CHAPTER 9

PROMOTING TRADE INCLUSION IN THE LEAST DEVELOPED COUNTRIES THROUGH CONNECTIVITY

Contributed by the Enhanced Integrated Framework

Abstract: *The emergence of information and communications technology, especially mobile phones, has changed how people in the least developed countries (LDCs) do business and organise their lives. However, most people in these countries still lack access to affordable internet connections and the LDCs face profound challenges to connectivity. Introducing policies to improve the enabling environment for trade and investment can help. This chapter looks at the policy aspects of digital connectivity in the LDCs and reviews examples of recent reforms that have enabled e-commerce to play an increasingly important role. It emphasises, nevertheless, that there is no "one-size-fits-all" solution. Ultimately, users in the LDCs will guide markets and governments, demonstrating what they most urgently require in terms of digital connectivity. Led by LDC governments and with focused co-operation among key stakeholders— including the private sector and international donors—much can be achieved in the way of inclusion.*

INTRODUCTION

For many people in industrial countries, reading the news, buying online and talking to friends over the Internet has become part of everyday life. Yet, in the least developed countries (LDCs), despite the proliferation of mobile phones, access to the Internet is still limited. The Internet's potential as an instrument for more inclusive trade, which can bring benefits for the poor, is yet to be fully explored.

This chapter examines why digital connectivity has been recognised as an important instrument for development. It looks at the LDC-related policy aspects of digital connectivity and reviews examples of recent reforms that have allowed greater integration of LDCs into the evolving trading environment, where e-commerce plays an increasingly important role. The chapter highlights existing initiatives that have shown some promising results, stressing, nevertheless, that there is no "one-size-fits-all" solution. Ultimately, users in the LDCs will guide markets and governments, demonstrating to them what they most urgently require in terms of digital connectivity.

The chapter focuses on SDG 9, Target 9.c: "Significantly increase access to information and communications technology and strive to provide universal and affordable access to the Internet in least developed countries by 2020". (SDG, 2015) The adoption of this target by the international community indicates a commitment to support digital transformation in the LDCs. It underlines that affordable access to information is crucial for enhancing trade and sustainable development.

The Internet increasingly allows access to information on a global scale, reducing information asymmetries and helping to create a virtuous circle for innovation across the globe. The Internet helps new services to emerge and improves already existing ones by making them more efficient. Internet enabled services are able to reach out to consumers, including connected consumers in rural areas, who otherwise would not be able to benefit from them. The main driver of increasing connectivity has been the decreasing costs of Internet access, mobile phone services and personal computers. In many LDCs, this quiet revolution has been led by mobile phones, which are allowing people, even in remote areas, to connect better with each other and with the rest of the world. Products and services enabled by information and communications technology (ICT) range from mobile payment systems to health services in remote regions where doctors are not always able to be present in times of emergency (Box 9.1).

Box 9.1. Examples of ICT-enabled products and services

Mobile phone banking is gaining more and more customers, especially in Eastern Africa and Southeast Asia. Wing Mobile in Cambodia and MTN Mobile Money in Uganda successfully offer people banking services.

Medical and health services are improved through Internet Cloud technology and digitalisation. Rwanda has adopted the use of drones to deliver blood donations to remote health centres.

Online education platforms are currently providing free education services across the world via massive open online courses (MOOCs), with unlimited participation and open access via the web. Already, universities in Tanzania and Zambia provide e-learning platforms. Uganda uses high speed Internet to facilitate e-learning and research in seven public universities.

Source: OECD-WTO aid-for-trade monitoring exercise (2017), www.oecd.org/aidfortrade/countryprofiles/ and Uganda (2015) , www.ict.go.ug/initiative/infrastructure (accessed 15 February 2017).

While the digital economy is still emerging in many LDCs, some countries—such as Bangladesh, Nepal and Rwanda— have already begun the transition. The most recent Enhanced Integrated Framework (EIF; Box 9.2) analytical study, conducted by the government of Nepal, prioritised incentives to attract investment in the information technology (IT) and ICT sectors, such as corporate income tax holidays until 2020; a 0% excise tax on imported telecom and computer equipment; and 100% ownership and dividend/capital repatriation for foreign investors.

Box 9.2. EIF support for the SDGs

The Enhanced Integrated Framework (EIF) is a multi-donor programme designed to support LDCs in becoming more active players in the global trading system. Within its framework, LDCs, donors and international organisations work together to fully integrate the world's poorest countries into global trade in a way that contributes to poverty reduction and sustainable development.

EIF-supported projects contribute to several of the 17 SDGs:

■ Some 95% of EIF projects focus on poverty reduction, and most of them aim at promoting the agricultural sector in the LDCs, helping to achieve SDG 1 (no poverty) and 2 (zero hunger).

■ Close to 50% of EIF projects focus on gender (SDG 5). The EIF collects data on project beneficiaries at the disaggregated level to determine whether interventions are targeting both women and men. For example, the EIF currently implements a project in Rwanda to improve the livelihoods and earning potential of people engaged in cross border trade, 74% of whom are women.

■ All EIF interventions support the LDCs in accessing new markets, providing opportunities for job creation and economic growth (SDG 8).

In addition, EIF projects in productive capacity building range from improvement in airport cargo handling to enhancement of the operations of sanitary and phytosanitary laboratories, processing centres and manufacturing facilities (SDG 9: industry, innovation and infrastructure).
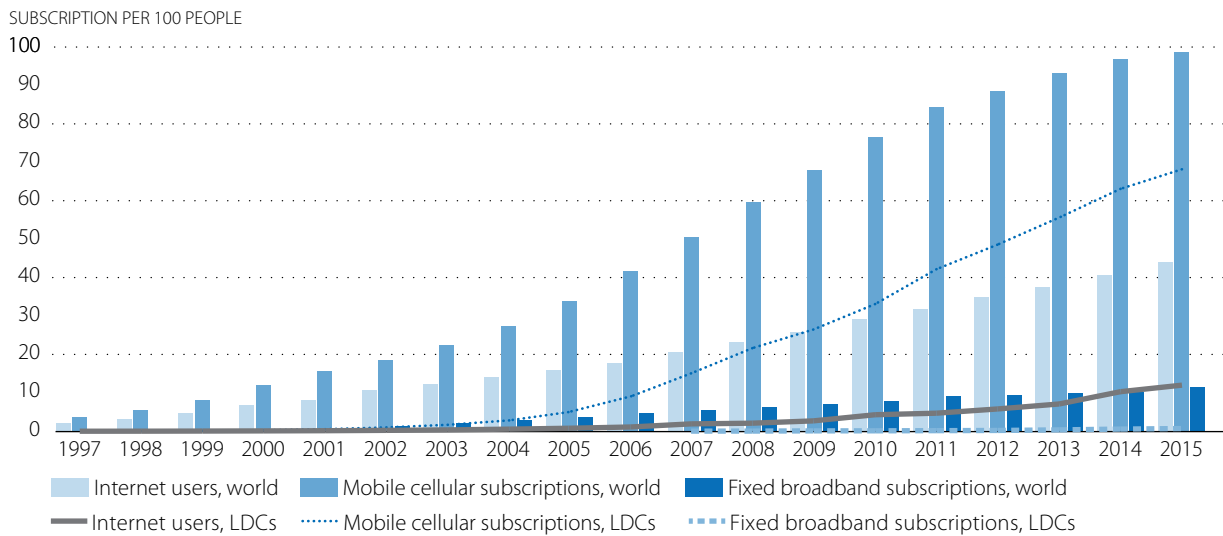
Finally, SDG 17 (partnership) makes a call to "Significantly increase the exports of developing countries, in particular with a view to doubling the least developed countries' share of global exports by 2020." These objectives are at the heart of the EIF.

THE LEAST DEVELOPED COUNTRIES DO NOT YET REALISE THE FULL POTENTIAL OF INTERNET CONNECTIVITY

Digital connectivity has great potential for inclusive growth and socio-economic development. Yet the ITU *Facts and Figures Report* reveals that many LDCs are still unable to implement broad-based connectivity (ITU, 2016a; Chapter 5). Some of the facts that characterise the LDCs include:

■ Only about one out of eight people is online.

■ Just 12.5 million women have access to the Internet, as opposed to 18 million men.

■ Internet access is led by mobile telephone technology.

■ Internet speed remains a huge challenge.

Not only are the absolute numbers of Internet users in the LDCs lower than in the rest of the world; the growth in Internet access in these countries also has been slower (Figure 9.1). While growth in the use of mobile phones has been strong in these countries, less than 20% of the population have mobile broadband subscriptions (ITU, 2016c). Fixed-line Internet access in the LDCs remains below 1%. Internet access in the LDCs will most likely continue to grow through mobile coverage, yet these countries risk falling even further behind on this important facilitator of international trade.

Figure 9.1. Internet users and mobile cellular subscription per 100 people

Source: Adapted from the World Bank, Internet users per 100 people, ITU, World Telecommunication/ICT Development Report and database.

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Among the possible explanations for the connectivity gap between the LDCs and the rest of the world, research shows that access to and costs of Internet infrastructure, as well as education levels, significantly influence Internet penetration.

Country examples offer solutions for setting up physical Internet infrastructure

Depending on a country's location—e.g. whether it is landlocked—and its ability to co-operate with neighbouring countries—e.g. through shared infrastructure projects—the costs for installing and/or accessing the necessary physical infrastructure for Internet connectivity can be either prohibitive or affordable, including for the LDCs. The World Bank (2016) has documented ways in which developing countries, particularly in Africa, have started to invest in shared infrastructure projects to reduce costs in network deployment, expand coverage, and close up the rural-urban digital divide by accelerating broadband uptake. This type of co-operation can help to reach the population living in rural areas.

EIF analytical work in several countries[1] has provided examples of how countries address ICT infrastructure challenges:

Sub-Saharan Africa: Niger, a landlocked country in West Africa, has access to undersea cable through Benin and Burkina Faso. Despite the presence of four mobile service providers, the only company that supplies fixed broadband Internet is the national telephone and telecommunications carrier, SONITEL (Société nigérienne des télécommunications). This situation has implications for competitiveness, and ultimately for the price of services. In contrast, thanks to competitive pricing arrangements prices in Rwanda and Uganda differ very little from what consumers pay in Tanzania, a neighbouring country with access to undersea cable. These countries use cross-border terrestrial connections (Schumann and Kende, 2013).

Asia: In Asia, the Digital Bangladesh Strategic Plan foresees speeding up the process of providing submarine cable connections to ensure the reliability of nationwide Internet connectivity and reduce the cost. Bhutan has invested in aerial fibre-optic cabling using the power-line infrastructure of the Bhutan Power Corporation; negotiations with Indian service providers to add more fibre-optic cable connections for greater reliability and quality are ongoing.

Improving education is important if countries want to gain from digital connectivity

Pew Research Center (2015a) found that younger, better educated people with some knowledge of English are more likely to access the Internet. The governments of the LDCs invest around 3% more on average than other developing countries in education; yet 19 million children in the LDCs still are not enrolled in primary education. Lack of basic education might lead children to miss out on opportunities that, as adults, could allow them to have better jobs and income (UN-OHRLLS, 2016). McKinsey (2013) estimates that African countries could increase productivity by USD 30-70 billion with the help of education and technology.

At the same time, improving basic education is an important prerequisite for increasing value-added production and engaging in the global economy. Basic digital literacy is becoming an essential prerequisite for competitiveness among countries. Countries that lack a workforce that is able to utilise IT instruments will find it increasingly difficult to keep up with the requirements for international trade.
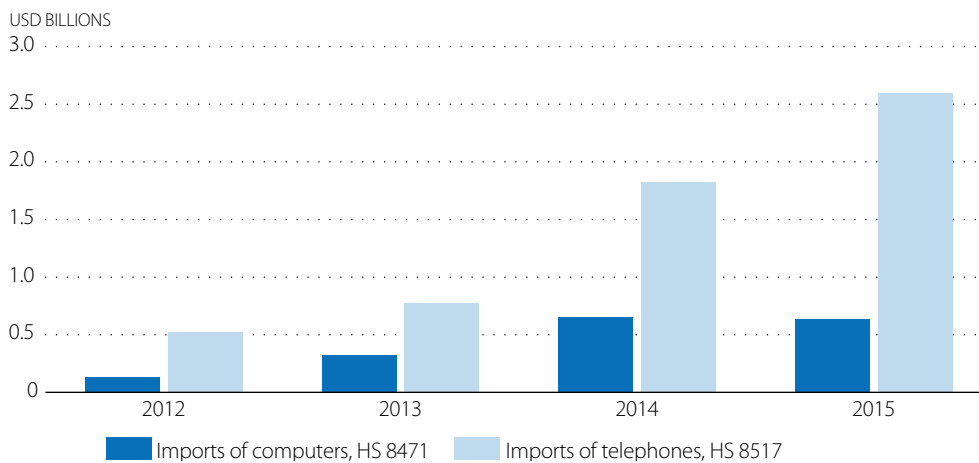
Online education platforms play an important role in facilitating Internet penetration, assisting students and teachers in many LDCs. Better connectivity can, in turn, help LDCs increase education levels. A study by Schumann, R. and M. Kende (2013), found that large amounts of locally hosted content—such as educational and e-government services—are correlated with lower average costs of Internet service, improved quality of the user experience and increased demand.

The global gender gap in Internet use, meanwhile, keeps growing. On average, it is much greater in Sub-Saharan Africa than in the rest of the world. Ensuring the participation of girls and women in basic digital skills training and online education is fundamental. Incorporating the gender dimension into national digital strategies can help in tackling the digital gender gap. Some developed countries have already done so; examples include the Digital Agenda for Spain, and Australia's Gender Equality and Women's Empowerment Strategy. Yet the gender dimension in ICT-related strategies is less evident in the LDCs, where the gap is more profound. According to the GSMA Connected Women Programme (2017), closing the 14% gap in women's mobile access worldwide could create USD 170 billion in market opportunities for the mobile industry from 2015-2020, bringing growth and prosperity to many households.

Connectivity depends on access to Internet-ready devices

Trade policy plays a key role in determining the accessibility and price to consumers of ICT related equipment and services. Besides facing steep prices for Internet access (Chapter 5), the cost of purchasing an IT enabled device represents another major cost for the consumer. Poor countries rarely produce these products and therefore have to import ICT-related equipment and devices, and import tariffs can have an impact on accessibility for small businesses and low-income consumers. Tariff and trade analysis of data from *World Integrated Trade Solutions* (WITS) based on the *WTO Integrated Data Base* (IDB) show that average applied Most-Favoured-Nation (MFN) tariffs on telephones and computers are higher in the LDCs than in other developing countries.

While LDC imports have risen steadily in recent years (Figure 9.2), computers are still not common in households in these countries. High prices are partly responsible for this, but other reasons, such as unreliable electricity supplies, also discourage households from buying IT equipment. However, the LDCs have experienced a significant increase in imports of telephones, which rose from USD 526 million in 2012 to USD 2.6 billion in 2015; mobile phones represent over one-fourth of this total. While the number of people owning mobile phones in the LDCs is growing, smartphones that help enhance Internet access are not as common. A Pew Research Center survey (2016) indicates low levels of ownership in Ethiopia (4%), Uganda (4%), Burkina Faso (11%), Tanzania (14%) and Senegal (19%).

Figure 9.2. LDC imports of telephones and computers

USD BILLIONS

Note: The Harmonised System developed by the World Customs Organisation provides a uniform classification of goods with numerical codes (Bollyky, T.J. and P.C. Mavroidis, 2017) whereby 8517 refers to telephone sets, including telephones for cellular networks or for other wireless networks; and other apparatuses for the transmission or reception of voice, images or other data, including for communication via a wired or wireless network; 8471 refers to automatic data-processing machines and units thereof; and magnetic or optical readers, machines for transcribing data onto data media in coded form and machines for processing such data.).

Source: UN-COMTRADE accessed through *World Integrated Trade Solutions* (WITS), https://wits.worldbank.org/WITS/WITS/Restricted/Login.aspx, (accessed on 24 February 2017).

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In addition, many multinational companies are partnering with local producers to supply more affordable devices to the population. In Myanmar, Ooredoo – an international telecom company – is launching a subsidised 3G phone for less than USD 15. After the opening of the telecom sector in 2013, and with the presence of new service providers, the price of a SIM card was drastically reduced, from USD 150 in 2013 to just USD 1.5 in 2015 (Alliance for Affordable Internet, A4AI, 2015).

While the use of mobile phones is expanding, however, only one-quarter of people in sub-Saharan Africa have a computer at home; the lowest share is in Uganda, where only around 3% of households have a computer (Pew Research Center, 2015b). Zambia envisages establishing a computer assembly plant through a public-private partnership to produce at least 250 000 computers annually (Zambia, 2017).

A group of WTO Members at the WTO 10th Ministerial Conference (December 2015) agreed to expand the Information Technology Agreement (ITA), which was concluded in 1996, to completely eliminate tariffs on IT products covered in the Agreement. The purpose of the ITA expansion is to eliminate tariffs on 201 new-generation information and communications technology products, including telecommunication satellites (WTO, 2015a). This Agreement can potentially help LDC producers find access to new export markets. The LDCs could also explore ways of improving access to IT products in their own markets, thereby benefitting the consumers. While none of the LDCs are currently members of the ITA expansion agreement, as part of its WTO accession package Afghanistan committed to joining the Information Technology Agreement (ITA) of 1996 (WTO, 2015b).

REGULATORY MEASURES CAN PROMOTE OR HINDER CONNECTIVITY

Access to digital ICT services is important for business and consumers in the LDCs. WTO member schedules of specific commitments under the General Agreement on Trade in Services (GATS) reflect the minimum level of treatment granted in accordance with the obligations of market access and national treatment. The telecommunications services sector is one of the most committed services sectors under the GATS (van Grasstek et al., 2016).

Fourteen LDCs have made commitments in the area of telecommunications services, namely Afghanistan, Bangladesh, Cambodia, Democratic Republic of the Congo, Djibouti, The Gambia, Lao PDR, Lesotho, Liberia, Nepal, Senegal, Uganda, Vanuatu and Yemen, thus ensuring greater transparency and predictability for their trading partners. Twenty-two LDCs have not taken any commitments in the telecommunications sector under the GATS.

The seven LDCs that have undergone the WTO accession process–Afghanistan, Cambodia, Lao PDR, Liberia, Nepal, Vanuatu and Yemen—have also incorporated into their schedules the obligations of the Reference Paper on Telecommunications, setting common guidelines that cover regulatory principles for basic telecommunication services, notably: interconnection; universal service obligations; independence of regulatory authorities; and fair and transparent allocation of scarce resources.

In an endeavour to take comprehensive stock of members' applied measures, the WTO and the World Bank (2017b) have been collecting relevant measures and classifying them in several categories: measures affecting access to markets; conditions affecting competition; and conditions on operations of foreign service suppliers (Box 9.3). The International Telecommunications Union (ITU) has also collected data on telecommunications services for the ICT Regulatory Tracker (Chapter 5), including information on regulatory authorities, regulatory regimes, and level of competition (ITU, 2017). According to the ICT Regulatory Tracker, by 2015 the majority of the EIF countries had established an independent regulatory authority for telecommunication or ICT; eight have yet to establish one.

Box 9.3. Examples of LDC regulatory reform in telecom services

AFRICA

In **The Gambia**, fixed-line services are provided by the government-owned Gambia Telecommunication Company. Since 2012, the government has introduced a new international gateway license to foster competition (Schumann and Kende, 2013).

In 2013, **Sierra Leone** granted six licenses to public Internet operators and started working on connecting the African coast with European cable (Africa Coast to Europe). The objective was to obtain affordable access to the international broadband network through the construction of a 17 000 km submarine fibre optic cable from France to South Africa (WTO, 2017a). In 2015, Sierra Leone adopted the Telecommunications Amendment Act 2015, which terminated a monopoly over the international telecommunications gateway (WTO, 2014-15).
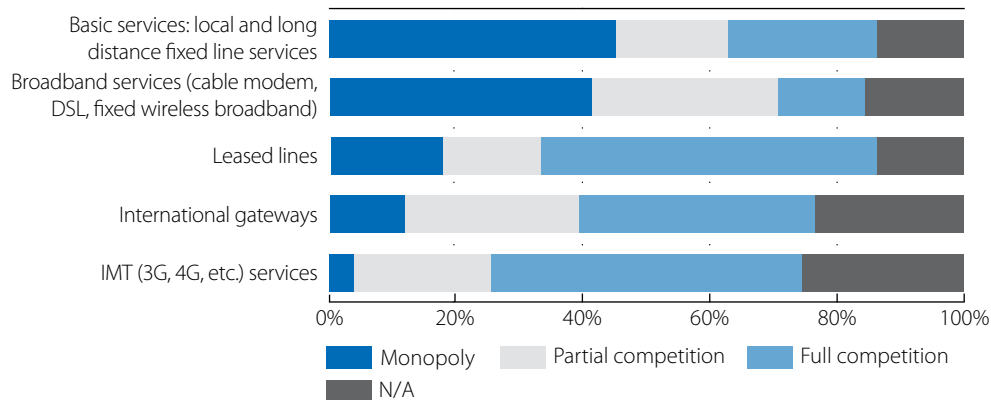
ASIA AND THE PACIFIC

Recent reforms in **Myanmar**, followed by the adoption of the Foreign Investment Law, allowed for 100% foreign ownership of telecommunications services (WTO, 2014).

In **Vanuatu**, the monopoly of Telecom Vanuatu Limited was terminated in 2007, allowing the private sector to step in and provide telecom services. As part of the Telecommunications and Radio Communications Regulation Act No. 30 of 2009, a separate and independent regulatory body—the Telecommunications and Radio Communications Regulator—was established. Reforms in the ICT sector, together with the installation of a major submarine fibre-optic cable in 2014, led to a significant decrease in Internet prices and helped connect the country to other regions in the Pacific (ITU, 2015).

Source: Adapted from *WTO Trade Policy Reviews, WTO DG Monitoring Report*, ITU, and Schumann and Kende (2013).

To avoid anticompetitive practice, having a competition authority is also important. By 2015, 62% of the EIF countries had established competition authorities. While mobile services in general tend to be relatively open, the ITU ICT Regulatory Tracker shows that fixed line telecom services remain under monopoly in several LDCs (Figure 9.3).

Figure 9.3. Level of competition in selected LDC telecommunications services, 2015

Source: ITU (2017) ICT Regulatory Tracker.

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International gateways (earth stations) have an important impact on accessibility and affordability of Internet access. Often, fixed-services operators control the gateways and their prices reflect a de facto monopoly. Because global Internet services require international connectivity, a lack of competition in gateway services can have a direct impact on the cost of the internationally leased circuits used by Internet access providers.

An overview of LDC telecommunications regimes reveals differences in approach

Typically, entry into the telecommunications services market is contingent upon obtaining a license. Licenses are technologically neutral in Cambodia, Lesotho, Malawi, Mali, Mozambique, Rwanda, Tanzania and Uganda. However, Malawi, Nepal, Tanzania and Uganda have a separate international gateway license and fee.

In Burundi, Lesotho, Madagascar, Malawi, Mali, Mozambique, Nepal, Senegal, Tanzania and Uganda, new operators are permitted to own and operate international gateways. This is not the case for Rwanda and Zambia. While Bangladesh, Cambodia, Lesotho, Malawi, Mozambique, Nepal and Tanzania do not set nationality requirements for employees, in Madagascar, Mali, Rwanda, Senegal, Uganda and Zambia, these types of requirements are in place.

In 2014, Madagascar announced the opening up of the telecommunications market, allowing operators to introduce and provide services using new technologies, such as 4G, and encouraging competition (WTO, 2014-15). Similarly, since the adoption of 2010 legislation regulating telecommunications in Guinea Bissau, there are no restrictions on market access or national treatment for foreign suppliers (WTO, 2012).

This brief overview of the telecommunications sector in the LDCs shows that some countries have given great importance to competition in the telecommunications sector, while others have preferred to rely on incumbent service providers. The EIF Diagnostic Trade Integration Study (DTIS) provides a periodic update on country specific situations. These are evidence-based analytical studies that underpin the identification of the priorities that need to guide the trade agenda, as well as the aid-for-trade needs of the LDCs. They help LDCs determine their biggest constraints to trade integration and prioritize actions to address them, through trade-related support. The list of ICT-related priorities in the LDCs is annexed to this study (Annex 9.A1).

A good business environment is essential to digital expansion

EIF analytical work highlights the need for LDC governments to put in place legal policy frameworks and supportive regulatory environments to generate greater investment in the ICT sector, allowing for an expansion of digital infrastructure. In order to further strengthen the ICT framework, over half of the LDC respondents to the OECD-WTO 2017 monitoring exercise reported that they had already adopted ICT-related strategies (Box 9.4). For example, Rwanda has an e-commerce cyber strategy in its SMART Master Plan 2015-2020 and the implementation of the national plan aims to provide fast Internet access with 4G long-term evolution deployment to 95% by the end of 2017 (Rwanda, 2017).

Afghanistan's National Telecommunications Policy aims to establish a level playing field for fair, transparent and market-based competition. Guinea recently passed a law on electronic transactions. ICT aspects are also reflected in Guinea-Bissau's National Development Strategy 2025; with EIF institutional capacity support, the country has embarked on electronic document management as well as financial software recycling. The local EIF project implementation unit in Guinea-Bissau, with the help of the United Nations Conference on Trade and Development (UNCTAD), has also implemented a system with pricing information on world markets. In Senegal, the 2025 Digital Senegal strategy is underway.

Almost 90% of respondents to the OECD-WTO 2017 aid-for-trade monitoring exercise reported that ICT-related strategies are reflected in their national development plans. Business to business and business to consumer transactions, payment issues and access to online platforms are among the most frequent topics covered in ICT strategies with a trade-related component.

While having an ICT-related strategy is very important, it is crucial to implement it promptly. The Mozambique DTIS recommends developing a roadmap with clearly identified timeframes to achieve the objectives set forth in the 2013 Telecommunications Strategy.

Box 9.4. An example from Mauritania of the telecommunications regulatory framework

The regulatory framework in Mauritania has evolved considerably following telecom liberalisation in the 1990s. In 2013, the Government identified the development of high speed Internet as a new source of ICT growth, job creation and economic diversification. A regulatory authority was created and awarded three global licenses for mobile and fixed telephony and Internet:

1. Mauritel—the incumbent operator—is a subsidiary of the Maroc Telecom group, which owns 51% of the capital (the rest is owned by the state).
2. Mattel—which entered the market in 2000—is a subsidiary of Tunisie Telecom, which owns 100% of the capital.
3. Chinguitel—which entered the market in 2006—is a subsidiary of Expresso (100% subsidiary of Sudatel), which owns 95.5% of the capital.

The liberalisation of the telecommunications sector has generated positive macroeconomic impacts on the economy, notably on GDP, employment and foreign investment. Today the telecommunication sector is one of the main contributors to economic growth, after the mining sector. Due to an increase in mobile services, the total size of the telecommunications sector has almost tripled, from USD 33.7 million in 2005 to USD 87.5 million in 2014. This sector is an important contributor to the state budget. Privatization and liberalisation reforms have generated additional income of almost USD 220 million from the three licensing fees, the sale of Mauritel's capital and the renewal of a 2G license for Mattel. The sector also regularly contributes to public finances through general and industry-specific taxes and customs obligations. For example, in 2011 the sector provided a total contribution of USD 83.2 million to public finances, accounting for 5.5% of the state budget. Telecommunications also contribute to job creation, accounting for around 2% of all jobs in 2012. Opening up the telecommunication sector to private participation has, furthermore, attracted private investment: from 2000 to 2010, the three telecom operators invested USD 817 million, accounting for more than 15% of total foreign direct investment in the country.

Source: Adapted from the DTIS Update of Mauritania (2016), http://www.enhancedif.org/en/files/dtis (accessed on 20 February 2017).

Digital government cuts costs and improves outcomes

EIF analytical work in the LDCs indicates that the establishment of e-government systems has great potential to reduce time and costs, promote transparency and support constituencies in using the Internet. For example, over 20 e-government systems were developed in Uganda, ranging from the Electronic Single Window to eProcurement and eVisa (Uganda, 2015). E-government initiatives are also considered to serve as catalysts for increased national ICT use, as well as supporting the development of the ICT sector in general.

However, e-government solutions are still nascent in most LDCs. While the results of the OECD-WTO 2017 monitoring exercise show that some LDCs are already using digital government services—notably download of e-government forms and applications, online submission of forms and applications, and electronic payments—around 25% of the respondents do not offer e-government services.
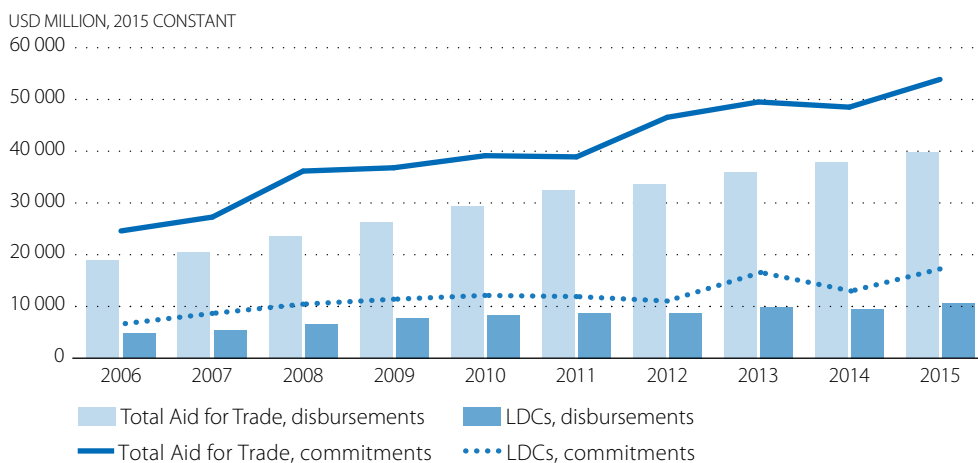
The provision of e-government services is closely linked to the availability of infrastructure. The DTIS of South Sudan confirms that once the country connected its ICT backbone to Indian Ocean submarine cables, the government was able to promote automation of government services—such as business and investor registration, customs management, tax filing, e-commerce and mobile banking—improving service delivery in the public and private sectors. Similarly, in Mauritania, the DTIS recommends establishing an e-government system for the greater expansion of the ICT sector, improving the efficiency of government services and providing incentives for citizens to go online. Finally, Bhutan has successfully implemented e-government deployment and use of telemedicine and is currently working on a government to citizen project.

PARTNERSHIPS CAN HELP TO IMPROVE CONNECTIVITY IN THE LDCs

Improving connectivity requires combined efforts of the international community, including LDC governments, donors, the private sector and development partners. According to the OECD Creditor Reporting System (CRS), in 2015 USD 10.5 billion of aid for trade was disbursed to the LDCs, an 11% increase that followed the negative growth rate of the previous year. While the overall trend is encouraging, disbursements to the LDCs are just above one-quarter of total aid for trade.

The overall level of aid-for-trade commitments for the LDCs has fluctuated over recent years. Following a decline in 2014, it rebounded in 2015 with an annual growth of 33%, bringing the total amount of LDC commitments to USD 17.2 billion. In 2015 the LDC share of aid for trade was, for the tenth consecutive year, the second highest (32%) among the country categories, just four percentage points behind the lower middle income countries (Figure 9.4).

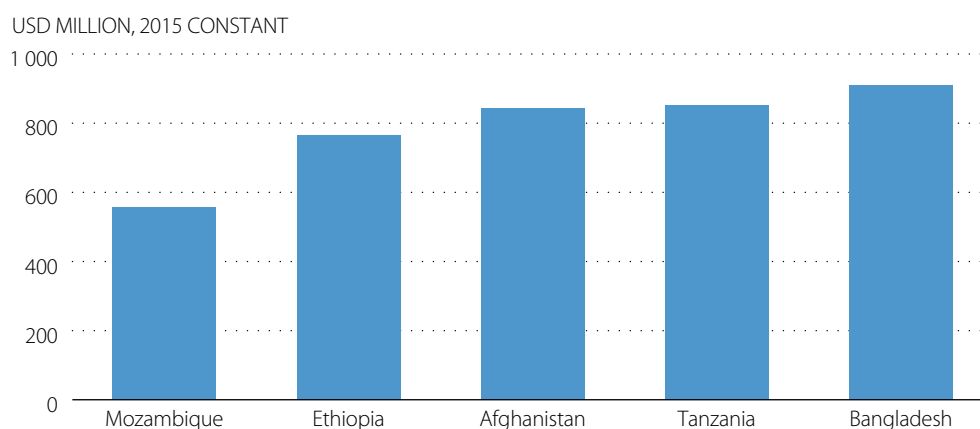### Figure 9.4. Aid-for-trade commitments and disbursements to the LDCs, 2006-15

USD MILLION, 2015 CONSTANT

Legend:
- Total Aid for Trade, disbursements
- LDCs, disbursements
- Total Aid for Trade, commitments
- LDCs, commitments

Source: OECD-DAC CRS aid activity database.

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The allocation of aid for trade to individual countries within the LDC country grouping varies considerably. Afghanistan, Bangladesh, Ethiopia, Mozambique, and Tanzania, were the top five LDC recipients in 2015, accounting for 37% of all aid-for-trade disbursements to the LDCs (Figure 9.5). On the other hand, there are a number of LDCs where aid-for-trade disbursements remain very limited. (Figure 9.6).

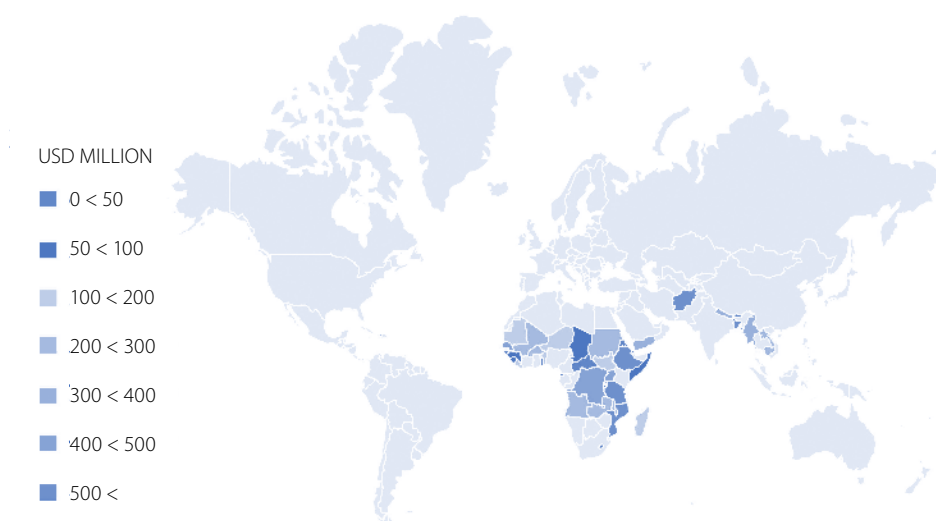**Figure 9.5. The top five LDC recipients of aid for trade in 2015**

Source: OECD-DAC CRS aid activity database (accessed 1 May 2017).

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To ensure that all the LDCs get the support they need, the EIF follows a "leave-no-LDC-behind" approach to resource allocation. In 2017 the EIF initiated analytical work in Equatorial Guinea, the LDC that received the least aid-for-trade resources in 2015 according to the OECD CRS. In addition, the EIF is looking at re-launching its activities in the Central African Republic, which were previously put on hold. In total, the EIF has supported the implementation of 149 projects amounting to over USD 200 million.

Figure 9.6. Aid-for-trade disbursements to the LDCs in 2015, USD million constant prices

Source: OECD-DAC CRS aid activity database (accessed 1 May 2017).

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Since 2006, aid-for-trade disbursements from the donor community to the communications sector have increased almost two-fold; nevertheless they remain less than 2% of total aid-for-trade disbursements to the LDCs. To counter this trend and ensure the development of digital infrastructure, the catalytic role of the government in leveraging private sector engagement is paramount. The EIF, as the only aid-for-trade initiative exclusively dedicated to the LDCs—with a clear focus on helping countries to leverage additional resources—supports these efforts through analytical work, institutional structures on the ground and projects to build productive capacity.

Analytical work and institutional support are essential

Through the EIF, a number of countries have undertaken DTISs, which have provided inputs for subsequent country plans and strategies that have an impact on increasing connectivity, both in terms of digital and physical infrastructure. As for physical connectivity, much attention has been paid to trade facilitation reform, and the improvement of transportation systems at the national and regional levels.

While all DTISs highlight the importance of physical connectivity and infrastructure improvement for trade facilitation, the breadth and depth of the analysis of digital connectivity differs. This, in turn, reflects its relative importance for each LDC. Some DTISs include improvement in digital connectivity as one of the priorities of their Action Matrices; others make reference to digital connectivity as a cross-cutting issue; and several include a specific chapter on ICT. At the same time, while some LDCs focus on "hard" infrastructure improvements, others highlight the need to address the policies and regulations governing connectivity through the Internet.

In terms of digital connectivity, frequent topics include the need for greater competition in the telecommunications sector; ICT promotion through training and outreach; improved access to the Internet; and helping businesses to engage in e-commerce. Overall, 21 DTISs and DTIS Updates (DTISUs) have incorporated ICT-related priorities in their Action Matrices. New sharpened DTIS guidelines will include an analysis of e-commerce, helping up to 30 new DTISs/DTISUs to integrate key aspects of the evolving trade environment (Box 9.5).

Box 9.5. Burkina Faso's efforts towards regional harmonisation

Following liberalisation and opening of its markets, telecom services are expanding in Burkina Faso. In 2006, the country sold most of the shares of the national telecommunications office, ONATEL, to a private investor (Morocco Telecom), conserving 20% of the shares in Burkina Faso. Shortly thereafter, the use of mobile services increased significantly, reaching 60 mobile phones per 100 people.

At the regional level, the West African Economic and Monetary Union, the European Union and the ITU have supported the harmonisation of regulations in the telecommunication sector and the establishment of an independent regulator. This includes the interconnection of networks and pricing, as well as co-operation among national regulatory bodies. International co-operation and the adoption of liberal policies in telecom have allowed Burkina Faso to establish one of the most solid enabling environments for foreign service providers, in regulatory terms, and to expand its mobile telecom market. The regulatory body responsible for e-communication (*Autorité de régulation des communications électroniques*) is considered one of the most efficient governmental agencies. Nevertheless, loopholes in the adoption and implementation of technical regulations could have an impact on investments in the sector.

In contrast with mobile services, fixed broadband telephony has not attracted competition and remains a monopoly in the country. Costs are high, the Internet has not expanded significantly and quality is yet to be improved. While mobile connection has helped to meet consumer demands for Internet, in Burkina Faso poor connectivity remains a burden for businesses, especially those using big data flows, such as financial services and IT.

Source: Adapted from the DTISU of Burkina Faso (2014), http://www.enhancedif.org/en/files/dtis accessed on 20 February 2017

Through its institutional support for national structures, the EIF prepares the ground for greater inter-ministerial co-operation by setting up EIF National Steering Committees, which include government representatives at the highest level; it also organises private sector round tables and government donor dialogues. Over 90% of countries with EIF institutional support projects have regular government donor consultation mechanisms. These fora can be used to debate and evaluate trade-related ICT reforms and policies.

UNCTAD and other organisations, including the EIF, have formed an eTrade For All initiative that is helping developing countries to take advantage of emerging opportunities resulting from the global expansion of e-commerce. This initiative, with 21 members including the EIF, has highlighted seven key policy areas of particular relevance to e-commerce development, including assessing the readiness of the LDCs to engage in, and benefit from, e-commerce. Under eTrade For All, demand driven assessments have started to provide a rapid analysis of the current e commerce situation in Bhutan and Cambodia, for example, identifying opportunities, barriers and relevant policy measures. EIF offers support to countries in undertaking these assessments and in formulating concrete proposals to facilitate e-commerce, as well as helping LDCs identify areas in which they could benefit from assistance by eTrade for All partners.
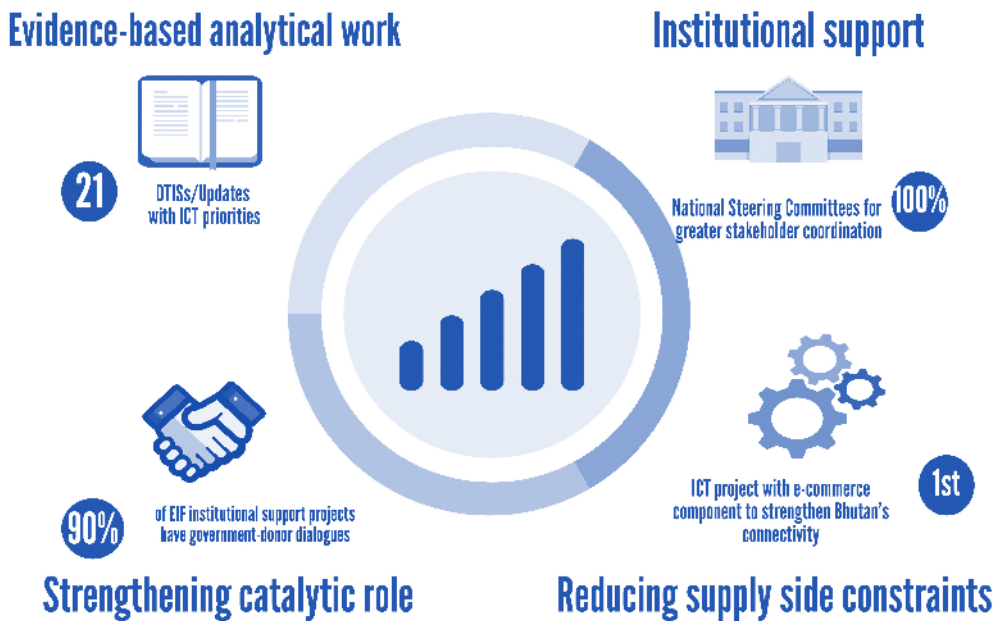
Partnership projects are enabling connectivity and addressing supply-side constraints

This institutional and analytical work provides a solid groundwork for projects designed to develop productive capacity, helping the poorest communities integrate into world trade flows. Overall, the EIF has supported 38 such projects in 29 EIF countries. The selection of projects involves consultations with the major in country stakeholders and is based on the potential of each project to contribute to export growth and poverty reduction. Priorities identified by in country stakeholders in the DTIS Action Matrices have been taken up by the EIF and translated into projects aimed at enabling connectivity, including:

- trade facilitation in The Gambia, Maldives, Rwanda and Uganda, amounting to USD 10.5 million
- implementation of information systems for tourism in the Solomon Islands
- establishment of online trade portals in Lao PDR, Lesotho and Malawi through concerted support from development partners
- improved competitiveness in Bhutan, the first EIF project with an e-commerce component.

The International Trade Centre (ITC) and UNCTAD—EIF partner agencies—are currently involved in projects to facilitate greater benefits from e-commerce in Rwanda.

In addition, EIF donors and development partners support the LDCs in improving their connectivity (Figure 9.7) For example, Australia has facilitated key reforms in telecommunications in Vanuatu, and mobile coverage in Kiribati and the Solomon Islands, focusing on ICT policy and regulatory reform to support competitive market structures, increase equitable access to services and enable private sector-led investments in ICT infrastructure and services.

Figure 9.7. EIF partners in digital connectivity

The EIF partnership will further explore synergies with ITU for providing inputs into DTIS/DTISU chapters on telecommunications, and for sharing resources and knowledge for projects to build productive capacity in ICT-related areas. Several EIF countries are already implementing ICT-related projects with support from the ITU (2016b); these include a rural connectivity project in Samoa and projects to enhance government services in Burkina Faso, Mauritania and Rwanda. With ITU support Afghanistan restored its telecommunication and broadcasting infrastructure. Kiribati, Samoa, Solomon Islands and Tuvalu have benefited from support for capacity building in the development of national ICT related policy and regulatory frameworks.

Because the development of Internet infrastructure remains quite costly, establishing closer co-operation among the private sector, donors, development partners and the government should be further explored.

CONCLUSIONS

Even though connectivity in the LDCs has increased over the past years and this trend is expected to continue, the full potential of digital connectivity is far from being exploited. The EIF partnership, together with other international partners, will continue to work to ensure that LDCs benefit from enhanced connectivity. LDC governments also have a major role to play in accelerating the uptake of new technologies. They shape the enabling environment and can ensure that ICT policies and regulations benefit consumers by allowing for greater access at lower prices. The use and expansion of affordable Internet should also reduce costs for nascent LDC businesses wishing to access global markets.

Up to date analysis of LDC priorities in digital trade, through a flexible and demand driven approach and using EIF diagnostics, will underpin the efforts of the international community to increase Internet connectivity and trade participation for the LDCs. It is crucial for donors, development partners and the private sector to remain engaged as the EIF assists countries in establishing the necessary institutional structure. The digital economy is here to stay, the earlier it is embraced, the more inclusive trade will become. ■

Annex 9.A1. Examples of priorities related to digital connectivity and e-commerce identified in the DTIS Action Matrices *(page 1 of 4)*

Afghanistan, 2012	Reform licensing to enable greater competition. The recent issuance of new licenses that address earlier differences among GSM license terms, while authorising the introduction of broadband wireless services, can boost the level of competition. The Government could consider unifying licenses to make them technology and service neutral to encourage service providers to develop innovative services and leverage advanced technologies. The license award process should be transparent and competitive. Promoting measures to boost competition and coverage, such as number portability and domestic roaming, will be important for continued growth.	
	The Afghan Telecom Regulatory Agency (ATRA) should focus on implementing the Ministry's "open access" policy. This will ensure that the capacity will be available to competitive service providers on a non-discriminatory basis at transparent and cost-based tariffs. ATRA regulations will implement the policy and will ensure that access to the backbone remains non-discriminatory, transparent and cost-based.	
Bangladesh, 2015	Install two additional international submarine cables to ensure minimal redundancy in case of failure of one of the three cables.	
Benin, 2015	Improve infrastructure, including energy, water treatment, telecommunications and public services.	
	Remove monopolies in key telecom services and implement competition policy in telecommunications.	
Bhutan, 2012	Continue to develop state-of-the-art broadband (fibre optic and other) infrastructure:	■ Complete the fibre optic network in Bhutan and connect the fibre network to all communities and their community centres. ■ Continue to secure several redundant fibre optic connections to the main Internet backbone with Indian telecommunications service providers. ■ Continue to seek Quality of Service (QoS) guarantees for backbone data services from Bhutan as well as Indian service providers. ■ Continue to track market developments in ICT infrastructure and related innovations. ■ Immediate priority: ensure connectivity and QoS, essential for IT enabled services operations that require real time VoIP connections.
	Connect all communities to the internet to promote greater community participation and to enhance the capacity of all communities to become self-sufficient:	■ Complete building and connecting community centres in each of the group of villages called Gewogs. ■ Focus specifically on the 45 Gewogs for which funding is not available.
	Undertake a study of demand for telecommunications services (or use results of universal access market studies if available).	
	Develop a community-access business plan based on a study of demand and on a resulting marketing plan.	
	Seek to integrate this with activities that promote using the Internet for marketing local skills and resources, and especially local businesses, such as local crafts and and community based tourism.	
	Create a legal and policy environment that enables e-commerce and ICT-enabled business:	■ Modernise and strengthen the ICT and media law and regulatory framework by redrafting the Media Act of 2006.

Annex 9.A1. Examples of priorities related to digital connectivity and e-commerce identified in the DTIS Action Matrices *(page 2 of 4)*

Bhutan, 2012	Nurture Bhutanese entrepreneurs in the ICT sector:	■ Develop the Bhutan Innovation and Technology Centre and the Thimphu TechPark Private Limited. ■ Establish collaboration linkages with the Education City.
Burkina Faso, 2014	Improve licensing requirements.	
	Revise universal access policies.	
	Review competition rules affecting the telecommunications sector with a view to increasing competition at all levels, including broadband access to the Internet.	
	Examine taxes that affect telecommunications services.	
Chad, 2013	Accelerate the review and modernisation of existing texts of the Support for Harmonisation of ICT Policies in Sub Saharan Africa, in the context of the Central African Economic and Monetary Community (CEMAC), with ITU, CEMAC, World Bank, etc.:	■ Implement the universal access strategy and a fund (if necessary) for basic telecommunications, including high speed Internet access. ■ Review the 2007 ICT strategy. ■ Strengthen the capacity of the justice sector to address ICT issues. ■ Strengthen cyber security in Chad.
	Establish an operator to issue electronic certificates and prepare a secure register of these certificates.	
	Update the plan for the establishment of the N'Djamena fibre optic network and plan the connection points of the optical fibre.	
	Provide access to Internet for the Presidency and ministries, universities, neighbourhoods, schools and universities and hospitals.	
	Create public access to the Internet: Internet cafés and community access centres.	
	Encourage the participation of private investors in PPPs.	
	The ICT infrastructure management unit is responsible for privatising the International Telecommunication Company of Chad (SOTEL).	
	Audit and estimate the market value of SOTEL and its operations and market share.	
	Strengthen assets and consolidate operations in anticipation of privatisation.	
	Digitise the telephony network in N'Djamena to prepare for a supply of ADSL and cable.	
	Open to competition the market for fixed telecommunications infrastructure, which depends on the telephone network.	
	Open to competition the ICT market, and especially Internet infrastructure, including fibre optics.	
Comoros, 2015	Improve the quality and reduce the cost of Internet access while increasing the capacity (promote competitiveness in telecommunications).	
Djibouti, 2015	Pursue a policy to lower Internet prices for for individuals and businesses.	
	Operationalise an independent regulatory authority to regulate telecommunications activities	

Annex 9.A1. Examples of priorities related to digital connectivity and e-commerce identified in the DTIS Action Matrices *(page 3 of 4)*

Democratic Republic of the Congo, 2010	Modernise and harmonise the legal and regulatory framework for the ICT sector and the "information society".
	Approve a clear and unified national strategy for the introduction of high-speed infrastructure under the PPP framework and a regime of open access to networks.
	Reorganise the Congolese Post and Telecommunications Office and National Satellite Telecommunication Network with the adoption of a management contract and a PPP for the operation of the existing infrastructure.
	Clarify and stabilise the appropriate and coherent fiscal regime, specifically for the ICT sector, consistent with international best practice.
The Gambia, 2013	Implement the West Africa telecommunication infrastructure ■ Provide high-capacity and reliable bandwidth through the construction of a submarine cable landing station ■ Modernise and expand the national telecommunications backbone infrastructure ■ Strengthen the legal and regulatory framework for the ICT sector (PURA Act 2001, IC Act 2009)
Haiti, 2013	Increase learning opportunities in the ICT sector.
	Modernise and strengthen the regulatory and legal framework of the ICT sector.
	Conduct a study to prioritise the most necessary ICT services in rural areas.
	Prepare a plan for the implementation of a single-window e-government strategy.
	Promote e-commerce.
	Develop an ICT ecosystem in line with government priorities.
	Examine ICT infrastructure and the connectivity of industrial parks.
	Review the investment code.
	Create an ICT research centre.
	Support the establishment of e-payment systems.
	Collaborate with development partners who develop mobile telephony to improve the efficiency of agricultural value chains.
	Prepare a digitisation strategy for cultural heritage.
	Prepare a strategy on cyber security
Lao PDR, 2006	Trade opportunities for the poor: engage in e-commerce and promote the traditional handicraft and textile industry
Mali, 2015	Pursue the modernisation of the telecommunications sector by providing public access to mobile telephony and the Internet as widely as possible; and conduct cost benefit analysis.
Mauritania, 2016	Determine whether the award of a new mobile phone license could help reduce communications costs.
Myanmar, 2016	Provide training to enhance the institutional capabilities of the regulatory agency in telecom.

Annex 9.A1. Examples of priorities related to digital connectivity and e-commerce identified in the DTIS Action Matrices *(page 4 of 4)*

Mozambique, 2015	Prepare and assess service offers within the framework of liberalising trade in services: tourism, transport, energy, telecommunication, construction and financial services.	■ Use the national trade policy and strategy and other relevant development strategies/plans as a basis for formulating a negotiating strategy at the multilateral, regional (SADC, TFTA) and bilateral (EU-SADC EPA) levels. ■ Identify offensive interests where Mozambique may wish to have access to partners and draft possible service commitments in the context of the Free Trade Area of SADC, TFTA and EU-SADC EPA. ■ Monitor the implementation of the commitments undertaken
Rwanda, 2011	Promote competition for the provision of ICT services as entrepreneurial activities in order to use it as a tool for income generation.	
	Promote training schemes for the use of ICT, particularly for youth and women and in rural areas, in order to increase the share of the population accessing the Internet.	
Senegal, 2013	Establish a master plan for telecommunications and set specific targets on regulatory reform, including the economic dimension of the sector.	
	The regulatory authority should redouble efforts to ensure expanded access for independent and international bandwidth.	
	The regulatory authority must broaden the spectrum of enterprises to be consulted on the adoption of the regulatory framework.	
	Draft and publish conditions for awarding new licenses.	
Sudan, 2014	Support an information system to disseminate quality standards, with all standards published on the Internet.	
	Establish an electronic system for registration of tourists at the airport	
Togo, 2010	Promote the communications systems (telephone and Internet) and the market information systems and assist with the emergence of e-exchanges for agricultural produce.	
Vanuatu, 2007	Develop an e-business strategy and make it central to business development efforts. Ensure that technological upgrading remains central to efforts to develop the business environment. Improve the presence of the Vanuatu Investment Promotion Authority on the Internet.	

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