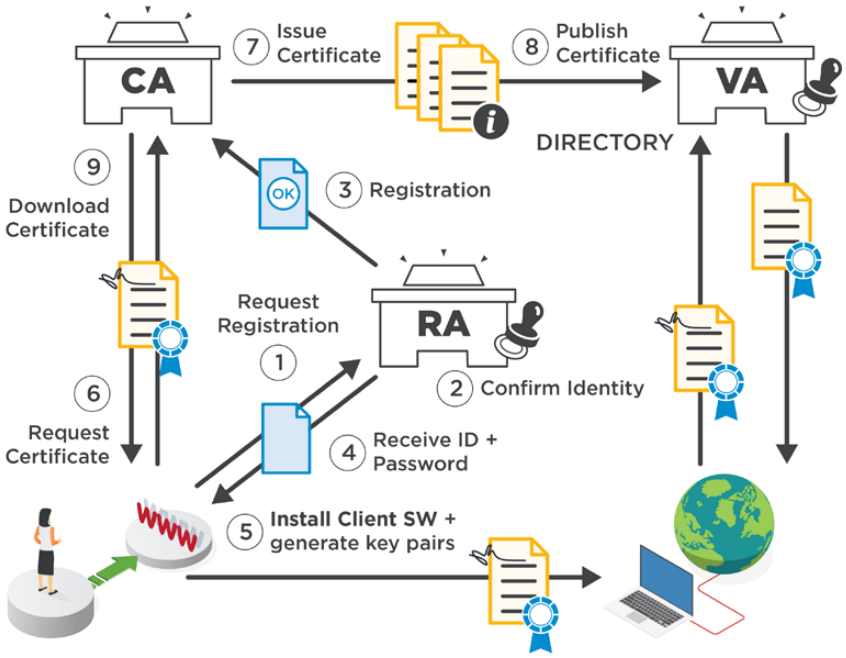
X-Road makes it possible for all the queries and replies to be signed by using its own PKI facilities. PKI governs the issuance of digital certificates that protect sensitive data; provide unique digital identities for users, devices, and applications; and secure end-to-end communications and service delivery. Many governments use PKI and digital certificates for:

- National ID programs
- Single sign-on for workstations, software applications, and electronic services
- Signed and encrypted government e-mail and other document and data exchange
- Authentication of documents through digital signatures
- Authentication of citizens' identities to access online services, such as e-filing of taxes and applying for permits, benefits, and other administrative services.

The benefits of PKI include improved facilities, network, and application access through cryptography-based authentication. PKI can close security gaps in user identification and authentication and reduce the possibility of data breaches that can result from using weak credentials, such as usernames and passwords. It also improves data integrity and security through encryption of sensitive data.

The major components of PKI are the Registration Authority, the Certificate Authority, the Certificate Directory, and Archive (figure 3.2). The Registration Authority processes user requests, saves them into the user database, and confirms their identity. Certificate Authorities are responsible for creating digital certificates and own the policies, practices, and procedures for vetting recipients and issuing the certificates. The Certificate Authority attests that the public key embedded in the digital certificate belongs to the particular entity, as stated in the certificate. The Certificate Authority also has the right to revoke a certificate if necessary. The Certificate Directory manages and stores the user's registration information and certificates for future reference. Finally, the Validation Authority is responsible for validating certificates and maintaining Certificate Revocation Lists.

Figure 3.2. Overview of Public Key Infrastructure



Source: Dener, Watkins, and Dorotinsky 2011.

In WB&G, these key components of PKI are not yet in place, which has hampered the migration to digital services for citizens and businesses. PKI enables the delivery of e-services by providing authentication and verification of digital identity, digital signature, and digital seals for documents. These are necessary prerequisites for fully transactional e-services. MTIT is working to design and implement PKI aspects. The PA worked with other countries, including France and the United Kingdom, to develop biometric electronic identity cards (e-IDs), which may be used as digital certificate holders. However, the imported equipment was held by the Israeli authorities for nearly two years before being released in January 2021.[40] The PA is working on inclusion of PKI aspects such as digital IDs and signatures in the revised E-Transactions Law. The PA is planning to develop a Certificate Authority under the Digital West Bank and Gaza Project (supported by the World Bank) that will support the establishment of the Certificate Authority, infrastructure, regulatory framework, and operating model. In absence of this Certificate Authority, MTIT is working to implement a single sign-on to authenticate users for its forthcoming unified service portal to be launched in 2021.

Front-End Infrastructure

MTIT is developing a unified service portal and mobile application to provide information about government services, processes, and documents and introduce the public to e-government services. The portal will serve as a one-stop shop for all G2C and G2B e-government services and will be accessible on all devices. MTIT has begun the automation of internal government processes to deliver citizen-centric e-government services through the portal. MTIT estimates that there are approximately 800 services offered by different MDAs across WB&G. A full inventory of G2C and G2B services is planned under the Digital West Bank and Gaza Project supported by the World Bank. Ten services have been prioritized for introduction in 2021, including property tax payment, birth certificate requests, change of address, and renewal of driver's licenses.

40. https://www.biometricupdate.com/202101/biometrics-shipment-to-palestinian-authority-mysteriously-released-after-being-confiscated.

3.2.2. Data Management and Cybersecurity

As elaborated in World Bank Group (2021b), data have the potential to drive economic growth, foster transparency and accountability, and contribute to better policy making and service delivery.[41] However, countries must ensure that their data systems and institutions are trusted by users, including citizens and businesses, to create value. To enable this trust, countries must ensure that legal, regulatory, and governance frameworks are in place to promote data generation, use, and reuse.

Data management in WB&G is complex, and there is not yet a culture of data-driven policy making in the public sector. Individual line ministries collect, manage, and store their own data and registries, such as social insurance, education, health, and others. However, there is room to improve the use of data and statistics for supporting policy making, service delivery, and performance management at the central levels and in the sectors.

MTIT and PCBS play key roles in open data initiatives. The PA has a strong interest in open data, as indicated by the creation of a National Open Data Committee. Several open data platforms exist in WB&G, including the Comprehensive Knowledge Archive Network Online Open Data Platform (www.opendata.ps) and the Sustainable Development Goals (SDGs) Open Data Platform (http://sdg-pcbs.opendata.arcgis.com/). The PCBS website (http://www.pcbs.gov.ps) offers access to indicators but is not yet an open data platform. In 2018, an Open Data Readiness Assessment was completed, which examined the further potential and provided recommendations on expanding open data in WB&G. Key recommendations included strengthening the legal framework around access to information and developing a stand-alone open data policy that enables proactive disclosure of data.

MTIT has implemented some security provisions to protect its systems from cyberthreats. In 2015, MTIT developed a framework to ensure the integrity, authenticity, and availability of data being stored or transported over the government network between the connected ministries and founded the Palestinian Computer Emergency Response Team, a unit that acts as a central point to identify, respond to, and manage cyber threats while simultaneously enhancing the cybersecurity of the PA. Between 2016 and 2018, the cooperation between the

41. World Bank (2021b).

Estonian e-Governance Academy and MTIT continued in the area of security with the implementation of the three phases of the Palestinian Computer Emergency Response Team, consisting of network security monitoring and security assessment. MTIT also introduced an information security policy based on International Organization for Standardization standard 27001, as well as an Information Security Management System. However, implementation of cybersecurity requirements is inconsistent across MDAs and deserves better attention.

3.2.3. Back-Office Platforms

Most of the government's core systems, such as the Financial Management Information System (FMIS), e-procurement system, Social Benefits Information System, Information System on Statistics, and others were designed as stand-alone systems that are not fully integrated. As a result, staff require several manual steps and off-line exchange of data to ensure verifications and controls or conduct reporting. Core systems of the government would benefit from further digitization as they lack internal integration, critical functionalities, and key controls. The design and architecture of these systems lacks a whole-of-government approach and citizen-centric service delivery focus. In addition, some of these systems are hosted and rely on sector-specific data centers. The following are some examples of the core systems used in WB&G.

Public FMIS. The FMIS is one of the central government systems that can support expenditure control, budget execution and transparency, and G2G service delivery. The repository of public sector financial transactions on an FMIS provides the basis for producing financial statements, compliant with the cash reporting standards as the main vehicle of transparency and financial accountability. However, the FMIS system in WB&G has several limitations, including controls for budget compliance and commitments resulting in high arrears at year end. Further, it is not connected to other government systems, such as tax administration, debt management, customs management, audit management, and central banking systems, limiting functionality.

E-procurement system. Public procurement accounts for around 10 percent of GDP in WB&G. As part of the public sector modernization, the PA is prioritizing the development and implementation of an e-government procurement (e-GP) system, which can enhance service delivery, transparency, and citizen satisfaction. The High Council for Public Procurement Policies (HCPPP) is the entity with the legal mandate for leading and managing the implementation of e-GP and for its operation and maintenance. Over the past few years, HCPPP has taken important steps toward the modernization of public procurement, such as launching a single procurement portal (www.shiraa.gov.ps) and developing and issuing standard procurement documents and contract templates, which are essential for e-GP implementation.

To guide e-GP implementation, HCPPP, supported by World Bank experts, recently launched the preparation of an e-GP implementation strategy, which was expected to be finalized in June 2021. The strategy will define the scope, functionality, implementation and institutional arrangements, necessary legislation, security requirements, system development approach, roadmap for phased implementation (in terms of system functionalities and targeting of public agencies), and business model for operation and maintenance. The e-GP system will facilitate the automating and streamlining of all aspects of the government procurement process (from planning to tendering, contract monitoring, and payment). It is envisaged that the system will build on the functionalities that are already available or under development in the single procurement portal (shiraa.gov.ps), which include procurement planning, publishing of procurement and contract award notices, downloading bidding documents, monitoring and reporting, handling of complaints, and so forth. The e-GP system will be hosted in the PAs data center in MTIT and will use MTIT digital government infrastructure and systems to establish interoperability with relevant PA systems, including budgeting and other modules of Integrated FMIS, e-payment, and the business registry. It will also establish linkages with local commercial banks to facilitate electronic submission of bid securities.

Social assistance system. The Ministry of Social Affairs has developed an in-house system for social assistance that provides information on social insurance cash transfers, emergency assistance, orphans, disability, economic empowerment for the disabled, and customs exemption for people with disabilities, among others. The system provides only basic functionalities without being interoperable with other government systems.

Business registration system. The Ministry of National Economy is working on the development of an automated company registration system, which would allow citizens to search business names online, reserve a name, and submit registration documents electronically, while tracking the approval process. The system would allow entrepreneurs to register their company electronically, following simplified and transparent procedures, and to print a digitally generated company registration certificate that is sent to them following approval.

Justice sector systems. To automate some Ministry of Justice processes, a case management system was introduced. The ministry also developed a Document Management Archive System to streamline activities digitally, like arbitration, complaints, endorsements, translation, and archiving. To facilitate citizens' access to legal information, the PA's Ministry of Justice has also set up an online Justice Information Center with basic information on the legal process for the public.[42]

Health care systems. The Ministry of Health has developed a centralized Health Management Information System, which aims to standardize patient administration and management procedures across hospitals and primary health care centers. The plan is to extend this system to provide e-referrals and medical leave slips and enable portable health records.

Citizen engagement platforms. Some ministries, such as MTIT and the Ministry of Health, are successfully utilizing Facebook as a citizen engagement platform. The Facebook pages have a large national following and allow for constant interaction between the ministry and connected citizens. The Ministry of Telecom in Gaza has also introduced a Facebook page to communicate with citizens.

3.3. Challenges to the Development of Digital Public Platforms

3.3.1. Deficiencies in the Legal and Regulatory Environment

The political context in WB&G has led to a fragmentation of the laws and regulations covering e-government and the development, deployment, and use of digital public platforms. At present, the legal and regulatory framework to support the digital transformation agenda is incomplete, missing elements such as laws on access to information, protection of personal data, cybersecurity, digital signatures, and certificates. The absence of an enforcement mechanism or enforcement authority by MTIT to mandate the use of X-Road means that other ministries fully retain the choice to adopt and use MTIT's digital public platform for interoperability. The current IT governance arrangements allow MDAs to opt into the whole-of-government IT initiatives rather than mandating their use.

Lack of laws on access to information and data governance are among the impediments to development of digital platforms. There is no law of general application that regulates the collection and processing of personal data or personally identifiable information, including providing for corollary rights of access to, rectification of, and destruction of that information. The right of access to information and the transparency of public information are currently not protected by legislation, because an access to information law has not been passed. A strong intellectual property law is missing to provide clarity on the use of nonpersonal data in e-transactions. And importantly, an e-government strategy has not yet been formulated to provide a roadmap for the introduction of digital public platforms.

The recently adopted E-Transactions Law has deficiencies that impact the development of digital public platforms, including the use of digital IDs and digital signatures. In 2017, the Council of Ministers approved the E-Transactions Law, which regulates electronic services and digital commerce and covers the provisions needed for the e-government payment portal. However, this law has several limitations, specifically the coverage and

42. http://www.moj.pna.ps/ar_services.aspx.

provision of digital IDs/signatures and establishment and operation of a certification authority that will issue digital IDs for use in all types of business and personal transactions.

3.3.2. Institutional Arrangements and Interoperability

Although MTIT developed the Zinnar Interoperability Framework, which outlines the set of agreed standards to exchange data messages between ministries in 2013 (annex B), the standards are not enforced. MDAs in WB&G have different representations and encoding of similar data (such as nationality, gender, country, currency, and so forth) in their databases, which causes problems in interoperating data correctly when exchanged between their systems. A ministerial committee was formed in 2011 to monitor continuously and ensure interoperability between the ministries in compliance with Zinnar's standards and norms. Despite some progress, issues with data interoperability remain and more work is needed to ensure consistency of data naming and organization to facilitate data exchange between digital public platforms and services.

Apart from interoperability, other relevant standards and operating models are also missing in areas like IT service management, risk assessment frameworks, and e-government workflow and documentation standards. An enterprise architecture mapping all systems, registries, and components could serve as a blueprint for e-government development and reduce redundancies in IT investments. This enterprise architecture is a key tool for replacing and upgrading legacy systems, equipment, and software. There are also no software development standards for IT governance, project management standards, or software development lifecycles. Such IT standards are important, because when dealing with critical public service delivery systems, they facilitate a revision in choices in response to changes in market and technology conditions.

Weak interagency coordination mechanisms impede the implementation of a whole-of-government approach to digitization: the design and implementation of digital services and core government systems are conducted on an ad hoc and reactive basis. As of 2021, there are no policy documents outlining specific strategies for horizontal and vertical coordination. That means that there are no incentives in place to work with other ministries. This was also the case as far back as 2011 when 80 percent of the Organisation for Economic Co-operation and Development (OECD) survey respondents agreed with the claim that the lack of incentives was a significant obstacle (OECD 2011).

The lack of leadership and an enforcement mechanism for adoption of the digital public platform has prevented the utilization of the X-Road data exchange across other MDAs. A Higher Ministerial Committee for e-Government was established in 2014 to support the implementation of the e-transformation agenda by coordinating the effort across various MDAs. Its responsibilities include formulating strategies, managing the budget of public platforms, monitoring and implementing standards, setting schedules, and integrating PA policies. However, in 2016, the e-Government Core Team stopped convening, partially for funding reasons, but also because of changes in staff. The pace of implementation of many e-government projects within MTIT slowed and, in some cases, projects were even scrapped. Between 2016 and 2019, the e-government reform was de-prioritized, thereby weakening the role of MTIT.

The technical capacity of MTIT is limited, challenging its ability to fulfill its mandate as the overall driver of e-government reforms. The rationale for mandating MTIT to lead the e-Government Core Team was to institutionalize and strengthen its leadership and coordination role over all aspects of e-government implementation, including the harmonization of technical standards. However, during consultations for this report, some MDAs did not voice trust in MTIT's ability to maintain operations and manage technical cooperation with other line ministries. There is anecdotal evidence of downtime of e-mail servers and X-Road, as well as limitations in communication and coordination that point to areas of weaknesses in the technical capacity of MTIT that prevent it from fulfilling its mandate.

The lack of organizational capacity and digital skills at MTIT and in the public sector at large is a further challenge to the institutional setup. Skill areas, such as process reengineering, project management, infrastructure and application architecture, design, quality assurance, organizational change management, and portfolio management

standards and capabilities, are largely absent or only basic in nature within MTIT and most ministries (World Bank Group 2016c). From global experience, a lack of skills affects the implementation of e-government plans, maintenance of existing systems, provision of services, adoption of digital platforms nationally, and compliance with the relevant digital requirements. MTIT's e-Government Directorate is currently understaffed to conduct its mandate. The staff is overstretched due to duty sharing between MTIT's IT management and e-government responsibilities. Additional resources are needed for tasks such as stakeholder engagement, portfolio management, ICT procurement, shared infrastructure and application operations maintenance, formulating standards and guidelines, maintenance, and security.

Several major skills and training projects were implemented between 2010 and 2015, but most of the training recipients have left the PA since then. The Estonian e-Governance Academy provided training courses, study trips, and student exchanges in parallel with the development of the X-Road system. Former training programs for civil servants were also designed and implemented by the e-Governance Academy at Birzeit University, but the program is currently inactive. Due to high employee turnover in MTIT resulting from low wages, and a lack of organizational memory, there is currently a significant lack of technical capacity within MTIT staff to operate national digital public platforms.

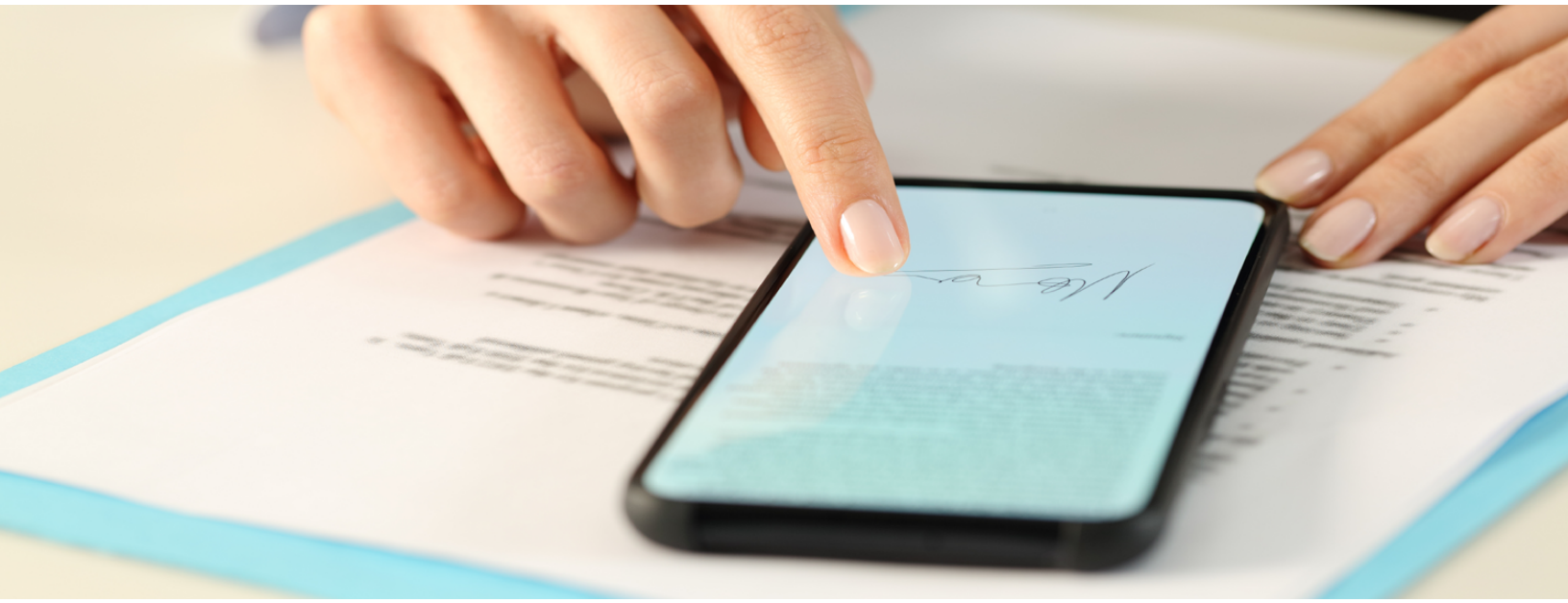
Governance challenges are further exacerbated by the lack of coordination between multilateral and bilateral donor organizations in terms of providing financial support and technical assistance to WB&G. Donor agencies often operate independently to develop end-to-end capacity and capability, regardless of the availability of central or common ICT infrastructure. In some cases, a ministry e-government architecture is completely determined by a funding agency. This has led to duplication of efforts and redundant investments wasting scarce financial resources.

3.3.3. Security Risks

There has been some progress in establishing data backup and recovery systems, yet the absence of a disaster recovery site has left the MTIT data center vulnerable to attacks. Business continuity systems are the backbone of digital government to ensure sustainability of operations. They aim at providing system continuity in case of failures and disruptions (such as fire, natural disaster, or a security data breach) by ensuring resilience, recovery, and contingency. MTIT prepared for system failures by backing up on a weekly basis all data on physical discs, which are then taken to a secret location outside Ramallah. However, most MDAs have irregular and inadequate data backup and recovery systems. This puts the continuity of operations at risk. Inconsistencies in the application of information security requirements increase the vulnerability of the administration's ICT environment to disruptions, cyberattacks, and data loss. MTIT has secured funding for a private cloud and is planning to establish a disaster recovery site; yet until these measures have been fully implemented, data security will remain at risk.

3.4. Recommendations

Digital public platforms can support seamless, user-friendly, cost-effective, and secure digital interactions between citizens, businesses, and government in WB&G. Interoperable digital public platforms can facilitate data exchange and data access and allow automatic verification, which can reduce administrative burden, errors, corruption and fraud risk, and the costs of service delivery. Digital public platforms can also increase access to data and services even in remote areas, promoting social and economic inclusion, entrepreneurship, and prosperity. Utilizing ICT solutions to modernize core government operations (GovTech) can improve the efficiency, performance, and resilience of the central administration.



A governmentwide digital platform and increased digital capabilities will enable the development of e-government services on a continuous basis. Through the platform approach and the capability to "imagine, deliver, and run" e-government services, the PA can accelerate its digital transformation in an efficient way, since solutions can be scaled up and diffused across ministries and levels of government at a lower cost. These solutions would improve service efficiency and the ability to respond to shocks, but also minimize impact and increase the speed of recovery in the aftermath of climate disasters and pandemics. The enhanced usage of digital services and digital platforms can expand the coverage of services, which will be especially useful given the current restrictions placed on the movement of Palestinian citizens. The following are the key recommendations emerging from the analysis:

1. **Develop a comprehensive e-government strategy to guide digital transformation.** The strategy can build on the existing ICT Sector Strategy and adopt a whole-of-government approach for e-government development. Development of the strategy should include a wide range of stakeholders and encourage active participation of different MDAs to ensure wide ownership of the resulting vision. The strategy should include a costed and phased action plan for key steps for implementation and modernization of services.

2. **Strengthen leadership and promote institutional coordination for digital transformation.** Strong political will and leadership are needed at the highest level of government to ensure effective institutional coordination and promote the necessary legal and regulatory changes to increase and enforce use of X-Road, FMIS, e-procurement, and other systems. High-level leadership by the President or Prime Minister can promote the whole-of-government transformation approach and help overcome political opposition at the ministerial level. The High Ministerial Committee headed by the Prime Minister can be utilized to raise awareness of the transformation vision and create a common understanding of the agenda, timeline, and targets.

3. **Strengthen the legal and regulatory framework to enable digital government.** MTIT is working on filling the gaps in the legislative aspects of e-transactions, such as single sign on, digital signature, and digital payments, in coordination with different bodies. The concepts of "shared enabling e-services," such as e-authentication, e-notification, e-logging, e-payment, and e-signature, which can be reused for all sector-specific services, are also needed to realize transaction-level e-service delivery to citizens and businesses.

4. **Design and implement a whole-of-government ICT enterprise architecture to provide the blueprint for digital government.** This architecture could be developed as part of the e-government strategy mentioned

above and could establish shared IT services using a platform approach. This will reap economies of scale through standardizing and reusing the technology capabilities that are required across the PA. Examples of shared government capabilities include public sector data centers and G-Cloud, cybersecurity, interoperability platform, e-services portal, open data supported by open application programming interface (API), data warehouse and business intelligence, and a document management system. The architecture should include policies related to shared infrastructure that clearly spell out guidelines and standards for building and operating data centers and disaster recovery centers. These guidelines and standards should also guide the selection of replacements and upgrades to outdated solutions, software, and equipment to ensure interoperability. The architecture should also cover the promotion of e-signatures for the purpose of authentication and nonrepudiation in e-government, establishing legal validity for signing forms electronically, setting up certifying authorities' organizational structure to promote and regulate e-signature adoption, ensuring interoperability between e-signature certificates issued by different certifying authorities, and providing clear guidelines on usage and procurement of digital certificates for e-government projects.

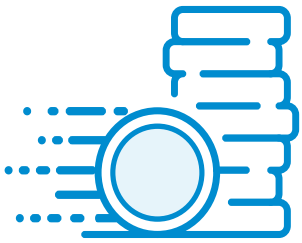
5. **Centralize procurement of ICT services for PA agencies.** WB&G needs to develop a central database on all existing assets in the public sector, including their age, and to devise a strategy for ICT procurement based on the inventory of existing assets. A more unified investment in public sector IT needs to be implemented to coordinate central and sectoral IT investments. It is critical to establish a unit in charge of ICT procurement policy at the central government level and establish cooperation and collaboration with MDAs to avoid duplication and improve the value for money of ICT investments. The unit, inter alia, will be responsible for putting in place the arrangements for framework agreements for aggregated demand for ICT solutions and services. In the absence of such unit, MTIT should provide guidance on how hardware, software, and ICT services should be procured in a public tendering process; how different aspects of the ICT system or e-service should be verified to conform to industry standards; how much budgetary allocation should be made available for e-government projects for each ministry; and how the ministry should utilize the budget.

6. **Promote the development of digital services and uptake by citizens and businesses.** MTIT is currently building a unified portal for service delivery. Having a clear plan for prioritization and digitization of services can be informed by an administrative service inventory. This inventory can be used to identify high-value and high-impact services that can be prioritized for digitization. To support uptake of the portal and available services, MTIT will conduct a feasibility study to examine the use of the post office network to provide digital access points to enable service access to those without internet or devices, or who may need assistance with e-services. With 82 branches across the territory, the post offices already offer some government services from the Ministry of the Interior, Ministry of Justice, and Ministry of Transportation and enable users to pay utility bills. Other means to promote uptake include conducting outreach on new services and providing tools for two-way communication between government and citizens. This can be accomplished by adding citizen feedback channels to the unified portal to obtain real-time data on citizen satisfaction with services and identify service gaps. Other ministries, such as the MOE, Ministry of Health, Ministry of Justice, and Ministry of Foreign Affairs, are effectively using social media channels to communicate with a wide range of citizens and businesses without further taxing limited resources.

7. **Build the capacity of MTIT and government stakeholders on key aspects of e-government.** The technical and administrative capacity of MTIT needs to be strengthened to fulfill its mandate. MTIT's e-government staff is in urgent need of training in IT policy, standards, management, implementation, and cybersecurity. Enhancing the capacity of the e0government unit is required to cover the key responsibilities of stakeholder engagement, portfolio management, ICT procurement, common infrastructure and application operations and maintenance, and formulation of standards and guidelines, while maintaining and mandating quality assurance and security. Offering IT literacy courses to public officials in line ministries is also an effective method for reducing the digital divide and skills gaps within the different ministries. Outsourcing some tasks to the private sector could be a short-term solution to address the skills gap at PA institutions. There is an active ICT sector in WB&G that can support digital transformation and provide technical assistance in development, implementation, and monitoring of e-services.

4

Digital Financial Services



4.1. Importance of Digital Financial Services

Digital financial services are important enablers of the digital economy. Digital payment services can facilitate wider use of digital financial services through basic transaction accounts. Both access to and usage of digital payment services are important drivers for the digital economy. Digital financial services can be more accessible for lower-income and rural households as well as for women and youth – the segments of the population that are often underserved by traditional financial services.

According to the G20 High-Level Principles for Digital Financial Inclusion,[43] digital financial services cover financial products and services, including payments, transfers, savings, credit, insurance, securities, financial planning, and account statements. Digital financial services are delivered via digital/electronic technology, including through a payment card, online, or via a mobile phone, and various instruments may be linked to e-money or traditional bank accounts. Digital financial services can provide individuals and households convenient and affordable channels by which to pay and be paid, as well as to save and borrow. Governments can use digital financial services to increase efficiency and accountability in various payment streams, including for the disbursement of social transfers and receipt of tax payments.

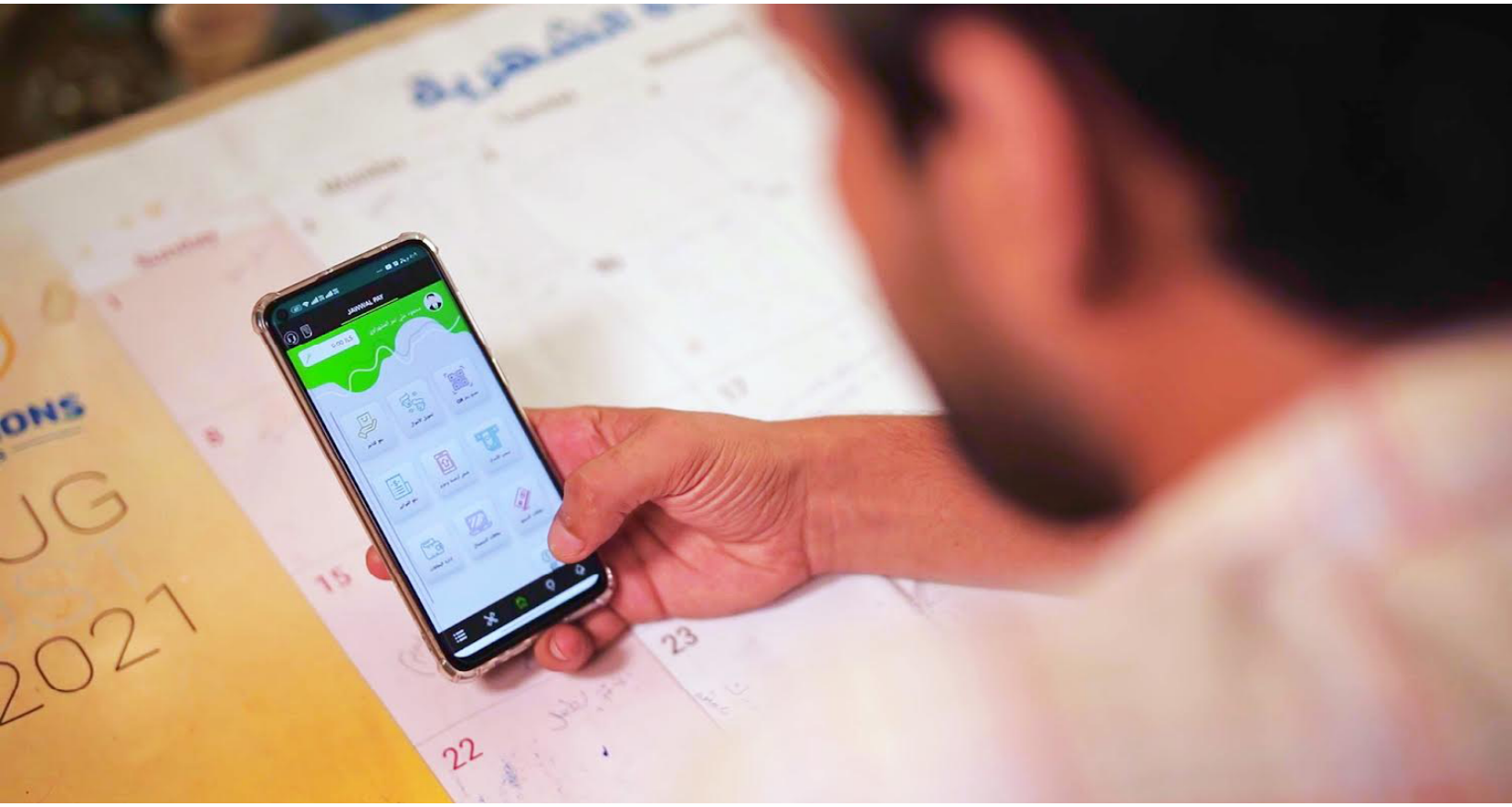
Digital payments are often the entry point for digital financial services and provide the infrastructure or "rails" through which additional products and use-cases can be developed, as has been demonstrated by the evolution of M-PESA in Kenya, for example. A digital financial services ecosystem needs to be supported by appropriate and forward-looking legal and regulatory frameworks (for example, to allow market entry and innovation), robust financial infrastructure (for example, national payment systems and credit reporting systems), and development and deployment of low-cost delivery channels (for example, agents, point-of-sale (POS) devices, automated teller machines, and mobile phones).

43. GPFI (2016).

The success of digital financial services is driven by two key enablers – access and usage. These are also the two overarching metrics used to assess the level of digital financial services. Technology and in particular mobile phones have proven to be an important tool for (1) providing access to different types of financial services in locations with inadequate physical infrastructure, (2) enabling access for the previously unbanked population, and (3) facilitating market entry and increasing competition between different payment service providers. Uptake of digital financial services is driven by factors such as trust, security, convenience, cost, transparency, the use cases, and the overall level of financial literacy.

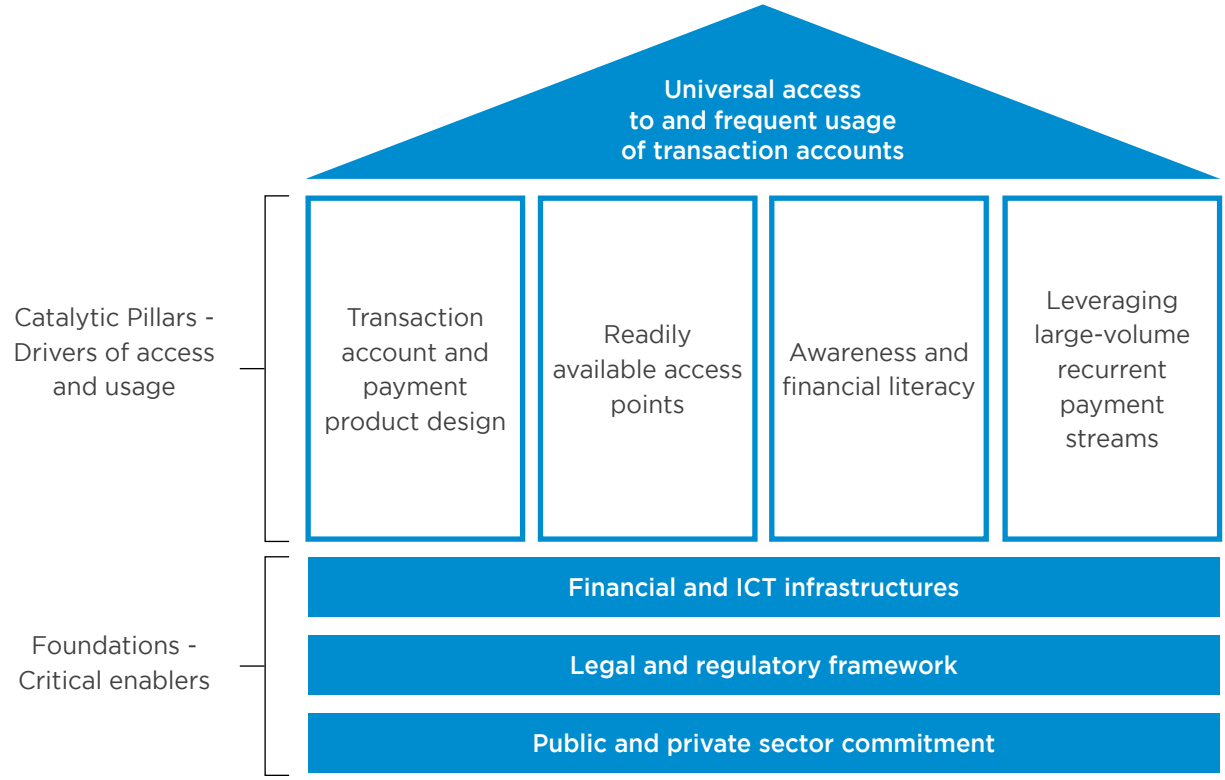
The COVID-19 pandemic has further underlined the importance of digital financial services. The COVID-19 crisis has heightened the focus on the role of digital financial services in relation to the distribution of financial aid to citizens, including to the unbanked population, and in reducing and replacing the use of cash with digital payments.

Increased access to and usage of digital payments and (more broadly) financial services are also one of the fundamental pillars of the Payment Aspects of Financial Inclusion (PAFI) framework, which was designed by the Committee on Payments and Market Infrastructures (CPMI) and the World Bank.[44] This framework sets out several recommendations, which are centered around the general premise that by ensuring access to and use of basic transaction accounts in which to store value and conduct payments, the foundation can be built for the use of other financial services (figure 4.1). The framework can be used as a targeted tool for enabling and increasing financial literacy and financial inclusion and facilitating the wider use of digital financial services for the benefit of the digital economy. The PAFI framework has been further expanded in the context of fintech,[45] focusing on the impacts and implications of new technologies and new types of payments facilitated by technology.



44. World Bank Group (2016a); World Bank and CPMI (2020).
45. Fintech is defined as advances in technology that have the potential to transform the provision of financial services, spurring the development of new business models, applications, processes, and products.

Figure 4.1. Payment Aspects of the Financial Inclusion Framework



Source: World Bank Group 2016a.

The World Bank Digital Economy Assessment framework as well as the PAFI framework are utilized in this chapter to assess and analyze the digital financial service ecosystem in WB&G and provide recommendations. More specifically, the chapter looks into the catalysts for access and usage spanning policy, the legal/regulatory framework, infrastructure and interoperability, and prominent use cases such as remittances, government payments, and e-commerce.

4.2. Diagnostic Findings: The Current State of Digital Financial Services

4.2.1. Access to Digital Financial Services

The uptake of basic bank or payment accounts (transaction accounts) is low in WB&G. By the end of 2017, only 25 percent of the population of WB&G over age 15 had a basic bank or payment account (transaction account), with 16 percent female and 34 percent male account ownership.[46] Over half of the respondents to the recent Findex survey (51 percent) reported having no need for an account because of insufficient funds (table 4.1). Account ownership varies by income level – 34 percent of high-income individuals versus 12 percent of low-income individuals have bank accounts. Among those in the labor force, 45 percent have a transaction account, yet only 4 percent reported having opened an account to receive wages (World Bank Group 2017a).

46. The latest Findex data for WB&G are from 2017.

Table 4.1. Transaction Account Data, 2014–17

Economy	Account ownership, overall (% age 15+)	Account ownership, female (% age 15+)	Account ownership, male (% age 15+)	Account ownership, in labor force (% age 15+)	Account ownership, young adults (% ages 15-24)	Account ownership, poorest 40% of population (% ages +15)
WB&G, 2017 (2014)	**25% (24%)**	**16% (21%)**	**34% (27%)**	**45% (41%)**	**12% (11%)**	**12% (16%)**
Jordan, 2017 (2014)	42% (25%)	27% (16%)	56% (33%)	57% (40%)	25% (12%)	33% (16%)
Tunisia, 2017 (2014)	37% (27%)	28% (21%)	46% (34%)	49% (34%)	23% (19%)	21% (15%)
Egypt, Arab Rep., 2017 (2014)	33% (14%)	27% (9%)	39% (19%)	29% (8%)	14% (7%)	20% (5%)
MENA average, 2017 (2014)	43% (33%)	35% (26%)	52% (40%)	35% (27%)	32% (26%)	35% (27%)

Source: World Bank Findex.
Note: 2017 represents the latest World Bank Findex data iteration as of the time this chapter was written. MENA = Middle East and North Africa; WB&G = West Bank and Gaza.

The penetration of transaction accounts in WB&G is lower than the MENA average and the increases in account ownership recorded in other countries in the MENA region have not followed suit in WB&G. Account ownership declined among females and low-income groups but increased in rural areas from 2014 to 2017.

Payment cards remain the predominant digital retail payment instrument in WB&G. According to Findex data, 14 percent of the adult population had a debit card in 2017, up from 11 percent in 2014. Based on the 2017 World Bank Global Payment Systems Survey (GPSS),[47] there were slightly fewer than one million payment cards issued by the end of 2017. Additional data provided by the Palestinian Monetary Authority (PMA) indicate growth of more than 30 percent year-on-year in the volume of card transactions from 2016 to 2018. The penetration of credit cards is lower compared with debit cards (table 4.2), and only 3 percent of the population has a credit card (MENA Tech based on Findex 2017).

47. The GPSS is conducted every two years and gathers data from central banks around the world on different payments related aspects.

Table 4.2. Selected Indicators on Digital Financial Services (%)

Component	Indicator	WB&G	MENA average	MENA average excluding GCC
Cashless Payments	Debit card ownership (age 15+)	14	42	28
	Debit card used in the past year (age 15+)	4	27	14
	Credit card ownership (age 15+)	3	12	6
	Adults with an account at a financial institution (age 15+)	25	54	43

Source: World Bank Group 2021a.
Note: GCC = Gulf Cooperation Council countries; MENA = Middle East and North Africa; WB&G = West Bank and Gaza.

Stored value products, including e-wallets and prepaid payment cards[48] issued by nonbanks, were first introduced in WB&G in 2020, facilitated through changes to the legal and regulatory framework. By the end of 2020, more than 52,000 e-wallets were issued, of which 16 percent were issued to women.[49] The use of e-wallets is currently limited to transfers and payments between other e-wallets issued in WB&G. The number of prepaid cards issued by the new payment service providers remains very low compared with the number of e-wallets.

4.2.2. Usage of Digital Financial Services

The general use of basic financial services, including digital financial services, is low overall in WB&G and the use of cash and checks remains high. According to the Findex 2017 data, 14 percent of the respondents reported having made or received a digital payment (table 4.3), which is an increase from 12 percent in 2014. According to the same source, 83 percent of the respondents paid their utility bills using cash only, only 2 percent of the respondents paid such bills via a mobile phone, and 12 percent of the respondents paid utility bills through an account. The reliance on cash as the primary means of payment is higher in Gaza, compared with the West Bank. Moreover, wages are primarily paid in cash and only 6 percent of employees received their wages to a bank account.

48. Stored value covers different types of e-money products of which mobile wallets and prepaid cards are the most widely used.
49. PMA (2020a).

Table 4.3. Usage Data, 2014–17 (%)

Indicator (% age 15+)	WB&G, overall	WB&G, poorest 40% of population	MENA, average	MENA poorest 40% of population
Made or received digital payments in the past year, 2017 (2014)	14 (12)	7 (6)	33 (N/A)	26 (N/A)
Used the internet to buy something online in the past year, 2017 (2014)	5 (N/A)	1 (N/A)	7 (N/A)	5 (N/A)
Used the internet to pay bills or make purchases, 2017 (2014)	7 (N/A)	2 (N/A)	12 (N/A)	9 (N/A)
Sent or received domestic remittances using an account, 2017 (2014)	2 (1)	N/A (N/A)	9 (N/A)	N/A (N/A)
Received wages into an account, 2017 (2014)	6 (7)	N/A (N/A)	10 (N/A)	N/A (N/A)

Source: World Bank Findex and Palestine Monetary Authority.
Note: MENA = Middle East and North Africa; N/A = not available; WB&G = West Bank and Gaza.

Although it is difficult to quantify the actual volume of cash payments, more than nine million payments were made by check in 2018. The number of payments by check remains consistently high year-on-year. The volume of credit transfers in 2018 was 374,000 and there were no direct debit payments,[50] as this product is not currently offered in WB&G.

In 2018 there were a total of 1.2 million domestic POS payment card transactions in WB&G with a total value of US$64 million.[51] This was an increase by more than 30 percent compared with the previous year and amounted to a total of a little more than one transaction per card per year on average, but with significant growth year-on-year. The usage of credit cards is somewhat more frequent than debit cards. The acceptance infrastructure is mainly based on traditional POS devices and asset light acceptance infrastructures such as Quick Response codes have been deployed only recently in WB&G.

Usage of e-wallets is still emerging, with transactions being predominantly person-to-person payments and cash withdrawals. The total value stored by prepaid cards appears to be proportionately higher compared with e-wallets.

50. PMA data.
51. Based on PMA and World Bank GPSS data.

Although several banks offer internet banking, mobile banking, and SMS banking services, which can facilitate the supply of different digital financial services to customers, the actual use of these methods remains low. According to the Findex 2017 survey, 7 percent of the respondents used the internet to pay bills or conduct online purchases, whereas only 2 percent of the respondents paid bills using a mobile phone. Credit transfers initiated via the internet, and in particular via mobile phones, are growing annually, but the volume of transactions initiated through these channels is still low compared with other channels.

An important inward flow of funds into WB&G comes from the large number of Palestinians working in Israel. These salary payments are made in cash, by check, and to a lesser extent through bank transfers. Work is under way between the PMA and the Bank of Israel with the overall aim of increasing the use of electronic payments, which also includes salary payments for the Palestinians working in Israel.

4.2.3. Policy, Legal, and Regulatory Framework

The PMA has adopted a comprehensive National Payment Development Strategy. The strategy covers 2018 to 2023 with the overall vision "to build Palestine into a leading user at the forefront of electronic payment methods in the manner that supports the national economy and enhances risk mitigation."[52] The strategy employs a broad approach of promotion of the use of electronic payments through the involvement of all relevant actors and with particular focus on the enabling infrastructure. The adopted strategy primarily focuses on promoting digital payments; it will assist in providing the foundation for the wider use of digital financial services in WB&G. The National Payment Development Strategy is focused on several key areas, including (1) developing the legal environment in support of payments and e-commerce; (2) developing the infrastructure supporting payments; (3) increasing access to electronic payments, in particular across the different demographics; and (4) raising public awareness in relation to electronic payments and using the public sector as a catalyst for increasing the use of electronic payments.

52. PMA (n.d.).

The PMA has also adopted a National Strategy for Financial Inclusion for 2018–2025 with the vision of "achieving a developed financial sector that fully meets the financial needs of all segments of the Palestinian society to improve their welfare." The strategy defines financial inclusion as enhancing access to, and use of, financial products and services by all segments of society via formal channels, while meeting their needs in a timely and affordable manner, protecting their rights, and promoting their financial knowledge to enable them to make well-informed financial decisions. Only 36.4 percent of the adult population was financially included in 2016. The strategy is based on the overarching goal of increasing financial inclusion of the adult population to at least 50 percent by 2025. This is to be achieved by a targeted focus on particular segments of the population, in particular women and young people.

The PMA is the sole regulator of banks and the different types of payment service providers in operation in WB&G. Banks operating in WB&G are regulated under Presidential Decree No 9 of 2010 on Banking Law. The PMA also has the exclusive powers to supervise and oversee payment systems in WB&G.[53]

The National Law for Payment Settlement (NPS) of 2012 provides the PMA exclusive powers to supervise and oversee payment and settlement systems in WB&G. The law provides the PMA powers to supervise payment systems and provide approvals to existing and new providers of payment services and providers of clearing and settlement facilities. The NPS also includes general provisions such as on the irrevocability and finality of payments. The NPS law provides the PMA broad powers to make necessary decisions and instructions in relation to fulfilling its different roles under the NPS, and a broad regulatory framework is in place in relation to banks and money exchanges.

In 2014, the Board of Directors of the PMA approved an oversight policy framework based on international standards and best practices, which forms the bedrock of the oversight activities of the PMA in WB&G. The PMA has established a separate and dedicated oversight unit, which is responsible for applying the oversight policy framework in WB&G.

The PMA issued a new regulation in 2017 on money changers, with the specific aim to improve transparency, consumer protection, and competition in relation to remittances. The regulation mandates the publication of fees and disclosure of information, imposes limits on prices and transaction speed, and enables microfinance institutions to operate as money transfer operator (MTO) agents. A US$7,000 limit was introduced for transactions processed by money changers and MTOs to limit the size of cash transactions and encourage a shift to account-based transactions.

Anti–money laundering and combatting the financing of terrorism is regulated under Presidential Decree Laws No. 20 of 2015 and No. 13 of 2016. These laws apply to financial institutions and any entity designated under the laws. The laws provide the general framework for combatting money laundering and terrorist financing in WB&G, ranging from criminal law aspects to the duties of competent authorities. The laws also set out the obligations of financial institutions and the designated entities in stipulating requirements in relation to "know your customer" procedures and reporting of suspicious activities. A national Anti–Money laundering and Counter Terrorist Financing Committee is also to be established, which will be tasked with developing and coordinating the anti–money laundering and combatting the financing of terrorism activities in WB&G and internationally.

A somewhat general legal and regulatory framework is in place in support of conducting electronic transactions through the use of electronic documents and electronic signatures. A basic recognition of electronic signatures and electronic record keeping is contained in the NPS law. A general framework recognizing the validity and

53. A payment system is defined by the CPMI as: "A set of instruments, procedures, and rules for the transfer of funds between or among participants; the system includes the participants and the entity operating the arrangement."

use of electronic signatures as well as the use of electronic documents and contracts is set out in the Electronic Transactions Law No. 15 of 2017. This wider framework is also of importance for digital financial services and e-commerce in WB&G.

A more comprehensive legal and regulatory framework is being put in place in support of developing the market for payment services. A significant step in this regard was taken in 2018 with the adoption of regulations on the licensing of payment service providers,[54] which has facilitated the opening up of the market for payment services to nonbanks, thereby increasing competition and establishing a level playing field in the provision of payment services.

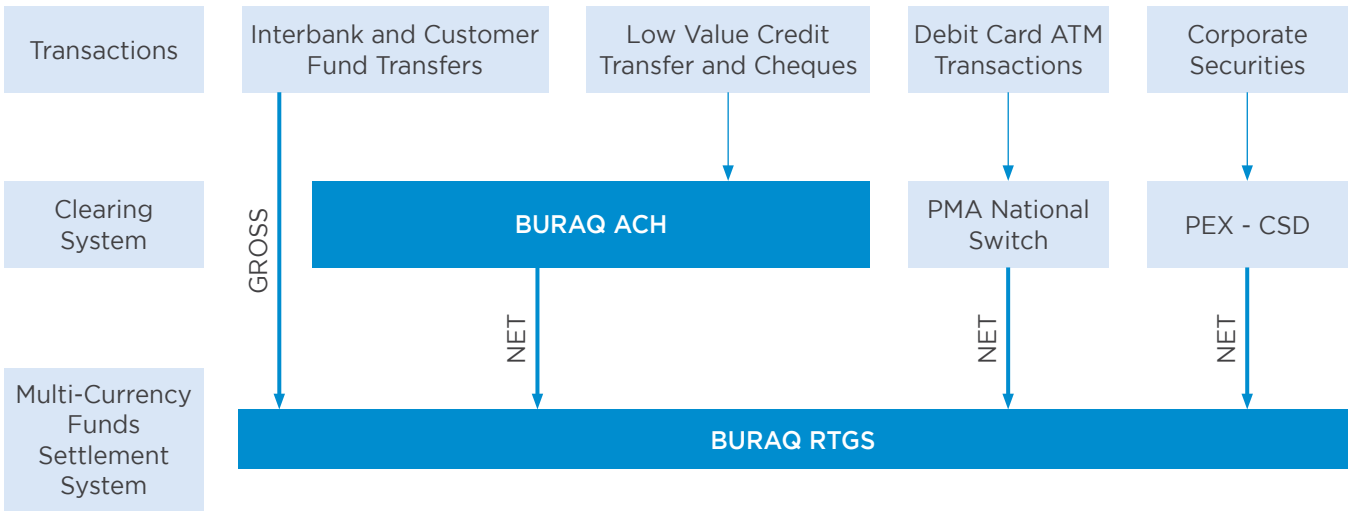
These general regulations have been supplemented with further regulations in support of specific stored value products (e-money). The stored value products can be offered by the new types of payment service providers licensed under the new licensing regime, initially by focusing on e-wallets and prepaid cards. The aim of the new regulatory framework is to facilitate a more differentiated and innovative offering of payment services and especially digital payment services. Five companies have so far been granted a license to operate under the new regulations as payment service providers and have commenced their operations in WB&G.

4.2.4. Infrastructure and Interoperability

The digital financial ecosystem is enabled by the underlying financial infrastructure – that is, national payment systems and credit information systems, alongside ICT and identification infrastructure.

The PMA has been leading the establishment of the payment, clearing, and settlement infrastructure in WB&G (figure 4.2). This includes the BURAQ system, which is an automated transfer system comprising a Real Time Gross Settlement (RTGS) module and an Automated Clearing House (ACH) module. The BURAQ RTGS system is used for settling interbank funds transfers in real time on a gross basis, with the BURAQ ACH system performing net clearing for low-value credit transfers and checks settlement taking place in the RTGS. The PMA also operates the national payment cards switch for routing and clearing automated teller machine (ATM) debit card transactions.

Figure 4.2. Overview of Payment and Settlement Systems in the West Bank and Gaza



Source: Palestine Monetary Authority.
Note: ACH = Automated Clearing House; ATM = automated teller machine; BURAQ = Palestine RTGS; PEX-CSD = Palestine Exchange; RTGS = Real Time Gross Settlement.

54. PMA (2018).

The PMA is the operator of the BURAQ large-value payment system. BURAQ is the RTGS system of WB&G. The BURAQ RTGS commenced operations in 2010. It is used for settling interbank funds transfers in real time and on a gross basis and operates in the Israeli new shekel, U.S. dollar, and Jordanian dinar, as well as in the euro. Transactions settled in the BURAQ large-value payment system are deemed final and irrevocable. The volume of the BURAQ RTGS system for 2019 was 93,000 transactions with a value of US$55 billion, a reduction of more than 24 percent in terms of transaction numbers and 6 percent in terms of value compared with 2018[55] due to the economic and geopolitical conditions. The BURAQ RTGS system also settles the multilateral net clearing files originating from the BURAQ ACH system, the PMA national switch, and the Palestine Exchange Central Securities Depository.

The retail payment systems in WB&G are also part of the BURAQ platform. The retail payment systems comprise the BURAQ ACH system and the national switch for debit card ATM transactions. Both of these systems are owned and operated by the PMA.

The BURAQ ACH system is performing the net clearing for low-value credit transfers and checks with settlement of the net positions taking place in the RTGS module. An electronic check clearing house as part of the ACH system was launched in January 2021. The clearing of checks comprises the main bulk of transactions processed by the ACH.

The PMA also operates the national payment card switch, which was established in 2015. The national card switch established interoperability for the ATM network in WB&G but is currently solely used for switching ATM transactions. The national card switch can also be utilized for switching domestic card payments at the POS, which could contribute to a reduction in the overall cost of card acceptance. These transactions are currently routed and processed through the international card networks.

There is currently no mobile switch in WB&G that can support the emerging activities in relation to e-wallets and mobile payments and support wider interoperability. In addition, the current payment infrastructure does not provide any capabilities for fast payments.[56]

The provision of financial services in WB&G, including digital financial services, is concentrated within the traditional financial services sector, which is comprised of 13 banks, seven local and six foreign, mainly Arab banks. The banks operating in WB&G are supervised and regulated by the PMA. The banks have a total of 377 branches and operate 705 ATMs throughout WB&G. However, access to financial services is currently unevenly distributed through the allocation of physical branches of banks and ATMs. As a result of the recent conflict, around 15 percent of the 58 branches in Gaza reported some level of physical damage and 33 POS machines were destroyed.[57] However, banking infrastructure, including core banking systems, remained largely intact as banks had moved most of their digital infrastructure to the West Bank after previous conflicts. Banks in WB&G are experiencing difficulties in maintaining correspondent banking relations with banks in Israel due to anti–money laundering and combatting the financing of terrorism concerns. Efforts are underway in relation to creating a permanent solution for bank transfers between Israel and WB&G in this regard.

All banks operating in WB&G issue payment cards, and there are currently only two acquirers, one of which commenced its operations very recently. According to the PMA, there were 5,416 POS terminals for the acceptance of card payments in operation by the end of in 2017, indicating a low level of card acceptance in WB&G overall. There is no domestic debit card scheme in operation in WB&G, and the card issuing and card acquiring activities are concentrated among the international card schemes. The transaction volume for payment cards remains low apart from ATM cash withdrawals.

55. PMA (2019).
56. Faster payments provide retail funds transfer "in which the transmission of the payment message and the availability of 'final' funds to the payee occur in real-time or near real-time on as near to a 24/7 basis" (CPMI 2016).
57. World Bank Group (2021c).

There are 246 regulated money changers in WB&G, which also offer payment services primarily in relation to remittances. Eight of the banks operating in WB&G also offer remittance services and operate as agents of the global MTOs. Eight specialized lending institutions provide a limited range of lending services to marginalized groups of society and small businesses, with a total portfolio of US$300 million in loans. These financial institutions are also supervised and regulated by the PMA. Neither the regulated money changers nor the specialized lending institutions are currently directly focused on providing services through internet or mobile-based solutions.

WB&G does not have its own currency. Three different currencies are commonly used on a daily basis in WB&G: the Israeli new shekel, U.S. dollar, and Jordanian dinar. Having three main currencies in use, combined with the significant scale of cash usage, contributes to the high number of money changers operating in the market. Given that WB&G does not have its own currency, there are no discussions on the establishment of a central bank digital currency.

In 2018, the PMA commenced the process of opening up the market for payment services to nonbanks. These new payment service providers are able to offer different types of payment services, including stored value products. By the end of 2020, operating licenses had been granted to five new payment service providers, of which four have commenced offering payment services to customers, mainly through providing e-wallets and to a lesser extent prepaid card–based payment services.

Discussions are currently ongoing on establishing a national payment company in WB&G. A national payment company would take over the ownership and operations of some of the retail payment system activities currently held by the PMA.

The PMA has been providing credit bureau services in WB&G since 2008. The credit bureau is comprised of several dedicated systems and services, the unified query system, credit scoring system, credit registry system, bank account system, and bounced checks system. The PMA also operates an online tool, which facilitates access to various accumulated data that are relevant for lenders in relation to general credit risk management.

The Palestine Stock Exchange operates the Palestine Exchange Central Securities Depository, which is the central securities depository for corporate securities. Cash settlement for securities trades takes place via the BURAQ RTGS system. The Palestine Stock Exchange is regulated by the Palestine Capital Markets Authority.

The PMA is responsible for oversight of the BURAQ system. Access to and participation in the payment systems are currently limited to the banks that are licensed to operate in WB&G. The newly established payment service providers are not currently able to access the BURAQ system directly. The lack of direct access by the new entrants creates and un-level playing field between banks and nonbanks, which may hamper the development of payment services.

The fintech sector in WB&G is still at a very nascent stage, but the fintech community is starting to show progress. Fintech initiatives are active in several areas, such as peer-to-peer lending, insurance, and payments; however, the number of initiatives overall is still limited, and few companies have proven ready to go to market.

A proposal for a broader fintech strategy is under discussion. The draft Palestine Fintech Strategy sets out a comprehensive approach for harnessing the benefits of fintech in WB&G through several detailed recommendations, which are to be implemented during 2020–28, supported by specific governance, monitoring, and oversight arrangements. The Palestine Fintech Strategy is expected to be adopted during 2021. An assessment of actual fintech developments in the market is needed to determine the next steps.

The new regulatory framework will benefit the development of fintech in WB&G. Some of the newly licensed payment service providers focusing on e-wallets and prepaid cards have links to the local fintech community. The draft Fintech Strategy also contains considerations on the establishment of regulatory sandboxes in WB&G, which can further facilitate the development of the local fintech community, but which should await the completion of the legal and regulatory framework.

4.2.5. Prominent Use Cases

Remittances (person-to-person transfers without an underlying economic transaction), domestic and cross-border e-commerce, and government payments represent three prominent use cases as identified by the PAFI framework, which are capable of advancing the uptake and use of digital financial services.

Remittances

WB&G is to a very large extent reliant on inward remittances, which may account for almost a fifth of the total GDP. The largest inflow of remittances is wages of workers coming from Israel and to a much smaller scale from Jordan, the United Arab Emirates, and Saudi Arabia. The outflow of remittances from WB&G is small. The number of domestic remittances also remains low. Therefore, the analysis will primarily focus on international remittances given their prominence.

The G20 has acknowledged the importance and implications of cross-border payments and has articulated the priority of working toward faster, cheaper, and more transparent and inclusive cross-border payment services.[58] Efforts are being undertaken in relation to cross-border payments between Israel and WB&G, which specifically aim at increasing the share of digital payments.

The predominant channel for incoming remittances is through international MTOs using mainly money changers, but also banks as agents. In addition to acting as agents for the MTOs, the Palestinian money changers have established bilateral relationships with money changers in other countries for the purpose of sending and receiving remittances. Finally, banks are offering international bank transfers, which are the least used and most expensive type of remittances.

According to the PMA, there were a total of 976 physical remittance access points in WB&G in 2018, comprised of bank branches, ATMs, and money changers. Remittances are mostly sent as cash-to-cash remittances through the MTOs, which also offer services through the internet, but these services are seldom utilized. In addition, the incoming remittances are very rarely paid directly into bank accounts as bank customers prefer collecting remittances in cash.

The average cost of sending remittances to WB&G across the different corridors monitored based on data from 2019 was 9.43 percent for sending US$200, and 3.94 percent for sending US$500. The corresponding figures for MENA were 7.10 percent for sending US$200 and 4.70 percent for sending US$500. A flat fee is applied to all transactions regardless of the amount sent, which is why the fees applied for higher amounts are proportionately lower. The cost of remittances has been reduced in certain corridors, such as remittances from Jordan, with cost reductions of more than 30 percent during 2017–19.

In 2016, the PMA adopted a roadmap for modernization of the international remittances market in WB&G. As part of the roadmap, several regulatory initiatives have been undertaken with the aim of improving transparency and customer protection, reducing costs associated with remittances, and increasing competition. These measures included abolishing daily transaction limits for money changers and agents of MTOs, improving market entry for

58. CPMI and BIS (2020).

MTOs, and allowing microfinance institutions to also operate as agents of MTOs in addition to banks and money changers. Steps have also been taken to ban exclusivity clauses in agency contracts in relation to remittances, which would prevent the same agent from acting on behalf of several MTOs.

E-Commerce

E-commerce is growing in WB&G but is still underdeveloped. E-commerce, that is, the sale of goods and services online, is an important driver of usage of different types of digital payments (see box 4.1 for more information). According to the Findex 2017 data, only 5 percent of the respondents had made an online purchase[59]: 4 percent of males and 5 percent of females reported having made an online purchase, and the share of respondents living in rural areas was 4 percent. The share of young adult online shoppers was somewhat higher at 8 percent. Nevertheless, detailed data on e-commerce is lacking in WB&G on local and cross-border transactions. The general average for MENA for making an online purchase is 7 percent, compared with 2 percent for both Morocco and the Arab Republic of Egypt and 7 percent for Jordan.

Box 4.1. E-Commerce Is a Key Driver of the Usage of Digital Payments

E-commerce can be domestic or cross-border and include business-to-person, business-to-business, and increasingly person-to-business transactions. Digital payments are an enabler for e-commerce, and e-commerce is at the same time the driver for the demand for new types of digital payments, facilitated by convenience and security considerations. E-commerce also facilitates cross-border trade by increasing consumer choice and reducing transaction costs. Although data on the impact of COVID-19 on e-commerce in the West Bank and Gaza are not available, the pandemic has contributed to the increase in the share of e-commerce in total retail worldwide, with double-digit growth in many countries. This increase has also resulted in spending patterns shifting from higher-end and luxury goods to everyday purchases such as groceries.[a] The increase in e-commerce transactions has consequently resulted in an increase in digital payments, primarily in relation to the use of debit cards.[b]

Payments are an essential component of e-commerce. The ability to engage in e-commerce creates demand for digital payment services, including from people who do not have access to a transaction account or a payment card, creating a shift toward stored value products and e-wallets. E-commerce is thereby an important driver for access and use of different payment services, which can lead to the wider use of digital financial services.

a. OECD (2020).

b. McKinsey & Company (2020).

Cash on delivery (COD) is the main type of payment for e-commerce transactions in WB&G. A wide range of merchants in WB&G operate local websites with products ranging from electronics to jewelry and groceries. E-commerce transactions also take place through social media websites. Although the majority of debit, credit, and prepaid payment cards issued in WB&G can be used for conducting domestic and international e-commerce transactions, most online purchases in WB&G are made with COD (see chapter 5 for more information). This is likely due to the relatively low prevalence of transaction accounts and the strong preference for cash.

59. Estimates from the recent PCBS 2020 Household Survey on ICT suggest that 8.1 percent of adults made online purchases in 2019.

Until recently, there was only a single acquirer (Bank of Palestine) in WB&G, which also acquired e-commerce merchants. An additional acquirer has commenced operations in the market, which will further benefit market development, also in relation to mobile payments. Several payment aggregators offer their services in WB&G; however, there are no data available on the number of e-commerce merchants using these services.

Government Payments

Digitizing recurrent bulk payment streams can support the deepening of digital financial service outcomes. Recurrent bulk payment streams include (1) government-to-person payments (including public sector payroll, pensions, cash transfers, and social insurance), (2) person-to-government payments (including taxes, utility payments, and payments for services), (3) government-to-business services (including tax refunds, vendor payments, and subsidies), and (4) business-to-government payments (including business registration and social security payments). Digitizing these flows can reduce costs and provide greater coverage at a lower cost, in addition to providing an opportunity for vulnerable populations to have a basic account in their name and under their control.[60]

Government-to-person payments mirror the general payment trends in WB&G with a high degree of reliance on check and cash payments. Payments from the government to citizens are predominantly made by checks. In 2019, such payments accounted for NIS 3.9 billion.[61] According to the GPSS data for 2017, 100 percent of pension and social benefits payments were made by check. The same general trend applies to G2B payments. As part of the response to COVID-19, various other channels for distributing payments to citizens have been explored, which can further benefit the conversion from cash and check payments to digital payments.

All government salaries are now paid into the bank accounts of the employees. Previously, government salaries were paid by check.

Payments by citizens to the government are predominantly cash payments, followed by payments by check. For example, 57 percent of the taxes due are paid by cash and 43 percent are paid by check.[62]

A unified government online portal for the digitization of different government services is under development. The portal will be integrated with a payment gateway function to facilitate payments through cards, e-money accounts, or bank accounts, which could significantly change the current payment trends.

4.3. Challenges to the Development of Digital Financial Services

The penetration and use of basic digital financial services in WB&G remain low overall. Basic payment account ownership is low and unevenly distributed among different demographic groups. One in four adults has a transaction account that can be used to make and receive digital payments, and roughly one in four adults has a payment card that can be used for digital payments, face-to-face and online. However, the actual number of transactions remains low and cash withdrawals are the dominant transaction type. The challenge of growing the usage applies equally to the existing and new payment services. The new stored value payment services that are being put to market in WB&G have low transaction numbers and the total value stored is also low. A combination of factors are the likely causes for this, including low levels of financial inclusion and financial literacy, lack of dedicated efforts to promote different use cases, the general cash preference, as well as a lack of trust in banks and the products they

60. See Klapper and Singer (2017).
61. PMA (2019).
62. World Bank Group (2017b).

offer. Cash remains the preferred means of payment, partly driven by informality, low levels of financial inclusion, and low levels of income. The preference for cash and the lack of a broader and comprehensive legal framework for payments remain the biggest challenges to digital financial services.

The following narrative summarizes the key challenges to the development of digital financial services.

1. Weak Competition

The regulatory environment does not encourage sufficient competition in the market. Different types of financial services are regulated separately, which adds complexity and makes direct competition and comparison between different products less transparent. Rather than focusing on a technology-neutral approach centered around a general definition of e-money, each product, such as e-wallets and prepaid payment cards, is regulated separately. Such an approach adds complexity and can create legal uncertainty. It will also likely create additional burdens on payment service providers and the regulator itself in terms of applying the regulatory framework in the correct manner, which can hinder market development and increase the compliance burden. Furthermore, there is no general regulatory framework for payment services to facilitate competition in the market through new providers and create a common approach for different types of payment services, for example, in relation to transparency and user protection.

The existing legal and regulatory framework hampers competition by allowing the use of exclusivity clauses, for example in agency agreements for MTOs. Such exclusivity practices have a negative impact on competition and reduce users' access to remittances, particularly in rural areas with limited agent networks, but also more widely to other digital financial services.

2. Weaknesses in the National Payments Infrastructure

The lack of interoperability and level playing field for payment service providers limits the range of digital financial services and is a challenge to cost efficiency for end-users. Currently, interoperability between the new types of payment services is not mandated and fast payments are not supported by the national payment system in WB&G. An infrastructure supporting fast payments would enable payments and availability of funds to the recipient in real time, or near real time, which would be available to customers 24/7. Fast payment capabilities can also support and facilitate new types of payments and payments through new channels. As fast payments can be a catalyst for retail payments, especially in less developed markets, lack of the proper payment infrastructure limits the development of digital payments in WB&G. Furthermore, only banks can access the national payment system directly, which puts the new payment service providers at a disadvantage.

There is a lack of involvement of the private sector in the operations of retail payment systems, which does not incentivize innovation. The PMA is the sole owner and operator of the national payment system. Efforts have been underway to transfer part of existing retail payment infrastructure to a national payment company potentially with some level of ownership by the private sector players.

In light of the above, fintech companies and other nonbank payment service providers have not been able to establish a firm footprint. Fintech companies are able to focus on particular aspects of the payment value chain, such as low-value transactions, through e-wallets and stored value products. For example, fintech companies can provide more specialized services to entities wishing to accept digital payments, which in turn can assist in increasing transaction volumes. Around the world, nonbank payment service providers, e-commerce platforms, or telecom operators with large user bases, for example, Go-Jek, Alibaba, and Safaricom, are enabling digital payments and simple savings instruments using mobile phones, Quick Response codes, and agent networks. The ability to send small payments securely and cheaply has made new products and services, such as pay-as-you-go solar, viable for customers in remote areas. Third parties, such as budgeting apps, can now initiate payments to users' bank and payment card accounts or obtain financial transaction data through open APIs to establish consumer consent and promote competition (the United

Kingdom, India, and Mexico). The lack of the national interoperable and accessible infrastructure limits the development of such services and applications in WB&G.

3. Limited Use of Digital Financial Services

Remittances are still predominantly cash based and limit the use of digital payments. A shift from cash-to-cash-based remittances to having incoming remittances paid into transaction accounts can have significant positive impacts. Given the large influx of funds through remittances, even if a small proportion of these funds were to be paid into transaction accounts, remittances would benefit the overall uptake and use of digital financial services. The newly created e-wallet payment service providers, for instance, could be used for channeling inward international remittances into the recipients' transaction accounts. However, this is not possible under the current regulation, which permits e-wallet providers only to offer domestic e-wallet-to-e-wallet transfers. The entrance of new fintech companies that provide remittance services can benefit the market. E-money providers and other nonbank service providers could also address the needs that are not addressed by banks pertaining to remittance sending and receiving.

Specialized focus on the needs of e-commerce merchants is lacking and is further fueling the COD method of payment. E-commerce merchants should have access to a broader range of payment methods in addition to payment cards. Increased competition in acquiring and a more targeted and specialized offering from the new payment service providers and payment aggregators will assist in this regard, but e-commerce also requires specific focus as a separate target area. Although e-wallets can be used for domestic e-commerce transactions (initially as wallet-to-wallet payments), transaction volume has been low so far. E-wallets can be a good option for merchants selling via social media, but initial uptake has been limited. The deficiencies in the regulatory framework in the areas of transparency and user protection combined with low financial literacy and preference for cash contribute to the low use of e-wallets in e-commerce.

Payments to and from the government are predominantly in cash and checks. Payment by cash and check is the preferred manner in which payments to and from the government are made in WB&G, which does not incentivize the development of digital financial services. The COVID-19 crisis has further highlighted the need for shifting social and unemployment payments to digital payments from payments by cash and checks, which has yet to happen in WB&G.

4. Restrictions on the Amount of Surplus Cash That Can Be Transferred between WB&G and Israel

The banks operating in WB&G are experiencing difficulties in maintaining their correspondent banking relations with Israeli banks, which may to some extent also affect their ability to offer digital financial services. Due to money laundering and terrorist financing concerns, the GOI has imposed restrictions on the amount of surplus cash that can be transferred between WB&G and Israel. These restrictions create various logistical challenges to the banks operating in WB&G as well as the PMA. The PMA is collaborating with the Bank of Israel to address these issues and facilitate payments between Israel and WB&G, with the overall objective of increasing the number of electronic payments. This may also require changing and enhancing the current payment infrastructure.

4.4. Recommendations

The economy of WB&G continues to be marked by a high degree of reliance on cash and low levels of financial inclusion combined with significant dependency on the inflow of funds from abroad, especially from Israel. A push toward the use of digital payment services will have significant positive implications for improving access, reducing costs, and increasing transparency.

Several building blocks are being put in place for increasing the offering and use of digital financial services in WB&G. Steps are being taken to open up the market, which will facilitate more competition. These steps also lay the groundwork for a more targeted offering of digital financial services, including to the segments of the population that are currently unbanked and to the development of specific use cases. Combined with commitment from the authorities to develop digital financial services and improve financial inclusion, the basic foundation for increasing user demand for digital financial services is in place. Going forward, it will be important to maintain momentum and continue the reforms with a focus on strengthening financial inclusion, improving the regulatory framework to strengthen competition, promoting different use cases of new payment products (for example, mobile money) for making and receiving payments, strengthening the national payments infrastructure, and promoting interoperability.

The following recommendations are proposed for strengthening the development and usage of digital financial services in WB&G:

1. Increase Financial Inclusion of Vulnerable Communities

Accelerate the implementation of the National Financial Inclusion Strategy to help those who are disproportionately excluded from digital financial services. Focus should be directed toward increasing the number of women with access to a transaction account, as well as the number of rural residents, youth, and those at the bottom 40 percent of the income ladder. Implementation of the financial inclusion strategy and action plan should incorporate the use of new payment products such as mobile money and specific use cases for vulnerable population groups. In addition, the general rights of consumers in relation to financial services should be strengthened as part of the reforms of the legal and regulatory framework.

2. Strengthen Competition in the Market

- **Establish general regulations in support of payment services, including e-money.** A broader legal framework for payment services should be introduced to ensure a common set of rules and principles applicable to payment services. The regulations should facilitate market access to new types of payment service providers, support open banking and the use of API for the provision of banking services, and create a common level of transparency and user protection between the different types of payment services. Payment Service Directive 2 of the European Union[63] can be used as the basis for creating a broader framework for payment services. The existing legal and regulatory framework on e-wallets and prepaid cards should be supplemented or replaced with a general legal framework for e-money (stored value products) based on a common and technology-neutral definition of e-money.

- **Ban exclusivity practices.** Exclusivity clauses and practices in relation to agency contracts for payment services, including remittances, should be banned.

- **Expand access to payment systems.** The criteria for fair and open access to BURAQ ACH and the Net Clearing System by payment service providers should be defined in the National Payments Law and the legal and regulatory framework. Principle 18 of the Principles for Financial Market Infrastructures on access and participation requirements should be used as the basis for developing the specific access criteria.

3. Strengthen National Payments Infrastructure and Promote Interoperability

- **Improve the national payments infrastructure through expanding the operations of the national payment card switch in support of POS, mobile payments, and e-commerce**. Upgrading the national payment

63. European Union (2015).

card switch, which is currently used for processing domestic ATM transactions, should be evaluated in relation to:

- The processing of card payment transactions at POS to improve efficiency.
- The processing of mobile payments to facilitate interoperability and efficiency in relation to e-wallet transactions.
- Establishing a fast payment system platform.

- **Establish a cross-border payments company to relieve restrictions on the amount of surplus cash that can be transferred between WB&G and Israel.** The purpose of the cross-border payments company would be to improve cross-border payments between Israel and WB&G and mitigate the current anti–money laundering and combatting the financing of terrorism risks associated with the correspondent banking relationships established by banks in WB&G. The cross-border payments company is intended to interact with a similar entity established in Israel. A feasibility study has already been conducted on technical specifications and models for a potential cross-border payments company in WB&G, but actual establishment efforts are yet to be undertaken.

- **Promote interoperability.** Public authorities and private market players should work together to create the necessary national and regional interoperable infrastructure. The legal and regulatory framework should be amended to accommodate and, if required, mandate interoperability between different payment services and payment instruments, for example, by facilitating the transfer of funds between e-wallets and bank accounts. This will include introducing a general mandate on interoperability in the National Payments Law, which will be mirrored throughout the relevant legal and regulatory framework. Any regulatory or commercial restrictions affecting interoperability between different payment services and instruments should be abolished.

4. Incentivize the Use of Digital Financial Services

- **Facilitate new payment instruments and services.** In addition to bank accounts and payment cards, e-wallets should be actively promoted, and where possible incentivized, for making and receiving personal, business, and government payments. Moreover, light and cost-efficient infrastructure for digital payment acceptance among merchants, such as Quick Response codes, should be promoted. E-wallet acceptance by merchants (including e-commerce platforms) must be developed through mandates and incentives, and targeted measures could be introduced to raise awareness about e-wallets among consumers. Card acceptance should be increased through targeted incentives and possible mandates to increase volumes. A cost study shall be undertaken by the PMA on the costs of developing different digital payments, which can be used as the basis for different policy initiatives in support of promoting and facilitating digital payment instruments and services. Furthermore, it will be important to improve the availability of data on e-commerce transactions. The move toward digital payments also requires putting in place simplified procedures for on-boarding new users and opening new accounts in combination with procedures for remote identification. Efforts are also required to strengthen the quality and reach of the credit information infrastructure, including the integration of digital data into credit reporting systems. These reforms are needed to ensure an open and competitive market where traditional and new types of providers would compete and cooperate in some instances (such as in the context of open banking through APIs for enhancing inclusion and usage).

- **Promote channeling of remittances into bank accounts and e-wallets.** Bank accounts and e-wallets (transaction accounts) should be promoted and incentivized as the destination point for incoming remittances, through amendments to the regulatory framework, including regulations on money changers and e-wallets. For example, allowing e-wallet payment service providers to channel inward remittances into the transaction accounts of recipients will increase the use of transaction accounts and create the foundation for the use of other financial services. For this to happen, banks should work more closely with

money remitters to reduce the need for cash and physical presence at agent locations. Given that several banks in WB&G have international presence, this should be used to facilitate account-to-account transfers for migrants.

- **Digitize government payments.** Public authorities should actively promote and incentivize payments to and from government agencies through bank accounts and e-wallets, utilizing a national payment system such as the ACH. This will involve facilitating that government funds (for example, public sector salaries, pensions, and social transfers) reach the beneficiary account directly in a fast and efficient way, with few automated steps. Efforts toward the establishment of an e-government portal should also be accelerated. Ultimately, all paid government services should be available via the e-government portal, through which the end-users will be able to pay instantly using a digital payment method of their choice.

5 Digital Business

5.1. Importance of Digital Business

The digital economy is the single most important driver of innovation, competitiveness, and growth, transforming the global economy through a surge of new business models and entrepreneurship. Worldwide the digital economy is growing rapidly, from US$11.5 trillion (or about 15.5 percent of global GDP) in 2016 to an estimated US$23 trillion (24.3 percent of global GDP) in 2025. In 2020, global e-commerce, referring to commercial transactions facilitated through the internet,[64] amounted to over US$3.5 trillion.[65] Digital technology reduces the costs associated with production and transactions and lowers the barriers to accessing new markets, skills, and knowledge.[66] As a result, the digital economy can "flatten the world" and present leapfrogging opportunities for developing countries and new market access opportunities for landlocked or otherwise isolated locations.

Digital businesses are defined in two categories: digital startups and established digital firms, with each playing an essential role in growing the digital economy. Digital businesses are digital solution providers that develop and manufacture digital technology products or provide digital services. Both established and startup digital firms drive the adoption of digital technologies, creating positive spillovers to the rest of the economy. *Digital startups* are early-stage ventures that create new digital solutions or business models as part of their core products or services; they may provide "routine" technology solutions as well as innovative and disruptive services. *Established digital firms* are large platforms and data-driven firms that have passed the initial startup stage, having acquired suppliers, contractors, and consumers. Further, digital

64. Bloomenthal (2019).
65. Huawei and Oxford Economics (2017).
66. Reinventing business through Disruptive Tech, IFC, https://www.ifc.org/wps/wcm/connect/8c67719a-2816-4694-9187-7de2ef5075bc/Reinventing-business-through-Disruptive-Tech-v2.pdf?MOD=AJPERES&CVID=mLo6cfr.

technologies are disrupting the economy across all sectors, including firms in traditional sectors, by transforming the way they operate and interact with each other and their clients. The adoption of digital technologies by traditional industries helps address operational and market access bottlenecks, potentially helping to increase industry competitiveness and inclusiveness.

In WB&G, digital businesses have begun to transform the way individuals, businesses, and government institutions offer services and connect with new markets, spurring growth in high-potential sectors such as ICT and services. Through the facilitation of transactions, verification procedures, and communication, the digital economy can promote the quality of service delivery, efficiency, and productivity. This is particularly relevant to the ICT and service sectors in WB&G,[67] which have outperformed other sectors in terms of foreign direct investment, GDP, and employment growth in recent years. Digital technology presents a pathway to further growth in these sectors by circumventing the challenges Palestinian businesses face with the movement of goods and people in and out of physical borders. Additionally, with a growing population and substantial youth unemployment, the digital economy brings the potential for new job opportunities for this untapped labor force.

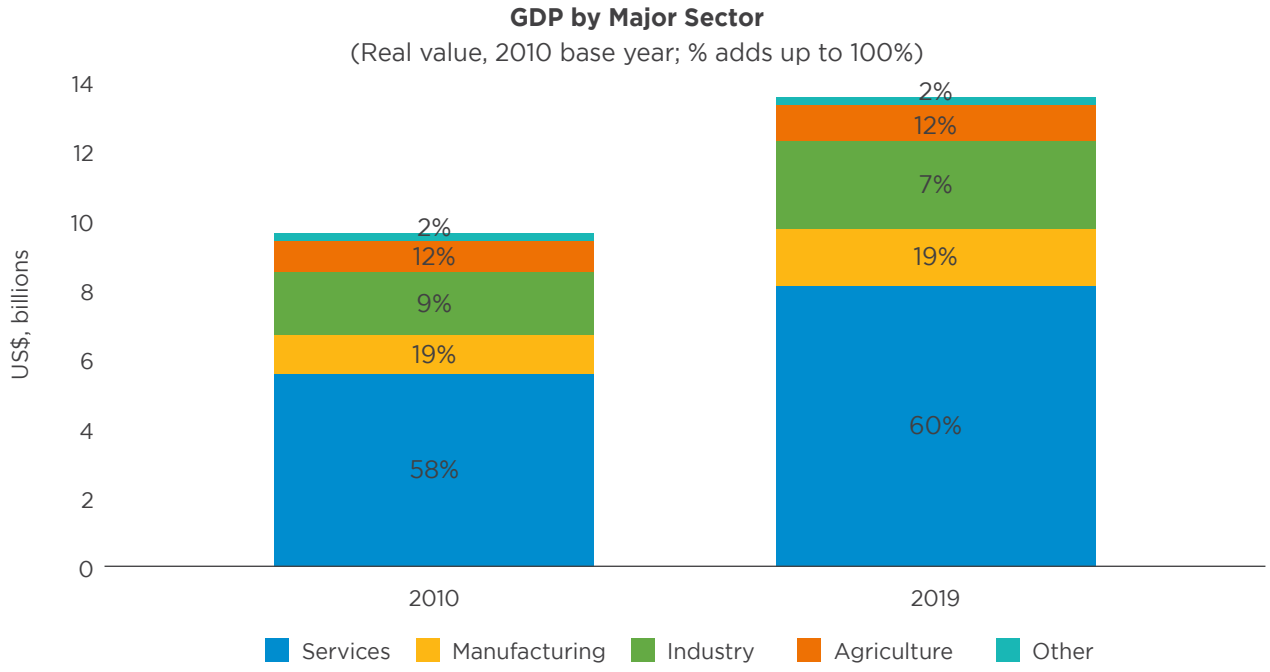
The global trend in digitalization of services and other sectors should instill a sense of urgency in WB&G and shape its national strategy on entrepreneurship, SME development, and government services. While the benefits arising from the digital economy are the most significant arguments for digital transformation, the cost of failing to modernize is equally paramount. The future winners and losers in the service industry and other sectors will be determined by the adoption of new organizational and regulatory frameworks facilitating the integration and adoption of digital technologies.[68] Evidence suggests that in developing countries, ICT sector investments alone do not lead to "leapfrogging."[69] Fostering a vibrant startup ecosystem, digital skills, and a supportive regulatory environment are essential measures to facilitate digital transformation. Therefore, Palestinian authorities have emphasized strategic objectives to promote the digital economy not only through ICT infrastructure development (for example, data centers and internet lines), but also through establishment of technology workshops/incubators and introduction of regulations ranging from data security to consumer protection laws. MTIT's *Sector Strategy for the Telecommunications and Information Technology Sector, 2021–2023* includes the strategic objective of building leading and competitive digital industries, placing emphasis on supporting entrepreneurial initiatives and promoting creativity and innovation.

5.2. Diagnostic Findings: The Current State of Digital Business

The Palestinian economy has grown at a slow rate over the past decade, constrained by a challenging external and internal environment. In 2019, GDP grew by a mere 0.9 percent and estimates suggest that it declined by 11.5 percent in 2020 following the spread of the COVID-19 pandemic. Against this background, the service sector had a relatively strong performance and accounted for about 60 percent of GDP (figure 5.1) and 35 percent of employment, exceeding the MENA average of 52 percent of GDP. Services value added grew from US$5.2 billion in 2009 to US$8.4 billion in 2019 (in constant 2010 US$) (World Bank World Development Indicators, 2021).

67. The Palestinian ICT sector has grown over time and contributes about US$493 million in annual value added to the economy, accounting for approximately 3 percent of GDP.
68. Shcherbakova (2019).
69. Niebel (2018).

Figure 5.1. Gross Domestic Product, 2010 (Constant Prices)



Source: World Development Indicators.

This dominance of services in WB&G presents an opportunity for export growth and improved inclusivity through the digital economy. Digital technologies are particularly relevant to the financial, transport, and service sectors where there are opportunities for aggregating supply and demand and creating new and inclusive markets and expanded opportunities for new companies to scale domestically, across the region, and beyond.[70] Digital services hold significant export potential in WB&G, which has seen its negative net trade balance fall sharply year-on-year (with the exception of telecommunications and computer services). Moreover, the low entry barriers associated with digital services and activities help promote economic inclusion for marginalized groups and women.[71] Services are a leading source of employment for Palestinian women and modernizing the service sector will serve to accelerate this momentum.

Digital business activity is on the rise in WB&G, although the digital economy is in its early stages. The development of digital business and creation of positive spillovers to SMEs hinges on the interaction of digital startups and established digital businesses. Based on desk research, focus group discussions, and structured interviews, this report breaks down digital business activities in WB&G into four subsegments of focus: (1) digital startups, (2) private digital platforms, (3) e-commerce platforms, and (4) IT outsourcing firms and freelancers. Given the nature of the digital economy, these categories are not mutually exclusive and may overlap, but they represent the key channels through which digital activities are manifesting in WB&G. Box 5.1 presents examples of promising digital startups operating in WB&G today.

70. Shcherbakova (2019).
71. Economic Monitoring Report to the Ad Hoc Liaison Committee, 2020.

Box 5.1. Examples of Digital Startups Founded in the West Bank and Gaza

WeDeliver. WeDeliver is a business-to-business crowdsourced on-the-way delivery service for emerging markets. Since starting operations in October 2018, it has raised more than US$700,000. The app allows businesses of all sizes to have their packages delivered by connecting businesses to drivers that have spare capacity and are already headed in the requested direction. WeDeliver currently employs more than 20 employees in the West Bank, has a technical team in Gaza, and has additional remote workers based in the Arab Republic of Egypt and Istanbul. WeDeliver plans to expand operations in the Kingdom of Saudi Arabia and seeks to disrupt the logistics industry in the region and support many startups and businesses that need a reliable and fast delivery solution.

https://www.wedeliverapp.com/

Maalchat. One of several newly licensed e-wallet companies in the West Bank and Gaza, Maalchat aims to facilitate peer-to-peer mobile e-wallet transactions. According to the chief executive officer, Issa Kassis, the app was the first independent application in the Middle East and North Africa region that was not linked to a bank or telecommunications company. It promotes financial inclusion by attracting people from outside the banking system.[a] Maalchat was founded in 2019 and plans to expand its services to include group chat and video sharing on its platform.

https://www.maalchat.ps/

Clever. Clever is a business-to-business-to-customer mobile app developed in Gaza, which serves as a platform for users to manage expenses and pay for purchases and other bills. Through integrated cash back and rewards programs, the application aims to promote communication between merchants and consumers through various loyalty programs. Fares Petroleum invested US$250,000 in the app, which was founded in 2020 and to date is used by more than 250 stores in Gaza and employs 15 full-time employees.

https://clever.ps/

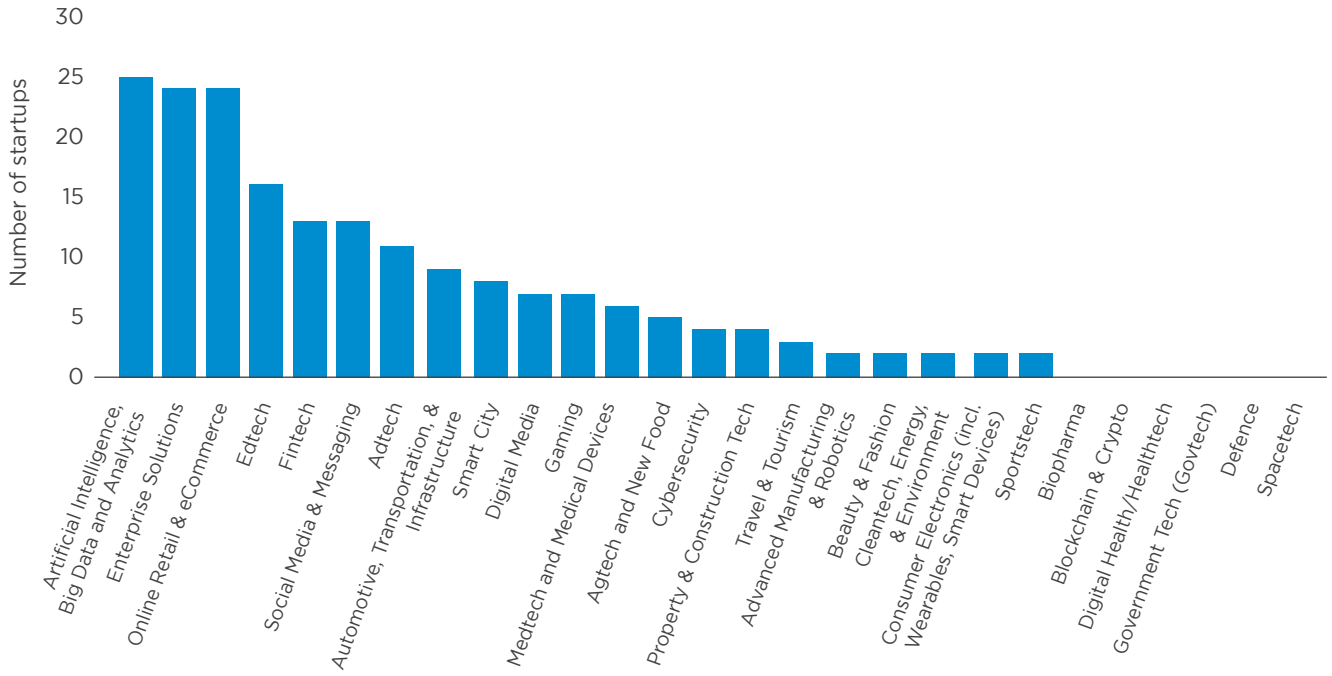
a. https://www.marketscreener.com/news/latest/His-Excellency-the-Governor-of-Palestine-Monetary-Authority-Attends-Maalchat-E-Payment-Services-Lau--31808939/.

5.2.1. Digital Startups

The technology startup "scene" in WB&G is nascent but promising. World Bank data from 2017 show that there were approximately 250 tech startups in WB&G, with similar figures reported by Startup Genome (Kuester and Arya 2021).[72] Palestinian startups are present in a variety of fields, including cutting-edge areas, such as artificial intelligence, big data, and analytics, as well as enterprise solutions and retail/e-commerce (figure 5.2). The advancement of disruptive technology among service sector activities points to an area of potential competitive advantage for WB&G.

72. West Bank and Gaza Technology for Jobs Project Appraisal Document.

Figure 5.2. Sector Breakdown of Startups in the West Bank and Gaza (Startup Genome Sample)



Source: Kuester and Arya 2021.

Digital startups are a source of job growth, with estimates of as many as 8,500 jobs linked to startups in WB&G.[73] Startups have shown to be engines for innovation, as well as jobs, as they (1) revitalize the MSME space and (2) lead to development of established digital firms in the medium run, as seen in other ecosystems, for example, in Bahrain, Sweden, and Georgia.[74] In WB&G, on average, startups generate 6.1 direct jobs each, a figure that is slightly higher than in other ecosystems. Furthermore, there is an estimated 5x multiplier effect on indirect jobs created (for example, gig economy workers participating in a platform managed by a startup).[75]

Digital startups in WB&G benefit from several comparative strengths exhibited by the ecosystem, which can propel future growth. Palestinian startups have a cost-based competitive advantage in hiring engineering talent at a lower cost than in many other countries in the region.[76] WB&G is attractively located geographically, vis-à-vis other Middle Eastern markets, especially for access to the lucrative Gulf market. Additionally, WB&G boasts evidence of strong relationships within its tech community.[77] The findings from focus groups with startups in WB&G suggest that there are strong links between local established digital solution providers as well as startups, placing WB&G in line with other leading local startup ecosystems in domestic networks. However, the ecosystem falls behind in global connectedness compared with other hubs, such as Tel Aviv, Jerusalem, and London.[78]

73. Kuester and Arya (2021)
74. Startup Genome.
75. Kuester and Arya (2021).
76. World Bank Group (2018).
77. Kuester and Arya (2021).
78. Kuester and Arya (2021).

Palestinian startups face a challenging environment, constrained by lack of funding and low indicia of entrepreneurship. WB&G lags the MENA and GCC averages across all digital business indicators, as highlighted by the MENA Rapid Digital Economy Benchmarking (table 5.1). Startup numbers are low, and recent analysis by Startup Genome suggests that the density of firms, rather than the absolute number of startups, is critical for achieving scale effects in a startup ecosystem. These scale effects are lacking in WB&G and are necessary to form a large pool of potential "winners" that can attract more investment and interest from foreign and local investors.

Table 5.1. Entrepreneurship and Access to Finance in WB&G

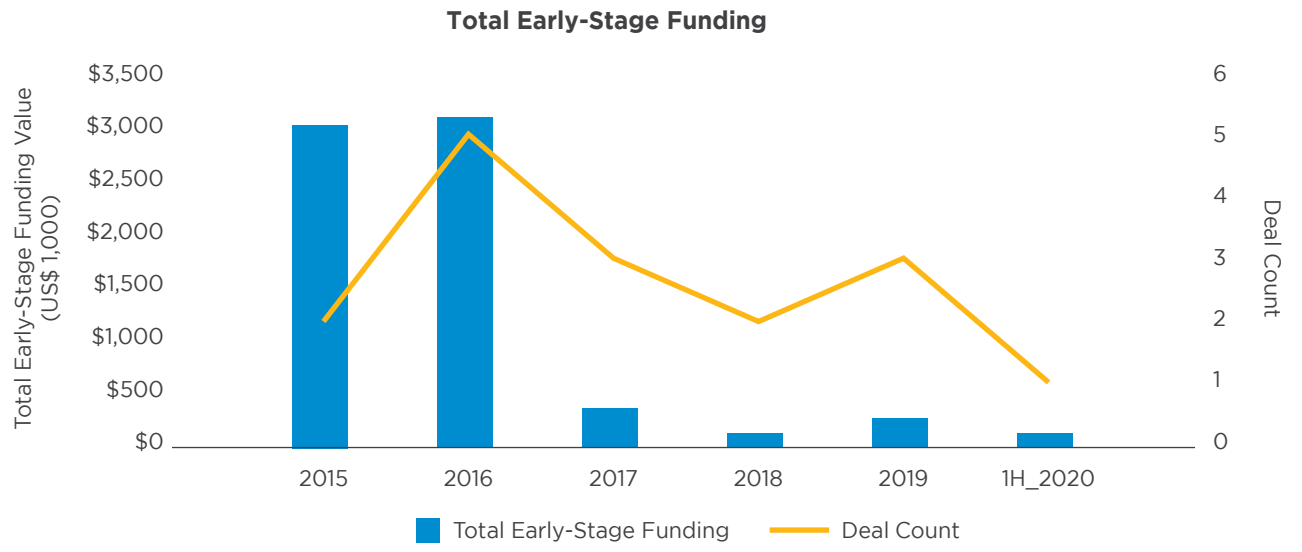
Component	Indicator	WB&G	MENA average	MENA average excluding GCC
Access to finance	Number of deals	11	23.5	17.7
	Total disclosed funding (US$, millions)	2.5	47.8	15.0
	Number of startups	10	47.1	41.8
	Number of venture capital investors	2	14.6	6.8

Source: World Bank Group 2021a.
Note: GCC = Gulf Cooperation Council countries; MENA = Middle East and North Africa; WB&G = West Bank and Gaza.

To close the financing gap, a community of intermediary and support organizations is required, with targeted support to high-performing players. The main players in the WB&G digital startup ecosystem have shown mixed success. Venture capital funds such as Ibtikar, which focuses on early-stage tech startups; Izdehar, which invests in large-scale projects like animal feed processing and energy production; and support organizations, such as Gaza Sky Geeks and uMake, stand out as strong performers. However, there is a sense that many incubators and accelerators provide modest quality support to entrepreneurs and rely on international donor financing.[79] The majority of Palestinian funds and incubators have seen limited success. They tend to rely on donor funds, invest in traditional family businesses/SMEs, and offer a few seed rounds, which are far below other ecosystems' required "activation" averages to get businesses running, even controlling for the relatively lower engineer salary requirement.[80] As a result, a drop of early-stage funding between 2015 and 2020 can be observed, with series A funding displaying even greater funding gaps due to a plunge in activity and exit of venture capital funds, leaving Ibtikar Fund as the only major local provider of venture capital (figure 5.3). Only 8 percent of digital businesses (based on a database of 39 firms) reported to have received early-stage venture capital funding; however, 31 percent reported seed funding, according to the World Bank Digital Business Database 2020 (figure 5.4). Importantly, the lack of seed funding and funding levels below activation amounts can force startups to move quickly into revenue generation with an unfinished product that is not competitive in the international market.

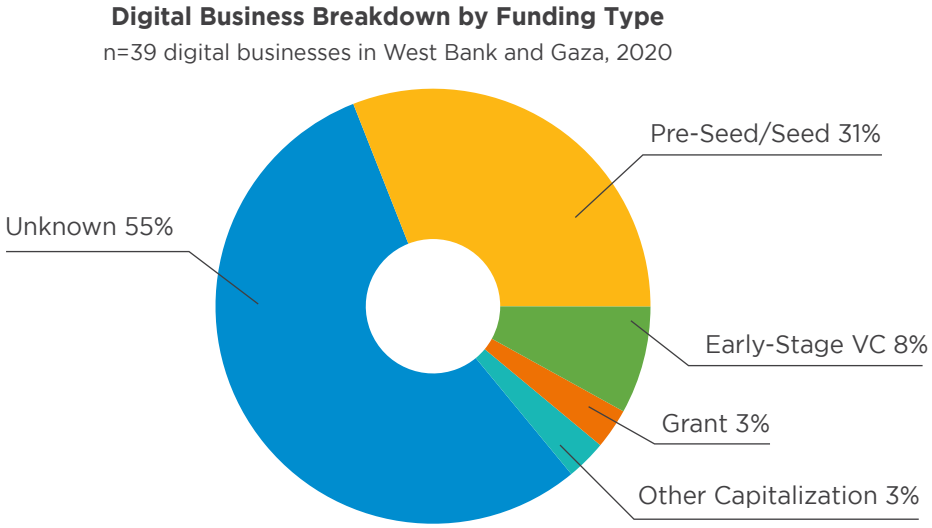
79. World Bank Group (2018).
80. Kuester and Arya (2021).

Figure 5.3. Early-Stage Financing in the West Bank and Gaza



Source: Startup Genome Palestine calculations using data from Pitchbook, Crunchbase, and DealRoom, 2021.

Figure 5.4. Early-Stage Financing for Digital Businesses in the West Bank and Gaza



Source: World Bank staff calculations using multiple sources – M&T Digital Business Database.

There are approximately 60 innovation hubs and support organizations in WB&G serving as research centers and social communities where expertise and technology can be exchanged.[81] These organizations include incubators and accelerators, innovation centers, innovation and entrepreneurship programs, training centers, and working spaces (table 5.2). The organizations are centralized in the main governorates and, as a result, lack reach to some marginalized areas, concentrating primarily in Gaza and Ramallah. There are also accelerators based in Jerusalem that focus on the Palestinian market. Although most of the organizations target youths ages 18-30 years, there are

81. Enabel (2020).

also innovation centers that target women.[82] The ecosystem benefits from the participation of actors such as the Ministry of Entrepreneurship and Empowerment, as well as the Palestinian Information Technology Association (PITA) and several universities; however, these links are often weak, lacking access to experts and employers, and face weak institutional infrastructure.

Table 5.2. Examples of Innovation Hubs in the West Bank and Gaza

#	Name	Location
A - Incubators and Accelerators		
1	UCAS TI	Gaza
2	Gaza Sky Geeks	Gaza
3	Innovate Gaza - Innovation Hub (MA'AN Innovation and Entrepreneurship hub)	Gaza
4	Business Women Forum (BWF)	Ramallah
5	Agricultural Development Association (PARC) Incubator	Ramallah
6	HSITCE - Hasseb Sabbagh Information Technology Center of Excellence – AAU	Jenin
7	Palestinian Consultative Staff for Developing NGOs	Jenin
8	Station J	Jerusalem
B - Working Spaces		
9	Hebron Municipality's Business Incubator (HEBIC)	Hebron
C - Innovation Centers/Organizations		
10	Women Affairs Center	Gaza
11	TYO (Tomorrow Youth Organization)	Nablus
D - Innovation/Entrepreneurship Programs		
12	Tamkeen (women's initiative)	Ramallah & Gaza
13	Rae3	Tulkarm
E - Training Centers		
14	Mena Catalyst Foundation	Ramallah
15	Russul Centers (IRPAL)	Gaza

Source: Enabel 2020.

82. Enabel (2020).

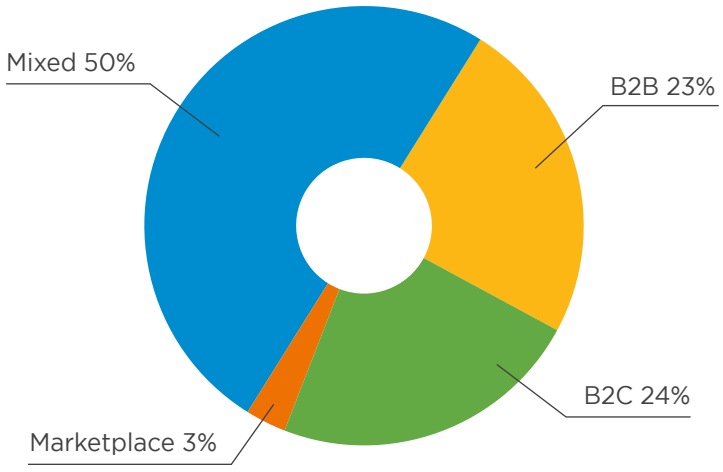
5.2.2. Private Digital Platforms

Private digital platforms are online marketplaces that connect businesses to customers (B2C), businesses to other businesses (B2B), and/or customers to customers or a hybrid combination (for example, businesses-to-businesses-to-customers). Digital platforms reduce search costs and facilitate interactions among businesses and consumers, taking advantage of direct and indirect network effects through which the value of products increases with the number of buyers, sellers, and users.[83] Given the existing restrictions on the mobility of people and goods in WB&G, the development of digital platforms provides an avenue for sustained job growth and new/external sources of income. However, to reap these potential benefits, platforms first require reliability and trust in online identification and transactions to grow and subsequently scale up network effects.

Various market players, such as freelancers and traditional businesses, are already taking advantage of digital platforms to digitalize their service delivery. Reports on social media use in WB&G indicate that there were more than 1,000 e-commerce pages operating on various social media sites as of 2019, processing 20,000-40,000 deliveries.[84] According to a survey conducted by PCBS in 2019, 8.1 percent of adults had purchased goods or services online.

Palestinian digital platforms predominantly focus on mixed (B2C and B2B) models. In WB&G, most digital platforms operate as a mix of B2C and B2B services, and nearly one-fourth operate exclusively B2C services (figure 5.5). Digital platform owners participating in the World Bank's focus group discussions indicated that they have experimented with B2C, B2B, and mixed models, noting that monetization of services, through online sales or advertising, and collecting payments are the most difficult for their B2C clients. According to them, B2B offers a more promising path toward revenue in that typically fewer customers are needed to make a profit, and revenue per sale is higher.[85]

Figure 5.5. Segment Breakdown of Palestinian Startups



Source: Kuester and Arya 2021.
Note: B2B = business-to-business; B2C = business-to-customers.

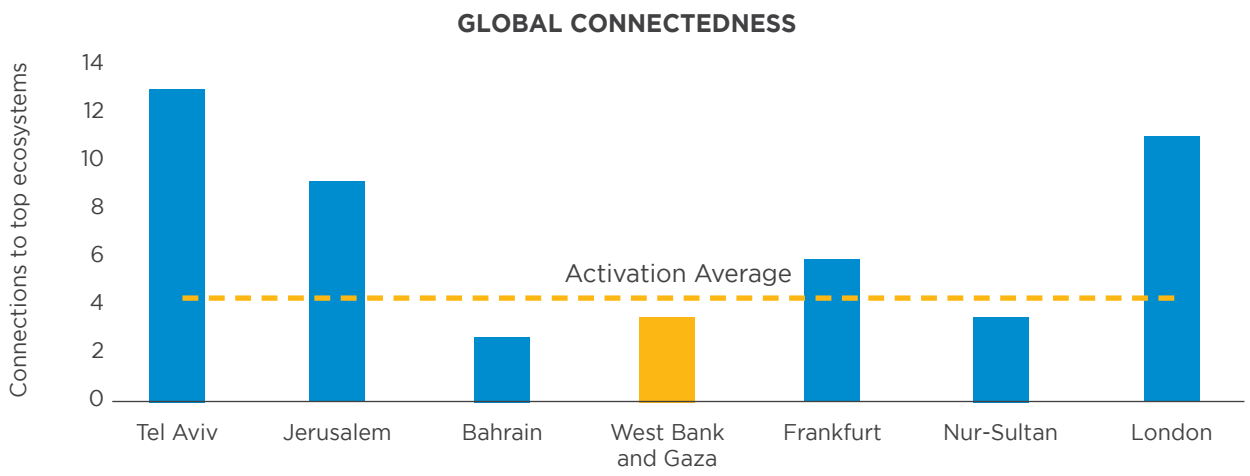
83. Cusolito (2020).
84. ipoke.co, "Social Media Report in Palestine 2019," December 2019, https://bit.ly/2QT0MAJ.
85. Focus group with established digital platforms.

However, B2C and B2B digital platforms in WB&G have limited international linkages and a local consumer base that mistrusts sharing information online. Platform operators that target B2C customers locally cite limited public awareness and lack of trust as the main impediments to expanding their customer base, despite high levels of internet and social media use. In the focus group discussions, businesses targeting B2C customers cited privacy concerns among users as a challenge. Platform users, especially in more traditional sectors (for example, workers and drivers), are uncomfortable sharing their information on digital platforms. For digital platforms that target other businesses (B2B) (for example, brokering sites), search costs related to reaching customers are relatively high, something noted as a particular challenge for Palestinian businesses, especially those that target B2B clients internationally.

Despite the limited uptake of B2C and customer-to-customer digital platforms, most firms are optimistic about the prospects for increased public awareness, citing the upward trend during the COVID-19 pandemic and the longer-term potential of expanding demand in the tech-savvy youth demographic. A survey conducted by PCBS in 2019 shows that this positive trend had already started even prior to the pandemic; 48.3 percent of internet users over age 10 years reported that they use the internet for "getting information about goods or services." The power of social media is showing to be an important vehicle for reaching customers who are increasingly using social media to shop online. According to a survey conducted in 2020 by iPoke, 43 percent of Palestinian social media users reported using social media platforms for online shopping.

Although B2B and B2C businesses report positive trends in domestic activity, reaching out to international clients is challenging due to a lack of international connections. Digital platforms that target B2B customers locally find simpler access to networks due to high levels of local connectedness within WB&G. However, while attracting local B2B clients is relatively straightforward, the potential for revenue generation is much more limited compared with potential clients outside WB&G. Further, low levels of awareness among local businesses of the available digital platforms, as well as the "informal" nature of local businesses, limits their operations online. B2B digital platforms are aware of the advantages of the B2B model, especially its significant revenue potential from a limited number of major clients; however, businesses report that much-needed access to strong professional networks to reach B2B clients is lacking. This is particularly exacerbated as local linkages to international hubs are limited (figure 5.6).[86,87]

Figure 5.6. Startup Founders' Connectedness to Their Peers in Top Ecosystems



Source: Kuester and Arya 2020.
Note: Global Connectedness: The average number of connections that startup founders have to their peers in the top 7 ecosystems (Silicon Valley, Boston, New York City, Singapore, Shanghai, Tel Aviv, London, and Berlin)

86. Focus group discussions with established digital platforms and e-commerce firms.
87. Kuester and Arya (2021).

Digital platform operators in WB&G also often lack the financial and technical capacity to navigate opaque regulations and the long-term planning required to pursue international clients. For companies working internationally/regionally, success rests on their ability to develop a globally competitive offering, but also on developing a systematic approach to sales, business development, and management.[88] Entry into foreign markets is challenging, and digital platform operators in WB&G have reported that they had to spend large sums on legal services and business development to reach international clients. For example, in many cases, especially for businesses that target the Gulf market, there is a need to partner with local firms to be able to operate in those markets and attract customers.

5.2.3. E-Commerce Platforms

E-commerce platforms are a subsegment of digital private platforms[89] that support the broader digital platform ecosystem through facilitating the transfer of goods and e-payments. In contrast to social media or jobs platforms, e-commerce platforms have a singular focus on the transfer and delivery of services and physical goods through online marketplace transactions. Given the Palestinian economy's reliance on and growth in services, this subsegment of digital platforms holds particular relevance to the growth of WB&G's digital economy.

Many e-commerce websites operate in WB&G (table 5.3); however, many of them struggle to scale up due to low uptake of online payment solutions and high transportation costs. There is heavy reliance on COD by Palestinian e-commerce platforms. According to a survey conducted by PCBS in 2019, 86.5 percent of Palestinian adults who purchased goods or services online paid through COD (table 5.4).[90] Many have adjusted to COD to minimize the operating costs associated with providing seldom used online payment options. E-commerce platforms whose businesses already integrated digital payment solutions on their platforms complained about the duration and complexity of the integration process.[91] Other firms cited the need to hire specialized staff to complete the integration, and others cited the rigidity of the local solutions when it comes to adapting to innovative business models. As a result, most platforms are hesitant to initiate a transition to digital payments and rely on COD. However, typically COD leads to higher return rates and failed deliveries and adds pressure to working capital requirements while limiting delivery options to logistics companies that accept this form of payment. Notably, in WB&G, e-commerce platforms and delivery providers reported return rates and failed delivery rates of 6-7 percent, which is relatively low.[92] Another challenge faced by e-commerce platforms is the high cost of transporting goods within WB&G and from abroad. E-commerce faces obstacles such as Israeli control over border crossings and delays due to inspections, as well as the weak logistical infrastructure of the Palestine Post.[93]

88. Focus group discussions with established digital platforms and third-party sellers.
89. Other forms of digital platforms include sharing platforms, fintech platforms, social media platforms, and jobs platforms.
90. PCBS, Household Survey on Information and Communications Technology, 2019.
91. Focus group discussions with established digital platforms, e-commerce firms, transport/delivery service providers, and third-party sellers.
92. Focus group discussions with e-commerce firms and transport/delivery service providers, and interview with Ahmad Ramahi from WeDeliver.
93. Palestine Economy Research Institute - MAS.

Table 5.3. Examples of Top West Bank and Gaza E-Commerce Websites

Website	e-Commerce Platform	Products	Facebook Followers	Instagram Followers	Local/ Regional
Mart.ps	PrestaShop	Misc.	257K	27.4K	L
Matjarkom.com	Opencart	Misc.	217K	19K	L
Bazarcom.shop	Shopify	Brand Apparel	30K	2.2K	L
la2ta.com	Opencart	Electronics	161K	30.5K	L
Vatrin.com	Shopify	Women Apparel	66K	14.2K	L
kenzwoman.com	WooCommerce	Women Lingerie	14.5K	125K	R
fiveten.ps	Magento	Misc.	311K	233K	L

Source: Faceboook, Instagram. [Retrieved: December 2019]

Table 5.4. Percentage of Adults Who Purchased Goods or Services Online in the West Bank and Gaza, by Method of Payment

Method of Payment	Region		
	Gaza Strip	West Bank	WB&G
Cash on delivery	83.6	87.4	86.5
Credit card online	9.1	17.1	15.2
Debit card or electronic bank transfer online	3.1	8.9	7.5
Mobile money account (account connected to the mobile number)	-	2.5	1.9
Online payment service (PayPal)	4.2	3.6	3.7

Source: PCBS 2019a.

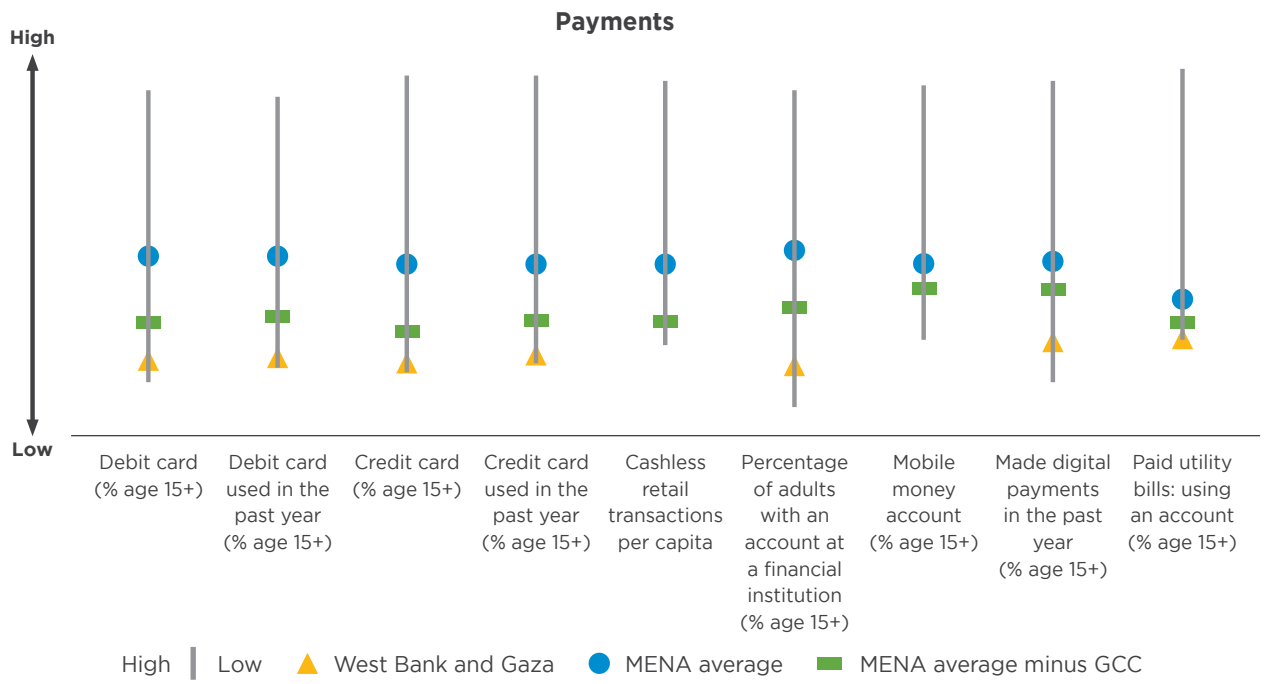
The experience of Palestinian e-commerce platforms with e-payment systems is varied and highly dependent on the location of the business within WB&G. Companies that were founded in East Jerusalem find that the integration of online payment tools (for example, PayPal) is much simpler since they rely on the Israeli financial services infrastructure, which is highly developed.[94] However, businesses in East Jerusalem that target clients in WB&G still need to rely on cash since very few customers have access to online payment solutions.

The prevalence of COD is linked to the limited use of e-payment, e-verification systems, and cultural norms. Online sales are growing in WB&G and MENA more broadly; however, in both cases, COD continues to be the primary means of payment (figure 5.7).[95,96] In WB&G, this is due to a combination of factors, such as general lack of trust in online payment methods, concerns about internet fraud, and the low availability/penetration of online payment methods (that is, credit cards) to consumers. Another factor minimizing the usage of online payments in WB&G is firms' preference to handle cash as they can use it to pay suppliers quickly, while banking systems

94. Focus group discussion with established digital platforms.
95. In 2019, around 62 percent of MENA online shoppers preferred COD as a payment method when buying online.
96. Fabre et al. (2019).

are more prone to delays. Furthermore, even when digital payment solutions are available, customers are often not aware of the possibility of paying online. Firms that already integrate payment solutions on their platforms reported that the percentage of customers who use them is no more than 1-2 percent. To address some of these issues, such as lack of consumer trust in online transactions, PalPay is considering following the same model as Alibaba (for example, creation of an escrow account to deal with e-commerce liability issues) and becoming a third-party enabler for e-commerce platforms. PalPay is also creating a digital wallet, and the PMA is working on a new legal framework to open the market to competition and regulate e-wallet platforms.[97]

Figure 5.7. Digital Payment Indicators in the West Bank and Gaza



Source: World Bank Group 2019a.
Note: GCC = Gulf Cooperation Council countries; MENA = Middle East and North Africa.

Businesses recognize the importance and potential of digital payment solutions but believe that the pace of adoption will be slow. Businesses operating on e-commerce platforms have themselves expressed mistrust in banking services and have a strong preference for cash, which is considered safer.[98] This is not unique to WB&G and is typical of emerging markets. Even in markets with healthy credit card penetration rates, such as the United Arab Emirates (57 percent), it is estimated that 75 percent of the economy is still cash-based.[99] E-wallets in WB&G have developed to address these gaps, with developers highlighting the great potential for new mobile-based e-wallets to tap into the demand from traditionally unbanked users. This argument is underscored by the number of customers at all the local banks summing to approximately 600,000, whereas when it comes to mobile users, there are upwards of three million Jawwal Telecom Company subscribers and 1.3 million subscribers for Ooreddoo.[100] Business owners are also aware that integrating digital payments has the potential to improve accounting and management, but they report facing no problems in receiving and handling cash on a daily basis.[101] Focus group participants who had integrated digital payment solutions did not experience improved business performance as consumer uptake was low.

97. Palestinian Monetary Authority: https://www.pma.ps/en/Media/Press-Releases/under-the-auspices-and-participation-of-his-excellency-the-governor-of-palestine-monetary-authority-palpay-launches-e-wallet-my-wallet.
98. Focus group discussions with established digital platforms, e-commerce firms, transport/delivery service providers, and third-party sellers.
99. Fabre et al. (2019).
100. MTIT (2020).
101. Focus group discussions with e-commerce firms and transport/delivery service providers.

Digital business suppliers, such as third-party sellers[102] and home-based businesses, operating on e-commerce platforms are growing and driving the adoption of e-payment solutions. According to the preliminary findings of a survey conducted by PCBS, it is estimated that there are approximately 15,000 informal home-based establishments[103] in the West Bank and up to 20,000 informal home-based establishments in Gaza. Home-based businesses are closely linked with digital supplier activity, taking advantage of the employment and access to market opportunities offered by online platforms. E-payment solutions can help reduce operational costs for these small businesses and may facilitate reach to international clients.

5.2.4. IT Outsourcing and Freelancers

IT outsourcing, especially "nearshoring," holds comparative advantage and potential for firms in WB&G given the relatively low wages in the ICT services sector, the availability of educated young talent, the same time zone as in Europe or Israel, and the position as a point of entry to the MENA market. The costs of Palestinian IT service labor are 20 to 30 percent that of economies with developed IT services sectors, giving some regional advantage, although they are higher than in other low-cost outsourcing countries such as India.[104] For subsidiaries of multinational corporations in neighboring economies, WB&G is well-situated for conducting trainings and meetings and managing teams,[105] and cultural and language similarities are also an incentive.[106] A considerable share of outsourcing in WB&G comes from Israel, which has geographic proximity and the highest concentration of startups per capita globally, and houses more than 530 multinational corporations from 35 countries.[107] Israel also hosts research and development (R&D) centers for many tech multinational corporations, including Microsoft, Intel, Google, HP, Apple, IBM, Nvidia, and Nokia. Several of these companies have established outsourcing contracts in WB&G or directly employ Palestinians in their teams. For example, Israel's Mellanox, which was bought by the United States–based Nvidia, retained the Palestinian engineers already employed by the firm and set up an office in the West Bank.[108]

A significant long-term benefit of the growing IT outsourcing and R&D sector in WB&G is the appearance of Palestinian IT product companies, which can create local intellectual property relying on Palestinian talent. While these companies are still low in numbers, they have a large impact on increasing the value-added content of the Palestinian developers and bring much-needed marketing and business development skills into WB&G.

The market for technology development outsourcing with global technology-intensive companies is expected to be relatively resilient to COVID-19. This is due to the longer-term cycle of the more advanced R&D typically associated with these companies (that is, the work is not as impacted by the COVID-19 downturn) and the large cash reserves held by some of these global companies. An example of international outsourcing is Cisco's partnership pilot project with local Palestinian firms, spearheaded by Cisco Corporate Affairs over 2002–12. Cisco's R&D groups have continued outsourcing to Palestinian firms since the completion of the initial pilot.[109] WB&G could also benefit from raising its profile compared with the European market.

The rise of outsourcing platforms for IT services provides employment opportunities for Palestinian freelancers, although revenue is somewhat inconsistent. Online platforms such as Upwork, Simply Hired, or Crowded can be a good option for individual freelancers; however, it is difficult for them to rely solely on these platforms due to inconsistent monthly revenue. Freelancers turn to online platforms only when there is a weak flow of contracts from their core business activities. Palestinian ICT firms reported that the small amount and inconsistency of

102. Third-party sellers refer to independent sellers of goods and services directly to the customer through e-commerce platforms, as opposed to first- or second-party sellers who do not sell directly to customers.
103. A home-based business is defined as one whose activities are based at home such that the use of the house for business purposes is secondary to its main residential use.
104. World Bank Group (2020c).
105. Khader and Zein (2019).
106. World Bank Group (2020c).
107. https://blog.startupnationcentral.org/general/the-state-of-innovation-why-and-how-multinationals-innovate-in-israel/.
108. https://www.timesofisrael.com/us-firm-nvidia-to-employ-100-west-bank-engineers-as-salaried-workers/.
109. World Bank Group (2020c).

revenue generated through online platforms does not justify the amount of effort and resources deployed.[110] The difficulty of finding clients due to rising salaries in WB&G makes it increasingly harder for freelancers to compete on online platforms. Despite these challenges, Palestinian youth are turning to freelance online work, especially in the Gaza Strip where youth unemployment reached 62 percent in 2021Q2.[111]

Palestinian women freelancers working online earn less than men. According to the survey of Freelance Academy graduates in Gaza conducted by Mercy Corps–Gaza Sky Geeks in 2020, a gender pay gap as high as 56 percent exists among online freelancers, most acutely at the start of the freelancers' careers.[112] While incomes rise over time, and at a faster rate for women, the gap persists, and the number of women not earning an income increases after six months relative to men. Although commitment levels and hours spent freelancing are comparable, and at times higher for women, the pay gap between men and women ranges from 56 percent immediately at the start of their careers to 26 percent after 12 months of employment.

Businesses offering their services and products online through digital platforms report difficulties in receiving international payments.[113] Freelancers face problems setting up bank accounts for receiving international payments, which involves showing proof of employment and meeting minimum salary requirements. Once a bank account is set up, international transfers face anti–money laundering regulations as WB&G is considered a "high-risk" location. Finally, after an international transfer is made, receiving the funds can be time consuming and require high fees.

5.3. Challenges to Digital Business

Several key challenges cut across segments of digital business. First, digital service providers as well as digital business suppliers (third-party sellers and gig economy workers) struggle to attract international clients into their B2B and B2C networks. Second, scarce access to financial services and funding as well as challenges in receiving digital payments are proving to be a bottleneck for early-stage startups and established firms seeking to expand operations. Third, weaknesses in the entrepreneurship ecosystem result in inadequate support for digital businesses. Fourth, there are regulatory ambiguities that do not accommodate innovative digital business models, such as challenges relating to registration, taxation, and consumer protection. Lastly, inadequate infrastructure and skills

110. Focus Group discussion with third-party sellers.
111. PCBS (2021).
112. MC-Gaza Sky Geeks (2020).
113. Braun and Sachdeva (2018).

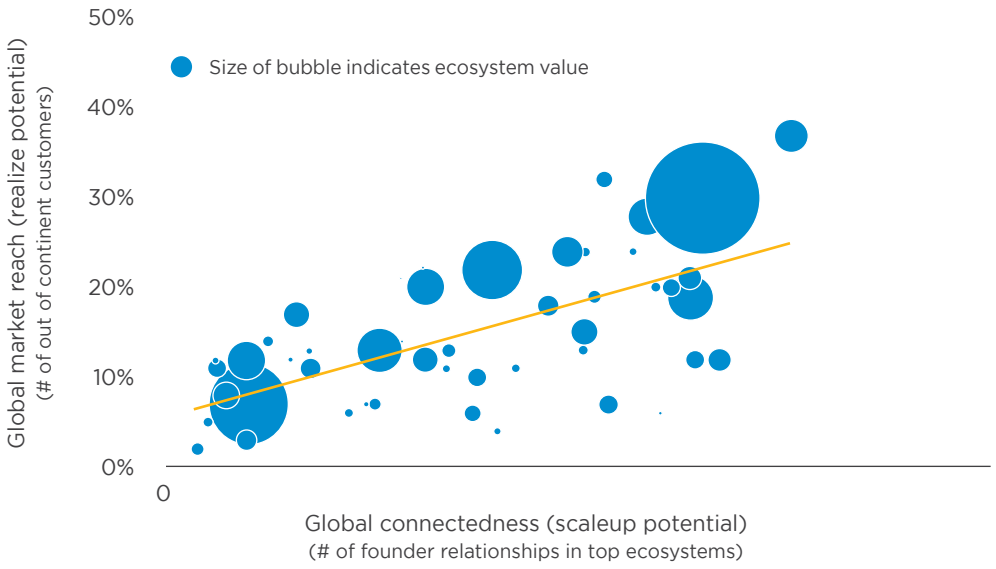
shortages also constrain the growth of digital businesses. Inadequate connectivity and internet speeds combined with GOI's import restrictions on hardware, particularly in the Gaza Strip, limit the use and effectiveness of digital solutions as well as digital business models, as described in detail in chapter 2. The shortage of employees with specialized digital skills is another important obstacle, which constrains development of the industry, including in segments with higher value added. (See chapter 6 for more information on digital skills.)

The recent armed conflict between Israel and the de-facto authority in Gaza, has exacerbated many challenges faced by digital businesses in Gaza. The conflict, which erupted in May 2021, has led to significant destruction of infrastructure in Gaza, including housing and office buildings, manufacturing facilities located in the industrial zone, water, and sanitation facilities. Daily power supply has been reduced and there have been interruptions to the internet connection. Dozens of IT companies and startups were directly impacted by the conflict with many offices destroyed. Many ICT firms in Gaza reported cancellation of contracts (similar to firms in other sectors) and resulting loss of revenue due to the disruption of economic activity following the conflict. Overall, the conflict has resulted in significant losses and reduction of business activity across sectors, and the economic consequences will likely be felt for years to come. The following narrative outlines the key challenges to digital business growth that existed prior to the conflict and were further exacerbated by it.

5.3.1. Global Connectedness

Global connectedness is lacking, resulting in low funding, knowledge exchange, and scaling potential for operations. The root causes of the low connectedness of Palestinian digital businesses to international partners are multifaceted and complex, ranging from lack of adherence to international norms in intellectual property[114] to challenges in receiving international payments, to inaccurate perceptions of WB&G. Due to these factors, many digital businesses in WB&G target product development only for the local market, or in some cases only for the GCC markets. In effect, this limits scalability and results in products that are uncompetitive in the international arena. Overall, the global connectedness of ecosystems is positively correlated with global market reach, as depicted in figure 5.8.

Figure 5.8. Global Network Effects in the Digital Startup Ecosystem



Source: Kuester and Arya 2021.

114. The Director General of the Intellectual Property Directorate indicated that they do not share information with other countries. They do however verify the registration of patents with the database at the World Intellectual Property Organization.

5.3.2. Access to Funding

Access to finance in WB&G lags other MENA countries and is a challenge to business growth. For instance, 14 percent of the firms in WB&G have a bank loan or line of credit, compared with 25 percent of firms in MENA and 31 percent of firms globally. The proportion of firms that had their investment financed by banks was only 5 percent, compared with around 14 percent in MENA and globally. Furthermore, only 13 percent of Palestinian firms used banks to finance working capital needs, compared with more than double this proportion of firms in MENA and globally.[115]

The lack of early-stage funding was cited as the most critical challenge for digital startups. As of 2020, according to Startup Genome's estimations, Palestinian startups faced a US$6 million gap in seed financing and a US$23 million gap in series A financing, and early funding levels were well below those in other ecosystems, including neighboring Tel Aviv and Jerusalem.

The International Monetary Fund has specifically noted that access to finance is a key component of a holistic policy to foster vibrant and competitive SMEs in the Arab world, linking it to a potential 1 percent increase in annual economic growth and the creation of eight million jobs.[116] Although there is some momentum, through WB&G's credit guarantees, credit registries, and some financing initiatives, the public and private sectors could play a greater role in making finance available to digital businesses in WB&G.

5.3.3. Digital Payments

Digital businesses face hurdles in accepting online payments. Findings from the focus group discussions identify the Bank of Palestine as the main acquirer (provider of payment acceptance infrastructure) for digital businesses, offering payment acceptance solutions including web view and stay-within-the-app features. To access these solutions, businesses need to open an account with the Bank of Palestine, which requires established legal and financial presence. Similarly, freelancers must show proof of income and steady employment to open a bank account.[117] Businesses that succeed in opening a bank account can use direct bank transfers from clients as a primary method of payment. While this method is generally reliable, participants that use it report high costs and long periods for transfer of payments.

Palestinian businesses encounter challenges when opening accounts on international financial platforms such as TransferWise or PayPal to accept international payments. Businesses and third-party sellers reported using PayPal to accept international client payments, which is considered the most commonly used payment solution for most international clients, but the number of these businesses is small. One focus group participant stated that her digital business has a PayPal account connected to the company's Bank of Palestine account; however, this was a stand-alone case. Other focus group participants reported opening PayPal accounts and then having them shut down. Some focus group participants reported using Payoneer, a company that provides online money transfer and digital payment services.[118] Payoneer account holders can send and receive funds into their bank account, Payoneer e-wallet, or a reloadable prepaid MasterCard debit card that can be used online or at POS. Although Palestinian customers must select Israel as their country of residence, the company ships the prepaid card to customers in WB&G, who can use it to withdraw money from any ATM. However, Payoneer's out-of-network fees are considered high, with fees of 3 percent for credit card payments and variable fees depending on the marketplace (for example, Fiverr and Upword). Some businesses report failing to receive payments from clients that use online banks and digital payment services such as TransferWise.[119] Since these services do not recognize local banks, businesses are unable to receive their funds. Some businesses reported rejecting offers from clients who were not willing to pay through a traditional Visa card or cash.

115. WB&G (2019).
116. IMF (2019).
117. Braun and Sachdeva (2018).
118. Payoneer, About Us, 2019, https://www.payoneer.com/about/.
119. Focus group 1: established digital platforms, and focus group 5: third-party sellers.

According to several participants of focus group discussions, the general perception of WB&G complicates payments severely. The effect of this perception is more pronounced in Gaza. As a result, most Gaza-based focus group businesses noted that their transfers often get stopped or delayed without clear explanation.[120] According to focus group participants, some international payment solutions do not recognize WB&G, or Palestinian banks, which excludes Palestinian digital businesses from using these solutions. In some cases, digital businesses are forced to turn to using informal (and at times illegal) workarounds to receive payments from international clients.

5.3.4. Fragmentation of the Entrepreneurial Ecosystem for Digital Business

WB&G's nascent ecosystem has some promising developments, but support for businesses is often fragmented and geographically patchy across WB&G. For example, venture capital funding is emerging through Ibtikar, some quality support programs are emerging such as Gaza Sky Geeks and uMake, and angel investing is starting to get off the ground. However, there are many funds and incubators that are dependent on donor financing and therefore have a limited life span. Others are of varying quality, scope, and geographic reach. There is scope to improve the provision of quality support services to all segments of digital businesses across WB&G. And as the Startup Genome report noted, there are mini-ecosystems emerging in WB&G and efforts need to be made to encourage greater local connectedness, for example through networking and events, especially between investors and ecosystem support providers. There is also scope for coalescing around a collective, coherent effort to improve the ecosystem by investors, policy makers, entrepreneurship support organizations, innovation hubs, skills programs/training centers/academia, and the technology industry. Currently, business owners are navigating the disparate worlds of funding, regulation, skills programs, and incubators/accelerators on their own rather than being part of programs or networks that help to bring these facets together.

5.3.5. Legal and Regulatory Challenges Facing Digital Business Models

The key regulatory gaps and ambiguities for digital businesses fall into three categories: legal protections and trust, data and cross-border digital trade regulations, and sector-specific digital firm licensing and taxation. While it is important not to overburden nascent digital economies (and businesses) with excessive regulation, some framework can help, particularly given the strong mistrust of digital payments and digital identity sharing in WB&G and the high levels of frustration expressed by businesses trying to navigate laws and regulations. A comprehensive review of the legal framework governing the operation of digital businesses in WB&G was carried out for this report and the findings are discussed below. The scope of the review looked at the sufficiency and coverage of laws on e-transactions, cross-border data transfer, personal data protection, cybersecurity and cybercrime, online consumer and supplier protection, intellectual property rights, public procurement, open data and industry data sharing, competition and digital markets, tax related to digital businesses, and laws on various platforms (accommodations, gig work, and ride-sharing).

Many laws and regulations on digital economy are lacking. Regulatory frameworks for e-transactions and specifically e-payment and e-wallets have come into play as recently as 2020, yet many other regulations that are needed for development of the digital economy remain in early draft stages or are not available. For instance, there is a lack of personal data protection laws, cross-border transfer and data localization laws, consumer protection laws pertaining to digital services, competition law (or relevant ministry), and regulations specific to digital business registration and licensing. Intellectual property and copyright laws exist but have not been updated since 1953. Finally, there is no clear regulation on data sharing or privacy and data protection, although there are a few draft laws that have not been adopted yet. This is a serious gap that potentially exposes digital businesses to data protection issues. Although the first steps in digital identity have been taken in the E-Transactions Law, No. 15, of 2017, regulation of e-signature is incomplete. Work on technical regulations on e-signature is ongoing and will be supported by the Digital West Bank & Gaza project supported by the World Bank.[121] More positively, in 2017, MTIT passed cybercrime legislation, with amendments passed as recently as 2020.

120. Focus group 1: established digital platforms, and focus group 2: e-commerce firms.
121. It is currently in the preparation phase and expected to commence in the third quarter of 2021.

Currently, the national ID in WB&G and passports are paper based (not digitized). The Ministry of the Interior intends to start issuing biometric passports, pending the GOI's release of the needed equipment. Once the biometric passports are issued, the Ministry of the Interior will work on converting the national IDs to e-IDs (biometric IDs). When the legal framework for digital identity is completed and the e-IDs are issued in WB&G, they can be used for e-signature verification. Although these advancements are still far from actualization, recent legislation on cybercrime, e-payments, and e-transactions shows evidence of legislative momentum.[122] Together, these reforms may serve not only to boost local participation in the digital economy, but also to inspire greater confidence for investment.

Regulation on digital businesses is outdated and does not accommodate new and innovative business models. Focus group participants and earlier studies highlighted that there are no specialized regulations for subletting offices, co-working spaces, freelancing, and data protection.[123] Some of the focus group participants reported that the law does not regulate their business, so their business models are not strictly legal. In these situations, businesses keep most of their operations informal to ensure minimal interactions with the regulator. Several focus group participants indicated that regulation is something they only think about when their business is scaling up or when they raise investment. The PA is not aware of the specificities of digital businesses, and this makes regulation unclear and creates numerous legal hinderances to digital business, including the first step – company registration. The requirements for company registration include a minimum capital requirement of JD 10,000 (to be paid within four years of incorporation); a minimum of JD 735 in lawyer fees for incorporation; a minimum of two shareholders to register a company; and finally, to open a bank account and operate a company requires obtaining a license from the local authority (municipality), which requires having a commercial address. Similarly, restrictive measures impacting freelancers were noted. Focus group participants also reported that the mandates of different government bodies are unclear to businesses. In addition, there is no systematic guidance for digital businesses on how to manage the many ambiguities arising due to their novel business models.

Digital and digitally enabled traditional businesses struggle to license their operations, especially when they are utilizing innovative business models.[124] Taking the example of delivery service providers, two focus group participants representing online delivery companies reported difficulties in licensing to operate in multiple locations within WB&G. Through a long, inefficient process, these businesses ended up obtaining licenses at MTIT to operate as "postal services." While these ad hoc solutions allow businesses to continue their operations, they are not suited to promote innovation in business models. In February 2021, the Palestinian MTIT announced that it will begin using postal codes to ease the delivery of parcels to, from, and within the West Bank, with about half a million buildings already assigned postal codes. The establishment of postal codes is expected to be extended to the Gaza Strip.

Home-based entrepreneurs are currently unable to formalize due to business entry requirements, such as municipal licenses, and national regulatory requirements, such as company and tax registration. Business owners must comply with regulatory requirements on business registration, licensing, taxation, chamber or union memberships,[125] as well as the requirements of legislation on using residential areas for conducting business activities.[126] This impacts the most vulnerable online job seekers since they cannot fully benefit from labor

122. Cybercrime: Cybercrime Law, No. 10 from 2018; Information Security Policy; Information Security Procedures Manual E-transactions: E-Transactions Law, No. 15, from 2017, Articles 27, 28 and 31; The Law for the Settlement of National Payments No. 17, from 2012, Article 2(2); Instructions on Electronic Clearing of Checks, No. 1, from 2021; Instructions for Payment Services Companies on the Provision of E-Wallet Service, No. 1, from 2020; Instructions for Payment Services Companies on the Provision of Prepaid Cards Issuance Services, No. 2, from 2020; Instructions for the Organization of Payment Services Companies with the Users, No. 3, from 2020; Instructions for the Organization of Payment Services Companies with the Agents, No. 4, from 2020; Instructions Concerning Payment Orders, No. 5, from 2020; Instructions Regarding the Business Regulation of Payment Service Companies, No. 6, from 2020; Instructions on the Licensing of Payment Services Companies, No. 1, from 2018; E-Transactions Law, No. 15, from 2017.
123. 7amleh (2020).
124. World Bank Group (2018).
125. According to the Commercial and Industrial Chambers Law No. 9 of 2011, and its Regulations from 2013, it is obligatory for anyone who would like to have a commercial/industrial activity to register with the Chamber of Commerce in which his/her headquarters, branch, or agency is located. http://muqtafi.birzeit.edu/pg/getleg.asp?id=16287.
126. World Bank Group (2020b).

protection in the legal system. For example, in the Gaza Strip where online work has become popular among the youth, more experienced freelancers act as "brokers" by leveraging their track record and client base to source work, and then informally hiring other junior staff to complete the work under their oversight. While this option offers an opportunity for many unemployed youths who are desperate for income, the working conditions and wages of these informal employees are often precarious.

Digital businesses, third-party sellers, and freelancers lack a legal business framework and taxation status. There is no clear taxation regulation for digital businesses. The rules that apply are the same general tax rules that are applicable to any business despite the complexities of the value-added tax rules, identifying the "source" of profits, and correctly applying tax treaties to digital businesses. Digital businesses describe tax regulations and guidelines as unclear and ad hoc. For example, the taxation process is not clear and there are no clear guidelines or consistent approach to the taxation of digital business revenues. Instead, the strictness of enforcement by the authorities tends to fluctuate case by case. Focus group participants explained that the lack of understanding of how digital businesses operate leads the tax authorities to apply arbitrary taxation. One example of successful implementation of digital economy taxation, while still in the early stage of development, is Nigeria, which set out a detailed amendment to its "Companies Income Tax Act" to include foreign and domestic digital economy activities.[127] Positively, experts believe this update will increase revenue while bearing little to no impact on marginalized groups such as indigenous businesses.

Due to the fragmented nature of WB&G, regulation is not uniform across the different regions. For digital businesses in the Gaza Strip that seek to operate in the West Bank, regulation can be a challenge since they need to be registered in the West Bank but pay their taxes in Gaza. To overcome this challenge, businesses operating in different geographies require external help (often from international development agencies) to establish a legal presence in all the areas where Palestinians live. One Gaza-based e-commerce platform company reported that it needed assistance from the World Bank Group–supported project to scale its operations to the West Bank.

The areas of coverage for the Palestinian legal framework for digital businesses are summarized in table 5.5, highlighting where laws and regulations exist and where drafts are pending.

Table 5.5. Summary of Enacted and Draft Regulations on Digital Businesses and Related Legislation in the West Bank and Gaza

Regulatory Area	Law and Regulations	Drafts
E-transactions	• E-Transactions Law, No. 15, from 2017	• E-Transactions Law Amendment (the Ministry is working on a draft that will be in harmony with e-IDAS)
Cybercrime	• Cybercrime Law, No. 10 from 2018 • Information Security Policy • Information Security Procedures Manual	
E-payment	• E-Transactions Law, No. 15, from 2017, Articles 27, 28 and 31 • The Law for the Settlement of National Payments No. 17, from 2012, Article 2(2) • Instructions on Electronic Clearing of Checks, No. 1, from 2021 • Instructions for Payment Services Companies on the Provision of E-Wallet Service, No. 1, from 2020	

127. WTS Global (2020).

Regulatory Area	Law and Regulations	Drafts
	• Instructions for Payment Services Companies on the Provision of Prepaid Cards Issuance Services, No. 2, from 2020 • Instructions for the Organization of Payment Services Companies with the Users, No. 3, from 2020 • Instructions for the Organization of Payment Services Companies with the Agents, No. 4, from 2020 • Instructions Concerning Payment Orders, No. 5, from 2020 • Instructions Regarding the Business Regulation of Payment Service Companies, No. 6, from 2020 • Instructions on the Licensing of Payment Services Companies, No. 1, from 2018	
Personal data protection	• Council of Ministers' Decree No. 04 from 2019	• Personal Data Protection Law (draft)
Consumer protection	• Consumer Protection Law from 2005	• Consumer Protection Law (new draft)
Intellectual property	• Inventions and Drawings Law 1953 • Trademarks Law and Regulation from 1952 • Trade Names Law from 1953	• Intellectual Property Law (new draft, including Commercial Trademarks, Names, Patents, Trade Secrets, etc.) • Copyrights Law (new draft)
Competition		• Competition Law (the law was approved by Cabinet but remains to be enacted)
Open data	• Council of Ministers Decree No. 7 from 2018	• Open Data Policy (new draft)

Source: Digital economy regulatory desk review and interviews with PA officials, February 2021.

5.4. Recommendations

Several policy measures could improve the support instruments and regulatory environment to help digital businesses thrive in WB&G. They are summarized here and can serve as a starting roadmap for how to move forward with reforms:

1. **Strengthen access to funding.** Finance for SMEs and startups is critical to promote business investment and growth. The public and private sectors could play a greater role in support measures to make finance available to digital businesses in WB&G, such as SME finance, through more extensive credit guarantees and financing initiatives, as well as through early-stage funding (grants, seed funds, and series A) for startups to grow the number of scalable digital businesses.

2. **Facilitate the use of digital payments.** Recommendations relating to digital payments and digital financial services are detailed in chapter 4, but some of the key elements of importance for digital businesses warrant emphasis. For example, it will be important to introduce a streamlined process for businesses and freelancers

to open bank accounts and use digital payments, by adjusting the requirements (for example, proof of employment or proof of steady income). This can help increase mobile banking penetration. And digital payment options should be facilitated so that over time, consumer preferences for COD are diminished.

3. **Enhance global connectedness.** To promote WB&G's global connectedness, digital businesses (especially startups) should be supported to network with founders, mentors, support organizations, and investors outside WB&G to improve global market reach. Moreover, the PA can engage with the large and active Palestinian diaspora to strengthen mentorship opportunities for startups and SMEs and better connect them to international markets. In addition, legislation should be developed to protect intangible assets developed by digital businesses, to ensure global investors and partners of Palestinian businesses have the necessary assurance and protection. This is particularly critical for intellectual property, trademarks and copyright legislation, as well as legislation on cross-border data transfers.

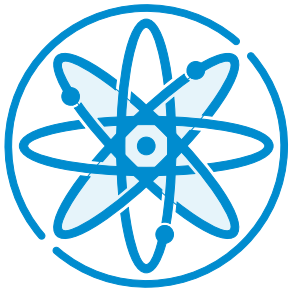
4. **Address fragmentation of the entrepreneurial ecosystem for digital businesses.** It is recommended to promote greater connectivity among Palestinian ecosystem players. For example, structured public-private dialogue between digital businesses and policy makers would ensure that the challenges experienced by businesses are addressed in government policy. Furthermore, annual industry events for key players and stakeholders could improve connectedness within the local digital business scene across different regions (for example, Gaza Strip and the West Bank). High-performing support organizations in the startup ecosystem (incubators, venture capital funds, and so forth) should be supported to scale. Alongside the ecosystem support, efforts should be made to measure digital business presence and the impact of digital businesses on the economy, to determine and track the impact on GDP and employment creation with a clear dashboard that can be followed by different stakeholders. Data from digital businesses should be collected regularly to track progress, and there should be a systematic effort to map the digital business landscape in WB&G on a periodic basis.

5. **Improve the legal and regulatory framework governing digital businesses.** Measures should be taken to develop regulations on data privacy, update the E-Transactions Law and set up a Certification Unit and improve the tax regulatory framework to take account of digital business models. In addition, consumer protection law should be developed with relevance to the growth of digital services in WB&G. It will be important to adopt and implement the Competition Law and intellectual property, trademark, and copyright legislation. Finally, to boost public confidence and, more importantly, participation, a series of regulatory updates and additions focusing on licensing, consumer and platform supplier protection,[128] digital identity, and personal data privacy[129] are recommended. With such a large and ambitious legislative agenda, it is suggested to prioritize the regulatory frameworks for e-transactions, competition, and consumer protection as a starting point for short-term action. Furthermore, the new Companies Law should be implemented to (1) provide legal certainty on the establishment and operation of companies; (2) enable online business registration and reform of the role of the Companies Controller; (3) facilitate the incorporation of SMEs, startups, and home-based businesses; (4) draw clearer boundaries between the various legal forms; (5) protect minority investors' rights; and (6) increase the transparency and accessibility of information on registered companies.

128. Consumer Protection Law, 2005.
129. Council of Ministers' Decree No. 04, 2019.

6

Digital Skills



6.1. Importance of Digital Skills

Digital technology is changing the nature of jobs and requires a new set of skills for workers. The introduction of digital technologies is rapidly transforming economic activities; driving productivity gains in formal and informal sectors; facilitating access to new markets; and improving the delivery of health, education, and other public services. Digital technologies have also enabled the rise of the "platform economy," which has introduced new ways to work and socialize. Central to these developments are digital skills, which are important enablers of digital transformation. The gig economy is putting a premium on cognitive, socio-behavioral, and digital skills; at the same time, jobs requiring routine skills are disappearing due to automation. Fostering a digitally competent workforce can reduce the impact of economic isolation and improve WB&G's growth prospects.

Digital skills can be defined as the individual's capacity to access, manage, understand, integrate, communicate, evaluate, and create information safely and appropriately.[130] Entry-level digital skills, meaning the basic functional skills that are required to make use of digital devices and online applications, are widely considered a critical component of a new set of literacy skills in the digital era along with traditional reading, writing, and numeracy skills. At the advanced end of the spectrum of digital skills, individuals working in ICT will have the ability to deploy digital technologies, develop new applications, and come up with solutions to new problems. Major digital transformations such as artificial intelligence, machine learning, and big data analytics change the skills requirements and, in turn, impact skills development for the 21st century digital economy. Digital skills represent a continuum of diverse skills that can be fostered through formal education and training as well as informal learning.

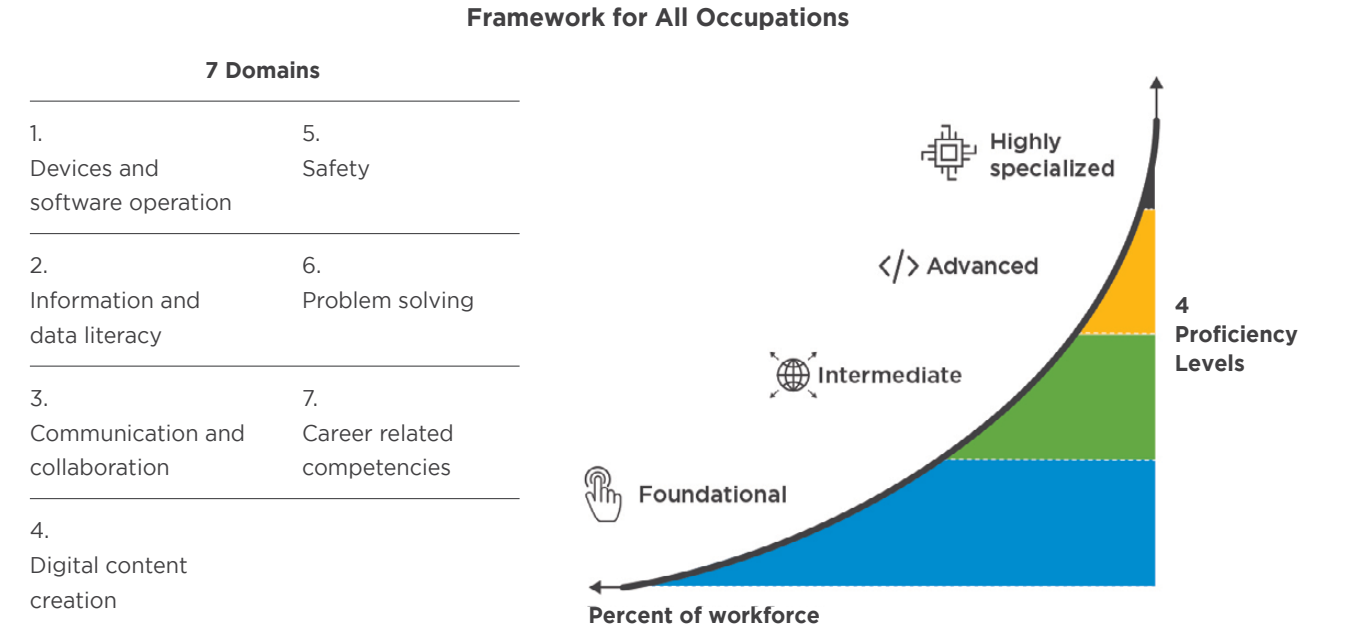
130. UNESCO (2018).

The United Nations Educational, Scientific and Cultural Organization (UNESCO) Digital Literacy Global Framework provides a classification of digital skills (figure 6.1). Different levels of proficiency in seven competency areas or domains indicate four broad levels of digital skills that are applicable to many occupations:

- **Foundational.** With guidance, deal with simple tasks that involve remembering content and instructions..
- **Intermediate.** Independently deal with well-defined routine and nonroutine problems that involve understanding content.
- **Advanced.** Independently deal with and provide guidance to others on different tasks and problems that involve applying and evaluating content in complex situations.
- **Highly specialized.** Independently resolve complex problems with moving pieces, guide others, contribute to professional practices, and propose new ideas to the field.

As digital technologies pervade different sectors, an increasing number of occupations will require at least a foundational level of digital skills, and many will need an intermediate or higher level of digital skills.

Figure 6.1. Digital Skills Framework: Seven Competencies/Skills and Four Proficiency Levels



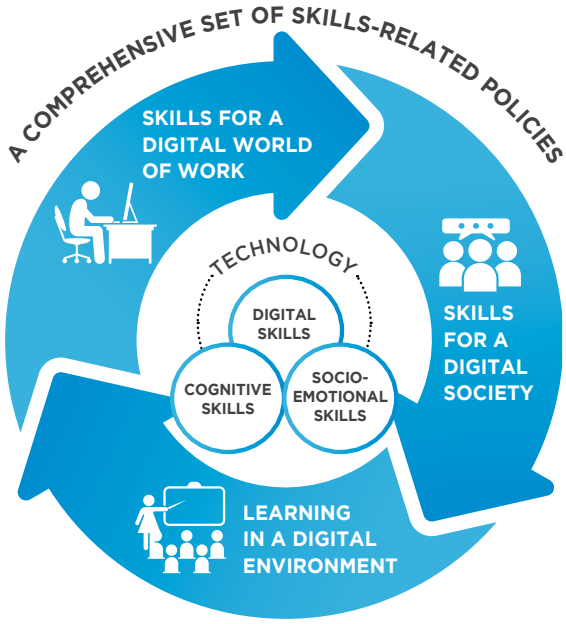
Source: UNESCO Digital Framework and EU DigComp2.1.

To thrive in today's connected economy and society, digital skills must be developed in tandem with other competencies, such as strong literacy and numeracy skills, critical and innovative thinking, complex problem solving, an ability to collaborate, and socioemotional skills – the set of skills that is often referred to as 21st century skills (figure 6.2).[131] In addition, strong cognitive skills are needed to make informed decisions while using technology. Evidence from the World Bank Group (2019b) shows that since 2001, the share of employment in

131. The set of digital skills for the 21st century includes information management, communication-expressiveness, information evaluation, critical thinking, collaboration, problem solving, communication-networking, communication-building, and communication-sharing, as detailed by van Laar et al. (2019).

occupations that are heavy in nonroutine cognitive and socio-behavioral skills has increased from 19 to 23 percent in emerging economies and from 33 to 41 percent in advanced economies. The payoffs to these skills, as well as to combinations of different skill types, are also increasing in those economies.[132] The development of 21st century skills relies on the availability and quality of formal education.

Figure 6.2. Proposition of Digital Skills in the 21st Century Skills Profile



Source: OECD 2019.

The National Development Plan (2021-2023) and previously the National Policy Agenda (NPA) 2017-2022[133] identify digital transformation among national development priorities. Both plans aim to attract domestic/foreign investment in ICT industry and enhance ICT's role as a business enabler for the Palestinian economy. They also aim to improve the quality of education, align vocational and higher education with labor market needs and promote digital education.

The previous Ministry of Education and Higher Education[134] reflected the NPA's priorities in the *Education Sector Strategic Plan 2017–2022.* These priorities include reforming/updating curricula; developing e-learning programs; ensuring equitable access to educational opportunities, especially for marginalized areas and groups; and upgrading/training teachers and support staff. The strategy is also aligned with SDG 4 on quality education, which has targets for youth and adults to acquire relevant skills – both cognitive and noncognitive – including ICT for employment and decent jobs (SDG 4.4).[135]

The COVID-19 pandemic has demonstrated the importance of digital skills. All establishments – public and private, large and small – are seeking digital solutions for survival and growth, which has increased demand for workers with digital skills. It is projected that the demand for digitally competent workers will continue to grow in WB&G and globally even after the pandemic subsides.

132. World Bank Group (2019b).
133. Prime Minister's Office (2021).and Prime Minister's Office (2016).
134. In 2018, the Ministry of Education and Higher Education was split into two ministries: MOE for pre-university education and the Ministry of Higher Education and Scientific Research (MOHESR) for tertiary education.
135. The United Nations Sustainable Development Goals were launched in 2015 (United Nations 2015).

6.2. Diagnostic Findings: The Current State of Digital Skills

There is little internationally comparable data on digital skills in WB&G. The latest available benchmarking data show that WB&G ranked 85th (of 176 nations) in the skills subindex in the Global ICT Development Index.[136] Although the tertiary education enrollment rate is higher in WB&G than in the MENA region on average, fewer students major in fields related to science, technology, engineering, and mathematics (STEM), particularly among women (table 6.1). Compared with the MENA average, there are also fewer social media users, which could be explained by lower access to digital devices, weaker connectivity, and lower levels of digital skills.

Table 6.1. WB&G's Performance on Selected Education Indicators, 2019 (%)

Indicator	WB&G	MENA average	MENA average excluding GCC
Gross tertiary enrollment ratio, both sexes	42	39	38
Graduates from STEM programs in tertiary education, both sexes	16	27	28
Female graduates from STEM programs in tertiary education	12	21	21
Active mobile social media penetration	29	46	36

Source: World Bank Group 2019a.
Note: GCC = Gulf Cooperation Council countries; MENA = Middle East and North Africa; STEM = science, technology, engineering, and mathematics; WB&G = West Bank and Gaza.

Smartphone, computer, and internet penetration is relatively low in WB&G. About 62 percent of Palestinians ages 10 and above own a smartphone, with a significant difference between the West Bank (72 percent) and Gaza (46 percent). About 26 percent of Palestinians ages 10 and above use the internet, and 71 percent use computers.[137] Computer and internet use increases with education level and is higher among young and middle-age people compared with the elderly. There are no significant differences in the statistics on smartphone ownership or computer and internet use between males and females. Palestinians tend to use the internet at home the most (97 percent) and at school the least (10 percent) (table 6.2). Due to poor infrastructure, people living in Gaza have lower access to the internet.

Table 6.2. Places Where Palestinians Use the Internet (%)

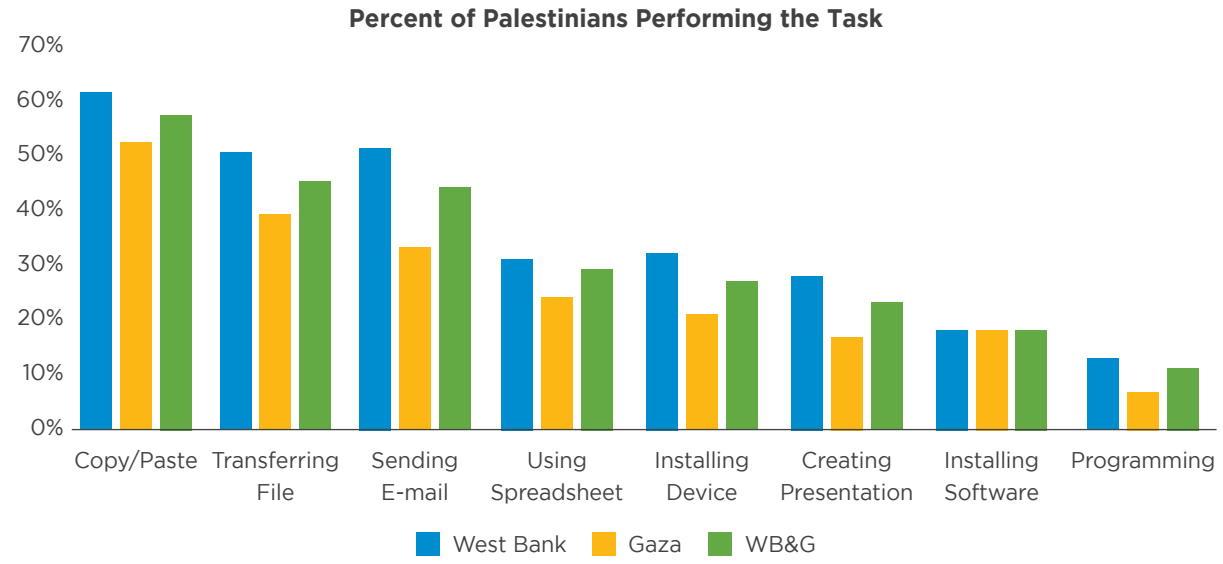
Place	West Bank and Gaza	West Bank	Gaza
Home	97.1	98.9	93.8
Work	20	24.9	11.3
School	9.8	11.6	6.7
Community	9.9	10.4	8.9
Mobile	21.2	28.9	7.4

Source: PCBS 2020b.

136. ITU (2017).
137. PCBS (2020b).

Palestinians tend to use computers and the internet for tasks that require foundational and intermediate levels of digital skills, such as copy/paste, file transfer, e-mailing, or use of spreadsheets. People living in the Gaza Strip are less likely to perform any of the computer tasks compared with those living in the West Bank (figure 6.3). Most Palestinians report that they use the internet mainly for making free calls (76 percent), finding information on topics related to their health (55 percent) or on goods and services of interest to them (48 percent), and watching/playing videos or games (55 percent). Few use the internet for educational purposes, such as looking for learning materials (15 percent) or taking an online course (only 1.4 percent).[138]

Figure 6.3. Tasks Performed by Palestinians with Certain Digital Skills, 2019



Source: PCBS 2020b.

Like elsewhere, the COVID-19 pandemic has significantly disrupted daily life for Palestinians. Most employees have been working remotely and conducting business via e-mail, text, digital platforms, and virtual meeting tools such as ZOOM. Students have been taking online classes from home via the online platform e-School provided by the MOE and other meeting tools like Moodle, ZOOM, and MS Teams to maintain regular communication with their teachers and peers. However, only one-third of households in WB&G own a computer. Although 86 percent of households have smartphones, internet access at home is limited to 80 percent of households.[139] Among poorer households, access to digital resources is extremely limited. The unequal access to digital devices and the internet makes work and study more difficult for the less well-off Palestinians and leaves the most vulnerable families and their children behind.

The conflict between Israel and the de-facto authority in Gaza has caused severe damage to the digital infrastructure and training facilities for digital skills in Gaza. In addition to the civilian casualties, business operations and people's daily lives have been disrupted and all educational and training activities in Gaza were suspended due to safety concerns. Estimates suggest that 140 public school buildings, 104 UNRWA schools and 9 colleges and universities were damaged (either due to impacts occurring in the proximity of these institutions or, in the case of some UNRWA schools, as a result of wear and tear associated with housing thousands of internally displaced people that sought refuge in these schools during the conflict). All schools, colleges, and

138. PCBS (2020b).
139. PCBS (2020b).

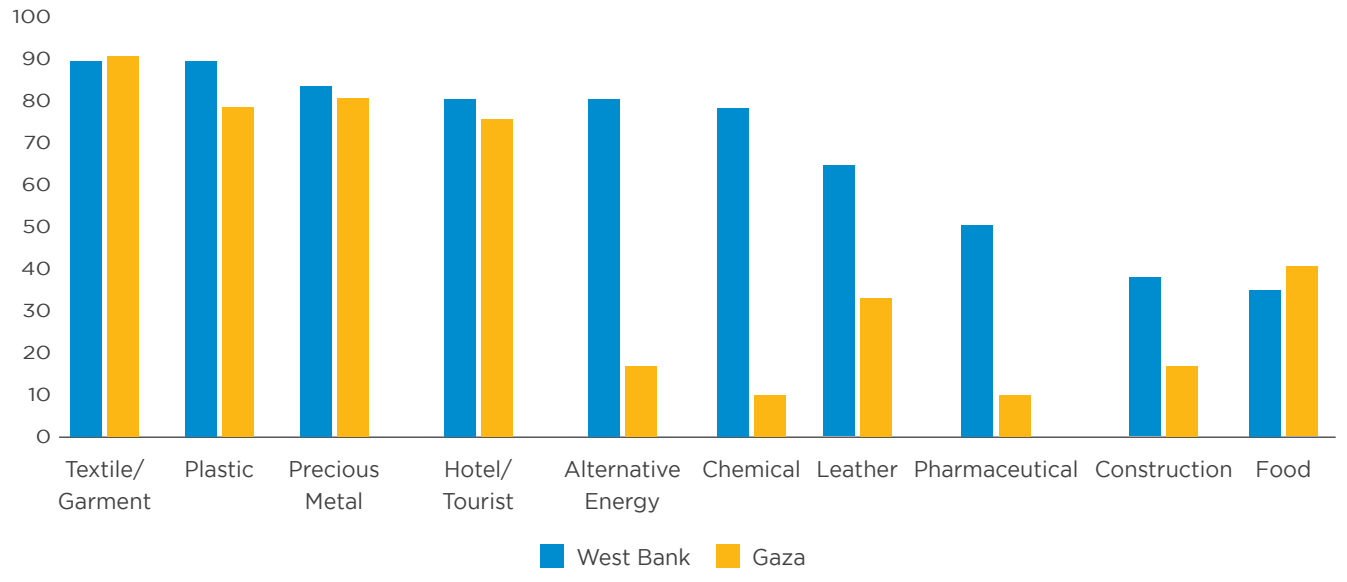
universities in Gaza have been closed, affecting almost 600,000 children.[140] In the absence of reliable electricity and internet, universities in Gaza announced the suspension of all online educational activities as well, including lectures, assignments, and exams. Most of the factories in Gaza's industrial zone and some offices of IT companies were destroyed or damaged, making practical training and employment less accessible to students in the near future. The disruption of the education process caused by this conflict, including digital skills training, will have lasting negative impacts on the affected students and their learning outcomes. Resuming educational activities faces additional challenges as many students are in a state of displacement, instability, and homelessness. The overall damage to the education sector is estimated at US$3-5 million and losses at US$ 0.4-0.5 million.[141]

6.2.1. Demand for Digital Skills

There is strong demand for digital skills in WB&G (and globally) in all sectors. Foundational digital skills such as use of a computer or smartphone, e-mail communication, or web search have become essential for jobs across sectors. Increasingly WB&G's economy needs workers with intermediate skills who can use professional software and manage data. Lastly, WB&G's rapidly growing ICT industry is experiencing a shortage of employees with relevant technical, managerial, and marketing skills.

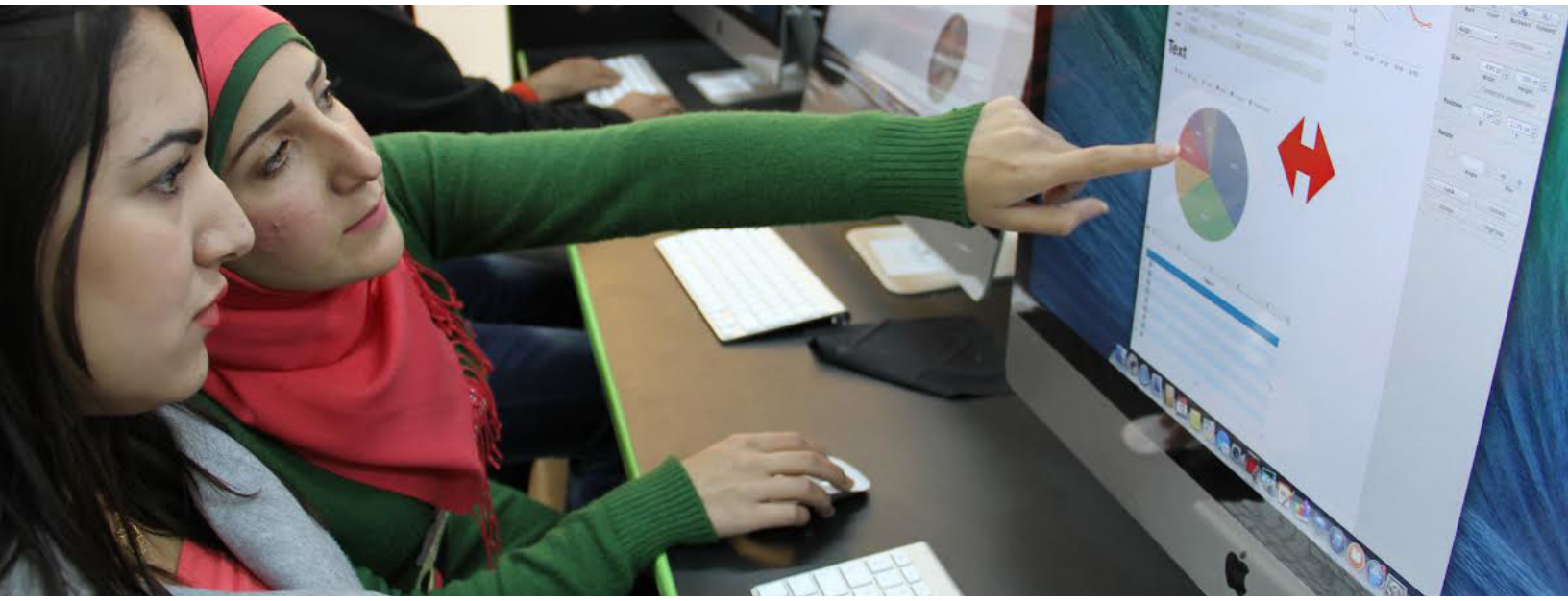
Many industries in WB&G report that there is a lack of employees with basic computer skills (figure 6.4). Close to 60 percent of employers in the West Bank and over 40 percent in Gaza find that their technical workers lack the necessary basic computer skills. In the West Bank, at least 80 percent of employers in diverse sectors, such as plastics, garments and textiles, precious metals, furniture, renewable energy, and tourism, report that their employees do not have sufficient computer skills. In Gaza, this share is similarly high in the plastics and garments and textiles sectors. The fact that the share of employers reporting the shortage of basic computer skills is lower in Gaza than in the West Bank likely has more to do with the outdated machinery and equipment available to employers in Gaza and less with the computing skills of workers in Gaza relative to those in the West Bank.

Figure 6.4. Share of Surveyed Employers Identifying Shortages in Basic Computer Skills in Technical Workers, by Industrial Sector, 2019 (%)



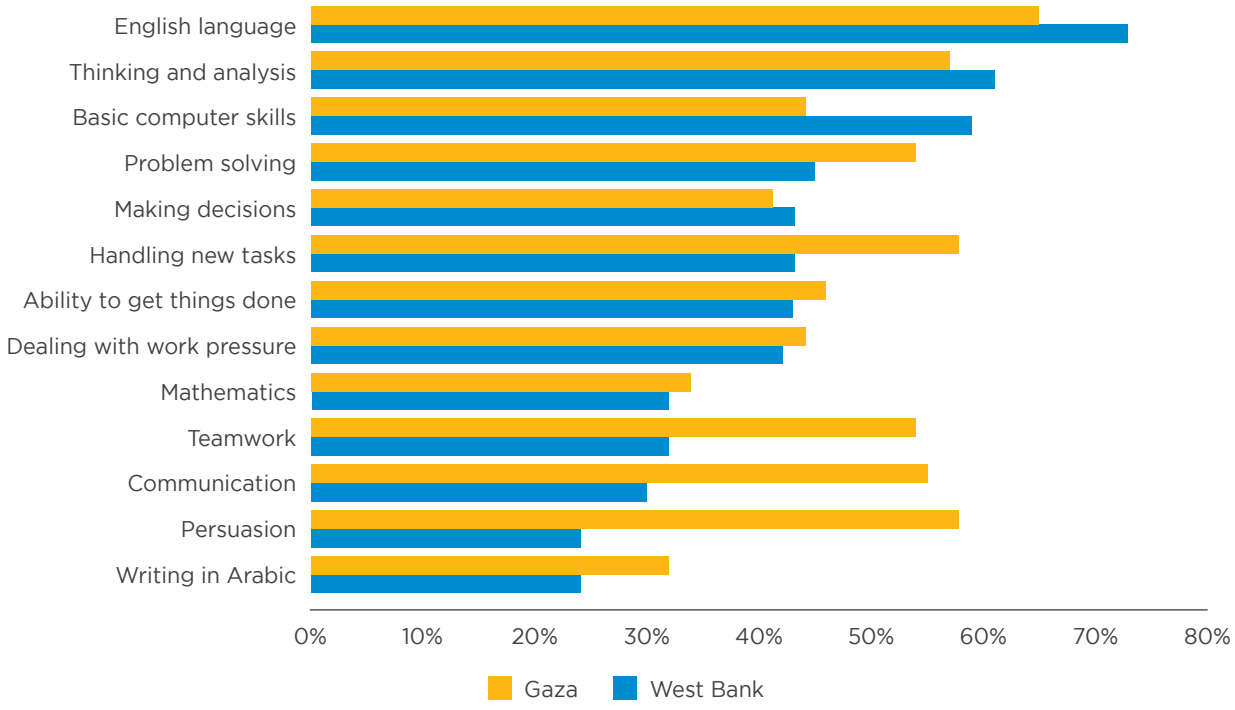
Source: Fallah 2019.
Note: The study reported on findings from a survey of the main industrial sectors in WB&G and includes findings from 262 establishments: 177 establishments across 14 sectors in the West Bank, and 85 establishments across 10 sectors in the Gaza Strip.

140. OCHA (2021).
141. WBG (2021c)



"Soft skills," such as teamwork, communication, and problem solving, as well as proficiency in English and written Arabic are also in high demand (figure 6.5). Over 50 percent of employers in the West Bank believe that their workers have insufficient English, basic computer, and thinking and analysis skills. In Gaza, over half of the employers report that their workers lack teamwork, persuasion, English, communication, ability to handle new tasks, problem solving, and thinking and analysis skills.

Figure 6.5. Share of Surveyed Employers Reporting Shortages in Cognitive and Life Skills in Workers, by Type of Skill, 2019

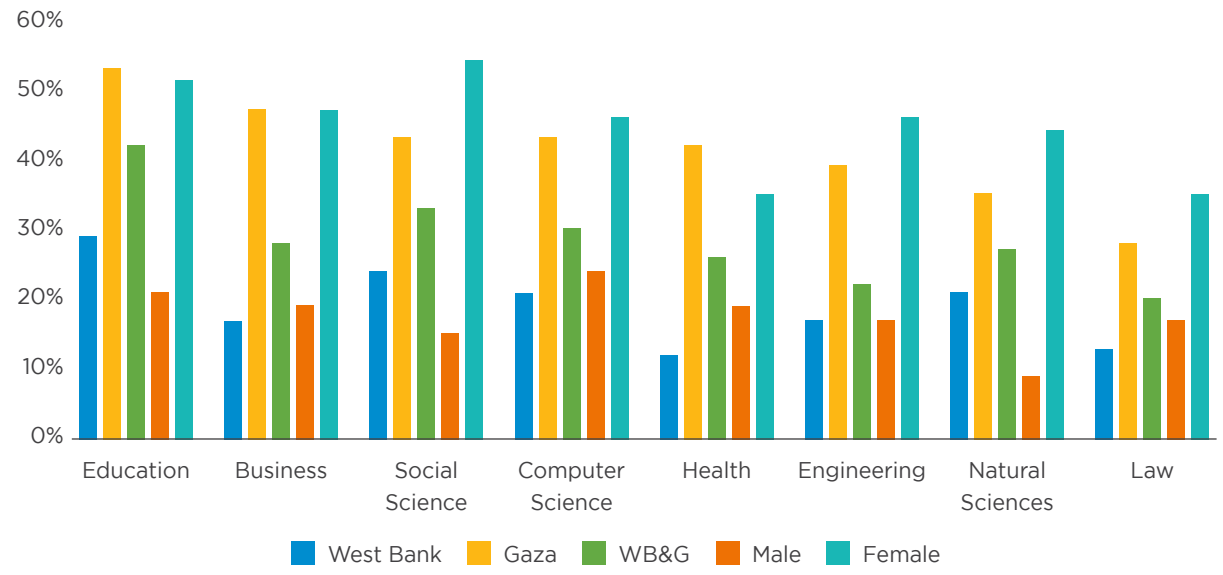


Source: Fallah 2019.
Note: The study reported on findings from a survey of the main industrial sectors in WB&G and includes findings from 262 establishments: 177 establishments across 14 sectors in the West Bank, and 85 establishments across 10 sectors in the Gaza Strip.

The growing ICT industry has a high demand for employees with specialized programming, marketing, and management skills. Palestinian IT and business process services industry output stood at US$126 million in 2017, growing at 6 percent annually since 2010. ICT service exports accounted for 15 percent of service exports in 2017, up from 0.6 percent in 2000, increasing the demand for workers with advanced digital skills. Some of this growth has been fueled by demand from multinational corporations with a growing footprint in the region but facing a shortage of engineers and computer scientists, coupled with a growing and untapped labor pool in WB&G's IT sector. [142]

However, skills mismatches constrain the growth of the ICT industry and contribute to high unemployment and lower than expected salaries among engineering and computer science graduates. Unemployment rates among computer science and engineering graduates are at 30.4 and 22.4 percent, respectively – with unemployment among female graduates over 20 percentage points higher than among male graduates (see figure 6.6). Despite the demand for employees with advanced and highly-specialized digital skills, the unemployment rate among computer science graduates is higher than that of business, law, natural science, and health graduates. This reflects the mismatch between the skills of computer science graduates and employers' needs. The earnings of computer science graduates, measured by the daily wage in Israeli new shekels,[143] are lower than those of their peers majoring in other disciplines, with the exception of education (see figure 6.7).[144] Although more than 3,000 engineering and computer science students are graduating annually, only about 9,000 people are currently employed in the ICT industry (of which fewer than 2,000 are in computer programming, consultancy, and related activities).[145] The wages of computer science graduates therefore reflect the fact that they are not employed in their field of study. At the same time, Palestinian IT firms struggle with recruiting qualified employees. Interviews with the Palestinian private sector revealed that university degrees and grades do not act as a sufficient screening signal for employers seeking top talent.

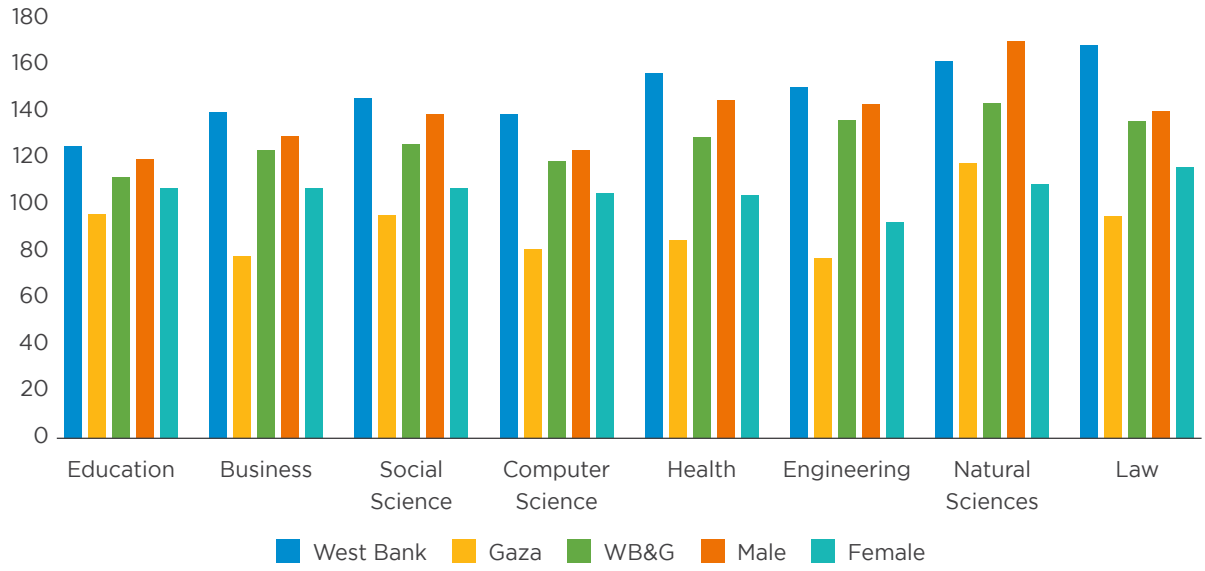
Figure 6.6. Unemployment Rate of TEI Graduates in Selected Specializations, by Gender and Region (%)



Source: PCBS 2019b.
Note: TEI = tertiary educational institution.

142. World Bank Group (2020c).
143. One US dollar ($US) is equivalent to about 3.3 Israeli new shekels (NIS, ₪).
144. PCBS (2019).
145. PCBS (2018a).

Figure 6.7. Average Daily Wage (NIS) of TEI Graduates in Selected Specializations, by Gender and Region (2019)



Source: PCBS 2019.
Note: TEI = tertiary educational institution.

Those who are employed in the ICT industry, however, earn relatively high wages, demonstrating the demand for their skills. As table 6.3 shows, estimated average wages in the ICT industry in 2019 amounted to about US$31 daily, which was higher than the estimated daily wage in all other sectors.

Table 6.3. Estimated Average Daily Wage, by Sector, 2019

Sector	Average Daily Wage (US$)
ICT	30.5
Health and education	26.7
Construction	25.5
Other services	24.0
Manufacturing	20.2
Retail/wholesale trade	15.6
Agriculture	12.3
Transportation/storage	9.7
Average for daily wage labor	**20.9**

Source: Palestinian Economic Policy Research Institute (MAS) 2018.
Note: The estimates are based on economic modelling projections using PCBS data. The table shows a baseline scenario. The two other scenarios considered (best case and worst case) also show that daily wages in the ICT sector are higher than in other sectors. The assumed NIS-USD exchange rate is 3.7 NIS/1 US$.

PCBS Labor Force Survey 2019 data show that average wages in Gaza are about half of those in the West Bank. Furthermore, over a quarter of workers in the private sector earn wages below the minimum rate.

The COVID-19 pandemic increased demand for digital skills in WB&G through (1) higher demand for digital solutions by government and businesses and (2) increased demand for digital devices and related services. Businesses (from SMEs to large banks and financial institutions) report a growing demand for digital solutions needed to move more marketing, sales, and business processes online, which requires digital skills in the use of the internet, online social media networks, specialized applications, and digital platforms. At the early stage of the pandemic, over 12 percent of business establishments in WB&G increased the use of digital solutions.[146] In addition, the pandemic has led to a higher demand for the digital devices and services that are necessary for remote work and learning, which often involve video/phone calls, text messages, online meetings, webinars, and other communication applications and platforms. Structured interviews with 12 digital hardware companies suggest that the demand for smartphones, tablets, computers, and other digital devices has increased by at least 21 percent compared with the same period prior to the pandemic. The increased sales of digital devices increased demand for installation, repair, and training services.

6.2.2. Supply of Digital Skills

Overview of the Education System in WB&G

Formal education in WB&G has three main stages:[147] (1) basic education covers grades 1-9 (equivalent to primary and junior secondary education in other countries); (2) secondary education, which, after grade 10, splits into two streams – academic and vocational – for two more years; and (3) tertiary education, which usually takes two to three years for a technical diploma[148] and four to six years for bachelor's degree programs, followed by post-graduate education for master's and PhD degree programs, which usually take three to four years. It is expected that at the end of each stage, learners should reach a certain level of digital skill proficiency, that is, basic education for foundational digital skills, secondary education for intermediate digital skills, and tertiary and post-graduate education for advanced and highly specialized digital skills. Basic and secondary education are administered by the MOE, technical and vocational training by the Ministry of Labor (MOL), and technical and vocational education and tertiary/post-graduate education by the Ministry of Higher Education and Scientific Research (MOHESR).

During the 2018–19 academic year, about a third of WB&G's population was studying at different levels in the formal education system. More than 1,282,054 students (51 percent females) studied in 3,037 schools across WB&G.[149] Some 218,126 students (61 percent females) were enrolled in 52 accredited tertiary education institutions,[150] and 45,722 students graduated (63 percent females) from these institutions, of which 34,939 received bachelor's degrees. The MOL coordinates technical and vocational training through 16 training centers distributed throughout the West Bank (11) and Gaza Strip (five) that train around 2,700 students per year in addition to 150 private training centers that are licensed by MOL[151] and train around 6,000-7,000 students per year.

Development of Foundational and Intermediate Digital Skills

The foundational and intermediate levels of digital skills proficiency are developed through basic and secondary education provided by 3,037 schools in the West Bank and Gaza.

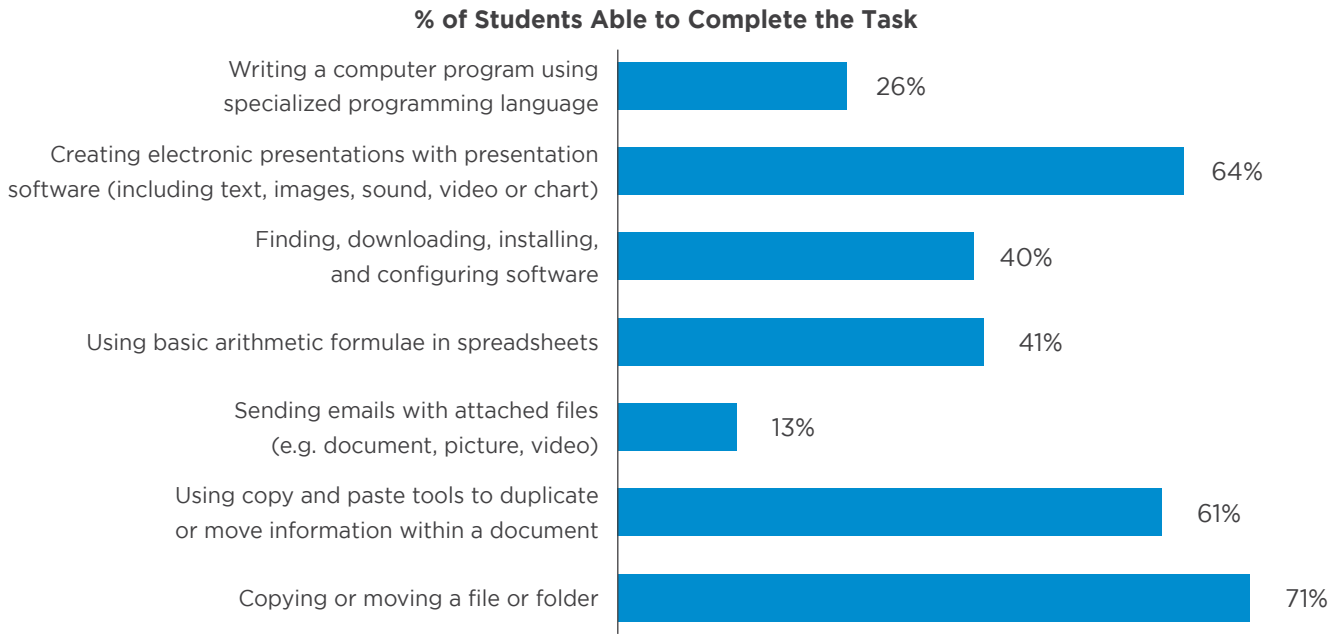
146. PCBS (n.d.).
147. For the sake of relevance to digital skills, pre-school education (KGs1-2) is not included here.
148. Technical and vocational education and training (TVET) is considered the main component of tertiary education and is mainly served by community and university colleges through two-to-three-year programs that end up with an education diploma certificate.
149. Among these schools, 74 percent are public schools; 12 percent are UNRWA schools, which are mainly located in Gaza; and 14 percent are private schools, which are mostly located in the West Bank.
150. They include 15 universities, two open universities, 17 university colleges, and 18 community colleges; 33 institutions are located in the West Bank and 17 in Gaza.
151. Informal vocational training is mainly supervised by the Ministry of Labor and is governed by the *Palestinian Labor Law No. 7 Year 2000* and has a main objective that is to provide the labor market with skilled labor.

Palestinian children get their first formal digital education classes only at grade 5,[152] setting them at a disadvantage relative to students in OECD countries who start learning digital skills at an earlier age. Students learn digital skills primarily through the technology education curriculum from grade 5 to grade 12. The curriculum covers two themes: (1) the *electronic theme* where students learn about the use of technology in different domains, such as medicine, agriculture, or engineering; and (2) the *programming theme* where students learn about programs/applications such as SCRATCH, ACCESS, APP Inventor, and SKETCH UP. Students also learn some digital skills by completing assignments in other subject areas. Teachers tend to assume that students are able to use MS Word, Excel, PowerPoint presentation, and search engines to complete these assignments. Yet, this is often not the case and students rely on family members, peers, or YouTube tutorial videos to learn some foundational and intermediate digital skills to complete these assignments.

The technology education curriculum is mostly theoretical. As a subject designated for digital skills training, technology education is designed to be 40 percent theory and 60 percent practice, with two classes per week. However, the implementation is different and almost all classes are theoretical. The technology education curriculum was revised four years ago to include the *programming theme,* but this change was not accompanied by an increase in the number of classes per week. Due to the condensed curriculum, insufficient class time, and poor digital infrastructure at schools, teachers tend to focus on theory in class and leave the practical part as homework, with potentially negative consequences for students' learning.

Over two-thirds of grade-10 students can create a PowerPoint presentation and copy/paste information within a document, yet several other foundational digital skills are lacking. In 2018, the MOE assessed the proficiency level of grade 10 students in seven foundational digital skill areas with the indicators suggested under SDG 4.4 (figure 6.8). Although most students can copy/paste information and prepare PowerPoint presentations, less than 50 percent can use a basic algorithm in a spreadsheet, and only 13 percent know how to send an e-mail with an attachment. This is likely a consequence of lack of integration of digital skills in the general curriculum, as well as the theoretical nature of the technology education taught in schools.

Figure 6.8. Performance of Grade 10 Students in Digital Skills, 2018



Source: MOE 2018a.

152. Prior to grade 5, Palestinian children are exposed to digital technology and its application in education via their teachers but do not learn it as a subject with required practice in a computer lab.

MOE also organizes extracurricular digital skills training programs (clubs) and contests for students in grades 5-11. Some of these activities take place after the school day in the late afternoon, which can result in exclusion of female students. Students in grades 5-11 from public and United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA) schools can attend 200 clubs in different districts, which gives them an opportunity to work on a variety of projects such as using various online platforms, developing a website for participating schools, and learning about robotic concepts and artificial intelligence. Club projects can last from one month to a year. Girls are less likely to participate in digital contests as preparation often requires afterschool preparatory classes. In 2019, about 3,280 students participated in seven programs sponsored by local and international partners.[153]

Development of Advanced and Specialized Digital Skills

Advanced and highly specialized digital skills are developed through tertiary education provided by 52 accredited tertiary educational institutions (TEIs), including 15 universities, two open universities, 17 university colleges, and 18 community colleges. Specialized ICT programs in WB&G are offered in TEIs at the diploma, bachelor's, and master's degree levels. In total, there are 53 different ICT specialties across these programs.[154] About 5 percent of the total TEI enrollment was in ICT-related programs in 2019, and over 40 percent of the students were females (table 6.4).

Table 6.4. Number of Students and Graduates in ICT-Related Programs, 2019

Students	Total in all TEIs	Females (%)	ICT-related programs	Share of students in ICT-related programs (% of all students)	Females in ICT-related programs	Share of females in ICT-related programs (% of all students in the same programs)
New students	60,092	60	4,361	7	1,811	41.5
Enrolled students	218,126	61	11,105	5	4,805	43.3
Graduates	45,722	63	1,501	3	730	48.6

Source: MOHESR 2019.
Note: ICT = information and communications technology; TEIs = tertiary educational institutions.

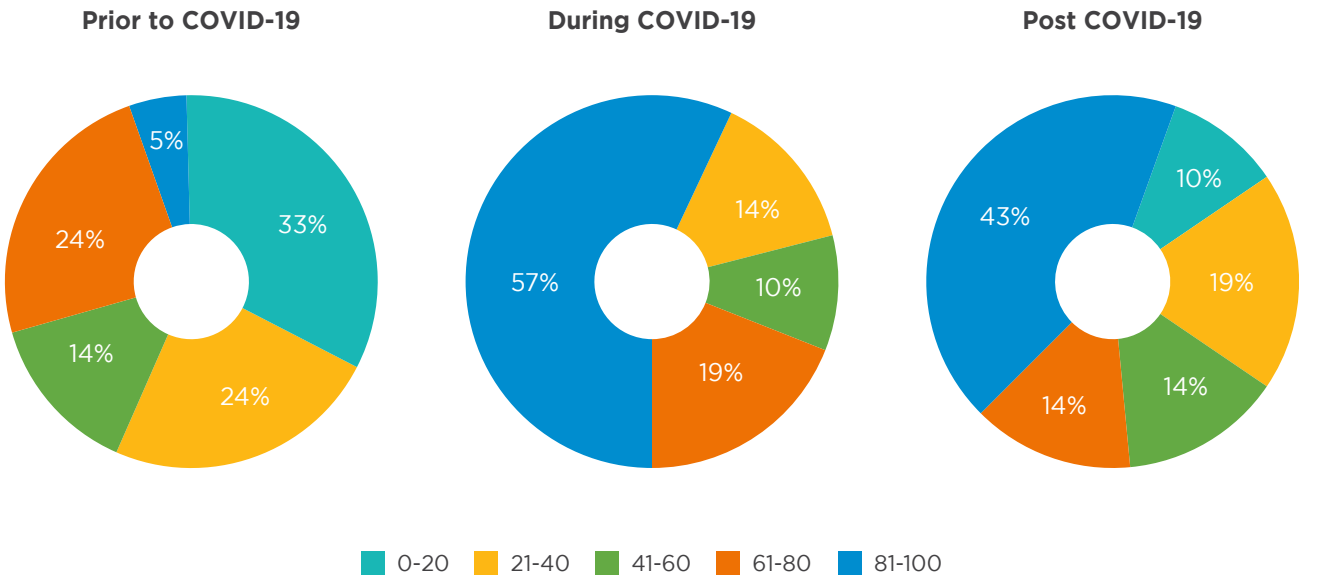
TEIs have varying levels of digital education infrastructure. Twenty-one TEIs responded to the survey conducted for this report. All reported having computer labs and internet access on campus. However, many institutions have old computers, a low number of computers per student, and low-bandwidth internet connection. TEIs also lack specialized computer programs for the engineering, technology, economics, and medical departments. The findings also show that: (1) 82 percent of TEIs have a learning management system in place for delivery and administration of offline and online courses, and (2) 95 percent of TEIs have been using an online platform such as Moodle, ZOOM, or MS Teams for online classes and staff meetings during the COVID-19 pandemic.[155]

153. Zakarneh (2019).
154. MOHESR (2019).
155. Not all of these meeting tools are free. TEIs reported that sometimes they have to buy services with more features for meeting educational purposes. However, TEIs in the Gaza Strip only use free tools due to the lack of budget for purchasing additional services.

Most TEIs offer digital skills courses to non-ICT majors and give students assignments that require using computers and the internet. Indeed, 86 percent of the surveyed TEIs offer digital skills courses to non-computer science students and 81 percent of TEIs make these courses mandatory. Theoretical learning prevails over practical learning in most courses, including on technology. About two-thirds of the surveyed TEIs give students assignments that require using computers/internet, and universities are twice as likely as colleges to do so. In addition, seven universities (two-thirds of them in the West Bank) provide informal programs for digital skills acquisition, such as bootcamps and/or competitions and hackathons. Among the surveyed TEIs (all of them are universities), 71 percent reported that they provide digital skills training to communities outside their campuses. The digital skills training is often offered at a fee and is open to everyone who has some basic knowledge of the subject taught. The offered training covers different levels of digital skills, from foundational to advanced. In the absence of provision of on-the-job training by many employers, these TEI outreach training programs provide opportunities for community members, employed or unemployed, to learn digital skills.

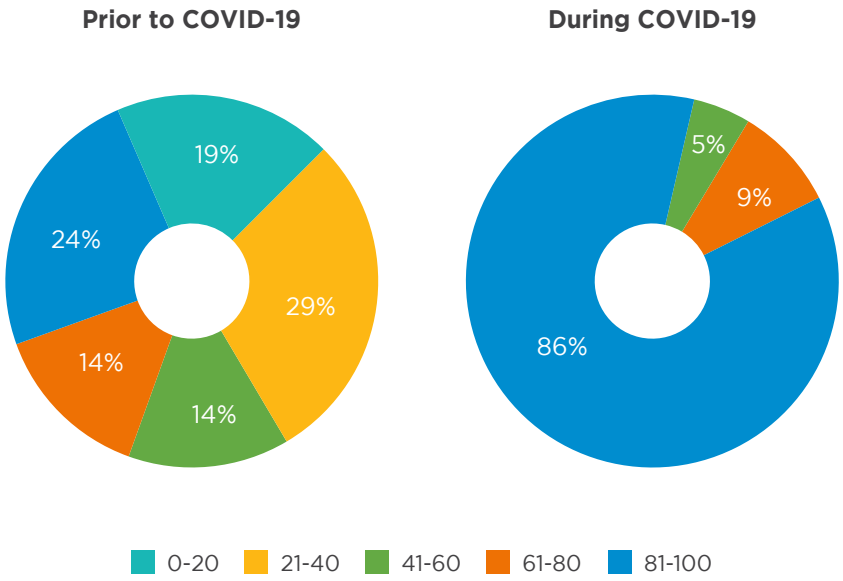
COVID-19 has accelerated the "digitalization" of teaching and learning at TEIs. Over one-third of the surveyed TEIs reported that less than 20 percent of their courses had digitized materials for teaching/learning at the beginning of COVID-19. Now, 43 percent of the institutions estimate that at least 80 percent of their courses will have digitized materials for teaching/learning after COVID-19 (figure 6.9). Faculty members have also increased the use of computers/internet not just for delivering lectures, but also for enhancing the quality of teaching. About half of the surveyed TEIs reported that prior to the COVID-19 pandemic, only about 40 percent or less of their faculty members used computers/internet in teaching. Since the pandemic started, about 86 percent of the surveyed TEIs reported that almost all their faculty members are using computers and the internet in teaching now (figure 6.10). Although universities have made rapid progress in digitizing learning materials and teaching, none of them offers online courses to the public at this point, which limits broader outreach within and outside WB&G.

Figure 6.9. Percentage of TEIs That Offer Courses with Digitized Materials



Source: TEI survey conducted by the World Bank in November 2020.
Note: Each color represents a category of the percentage of courses with digitized materials in a TEI. There are five categories in total (0-20%, 21-40%, and so forth). The percentage figures in the chart indicate the share of responding TEIs that fall into each of these categories. TEI = tertiary educational institution.

Figure 6.10. Share of TEIs Whose Faculty Use Computers and the Internet in Their Teaching (%)



Source: TEI survey conducted by the World Bank in November 2020.
Note: Each color represents a category of the percentage of faculty members using computer/internet in their teaching in a TEI. There are five categories in total (0-20%, 21-40%, and so forth). The percentage figures in the chart indicate the share of TEIs that falls into each of these categories. TEI = tertiary educational institution.

Employers also offer training on digital skills, but it tends to be narrowly focused and provided on an ad hoc basis. About 40 percent of companies in the West Bank and 50 percent in Gaza conduct internal training for older technical workers in specialized skills.[156] Some larger companies allocate a small budget for training of their employees in technical skills, leaving training in digital skills to specialized organizations that represent the private sector, such as the Palestinian Federation of Industries, Chamber of Commerce, and PITA. However, training provided by these organizations is membership-based and nonmember companies, including many SMEs, do not have access to it. Large companies in banking, renewable energy, hospitality services, food processing, construction, and chemical and pharmaceutical industries are most likely to sponsor employee training in digital skills.

Development Partners' Support for Digital Skills Development

Development partners play a strong role in the development of digital skills in WB&G. A survey of seven development partners (the European Union, Germany, Belgium, Norway, the Joint Financing Partners, the International Labour Organization (ILO), and Qatar Charity) was conducted for this report.[157] Their support includes provision of digital education infrastructure (equipment and devices), digital skills training, and capacity building for delivering services with digital technologies. (Table 6.5 provides some examples of activities supported by development partners.)

156. Fallah (2019).
157. Given its uniqueness, a separate questionnaire was sent to UNRWA and the findings are integrated into the analysis

Table 6.5. Examples of Digital Skills Programs Supported by Development Partners

Partner	Program/Activity
Enabel (Belgium)	TVET and 21st century skills training, e-marketing and digital literacy training, foundational digital skills, and learning management system training
Erasmus+ (European Union)	Equipping computers and other digital devices at participating TEIs, curriculum development for a master's program on health informatics and for programs on forensic computing and IT enterprise systems engineering, capacity building and knowledge transfer on fostering entrepreneurship in STEM, e-Academy to support smart cities operations, smart grid applications and technologies, and an e-startup academy for future work
European Commission (European Union)	TVET training packages on ICT
GIZ (Germany)	Equipping schools with computers and other digital devices for IT programs, training on e-marketing and graphic and web design, mobile maintenance for TVET schools, dual study programs on IT, and Digital Business at Al Quds University
International Labour Organization	Automating the inspection procedures on occupational safety and health, and training inspectors
Joint Financing Partners (including Germany, Finland, Ireland, and Norway)	Equipping science labs, teacher training, National Program for the Digitization of Education, assessing the effectiveness of distance learning during COVID-19, and benefits study on teams preparing/delivering computerized education materials
Qatar Charity	Equipping a school computer lab, and providing applications for learning science and teamwork through robot games (such as FIRST LEGO League)

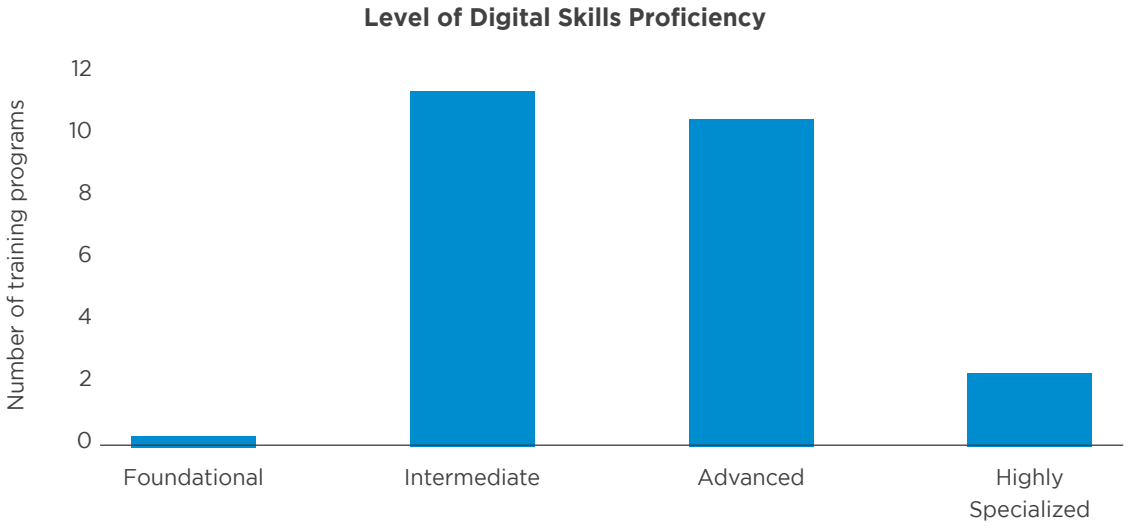
Source: Based on the survey responses of seven development partners conducted by the World Bank in November 2020.
Note: ICT = information and communications technology; IT = information technology; STEM = science, technology, engineering, and mathematics; TEIs = tertiary educational institutions; TVET = technical and vocational education and training.

Almost all the development partners provide support for digital education infrastructure in Palestinian educational institutions – computer labs, laptop and desktop computers, tablets, LED screens, projectors, printers, and video teleconferencing equipment, as well as management software and system platforms. Over the past three years, at least 40 computer labs have been established or equipped with a minimum of 20 computers each, and development partners have donated more than 2,200 computers/laptops to schools, vocational training centers, and communities, mostly for supporting disadvantaged students' learning and teacher/administrator training. Some development partners have provided software programs to support job-related digital skills training in graphic design, gaming, and mobile applications. Others have supported the infrastructure needed for running information systems together with training such as the Labor Market Information System by the ILO.[158]

158. The Labor Market Information System was originally developed with support from GIZ in 2011/2012. The ILO has been supporting the infrastructure to run the Labor Market Information System and associated personnel training.

Development partners' support for digital skills covers all four proficiency levels but with a stronger focus on the intermediate and advanced levels to help reduce youth unemployment (figure 6.11). Training covers students, teachers, lab technicians, and education administrators. The training programs vary in duration from a few days or a couple of weeks – for specific skills such as digital literacy and e-marketing – to three to seven months and up to three years for certification programs.

Figure 6.11. Development Partner–Provided Training Programs/Activities, by Digital Skills Proficiency Level



Source: Survey of development partners conducted by the World Bank in November 2020.

The development partners have supported efforts to address inequality, gender bias, and other social issues reflected in digital skills development in WB&G, from providing computers and digital equipment to schools in disadvantaged areas (particularly in Gaza, for example, Qatar Charity) to launching or facilitating special programs, such as the "ICT Sector Gender Engagement" part of the EXPOTECH 2018 (European Union) and training youth and the unemployed in e-marketing, graphic design, and web development in Gaza (GIZ). UNRWA has been providing educational support to Palestinian refugees and disadvantaged groups in WB&G for decades, including an increased investment in digital skills development in recent years. Its support focuses on schools (grades 1-9) and technical and vocational education and training (TVET) centers, covering many aspects of digital skills development and training at the foundational and intermediate levels.

The World Bank has been supporting digital skills development in WB&G through educational projects over the past decade. The *Teacher Education Improvement Project* provided laptops and LCD projectors to 110 Palestinian schools and supported development of modules for in-service teacher training. The *Education to Work Transition Project* supported 24 subprojects across Palestinian TEIs for improving the labor market needs orientation of the ICT programs (such as software engineering and mobile app development) and introduced new digital specializations in non-ICT occupational areas such as nursing informatics and automated greenhouse technology. TEIs in Gaza received support to address digital skills needs in computer engineering, medical devices engineering, office automation, and game development. The project also supported the introduction of technology-enabled teaching and simulation labs for developing soft skills that are essential for the digital economy, such as creativity, problem solving, and networking.

Although the development community makes valuable contributions to digital skills development in WB&G, the efforts appear to be fragmented and there has been little coordination among partners. The limited capacity of the MOE and MOHESR to coordinate the efforts of development partners in digital skills development may result in some duplication of efforts and unequal distribution of funds among different regions, as donor agencies are not always aware of each other's activities.

6.3. Challenges to Digital Skills Development

Development of digital skills in WB&G faces several challenges. The success of WB&G's pursuit of a knowledge-based economy depends to a great extent on the proficiency of its citizens in 21st century skills, including digital skills. Development of digital skills faces several challenges, including (1) the absence of a national strategy and common vision for digital skills development; (2) inadequate access to computers and the internet, particularly in Gaza; (3) lack of solid fundamental skills and poor learning outcomes in basic education due to deficiencies in school curriculum and pedagogy; and (4) insufficient number of ICT graduates and inadequate quality of tertiary education.

6.3.1. Absence of a National Strategy for Digital Skills Development

There is no national strategy to guide and coordinate digital skills development in WB&G. Although the NPA, the Technology Cluster Strategy,[159] and the strategies developed by the line ministries underscore the importance of the digital economy, their emphasis is mostly on using digital technologies to grow businesses and deliver services, with little attention paid to developing the digital competencies of the people who are expected to achieve these objectives.[160] Digital skills have not been explicitly prioritized in any of the national documents. Furthermore, the existing plans do not provide specific information on market demand for digital skills, as employers were not sufficiently consulted during the development of these strategic documents. There is also lack of guidance and necessary resources for implementation.

Digital competencies tend to be narrowly understood. The education ministries' policy agenda on digital skills is focused on developing special e-learning programs and platforms for primary and secondary education and less attention is paid to developing advanced digital skills through tertiary education. The concept of digital skills is limited to students' ability to use computers and the internet, while digital competencies for problem solving, creativity, teamwork, and communication are not prioritized. The latter would require alignment of planning, budgeting, subject curricula, teacher training, and proper digital infrastructure at all levels of education.

Digital skills are not clearly defined in planning documents, there are no performance indicators specific to digital skills, and data on digital skills are not collected on a regular basis. Many education administrators report that they have difficulties in measuring students' proficiency level in digital skills.[161] Without good monitoring indicators and data, gaps in digital competencies cannot be identified and improvement decisions are made in the absence of evidence. Lack of data on digital skills and quality assurance mechanisms makes it hard to assess progress over time and evaluate the contribution of the education system to development of the digital economy in WB&G. There is also lack of a clear understanding among teachers, school principals, and district supervisors on what digital competencies students should have at each grade level, which creates ambiguity about responsibilities for digital skills training.

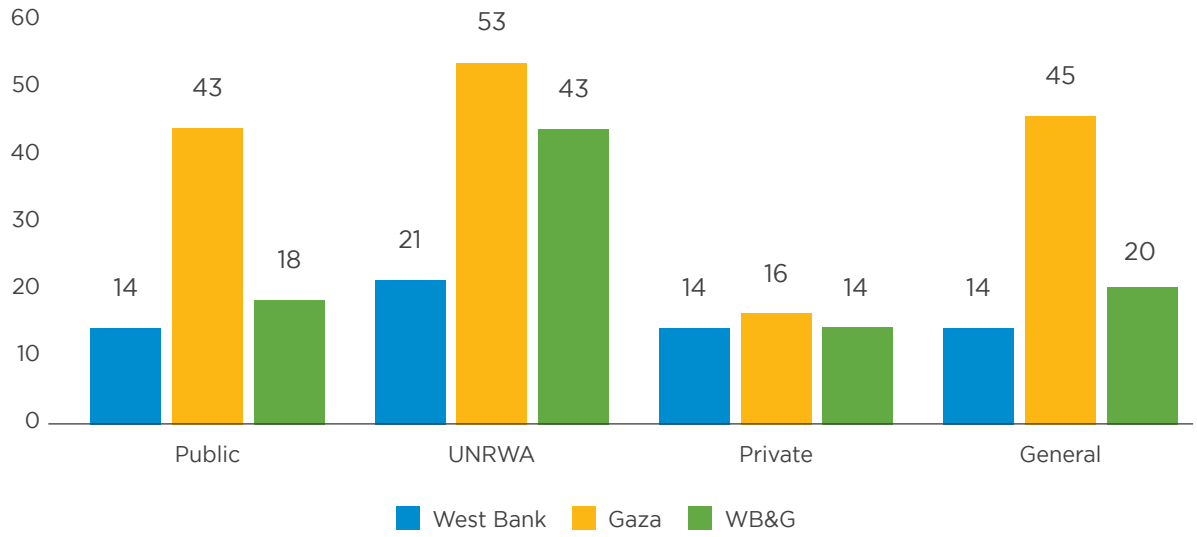
159. One of the five strategic objectives of this cluster strategy is to build human capacity in programming, technical sciences, data, and artificial intelligence. However, it does not have measures related to digital skills or digital infrastructure for education.
160. Based on the reviews of national strategies and the interviews with government officials.
161. Based on (1) the discussion outcomes of focus groups with district education officers, school principals, and supervisors as well as teachers and students in grades 9-12 in the West Bank and Gaza and (2) the survey of tertiary education institutions on digital skills. Both were conducted by the World Bank during November and December 2020.

6.3.2. Inadequate Access to Computers and Internet, Particularly in Gaza

Import restrictions by the GOI and budget constraints contribute to poor digital education infrastructure, particularly in Gaza. As mentioned in chapter 2, the internet bandwidth is only 2G in Gaza and 3G in the West Bank. The slow internet connection in Gaza makes it difficult to use many educational applications, while import restrictions contribute to lower availability of computers and other digital devices in educational institutions and households. As a result, most students in Gaza do not progress beyond acquisition of intermediate-level digital skills.[162]

About 75 percent of the schools in WB&G have computer labs, with significant disparities between the West Bank and Gaza.[163] There is a shortage of computer labs in Palestinian schools (for example, one lab with about 20 computers can serve an entire school); and many computers are old. There is also a high number of students per computer: approximately 14 students per computer in the West Bank and 43 in Gaza (figure 6.12). Most schools are also short of other digital devices, such as scanners, printers, and LCD projectors. The MOE started upgrading computer labs and expanding their function as technology and STEM labs in 2017. However, only 250 of the planned 1,600 labs in schools with grades 5-12 in the West Bank have been completed to date.

Figure 6.12. Number of Students per Computer in Palestinian Schools



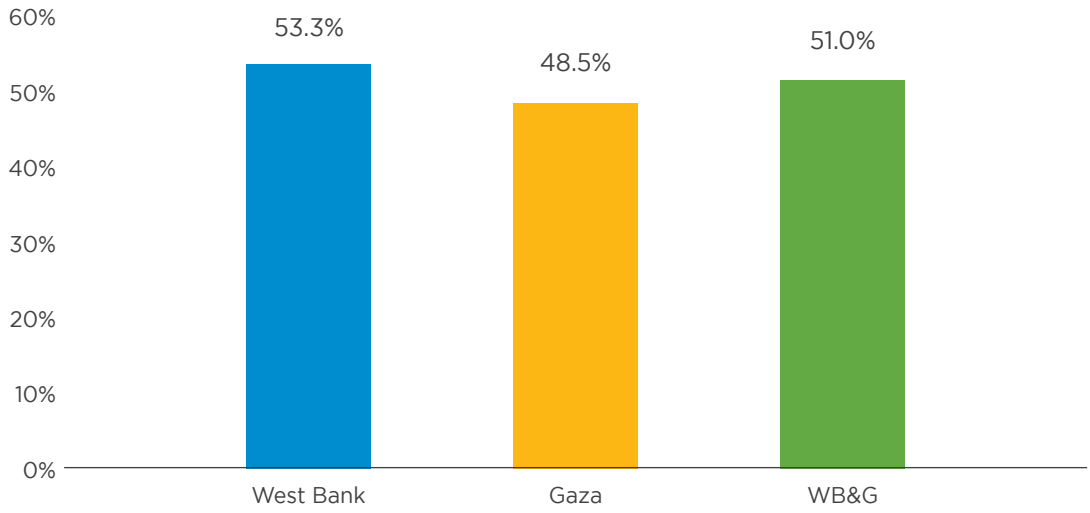
Source: MOE Statistical Book 2018/2019.

The internet is available in 96 percent of public schools in WB&G,[164] **but usage is limited. Schools also lack licensed software.** Although the internet is available in most computer labs in the West Bank, the limited bandwidth does not allow use of the internet on all computers at the same time. So, often only the technology education teacher's computer is connected to the internet during the class. Many schools in Gaza use the internet primarily for performing administrative tasks by the school's management rather than for educational purposes. The computer programs/software that are needed for technology education classes are often not available, mainly because of the high annual cost of renewing the licenses. Teachers tend to use unlicensed versions, which could bear potential legal consequences and may also cause security issues.

162. There are educational resources available to be used in low or irregular connectivity environments, such as Kolibri (an offline-first learning platform that runs on a variety of low-cost and legacy devices), RACHEL (remote area community hotspot for education and learning), and Tomi (interactive content without internet connection in the classroom). A joint publication of the Solutions for Youth Employment (S4YE) and World Bank, "Online Learning Models - How to Include Youth in Low Bandwidth Areas," provides additional information on teaching modalities in low bandwidth environments.
163. MOE Statistical Book 2018/2019. This includes public, UNRWA and private schools.
164. Some 95 and 100 percent of schools in the West Bank and Gaza, respectively, report having internet access *(MOE Statistical Book 2018-2019).*

Lack of access to digital devices and the internet by teachers and students at home has become the main challenge to implementing online education during the COVID-19 pandemic. Only 51 percent of families with children ages 6-18 years who were part of the education system before the pandemic participated in remote educational activities in March-May 2020, according to PCBS (figure 6.13). In the West Bank, the participation rate varied from one governorate to another, with the highest in Jerusalem (85 percent) and the lowest in Hebron (39 percent). The main reason for not attending online classes for students was lack of access to internet and computers at home.

Figure 6.13. Family Participation Rate in Remote Educational Activities at the Beginning of the Pandemic (March – May 2020)



Source: PCBS 2020b.

Power shortages are a particular constraint for Gaza as most schools operate under an 8-hour blackout condition on most days, with only a limited number of schools having solar power for light. Students are often forced to stop the class and leave the computer lab when the power is out. This has a highly negative impact on learning outcomes, including on acquisition of practical computer skills,[165] as less than 30 percent of households in Gaza own computers.[166]

6.3.3. Deficiencies in School Curriculum and Lack of Solid Fundamental Skills Leading to Low Proficiency in Digital Skills at All Levels

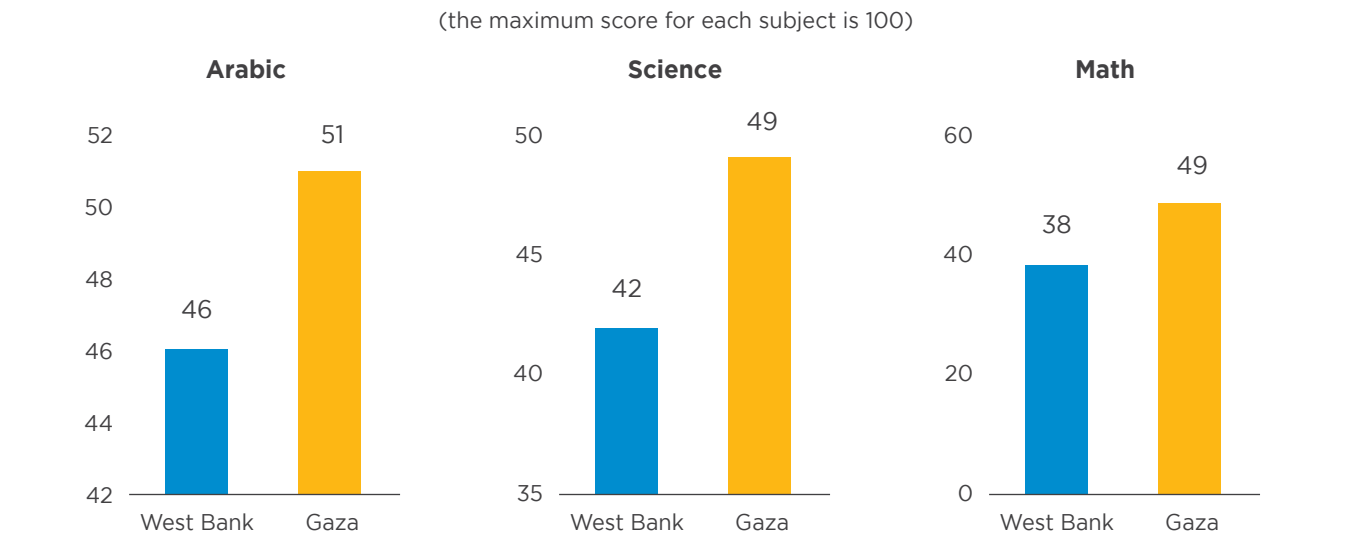
The Palestinian school curriculum has a disproportionate focus on theory at the expense of practical and 21st century skills such as teamwork, problem solving, and creativity. Digital skills are rarely taught outside technology education classes. Many subject-matter teachers are not integrating digital technologies into teaching and view digital skills development as the prerogative of technology education teachers. Focus group discussions with teachers and school principals in WB&G revealed that subject teachers often lack guidance on the use of ICT in teaching as well as on what digital skills should be taught in which grade. Integration of technology into the curriculum is not currently required and there are no incentives for teachers to do so. Technology education classes are mostly focused on theory, leaving a gap for development of practical digital skills. Lack of access to

165. Based on the Student Focus Group Discussion conducted by the World Bank in December 2020.
166. PCBS (2020b).

computers and other equipment is also among the key factors contributing to this problem. Furthermore, there is little concerted effort to integrate a focus on creativity and teamwork into teaching methods across subjects. These factors have led to a situation where the schools are not equipped with the resources and tools to build students' 21st century skills.[167]

Deficiencies in curriculum and teaching methodology contribute to poor learning outcomes and weak fundamental skills of Palestinian children. No internationally comparable tests were administered in WB&G in recent years. The last Trends in International Mathematics and Science Study (TIMSS) was done in WB&G in 2011 and showed that more than half of the Palestinian students in grade 8 did not exceed the "Low International Benchmark"[168] in math, and they were outperformed by children from neighboring countries such as Jordan and Lebanon. Recent evidence from national standardized tests shows that on average grade 5 students scored less than 50 of 100 points on math, Arabic, and science (figure 6.14). This is concerning as these subjects form a foundation for digital skills and are equally critical for children's further academic performance. Without solid fundamental skills, developing and advancing proficiency in digital skills at all levels would be very challenging, if not impossible.

Figure 6.14. Average Scores of Grade 5 Students on Standardized National Tests in Arabic, Science, and Math, 2018



Source: MOE 2018b.

Subject-matter teachers vary in their possession of digital skills. School principals report that only about 40-60 percent of their teachers had good command of digital skills prior to the COVID-19 pandemic. Even these teachers do not necessarily apply their digital knowledge and skills in teaching.[169] Table 6.6 indicates the reasons teachers do not seek to upgrade their digital knowledge and skills and why they do not apply them in teaching.

167. For reference, the European Union's free tool designed to help schools embed digital technologies into teaching, learning, and assessment (https://ec.europa.eu/education/schools-go-digital/about-selfie_en).
168. "Low international benchmark" is defined as some basic mathematical knowledge, with students able to add and subtract whole numbers, recognize familiar geometric shapes, and read and complete simple bar graphs and tables.
169. From the student focus group discussion conducted by the team in December 2020.

Table 6.6. Reasons Teachers Do Not Have or Apply Digital Skills in Classroom Teaching

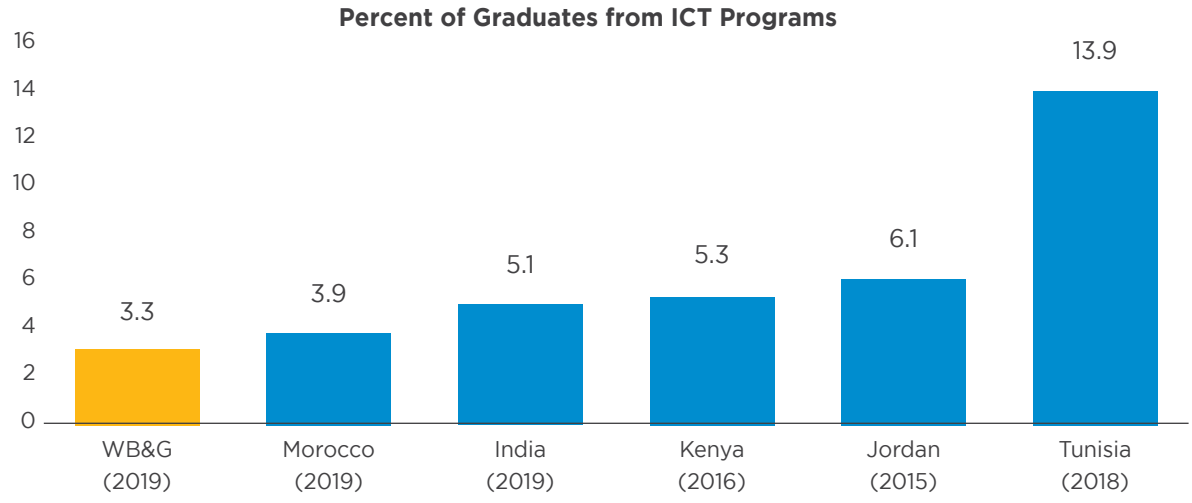
Do not have or want to learn digital skills	Do not apply in teaching even when having digital skills
• Too old to learn new technologies • Not interested to learn, as no financial and professional incentives are available • Not interested because it will not impact annual evaluation and salaries • Economic reasons – teachers work a second job to cover their financial needs and have no time or interest for developing digital skills	• Too old to try new teaching methods • Condensed curriculum • Lack of appropriate infrastructure at schools – computers and the internet • No specific guidance on what specific skills need to be taught

Source: Teacher focus group discussion conducted by the World Bank team in December 2020.

6.3.4. Insufficient Number of ICT Graduates and Inadequate Quality of Tertiary Education Attributed to Weak Digital Leadership

Fewer students in WB&G major in ICT-related disciplines relative to other countries that have prioritized digital development. The share of graduates from ICT-related programs is almost twice lower in WB&G compared with neighboring Jordan (figure 6.15). This is likely due to uncertain labor market prospects of ICT graduates stemming from (i) inadequate quality and outdated curricula of ICT-related programs and (ii) lack of university-industry collaboration. As a result, some students enrolled in ICT programs drop out or change majors. Poor relevance of curricula and programs to market needs contributes to unemployment of ICT graduates and impedes the growth of the ICT industry. TEIs continue to follow a traditional academic model by developing ICT skills through degree-focused programs, while module-based, micro-credential and other shorter programs that have become popular around the world are not common in WB&G. Recently, several development partners, for example, Germany (through GIZ) and the European Union (through its Erasmus+ program), have initiated programs to improve the quality of digital skills through procurement of equipment, curriculum development, capacity building, and new programs for developing the digital capability of participating Palestinian TEIs.

Figure 6.15. Graduates from ICT Programs, 2015–19 (%)



Source: UNESCO data: http://data.uis.unesco.org/index.aspx?queryid=3444#.

Lack of standards and deficiencies in the accreditation process also impact the quality of education at TEIs. Across Palestinian universities, the program titles of computer science departments do not necessarily correspond to the intended program content and learning outcomes, due to deficiencies in the program accreditation process run by the Accreditation and Quality Assurance Commission. Lack of funding prevents the commission from conducting regular evaluation of TEIs to ensure compliance with international good practices.

The current tertiary education system is not producing the cadre of leaders needed to succeed in the global ICT industry or develop the digital economy in WB&G. Tertiary education is expected to play a key role in training schoolteachers, producing high-skilled workers, and providing research and services for industries and communities, including in the digital areas. Tertiary education is the main training ground for advanced and highly specialized digital skills. The TEIs in WB&G have not yet fulfilled this digital leadership role as both the quantity and quality of ICT graduates are inadequate to meet the needs of the digital economy. The lack of such leadership could jeopardize WB&G's ambition of "leapfrogging" and developing the digital economy.

6.4. Recommendations

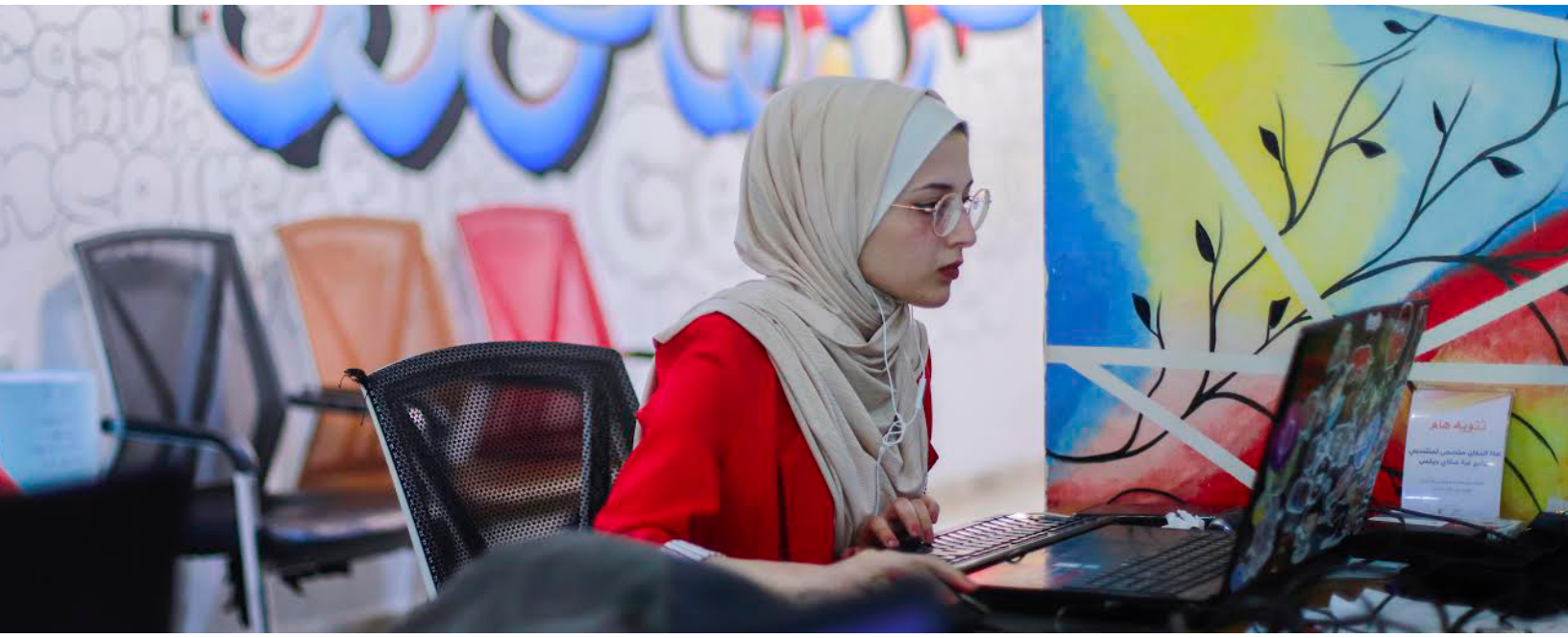
Strengthening the education system and improving digital competencies can support technology adoption by citizens and businesses and increase the productivity of the Palestinian private sector. A complex of measures must be introduced to strengthen digital skills in WB&G. A national strategy is urgently needed to provide direction and guidance and unify and coordinate the fragmented initiatives of different stakeholders. Both school and tertiary education curricula should be updated to reflect best international practices and market requirements. Lastly, it will be important to establish performance indicators and conduct regular monitoring and evaluation of programs aimed to develop digital skills as well as to ensure donor coordination so that scarce resources are spent efficiently.

WB&G can effectively tap into open educational resources[170] for free online quality materials and lessons with needed local content contextualization to strengthen the 21st century digital skill competencies of young Palestinians. For example, the *Khan Academy* offers practical exercises, instructional videos, and a personalized learning dashboard that empowers learners to study at their own pace in and outside the classroom. *Code.org* provides free coding lessons and computer science curriculum to school students from all backgrounds to learn computer science (currently, more than 7,500 and 4,100 registered learners are from Egypt and Jordan, respectively). Education officials can also encourage young adults to access free (or low-cost) online training courses and programs, including on digital skills, at the tertiary level (see box 6.1 for some examples).

Box 6.1. Examples of Free or Reduced-Cost Online Programs for Students and Professionals

There are many massive open online courses provided by leading higher education institutions in the world that are offered for free or at reduced tuition fees. Many institutions offer courses in Arabic. For example, *Hsoub Academy* offers specialized, high-quality content in Arabic with a focus on programming, business, entrepreneurship, freelancing, and sales and marketing. *Coursera* and *Facebook* launched a joint Social Media Marketing Professional Certificate online program that is available in Arabic, which is designed for learners without a college degree or any prior experience to become ready for social media marketing jobs within a few months (the program is free for refugees). *Microsoft* launched a new global skills initiative aimed at bringing more digital skills to 25 million people worldwide by providing free access to learning paths and content, helping people develop the skills required for jobs in high demand with low-cost certifications and free job-seeking tools.

170. Open educational resources are freely accessible and provide openly licensed text, media, and other digital assets that are useful for teaching, learning, knowledge assessment, and other educational purposes.



The key recommendations emerging from the analysis are summarized as follows:

1. **Prepare a national strategy for digital skills development and set specific targets for monitoring implementation progress.** The process would entail analyzing baseline data on digital skills in WB&G, understanding the market demand for digital skills (including by involving the private sector in the consultations and strategy preparation),[171] conducting a needs assessment for development of digital skills, developing programs to address inequities between the West Bank and Gaza as well as between male and female students,[172] specifying implementation arrangements and responsibilities between different stakeholders, and establishing a monitoring and evaluation system.[173] Data on key performance indicators should be collected annually to facilitate evidence-based decision making.

2. **Develop and strengthen fundamental skills.** WB&G will participate in the next round of international educational assessments – the Program for International Student Assessment and TIMSS – which will allow benchmarking performance and identifying the strengths and weaknesses of Palestinian students relative to their international peers. In the meantime, it is important to (1) define digital competencies for each grade; (2) update the curriculum to ensure that digital competencies are taught through all subjects and that the teaching pedagogy is modified to include sufficient focus on practical skills development, including problem solving and teamwork; (3) ensure that pre-service and professional development training of teachers covers the methodology for using ICT;[174] (4) identify and map out relevant, free online courses and learning materials in accordance with the curriculum requirements; (5) include digital skills development in the teacher evaluation criteria (for ICT and non-ICT teachers); and (6) develop and implement a financing plan to increase investment in quality basic education for solid fundamental and other 21st century skills.

171. Digital skills assessment tools such as the one developed by the European Union – MyDigiSkills.eu – could be helpful in this undertaking.
172. For increasing female students' participation, practices and examples can be found in "On Girls in ICT Day, Let's Think beyond Coding," https://blogs.unicef.org/blog/girls-ict-day-think-beyond-coding/.
173. To define and develop relevant indicators, UNESCO's learning assessment indicators dashboard provides a good reference (http://gaml.uis.unesco.org/dashboard/).
174. See UNESCO's ICT Competency Framework for Teachers (https://en.unesco.org/themes/ict-eduction/competency-framework-teachers-oer) and teacher self-assessment tools, like the European Union's TET-SAT (http://mentep.eun.org/tet-sat), for reference.

3. **Strengthen digital education at TEIs and develop digital leadership.** This will involve defining advanced digital skills competencies by program and by specialization across TEIs in reference to the Digital Skills Framework (figure 6.1) to develop future digital leadership, identifying potential foreign TEIs for partnerships in specializations that serve national development priorities and developing and implementing a financing plan to increase investment in tertiary education. In addition, it is extremely important to (1) strengthen the accreditation and licensing system, including qualifications recognition, with private sector participation to meet market needs, and (2) develop quality assurance mechanisms at the institutional level in all TEIs.

4. **Facilitate collaboration and public-private partnerships between TEIs and industries in curriculum and program design, practical training, and R&D.** MOHESR should develop policy and guidance for engaging the private sector in digital skills development and establish outreach programs to raise the awareness and capacity of employers in this area. Education officials can also collaborate with global tech and education companies to promote free, quality online learning materials and courses for Palestinian youth. It will also be important to establish liaison offices at MOHESR and TEIs for collaborative research, innovation, and technology transfer between TEIs and the private sector in the digital field.

5. **Strengthen resource mobilization and ensure donor coordination.** It will be important to map out resource needs and identify potential funding sources for implementation of the National Digital Skills Development Strategy. MOE and MOHESR should consider strengthening efforts to improve donor coordination and align donor support programs with the National Digital Skills Development Strategy to ensure more efficient use of scarce resources. Conducting regular coordination meetings on digital skills development with the participation of PA agencies, the private sector, educational institutions, and development partners and documenting all interventions with regular updates will make governance of the education and training system for digital skills development more transparent and efficient.

7

Concluding Remarks

WB&G has established good foundations for development of the digital economy. Over the past decade, there has been significant improvement in the population's access to the internet, growth of digital businesses, and development of public and private digital platforms. Regulatory reforms have laid the groundwork for the development of digital payment transactions and digital financial services more broadly. The demand for basic and specialized digital skills as well as digital solutions has also grown across industries and the public sector. The COVID-19 pandemic has accelerated the use of digital technology as many businesses and PA agencies have been working remotely.

Despite notable progress, the findings of the report have shown that the potential of the digital economy is currently underutilized in WB&G. While WB&G has made progress in expanding access to digital infrastructure and enabling growth in digital financial services, much remains to be done to bring about an innovation ecosystem that translates into growth and job creation. The nascent stage of WB&G's digital economy is reflected in lack of 4G internet (and 3G in Gaza), low availability of government services online, weak use of digital payments, and mismatches between the skills of Palestinian IT graduates and those required by the growing IT industry.

Accelerating the growth of the digital economy will entail strengthening both analog and nonanalog foundations. Enabling widespread access to high-speed internet for all Palestinians is critical to unleash the benefits of the digital economy and should be an important priority. However, internet access alone is not sufficient for digital transformation. As argued in the World Bank (2016c), the digital economy requires a strong analog foundation, consisting of regulations that create a vibrant business climate and let firms leverage digital technologies to compete and innovate skills that allow households, businesses, and public servants to seize opportunities in the digital world; and strong institutions that use technology to empower citizens.

The World Bank Group's Country Assistance Strategy for WB&G (2022–2025) reflects this approach and underscores the importance of building a well-connected Palestinian economy to address WB&G's development objectives, including in advancing the digital agenda. This entails updating the legal and regulatory framework and building strong institutions; harmonizing regulations and policies between the West Bank and Gaza; aligning public financial management practices with principles of macro-fiscal stability; building a modern, diversified, and regionally connected energy sector to guarantee the reliable operation of the digital infrastructure; and ensuring that the education system prepares the younger generations to participate in the labor market. The Country Assistance Strategy also emphasizes the importance of improving infrastructure at the national and municipal levels, increasing access to finance for firms, and interventions to connect WB&G to the regional and global economy through cross-border trade, investment, knowledge sharing, and expanded business and market linkages. All these interventions will strengthen the analog foundations that are important for the development of the digital economy.

Addressing the challenges in the relationship with Israel will be critical to achieve the full potential of the Palestinian economy, improve digital infrastructure, and facilitate digital development. In particular, this relates to removing the constraints on broadband development (for example, the allocation of spectrum) and easing the restrictions on trade and movement more broadly. It will be important to reform and empower the JTC to take immediate action on key bilateral issues impeding the development of the telecom sector in the Palestinian territories and establish a clear timeframe for allocation of 4G (and ultimately 5G) frequencies for Palestinian operators. If work within the framework of the JTC continues to be unproductive, the PA may consider seeking international mediation, for example through the ITU. Working with the GOI to ease constraints on imports of dual use goods (particularly communications equipment) is another important priority. In the short term, measures could focus on simplifying the procedures to access dual use goods, and in the medium term, a risk-based approach could be introduced to provide access to dual use goods for legitimate businesses without the need for cumbersome licenses. In the long term, it is recommended that the GOI aligns its export control dual use list with international best practice while the PA assumes responsibility for the control of dual use goods within its jurisdictions.[175]

Several measures to improve digital infrastructure are within the control of the PA. These include adopting regulations to increase competition among telecom service providers and making investments to expand broadband coverage (for example, by implementing a VLS, leveraging the excess fiber capacity of the JDECO or establishing a wholesale broadband provider with a wholesale-only license).

A shift away from siloed and fragmented interventions toward a well-coordinated, whole-of-government approach will be instrumental in achieving WB&G's ambitions of expanding the benefits of the digital economy for all of its citizens. In addition to the sectoral strategies, for example, on e-government and digital skills, an overarching vision and a comprehensive multisectoral roadmap with clear objectives, targets, and indicators is needed. This roadmap can build on the recently adopted *Sector Strategy for the Telecommunications and Information Technology Sector 2021–2023,* but it should be expanded to include additional and more ambitious interventions both within the current areas of focus (infrastructure, legislative and regulatory environment, electronic services, competitive digital industries, and human resources) as well as in the areas of digital financial services and digital skills that are not currently covered. An inter-ministerial committee led by the Prime Minister should be established to ensure implementation of the roadmap and the sectoral strategies that feed into it and proper coordination with clear mandates and responsibilities for the involved PA agencies. It will be important to ensure availability of sustainable funding to enable proper implementation.

Several laws and regulations must be enacted, updated and implemented to facilitate development of the digital economy in WB&G. In the short term, it will be important to (1) implement the new Telecommunications Law (establish an independent regulatory authority and facilitate competition in the market) and the Companies Law (to provide legal certainty on the establishment and operation of companies; enable online business registration;

175. For more information on recommendations to remove dual use restrictions, see World Bank Group (2020a).

and facilitate the incorporation of SMEs, startups, and home-based businesses), (2) adopt the Competition Law; (3) update the Law on E-Transactions (in the areas of digital ID/signature and establishment of a certification authority) and the taxation framework (taking into account digital business models), and (4) develop regulations to strengthen competition among providers of digital financial services and the law on consumer protection. In the medium term, the PA should develop laws and regulations on cybersecurity, personal data privacy, digital identity, and platform supplier protection and update the Law on Intellectual Property.

Palestinian youth should be equipped with the skills that will enable them to take advantage of job opportunities in the digital world. This will entail creating a clear skills framework and curriculum, training teachers, and boosting access to needed digital education infrastructure and devices. Efforts should also be made to ensure that soft skills such as critical thinking, teamwork, and communications skills are taught across different disciplines. It will be important to expand the offering of the existing IT courses available at TVETs and TEIs and to improve their quality and relevance to private sector needs.

Strengthening the digital entrepreneurship ecosystem (including targeted efforts to leverage digital technologies to strengthen productivity in traditional industries) is another important priority. Policies aimed at encouraging digital entrepreneurship and innovation should aim at improving the quality of the current entrepreneurship support programs and incubators and connecting them to regional and global counterparts, as well as encouraging networking of local startup founders with local and international mentors and investors (including by leveraging the large and active Palestinian diaspora). These initiatives could help overcome the inward orientation of Palestinian firms and connect them to regional and international markets. In addition, targeted efforts should be undertaken to increase the adoption of digital technologies and solutions by traditional industries. This will entail facilitating collaboration among academia and public and private institutions to identify the technologies and applications that are best suited for SMEs in different traditional industries and supporting technology transfer and/or encouraging the local IT industry to develop solutions to address the specific needs of the Palestinian private sector. Furthermore, improving the overall business environment by reducing red tape, investing in infrastructure, and strengthening the quality of public services will also support the growth of digital businesses. Implementation of digital entrepreneurship support initiatives should take into account the specific constraints faced by female owned/led businesses and incorporate a targeted communication campaign, provide convenient hours of program delivery, as well as include female mentors/linkages to international women's business networks.

The PA should harness digital technologies for more effective public service delivery with a special emphasis on vulnerable groups. Increasing the availability of public services online can mitigate the impact of movement restrictions and could help increase the outreach of government services to women, the elderly, and people living in rural areas. The PA should also digitize government payments (for example, pensions and social transfers) to citizens, which will increase convenience and promote the use of digital financial services.

Lastly, ensuring effective donor coordination as well as aligning donor support with national priorities will help in using scarce resources more efficiently. Many donors are supporting digital development in WB&G, particularly entrepreneurship programs and growth of SMEs, incubator and accelerator programs, as well as skills development and digital education programs at various levels. The World Bank Group is supporting the PA in promoting digital development through programs aimed at improving broadband access, developing e-government, supporting innovative startups and SMEs (including interventions to strengthen resilience to COVID-19), improving access to finance for innovative and job-creating firms, and building the capacity of government institutions to improve the business environment and strengthen transparency and accountability, among other measures. Donor agencies are currently preparing additional support programs to address the impact of the May 2021 conflict in Gaza.. Taking a proactive role in articulating priority interventions and conducting regular donor coordination meetings with the participation of Palestinian civil society and the private sector will be important to ensure that scarce resources are streamlined to initiatives with the highest potential impact.

Annex A

Prices and Speeds for Paltel's Asymmetric Digital Subscriber Line and Fiber to the Home

Digital Subscriber Line Retail Access Prices: Asymmetric Digital Subscriber Line

Download Speed	Upload Speed	Monthly Fees (NIS)
From 2 Mbps and up to 4 Mbps	512 Kbps	44
From 4 Mbps and up to 8 Mbps	512 Kbps	58
From 8 Mbps and up to 16 Mbps	832 Kbps	75
From 16 Mbps and up to 30 Mbps	3 Mbps	103
From 30 Mbps and up to 50 Mbps	3 Mbps	117
From 50 Mbps and up to 100 Mbps	5 Mbps	128

Note: Kbps = kilobits per second; Mbps = megabytes per second.

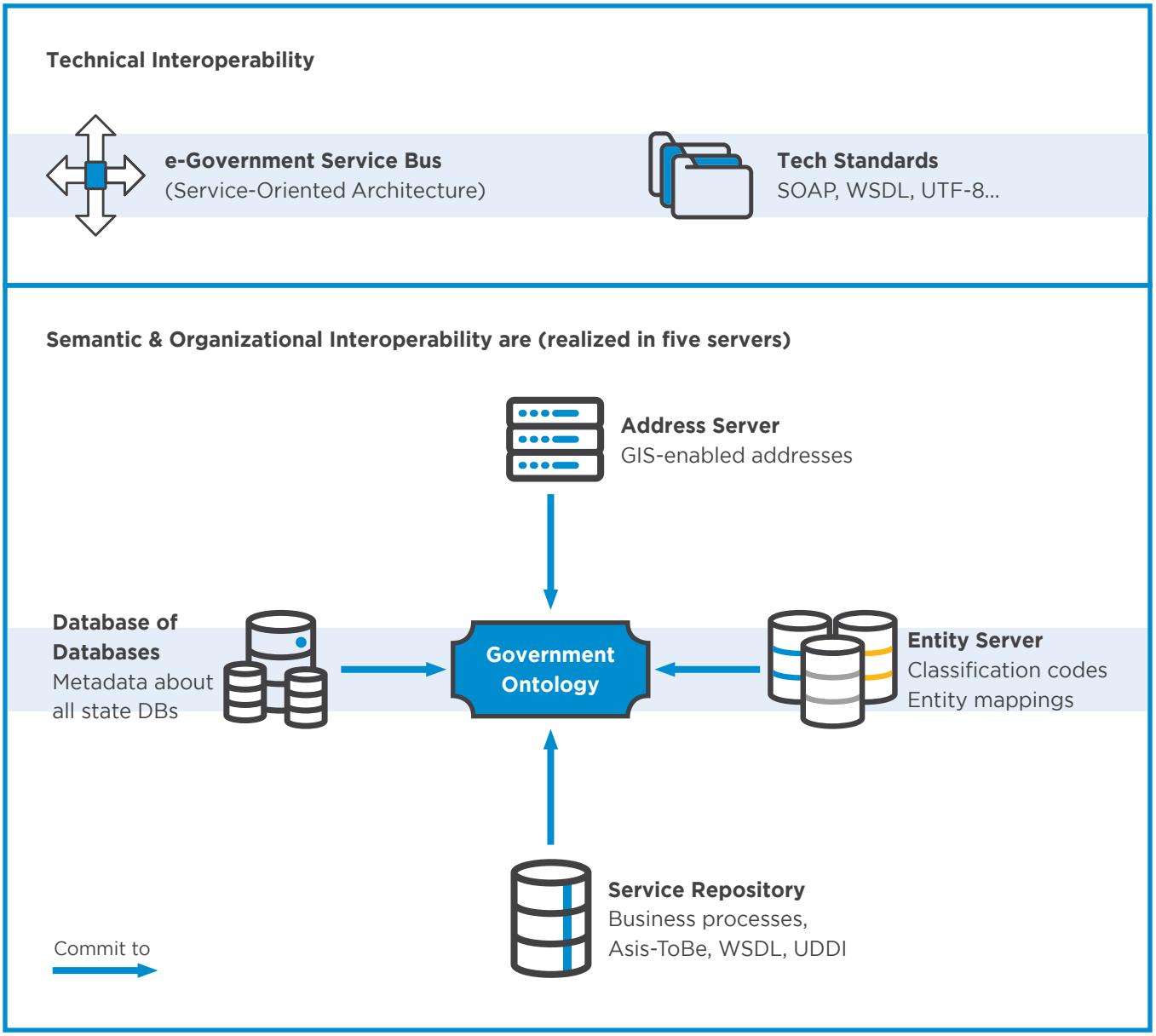
Fiber to the Home Access Retail Prices

Download Speed	Upload Speed	Monthly Fees (NIS)
Up to 8 Mbps	1 Mbps	148
From 8 Mbps and up to 16 Mbps	2 Mbps	180
From 16 Mbps and up to 30 Mbps	3 Mbps	250
From 30 Mbps and up to 50 Mbps	5 Mbps	300
From 50 Mbps and up to 100 Mbps	5 Mbps	380
From 100 Mbps and up to 200 Mbps	5 Mbps	455

Note: Mbps = megabytes per second.

Annex B

Zinnar–West Bank and Gaza Interoperability Framework



Source: Palestinian E-Government Academy 2014.

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