2023-2033

الأجندة الرقمية العربية
Arab Digital Agenda

**Arab States Action Programme on Advancing
Digital Cooperation and Development**
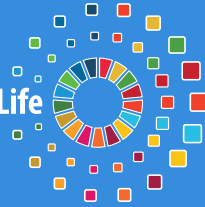
Arab Digital Agenda 2023-2033
Edition 1.0

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Shared Prosperity **Dignified Life**

VISION
ESCWA, an innovative catalyst for a stable, just and flourishing Arab region.

MISSION
Committed to the 2030 Agenda, ESCWA's passionate team produces innovative knowledge, fosters regional consensus and delivers transformational policy advice. Together, we work for a sustainable future for all.

Joint project for technical cooperation between ESCWA and the League of Arab States to formulate, develop and implement the Arab Information and Communications Technology Strategy

Arab Digital Agenda
2023-2033

Edition 1.0

Note: the terms "Arab Strategy" and "Arab Agenda" are used in the present text to refer to the same document. This document encompasses all areas of digital development, namely information and communications technology (ICT) and related strategic planning issues, infrastructure, legal environment, digital economy, digital transformation, e-government and digital inclusion.

UNITED NATIONS
Beirut

Acknowledgements

Arab countries, represented by the League of Arab States, the Arab Telecommunications and Information Council of Ministers (ATICM) and the United Nations Economic and Social Commission for Western Asia (ESCWA), demonstrated their common will to develop an Arab information and communications technology (ICT) strategy. The League of Arab States established a working group to formulate the strategy, and ESCWA proposed an integrated vision on the strategy sought for the Arab region and its countries, and on the methodology for preparing, developing and implementing the strategy. At the end of 2020, Arab countries adopted the ESCWA vision, thus initiating a relentless pursuit over the past years to bring about unprecedented cooperation among Arab countries.

The ESCWA vision focused on the following principles: first, the need to move beyond rigid documents that are often prepared and forgotten, and replace them with a strategic multilateral and multi-stakeholder partnership; second, the need to set measurable Arab and national goals that are collectively agreed and implemented to promote digital development in the region; third, the need to monitor the expected rapid changes associated with the digital field, and develop the set goals on a regular basis; fourth, the importance of linking national and regional actions to ensure synergy and complementarity at the level of implementation, monitoring and continuous development; and fifth, the need to align any regional qualitative or thematic strategy with the Arab Digital Agenda (ADA). The vision was developed in phases, as follows:

○ First, ESCWA launched an initiative in 2019 and pledged to develop a vision on the methodology for preparing, developing and implementing the strategy in the form of a long-term joint Arab framework and a vibrant and renewed participatory methodology. Arab countries welcomed the ESCWA proposal as stated in the decision of the ATICM twenty-third session, held in Riyadh in December 2019, and requested ESCWA to present its detailed vision.

○ Second, ESCWA developed the **"ESCWA vision of the methodology for preparing, developing and activating the Arab ICT Strategy (ADA)",** which was adopted by Arab countries as stated in the decision of the ATICM twenty-fourth session held in December 2020. The vision highlighted the need to establish a strategic partnership and develop the work mechanisms stipulated in the vision document.

○ Third, a bilateral strategic partnership was established between the **ESCWA secretariat and the Technical Secretariat of the League of Arab States.** The partnership took the form of a long-term joint project between the two organizations and aimed to prepare, develop and implement the Arab ICT Strategy, which was officially completed at the end of 2020.

○ Fourth, building on the bilateral partnership between ESCWA and the League of Arab States, a broader multilateral and institutional partnership was established between United Nations organizations, the League of Arab States organizations and a number of Arab countries that had joined or contributed to the joint project. This broader partnership was aimed at preparing the ADA through a participatory approach with a view to its adoption. A large number of United Nations organizations and specialized agencies acceded to this partnership, such as the International Telecommunication Union (ITU), the United Nations Educational, Scientific and Cultural Organization (UNESCO), the United Nations Conference on Trade and Development (UNCTAD), the United Nations Department of Economic and Social Affairs (DESA) – New York, the World Health Organization (WHO), the Food and Agriculture Organization of the United Nations (FAO) and the United Nations Development Programme (UNDP). A large number of the League of Arab States organizations also acceded to the institutional partnership, such as the Arab Information and Communication Technologies Organization, the Arab Administrative Development Organization (ARADO), the Arab Federation for Digital Economy, the Arab Academy for Science, Technology and Maritime Transport and the Mohammed Bin Rashid School of Government.[1]

Key entities in the institutional partnership

United Nations Economic and Social Commission for Western Asia (ESCWA)

○ Members and chairperson of the ESCWA ministerial session

○ Members and chairperson of the intergovernmental Committee on Technology for Development

ESCWA secretariat

○ Office of the Executive Secretary of ESCWA

○ Office of the Deputy Executive Secretary of ESCWA

○ Office of the Secretary of the Commission

○ The Statistics, Information Society and Technology Cluster

Specialized ministerial councils in the League of Arab States

○ Members and chairperson of the Arab Telecommunications and Information Council of Ministers (ATICM) and its Executive Bureau

○ Members and chairperson of the Permanent Arab Committee for Information and Communication Technology

○ Members and chairperson of the Working Group on the Arab ICT Strategy

General Secretariat of the League of Arab States

○ Office of the Secretary-General of the League of Arab States

○ Office of the Assistant Secretary-General of the League of Arab States

○ Office of the Assistant Secretary-General – Head of the Economic Affairs Sector

○ Specialized secretariats of the General Secretariat of the League of Arab States

Joint project between ESCWA and the League of Arab States
to develop and implement the Arab ICT Strategy

Arab Governments played a key role in adopting the ESCWA vision and in working together to establish mechanisms and support the ADA preparation through the **ATICM and its Executive Bureau, the Permanent Arab Committee**

for Information and Communication Technology, and the Working Group on the Arab ICT Strategy. Appreciation goes to all Arab administrative entities that have participated in all meetings related to the ADA, especially the Egyptian entity represented by the **Ministry of Communications and Information** Technology, which has chaired the Executive Bureau and the Working Group since 2019, especially Ms. Samah Aziz and Mr. Ahmed Abdel Moneim, Head of the Working Group. All meetings have been held with the support and patronage of Mr. Amr Talaat, **Minister of Communications and Information Technology of Egypt, and Chairman of the ATICM Executive Bureau from the twenty-third session to the twenty-sixth session,** during which the ADA was adopted early in 2023.

Under the leadership of Mr. Ayman El-Sherbiny, **Director of the Advancing Digital Cooperation and Development – Arab States Action Programme, and Head of the ICT Policy Section at ESCWA,** and through the efforts of all team members, the **ESCWA secretariat** has been in charge of developing the vision, establishing and managing the joint project, monitoring resources and building partnerships, with the support and patronage of **Ms. Rola Dashti, Under-Secretary-General of the United Nations and Executive Secretary of ESCWA.** The **General Secretariat of the League of Arab States** has supported ESCWA in the establishment and management of the joint project, through Mr. Khaled Wali, **Director of the Communications and Information Technology Development Department at the General Secretariat,** and his colleagues, with the support and patronage of **Mr. Ahmed Aboul Gheit, Secretary-General of the League of Arab States.**

According to the approved vision of the work methodology, the two organizations and the chairperson of the Working Group jointly managed the **Joint Technical Committee and the Core Research and Technical Cooperation Mechanism,** which included among their members high-level international, regional and national experts in the field of ICTs for development and other areas of sustainable development. **Ms. Mirna Barbar and Mr. Rami Zaatari** coordinated the work of the Core Research and Technical Cooperation Mechanism, and worked on drafting, proofreading and improving the ADA draft versions.

This was accomplished through a series of consultative and research events, held over the years 2021–2022, the last of which was organized in Dubai, the United Arab Emirates, from 25 to 27 October 2022, with the aim of exploring the views of a broader range of stakeholders and finalizing the ADA. Special thanks are extended to the International Cooperation Team in the United Arab Emirates, especially to **Mr. Humaid Al Basti,** for the endeavours they exerted with the support and patronage of **Mr. Majed Al Mesmar, Director General of the Telecommunications and Digital Government Regulatory Authority in the United Arab Emirates, and Chairman of the ATICM Executive Bureau since the twenty-seventh session** that followed the ADA adoption.

Core team

ESCWA, represented by the experts of the ICT Policy Section – the Advancing Digital Cooperation and Development – Arab States Action Programme of ESCWA, designed and developed the ADA and prepared its draft versions, in partnership with a number of consultants and experts from Arab countries, United Nations organizations and those of the League of Arab States. These experts also managed the joint project between ESCWA and the League of Arab States for the development of the ADA/Arab ICT Strategy, as follows:

The management and supervision were conducted by Mr. Ayman El-Sherbiny (ESCWA), with the participation of Mr. Khaled Wali (League of Arab States).

The technical and research coordination was carried out by Ms. Mirna El-Hajj Barbar (ESCWA) and Mr. Rami Zaatari (ESCWA), in cooperation with Ms. Rita Wehbe (ESCWA) and Mr. Hazem Hezzah (League of Arab States).

The ADA was designed and developed by Mr. Ayman El-Sherbiny (ESCWA), Ms. Mirna El-Hajj Barbar (ESCWA), Mr. Rami Zaatari (ESCWA), Mr. Ibaa Oueishek (ESCWA Consultant for the ADA) and Ms. Rita Wehbe (ESCWA).

List of partners and contributing entities

Sincere appreciation goes to all Arab States, United Nations organizations, the League of Arab States organizations, the Working Group members representing Arab Governments, the Joint Technical Committee, the Core Research and Technical Cooperation Mechanism, and all colleagues, partners and experts who participated in the ADA formulation, whether by enriching it with their valuable contributions or by providing feedback on its versions until it was adopted and issued. The ADA was inspired by the inputs, relentless efforts and written and oral contributions made by experts during the two-year consultations. Driven by many priority issues necessitating urgent intervention, the ADA set specific evidence-based goals and targets with proposed actions in the short, medium and long term to advance digital development and, therefore, achieve sustainable and inclusive development and leave no one behind in the Arab region. This came as a result of awareness of the challenges and opportunities presented by ICTs and their potential in the Arab region, and reflected the yearning for a decent global standing for the Arab region, which would meet its people's aspirations for a better world.

The dedicated efforts of international, regional and national experts in all these entities have resulted in the Arab Digital Agenda 2023–2033, which constitutes a long-term framework for promoting inclusive digital development with a view to achieving sustainable development in the Arab region.

Arab countries participating in the ADA process

Algeria, Bahrain, Djibouti, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Mauritania, Morocco, Oman, State of Palestine, Qatar, Saudi Arabia, Somalia, Sudan, Syrian Arab Republic, Tunisia, the United Arab Emirates, and Yemen.

Participants from Arab Governments[4]

Mr. Abukar Hassan Moalem (Somalia), Mr. Ahmed Saeed (Egypt), Mr. Ahmed Faraj Ali (Egypt), Mr. Ahmed Mahmoud Mohamed (Iraq), Ms. Asmaa Awad Abdullah (Sudan), Mr. Akram Abdullah Jadawi (Saudi Arabia), Mr. Alhassan Bab (Mauritania), Mr. Ilias Elyazidi (Morocco), Ms. Amani Rabie (Egypt), Ms. Amal Al-Hanawi (Qatar), Ms. Amal Ismail (United Arab Emirates), Ms. Enaam Satriyah (State of Palestine), Mr. Iyad Erekat (State of Palestine), Ms. Yvonne Sleiman (Lebanon), Mr. Ihab Sbeih (State of Palestine), Mr. Babiker Hamad Al-Turabi (Sudan), Mr. Ban Mohamed Ali Mahmoud (Iraq), Mr. Bader Al-Abdullah (Kuwait), Mr. Bilal Al-Hefnawi (Jordan), Ms. Baydaa Ghazi Mahdi (Iraq), Mr. Tamer Al-Qazzaz (Egypt), Mr. Tawfiq Abu Bakr (Jordan), Mr. Jamal Al-Sayed (Sudan), Mr. Hatem Abd Al-Rahman Ali (Sudan), Mr. Hassan Jassim Al-Sayed (Qatar), Mr. Hassan Saad Ibrahim (Libya), Mr. Hassan Ali Bin Shams (Bahrain), Mr. Hassan Harrabi (Tunisia), Mr. Hussain Al Ajab (United Arab Emirates), Ms. Hasina Laaraj (Algeria), Mr. Humaid Al Basti (United Arab Emirates), Mr. Hamid Habti (Morocco), Ms. Hanan Bin Yusuf (Morocco), Ms. Hawa Omar Abdillahi (Djibouti), Mr. Khaled Al Salami (Tunisia), Ms. Khadija Bouzaabata (Algeria), Mr. Rashid Abdullah Al Alawi (Oman), Mr. Rania Bousaad (Syrian Arab Republic), Ms. Rania Jaber (State of Palestine), Mr. Raed Said Mohamed Yahya (Yemen), Ms. Razan Nayef Al-Khalili (Jordan), Mr. Rashid Al-Matarji (Morocco), Mr. Rashid Hanoun (State of Palestine), Mr. Ragheed Nasser Al-Saeed (Yemen), Mr. Riad Waslati (Tunisia), Ms. Reem Al-Mansoori (Qatar), Mr. Zakaria Ismail Sheikh (Somalia), Ms. Zainab Ali Obaid (Iraq), Ms. Zeina Bou Harb (Lebanon), Ms. Sara bint Saif Al-Kalbani (Oman), Mr. Samer Ali (State of Palestine), Ms. Sahar Mohamed Al-Mubarak (Sudan), Mr. Salman Al-Bastaki (Qatar), Ms. Samiha Samman (Algeria), Ms. Suha Ibrahim Abdurrahim (Sudan), Ms. Suhair Hadi (Iraq), Mr. Sherif Abdullah Noman (Yemen), Ms. Shahira Selim (Egypt), Mr. Shawqi Al Shehi (Tunisia), Ms. Safia Amari (Algeria), Mr. Aref Abdelkader Tajideen (Sudan), Mr. Abbas Al Bakri (Iraq), Mr. Abdul Khaliq Mohamed Snan (Bahrain), Mr. Abdul Rahman Al Marzouqi (United Arab Emirates), Mr. Abdelaziz Al-Tib (Morocco), Mr. Abdelwahab Klayzra (Algeria), Mr. Abdeslam Bouhouia (Algeria), Mr. Abdulla Al-Emadi (Qatar), Mr. Aziz Al-Sawli (Morocco), Mr. Alaa Tuffaha (Qatar), Ms. Alawiya Al-Hamdani (Sudan), Mr. Ali Lerkam (Algeria), Mr. Ali Nabi (Algeria), Mr. Omar Al Nimr (United Arab Emirates), Ms. Ghada Labib (Egypt), Mr. Ghassan

United Nations and Arab organizations partnering in the joint project

Multi-stakeholder participants[5]

Support team of the joint project

Preface

The twenty-third session of the Arab Telecommunications and Information Council of Ministers was held in Riyadh on 18 December 2019. The Council authorized the Working Group on the Arab ICT Strategy to make the appropriate decision regarding the methodology proposed by the United Nations Economic and Social Commission for Western Asia (ESCWA) for the preparation, development and implementation of the Arab ICT Strategy (Arab Digital Agenda),[6] which was endorsed by the working group members. This methodology considered observations made at the thirty-first meeting of the Working Group, held on 19 September 2020.

A draft document was prepared in collaboration with experts appointed by Arab countries and international and Arab entities involved in the development of the strategy. The draft included a matrix of responsibilities assumed by each of the involved parties, which were identified after a series of consultations with all partners. The final version of the Arab Digital Agenda will clearly indicate the contributions of those partners.[7] ESCWA held a number of coordination meetings with Arab and United Nations organizations in December 2020 to forge the necessary partnerships with all stakeholders so as to activate this participatory work. ESCWA also held bilateral meetings with United Nations regional organizations representing non-Arab continents or regions, in order to draw on their expertise and benefit from their experiences in developing the Arab Digital Agenda, determining its structure, highlighting key tracks to focus on the preparation process, and strengthening the participatory approach that included all stakeholders.

Subsequently, the first joint workshop was held between ESCWA and the League of Arab States with the aim of developing the Arab Digital Agenda. This meeting took place on the sidelines of the thirty-second session of the Working Group on the Arab ICT Strategy, held on 23 and 24 March 2021, with the participation of all relevant partners. Workshops were then held for researchers and experts from the countries and organizations participating in the project, under the Core Research and Technical Cooperation Mechanism[8] and the Joint Technical Committee.[9]

The Joint Technical Committee continued to hold meetings to coordinate research work and actions to develop the structure of the Arab Digital Agenda and its preliminary

drafts. This series of meetings culminated in the adoption of the Arab Digital Agenda at the highest three levels of the League of Arab States, as follows: the twenty-sixth session of the Arab Telecommunications and Information Council of Ministers, the 111th session of the Economic and Social Council of the League of Arab States, and the thirty-second regular session of the Arab Summit. At its fiftieth regular session held at the headquarters of the Egyptian Ministry of Communications and Information Technology in Cairo on Tuesday 19 July 2022, the Executive Bureau of the Arab Telecommunications and Information Council of Ministers expressed appreciation for the efforts and resources mobilized by ESCWA to ensure the success of this important strategic project for Arab countries. It also praised ESCWA comprehensive and gradual approach to formulating the Arab Digital Agenda, commending what has been achieved so far, especially the completion of the fourth version of the third draft of the Arab Digital Agenda, including its chapters on the themes, goals, targets, analytical indicators and monitoring. The Council also welcomed the planned phases and activities announced by ESCWA for the near future, especially the launch of workshops on implementation mechanisms and strengthening partnerships. Subsequently, consultations continued with stakeholders and experts to ensure that the content of the Agenda was coherent and aligned with the tracks on digital cooperation and regional and global digital development. In this regard, the last expanded consultative meeting was held in Dubai, United Arab Emirates, from 25 to 27 October, to reach the semi-final document that was presented to the Arab Telecommunications and Information Council of Ministers at its twenty-sixth regular session at the end of December 2022. The Council approved the Agenda in its final form on 23 January 2022. The Agenda was later adopted by the Economic and Social Council and the Arab Summit, and then implemented early in the first quarter of 2024. Annex 1 sets out the series of meetings held to develop the Arab Digital Agenda until the date of its adoption at the Arab Summit.

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Chapter one:
Introduction

Chapter one
Introduction

Over the last two decades, the world has witnessed rapid growth in the role of information and communication technologies (ICTs), or digital technology, as an essential part of the enabling environment for economic and social development.[10] This technology has majorly transformed various aspects of life, and opened up prospects for humanity that not long ago would have been unimaginable. It has resulted in a huge number of inventions and innovations that have enabled societies to achieve unprecedented levels of prosperity and well-being. The opportunities provided by this technology have been closely linked to one of its most important innovations, the Internet, which has enabled easy, fast and reliable communication between individuals and communities, overcoming traditional geographical barriers. The growth and spread of the Internet are intrinsically linked to the growing phenomenon of globalization.

This exponential and sustained growth – driven by the forces of technology and by the constant human desire to explore new frontiers of knowledge – presents significant challenges. The most important of these challenges may be the ability to universalize technology and make it accessible to all, and to employ it in building a more just world, which ensures greater inclusion of disadvantaged groups by employing technological capabilities to enhance the opportunities available to these individuals and further their empowerment in society. However, extraordinary efforts are required to enable everyone to deal with this progress safely and effectively. Digital growth may bring with it some negative effects if it is not properly controlled and directed, including the challenge posed by artificial intelligence and the ability of machines to now compete with and surpass humans, the resulting ethical and social problems, challenges related to ensuring human rights in the digital world, and the growing fear of data breaches and privacy infringements, leading to so-called "cyberwarfare", which could have extremely dangerous consequences for countries and societies.

Consequently, all humankind should be involved in adapting this technology, and maximizing its use and opportunities for human well-being and development. Achieving this goal is primarily based on ensuring that as many individuals as possible have access to the Internet without geographical or administrative barriers, while minimizing possible risks and problems. It is difficult for countries, regardless of their abilities, to deal with this globalized technology alone, so a strategic vision is necessary to lay the foundations for digital cooperation between countries and societies. This goal is at the heart of the digital cooperation approach adopted by the United Nations, and one of its key areas of work over the next decade.

Many regions of the world have recognized that national ICT strategies and policies are necessary but not sufficient on their own to strike a balance between maximizing opportunities offered by ICTs and the need to reduce emerging threats in the digital world. This confirms the need to create frameworks for collaboration and coordination between stakeholders. For this reason, different regions (the European Union, Latin America, Africa, Southeast Asia and the Pacific) have formulated regional ICT strategies based on their specificities, needs and capabilities. These strategies are primarily aimed at ensuring that legislation and regulations related to digital development are harmonized and non-conflicting.

Over the last two decades

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A number of goals are part of these strategies, including the following:

- Interconnecting the national telecommunications networks in the Arab region.

- Providing regional services to users by opening up digital markets and facilitating digitally enhanced trade.

- Unifying efforts to increase the efficiency of investments required by this technology, towards maximizing its return and keeping pace with its rapid developments.

- Unifying efforts to face the challenges posed by this technology, especially with regard to joint

coordination on issues related to the protection of intellectual property rights, privacy protection and cybersecurity.

Arab countries – individually or through their participation in joint Arab action institutions of the League of Arab States and regional organizations of the United Nations – are trying to be part of global developments in this field. The Arab Digital Agenda (Arab ICT Strategy 2023–2033) is an overarching Arab framework for coordinating efforts to formulate national and regional ICT policies and strategies (and digital technology in general) in Arab societies in the coming years.

Overview of the current digital development status in the Arab region

Given the importance of strategic planning in the field of digital development, and taking into account the role of Arab Governments as sponsors and catalysts for development, comprehensive national strategies for digital development are needed to lead this comprehensive transformation, set a coherent and balanced path for the development of all sectors, and leverage ICT in all Arab countries. Regional integration among Arab countries in many fields, including the digital field, is vital. However, according to available data, only a few Arab countries have strategies for inclusive digital development, or strategies for developing the ICT sector. A few have strategies related to emerging technologies (such as the Internet of Things and artificial intelligence). In addition, Arab regional integration is

weak in terms of strategic planning in general, and digital planning in particular.

Regarding basic telecommunications services, which remain the main focus of many countries seeking to improve their access rates, the overall status of Arab countries is acceptable and close to the global average, with the exception of some countries that are classified as least developed countries (LDCs) and cannot attract sufficient investments to develop their networks and services, due to their unfavourable economic situation.

Many Arab countries have excellent digital services that outperform many developed countries. Arguably, if they maintain current growth rates, most Arab countries will achieve the penetration targets set by the United Nations Broadband Commission for Sustainable Development by 2025. These rates are the minimum acceptable thresholds for benefiting from ICT and its services. All these efforts drive the achievement of the 2030 Agenda for Sustainable Development and its Sustainable Development Goals (SDGs).

Regional integration among Arab countries in many fields, including the **digital field**, is vital

Significant efforts are required to interconnect the national telecommunications networks in the Arab region, despite the improvement of existing infrastructure over the past years, and the adoption of fibre optic technology in multiple places. Full regional connectivity of data networks and the Internet is now possible, building on existing structures and without the need for significant investment. While this connectivity has not received much attention in previous years, there is now a great opportunity to make a quantum leap in Internet infrastructure in the Arab region. This opportunity is the result of a major shift in the use of the Internet and the nature of interactive content provided to users. Content providers now want to be located in data centres close to end users, instead of the old model where content was stored in servers located in developed country data centres and then delivered locally via long-distance communication circuits with large capacity at a considerable cost.

At the regulatory level, most Arab countries lag behind the global trend in the regulatory development of the telecommunications sector, infrastructure markets and international communications, which has reflected negatively on their rankings in relevant international indicators. That delay, especially in terms of weak market liberalization, unfortunately persists today even in countries with well-developed infrastructure. However, recent years have seen rapid improvements in this area and initiatives to liberalize markets. This development must be leveraged to find solutions that allow for the regulation of exclusivity, thus mitigating the negative effects of its traditional rentier role that hinder the sector's development.

Solutions are also needed for constantly emerging challenges in the ICT sector, as shown by new indicators that address challenges posed by the use of ICT in other sectors, and the emergence of mobile applications and platforms that have revolutionized the delivery of services in the fields of transport, tourism and trade. It is also essential that ICT sector regulators work collaboratively with other sectors' regulators to address issues arising from this overlap. According to international data, the Arab region lags behind the other regions' averages, especially with regard to collaborative regulation, policymaking and

the activation of coordination mechanisms between regulatory bodies in Arab countries.

Despite the Arab region enacting laws on digital transformation issues (with most Arab countries updating legislation in the areas of digital signatures, digital transactions, cybercrime and cybersecurity), there is often no specific body to implement these laws, and specialized and effective bodies with clear functions and sufficient powers in this field are yet to be established, except in specific cases. The rapid development of ICTs and ICT tools requires continued efforts at the national level and greater regional cooperation.

Personal data protection in the digital space (despite its seriousness, increased focus at the international level, and negative repercussions on service providers in the Arab region) has not yet received sufficient attention, and only few Arab countries have issued special laws in this field. Appropriate solutions must urgently be found, especially since this issue could limit the provision of services to users from outside the region, especially in regions with strict personal data protection laws, such as the European Union.

The digital economy is one of the most important topics in international forums, which emphasize it as a stand-alone economic sector and not only a technological tool to serve other sectors. Arab countries suffer from a significant lack of data on the structural and economic dimensions of the ICT sector. This complicates the process of monitoring and following up on the status of the sector, and thus understanding how to use it to achieve economic gains. Added to this is a lack of harmonized data on companies operating in the sector, and their classification and registration according to international standards, which hampers situational assessments and projections. Another major problem is the inability to conduct a unified systematic measurement of the value of the ICT sector's contribution to national economies, thus prohibiting systematic comparison with other countries. However, the export of ICT goods and services, and the volume of electronic business (especially online purchases), show that there are large gaps between Arab countries and global averages. For example, the e-commerce market is still limited in the Arab region, but has great potential.

Furthermore, most Arab countries have few strategies related to research, development and innovation in the fields of ICT. If such strategies exist, they often lack clear implementation mechanisms. Notwithstanding some outstanding initiatives, there is weak spending on ICT research and development, and an absence of initiatives aimed at launching emerging technologies startups. All this affects the ability of ICT in the Arab region to attract foreign and domestic investment, limits Arab countries' ability to move from being mere ICT consumers to producers, developers and exporters, and impedes the promotion of Arab countries' ICT sectors at the global level.

The social dimension of digital development can be viewed from various perspectives. Fixed and mobile broadband in most Arab countries is expensive relative to their gross domestic product (GDP) per capita. This renders vulnerable segments of society less able to access ICTs and use them to obtain knowledge, applications and content. Gender equality in Internet access in the Arab region has improved significantly over the past three years, but it is still far below the global average. Penetration rates among Arab youth are acceptable, slightly higher than the global average. However, there is still much room for improvement, especially since there is a large gap between rural and urban penetration rates. Data on e-accessibility and the ability of persons with disabilities to access the Internet and benefit from its services in Arab countries are insufficient, although there are excellent experiences in this field in some Arab countries. According to the little data available for some countries, individuals' ICT skills are good (and sometimes outstanding),

indicating a readiness in the Arab region for social digital integration.

While e-government applications are widespread in all developed countries, the ranking of most Arab countries in this field is still below the global average, according to relevant indicators. Weaknesses in this area include limited access to online government services and infrastructure. In addition, there is insufficient coordination between Arab States with regard to transnational actions.

From another perspective, the Arab region is characterized by its diverse cultural and civilizational heritage. Despite the success of Arab countries in improving access rates for Arabic-speaking users on the Internet, the number of websites that use Arabic and the volume of digital Arabic content in general, and cultural content in particular, remains low and not commensurate with the region's valuable and unique culture.

In addition, it is difficult to assess the extent to which Arab countries keep pace with the global trend where media and ICT converge, whether in terms of technical aspects and the development of dual and triple access platforms or legal and regulatory aspects. The latter are the most important, as they govern the relationship between media content providers and service providers and network operators, and define their respective obligations as well as users' legal obligations and liability. There are also many new challenges resulting from this convergence, including the proliferation of social media platforms and the dangers of them being used to promote fake news. Unfortunately, there are no strategies in this area in Arab countries.

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Arab Digital Agenda: vision, mission and core premises

In view of the above and the global challenges faced by all countries, including Arab countries, and out of a conviction that digital development is a key element of success for the region in facing these challenges and achieving a quantum leap that allows it to reposition itself in the world in a manner befitting its historical position and abundant human and economic resources, in line with national visions and strategies developed by most Arab countries. As such, efforts need to be unified and a regional digital agenda should be developed to support these national strategies and harness the capabilities and knowledge that countries have accumulated over decades to maximize the use of this technology, as other regions have done.

The vision behind the Arab Digital Agenda is as follows:

An Arab region in which the efforts of Governments and all partners converge to build a regional digital space, where high quality digital goods and services are produced and consumed at affordable prices, and made available to everyone fairly and equitably, ensuring safety and security for users and contributing to achieving the SDGs and the aspirations of Arab people for equal opportunities, well-being, prosperity and stability.

The following sections will lay out the premises that were considered when designing the Arab Digital Agenda.

A. Global ICT processes for development

Within the framework of the follow-up to the Millennium Development Goals and the achievement of the SDGs in general, and with regard to digital transformation in particular, most Arab countries have worked to implement the provisions of the Plan of Action of the World Summit on the Information Society (WSIS) adopted in Geneva (2003), and the Tunis Agenda (2005). Arab countries have focused on selected aspects of the Action Plan, in line with their digital strategies and their socioeconomic needs identified in their national plans.

In 2015, the United Nations General Assembly renewed the WSIS mandate until 2025,[11] and called for close alignment with the implementation of sustainable development plans, given that ICTs are cross-sectoral[12] and are a means of implementation of the SDGs and of alleviating poverty. The WSIS Forum (2016) focused on supporting the implementation of the SDGs by implementing their key action lines and pursuing their detailed targets.

As one of the United Nations regional commissions, ESCWA, through its mandate and role at WSIS,

received a similar extension. Therefore, ESCWA continues to play a leading role in WSIS programmes and projects, particularly in the linkages with implementation of the SDGs. In this regard, in 2018, ESCWA formulated a comprehensive conceptual framework for digital development that takes into account the strong linkages between the SDGs and the WSIS Action Lines, and underpins national digital development reviews, the Arab Digital Development Report and the Arab Digital Agenda.

In line with the global process of digital development, in 2017, ESCWA launched the Arab High-level Forum on WSIS and 2030 Agenda for Sustainable Development (Beirut, 8–12 May 2017). The Forum focused on the linkages between the WSIS Action Lines and the 2030 Agenda, and resulted in a reference document entitled "Beirut consensus on transformation and digital economy in the Arab region towards the achievement of the 2030 Agenda for Sustainable Development". The Forum serves as a regional platform for exchanging experiences and lessons learned and building partnerships in

the field of technology, and aims to harness digital transformations taking place in the region in the service of the SDGs.

Important events were also organized by the International Telecommunication Union (ITU) in 2022, including the World Telecommunication Standardization Assembly held in Geneva from 1 to 9 March 2022, the World Telecommunication Development Conference (WTDC) held in Kigali from 6 to 16 June 2022, and the Plenipotentiary Conference held in Bucharest from 26 September to 14 October 2022.

The wide participation in WTDC was notable (over 150 countries, including all Arab countries and relevant stakeholders), and the Conference resulted in the adoption of a declaration and action plan aimed at promoting inclusive and meaningful connectivity and sustainable digital transformation worldwide over the period 2022–2025, and the adoption of regional initiatives that represent the main telecommunication/ICT priorities of interest for each geographical region and that all stakeholders must collaborate to implement through 2025. In this context, the Conference adopted the following five regional initiatives for the Arab region:

○ Ensuring sustainable digital economy through digital transformation.

○ Enhancing confidence, security and privacy in the use of telecommunications/ICT in the era of new and emerging digital technologies.

○ Developing digital infrastructure for smart sustainable cities and communities.

○ Building capacity and encouraging digital innovation, entrepreneurship and future foresight.

○ Developing means of digital regulation.

In this context, the preparation of the Arab Digital Agenda coincided with a growing global interest in digital technologies and the development opportunities they offer. This process is in line with the United Nations Secretary-General's Roadmap for Digital Cooperation, which is based on the following three main pillars:

1. Achieve universal connectivity accessible to all by 2030.

2. Ensure protection from the dangers and threats posed by digital technology to users and persons connected to the network, especially the most vulnerable.

3. Respect human rights in the digital age.

The preparation of the Arab Digital Agenda also coincided with global preparations for the Global Digital Compact and the Summit of the Future 2024, and ensured keeping pace with developments in that regard through a series of events to formulate, develop and implement the Arab Digital Agenda, by holding special sessions to discuss the main issues of particular interest to the Arab region and the importance of Arab preparations in these matters, and to convey the region's voice to global platforms.

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B. Digital agendas and strategies in other regions

The Arab Digital Agenda is based on a careful study of regional digital strategies in other regions of the world, in an attempt to benefit from previous global experiences and best practices in this field, while taking into account the specificities of each region.[13] The digital agendas of Europe, Latin America, Africa and Asia were examined. The Digital Francophonie Strategy was also reviewed, and annex 3 in the present document contains a brief analysis of these strategies/agendas.

These strategies vary in depth and impact, and each has a different approach related to the nature of the region, the level of regional coordination and the ability of the entity in charge of the strategy to coordinate and interact with decision makers at the national and regional levels (if any).

There are also variations in the lifespan of these strategies. While the Digital Agenda for Europe (launched in 2010) had an initial timeframe of 10 years, others are reviewed every two or three years. This relates to every region's ability to formulate long-term plans and secure the requirements for their achievement. All of the strategies are based on the concept of pillars, which define the main areas of work, which in turn include a number of tasks and actions.

The following are the main characteristics of these strategies.

1. Strategy scope

The most common approach in these strategies is a holistic one, with the main themes covering all areas of ICT. The Asia Pacific Digital Strategy differs in its approach, with a methodology that focuses at different points in time on specific areas. The first version of the strategy focuses on infrastructure, while the next focuses on the use of ICT and its applications. While the first approach appears to be more comprehensive and ambitious, it entails significant implementation and governance challenges. The success of the Europe Strategy in achieving most of its objectives is linked

to the adoption of this Strategy at the level of the European Union as a whole, and the cooperation of all member States in achieving it. The second approach is more realistic and achievable, in the absence of regional institutions capable of making decisions that are binding for all States. The definition of the framework in this way is what has allowed the Asia strategy to give more depth to the master plan, which includes a number of initiatives geared towards the objectives of the strategy.

2. Measurable goals

There is a variation between the methodologies used by strategies and agendas to measure progress towards achieving the goals. The Europe agenda set goals coupled with measurable targets. It also developed a special model consisting of a number of indicators to assess the extent to which countries have succeeded in achieving the agenda's goals. The other strategies relied on a general description of the objectives without specific targets, and used a number of international indicators to measure and evaluate progress.

3. Granularity

Most strategies and agendas do not include execution levels (programmes and projects), and instead stop at defining the proposed goals and actions. This includes the most complete strategy, the Europe strategy, which contained many sectoral strategies, programmes and projects that were later defined in line with the digital agenda. The only strategy that deviates somewhat from this principle is the Asia strategy, which includes a number of initiatives. It is therefore more of a description of action programmes with a general framework for their development, and mechanisms for collaboration with partners that would allow initiatives to be transformed into real projects later on.

4. Governance

Most strategies include governance mechanisms where progress is measured, difficulties identified, and proposals developed to overcome them and raise

them to higher levels of decision-making. The only exception is the Africa strategy, which is still in its initial stages. It is possible that clear governance mechanisms will be defined at later stages, as in the case of Latin America.

5. Implementation programmes and projects

This refers to a mechanism through which strategies have been put into practice and can take many forms. Sectoral strategies focusing on one of the themes of the core strategy could emerge from the main document, or there could be programmes and projects defined, described and approved within the strategy itself. However, it is also possible for strategies to not include implementation mechanisms defined within the main document, and to be limited to setting goals and how to reach and adjust them. This is usually accompanied by governance mechanisms that define the powers given to the entity responsible for the strategy and the scope for making binding decisions on execution.

C. Previous experiences in the Arab region

There is cumulative experience in the Arab region in **drafting comprehensive strategies covering all areas of ICT,** the most important of which are the following:

1. **Regional Plan of Action for Building the Information Society 2005,** resulting from the outcomes of WSIS.[14] The plan was prepared by ESCWA as the United Nations regional organization entrusted with the implementation of WSIS outcomes. The plan includes several projects that were fully described but were not realized for reasons related to approval mechanisms and implementation requirements, including funding.

2. The **Arab ICT Strategy 2007** was prepared by the Working Group on the Arab ICT Strategy in 2006 and approved by the Arab Telecommunications and Information Council of Ministers in 2007. Its term was only five years and ended in 2012. The strategy was not accompanied by any follow-up on its implementation and was not followed by any measurement process of the extent of development resulting from it.

3. A preliminary proposal for an Arab Digital Agenda drafted by ESCWA in 2020 under the name **"Proposed Arab Digital Agenda: Preliminary Framework for the Arab Information and**

Communication Technology Strategy for Sustainable Development". This proposal included several pillars and subthemes similar to other digital agendas, in addition to an analysis of the current situation (at the time), and proposed activities for each of the subthemes.[15]

There is cumulative experience in the Arab region in drafting **comprehensive strategies** covering all areas of **ICT**
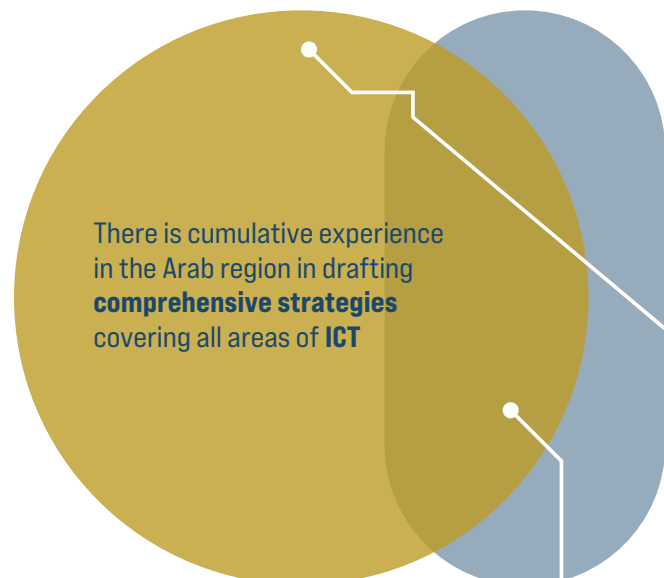
Basic design features of the Arab Digital Agenda

The present section explains the approach for developing the Arab Digital Agenda based on a detailed study of regional ICT strategies:

a. Agenda scope

A comprehensive approach was adopted for the Arab Digital Agenda, in line with most of the regional strategies studied, and with cumulative experiences in the Arab region in preparing comprehensive strategies covering all ICT areas. This comprehensive approach has been enshrined and used by more than half of Arab countries in their digital development reviewing efforts. This is reflected in national digital development reviews and in the process that led to the preparation of the Arab Digital Development Report in 2022.[16] The basic structure of the current agenda has therefore been developed based on the conceptual framework used in these reports, which includes a set of main themes and subthemes. This conceptual framework was adopted by the Working Group on the Arab ICT Strategy at its meeting on 23 and 24 March 2021.

b. Measurable goals

During the preparation of the Agenda, a wide disparity was noted between Arab countries in terms of the level of ICT development, especially infrastructure. While some countries compete for the top spots globally in certain areas, others are still ranked as LDCs. In such a context, it is difficult to set common goals for all countries. The quantitative targets for many goals have therefore been formulated in two forms: either by advancing the status quo of each country, or in the form of a unified goal where possible so as to raise the level of the Arab region as a whole. A limited number of targets have been left without target values, yet with associated indicator values to be measured for tracking and evaluation purposes. Specific values can be set in subsequent versions of the Agenda.

c. Management and sustainability

The Agenda is built on the key role of the Arab Telecommunications and Information Council of Ministers in terms of decision-making to define the Agenda's features, goals and targets, and the mechanisms for its implementation. Several management and sustainability mechanisms have been established as part of the Agenda, including the Collaboration and Partnership Framework involving relevant stakeholders, the measurement model to allow for the achievement of periodic review targets and other auxiliary mechanisms.

d. Partnerships

Although actors in the Arab region usually belong to the government sector, key roles that can be played across the private sector and other sectors (such as civil society and academia) are noted in the Agenda. These partnerships contribute to overcoming many of the challenges associated with activating and implementing the Agenda, especially in terms of securing funding and managing projects. A section of the Agenda is therefore dedicated to partnerships and relevant stakeholders.

e. Approach

The term of the Agenda is divided into three parts: the short term (2023–2026), the medium term (2027–2030), and the long term (2031–2033).

A vision was also formulated for the development of the Agenda based on three levels, which were decided on after identifying the main themes and subthemes:

1. **Level one:**
   Identification of goals and targets.

2. **Level two:**
   Identification of measures and actions to be taken to achieve the targets.

3. **Level three:**
   Definition of accompanying programmes, initiatives and projects to allow for the implementation of the measures and actions specified in level two.

The first edition of the Agenda included the first and second levels in full detail. It analysed the current digital status of the Arab region to identify the gaps between reality and aspirations, while also trying to determine their causes. Goals and targets were set to bridge gaps locally and regionally. The targets were broken down into a number of indicators, with target values for each in the short, medium or long terms.[17] The analysis of the current situation was based on data in the Arab digital development reports prepared by ESCWA, with the rest of the required data being drawn from reliable sources.

Emphasis was also placed on adding the regional dimension, including indicators specific to the Arab region as a whole, where available. The goals, targets and actions are arranged in a logical framework that serves as the starting point for the formulation of level three.

For level three, the Agenda relies on a hybrid of the following two approaches:

1. The approach used by the agendas that covered several themes (Europe, Latin America and Africa), which does not include components of execution but rather stops at the level of defining goals, targets and actions (level two).

2. The approach of the Asia strategy, which is built on a reverse track starting from the definition of several projects within a clearly defined

programme that meets specific needs, and focused on their successful implementation.

In other words, the Arab Digital Agenda was drafted using the first approach but without being limited to it, and also including many components of level three, which was designed in the form of a continuous process proceeding in parallel from the adoption of the agenda and then developed during the years of implementation. The Agenda contains an integrated governance framework that includes a methodology for recognizing, incorporating and launching initiatives and projects at any stage of its term, and defines a framework for partnerships and a model for measurement and tracking implementation (detailed in chapters two and three below). The Agenda also includes a set of initial initiatives defined during the preparation phase, in line with the region's short-term priorities. These initiatives will be reviewed at a later stage to ensure consistency with the proposed actions in each cluster and to be clearly defined, with links between each initiative and the actions that support it.

The term of the Agenda is ten years 2023-2033

Short term 2023-2026
Medium term 2027-2030
Long term 2031-2033
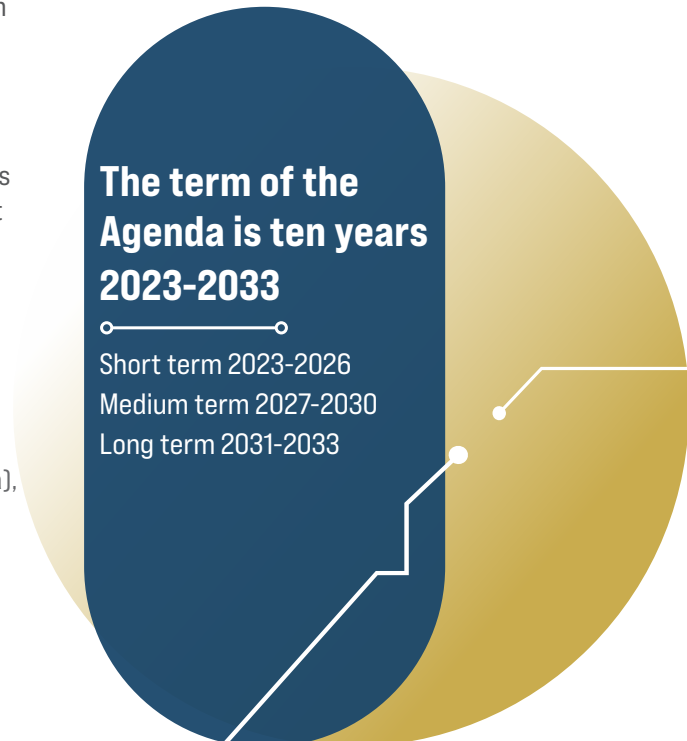
Table 1. List of regional strategies/agendas mentioned in chapter one

Region	Scope or extent	Measurable goals	Granularity of definition	Governance model	Measurement tools	Implementation programmes and projects	Partnerships	Strengths
Europe	Comprehensive	Yes	Yes	Model integrated with European Union institutions	Integrated model	Yes. Including sectoral strategies.	Yes	Consistency with the European decision-making system that has matured over decades, most recently in 2021 in the wake of the COVID19-pandemic. Good governance mechanisms that have allowed the goals of the strategy to be achieved within the expected timeframe.
Latin America	Comprehensive	No	Yes	A special annual evaluation conference for all stakeholders	General indicators	None	Yes	Follow-up and periodic update every two years.
Africa	Comprehensive	No	Yes (currently digital agenda)	Special executive body to submit its report and proposals to the ministerial conference (added later)	None (currently)	None	None (currently)	The strategy is still in its early stages and therefore it is difficult to identify its strengths.
Asia	Partial, infrastructure	Yes	No	None (currently)	None	Yes	Yes	Focus on a specific area and mobilize capacity to advance it. Building partnerships with stakeholders.
Arab region	Comprehensive	Yes	Yes	Based on existing governance mechanisms of the League of Arab States, with the possibility of being guided by institutional governance mechanisms in accordance with the standards of international organizations	Integrated model	Limited number of programmes selected.	Yes	Extracting "best options" from past experiences. Comprehensiveness in analysis and presentation, and realism in implementation according to available capabilities. Integration of regional planning with national planning. Periodic updating every two or three years in order to catch up with other regional strategies.

As shown above, the Arab Digital Agenda has a large degree of flexibility in its definition of the implementation process, going beyond the traditional conception of digital strategies. It provides an integrated framework that defines goals, targets and actions, launches many implementing initiatives and projects to give form to those actions, and provides a supportive environment for the successful management and implementation of these initiatives through a measurement model and clear governance mechanisms.

The Agenda constitutes a repository of any initiatives that may emerge later to complement the specified implementation process, whether in the form of implementing initiatives and projects that are directly part of the implementation process defined in level three (according to the mechanisms noted in the management and sustainability model) or in the form of sectoral strategies that adopt defined goals and targets and study in detail projects that allow for their achievement.

The next chapter will outline the most important design features: the goals, targets and actions that will bring this comprehensive design to life. All the themes identified in the National Digital Development Reviews guiding manual have been selected, which are divided into five clusters as shown in figure 1.[18]

Figure 1. ESCWA digital development framework

Cluster 1
The national, regional and international strategic frameworks

Cluster 2
Policies related to infrastructure, governance and the legal environment

Cluster 3
Policies related to digital economy, employment and trade

Cluster 4
Policies related to digital transformation and social inclusion

Cluster 5
Policies related to culture and media

The Arab Digital Agenda focuses on the need to develop environmental sustainability in view of the increasing and prominent role of ICTs in preserving the environment and effectively dealing with the impacts of climate change. The Agenda will devote a special section to this topic in the next phase, within the framework of the outcomes of the twenty-seventh Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC) (COP 27) hosted by Egypt (Sharm el-Sheikh, 6–18 November 2022) and COP 28 to be hosted by the United Arab Emirates. In the next two years, the Arab region will play a major role in climate issues, which requires systematic work on the optimal use of digital technology and communications, in line with the decisions of COP 26, which emphasized the role of digital transformation in sustainability, and in view of the Joint Work Programme of the UNFCCC Technology Mechanism, which was adopted at COP 27 and is devoted entirely to the role of digitization.

The role of ICTs can be viewed from the perspective of sustainability, on the one hand, and of adaptation and mitigation, on the other. Firstly, they can be used to reduce emissions and promote green technologies in the Arab region, including properly handling e-waste issues, promoting a circular economy, and rationalizing the use of natural resources by supporting the circular economy. Secondly, based on the empowering role of digital transformation and the unprecedented technological development the world has witnessed during the Fourth Industrial Revolution, most other critical sectors are increasingly using innovative techniques to pursue adaptation, reduce emissions and rationalize consumption, especially in the water, agriculture, energy and transport sectors. These techniques are being used in several Arab countries, but are not yet in use in others. The working group intends to build on the results of Sharm el-Sheikh and the work of United Nations organizations specialized in this field, especially United Nations action on climate and the work of ITU-related groups, to develop the section on green technology, with a focus on a number of issues of common interest in the region, such as the importance of developing strategies for green technology, formulating plans and mechanisms for the rational management of e-waste, examining job opportunities resulting from the circular economy, and ensuring innovation in the use of digital technologies in adaptation, mitigation and green procurement systems.

Figure 2. Agenda design hierarchy

Arab Digital Agenda: goals and targets				
	Policies related to infrastructure, governance and the legal environment	Policies related to digital economy, employment and trade	Policies related to digital transformation and social inclusion	Policies related to culture and media
Proposed actions to achieve the Agenda's goals and targets	ICT infrastructure	Building the ICT sector	Enabling and providing universal access to information, knowledge, applications and content	Cultural identity and linguistic diversity
			Building capacity in ICT for development	
	Legal environment, ethics and trust building	Economic impact of ICT	ICT applications	Media
Programmes, initiatives and projects				

Chapter two:

Goals, targets and proposed actions

Chapter two
Goals, targets and proposed actions

The previous chapter summarized the status of digital development in the Arab region, identified the digital development gap compared to other regions and outlined the design features of the Arab Digital Agenda. It also set out the Agenda's main themes and subthemes, based on those defined in the National Digital Development Reviews guiding manual.

The present chapter explains the methodology and describes the components of the Agenda and its accompanying documents. The Agenda's components are arranged into five clusters representing the main action lines of the Agenda, as outlined in the Arab digital development reports 2019 and 2022. This part of the document provides a detailed explanation of the goals and targets that are at the core of the Agenda/Strategy.

The following is an explanation of the methodology, which was applied to all five clusters and to all main themes and subthemes falling under them:

1. Collect as much relevant data as possible on the status of countries in the region for each theme.

2. Conduct an analytical study to identify gaps in each cluster in two main aspects:

   o Gaps at the national level, which usually consist of a country's failure to reach a specific threshold, taking into account the great disparity between the capabilities of Arab countries and their levels of development.

   o Gaps at the regional level, looking at the status of digital development in Arab countries as a whole.

3. Select a number of top priority issues in each theme and study them adequately. Addressing these issues will hopefully pave the way for a positive change in the policy vision for Arab digital development, leading to a paradigm shift in the region.

For the planning dimension of the Agenda, the following steps were taken:

1. For each of the selected issues, a plan has been developed that includes a strategic goal to work towards.

2. For monitoring and tracking purposes, these goals have been described as measurable targets.

3. A number of indicators associated with the targets have been precisely identified, describing the current situation (baseline value) and the desired situation (target value) over a specific time period within the term of the Strategy.

For the implementation dimension of the Agenda, the following actions have been taken:

1. A framework has been developed for each goal with a number of proposed actions to meet the targets and achieve the goal.

2. Proposals have been made for actions at the national and regional levels, consistent with the results of the gap analysis.

3. Chapter three is dedicated to the mechanisms for implementing the Agenda and the supporting tracks.

A separate document has been produced to each of the following tracks, which will continue to be developed continuously throughout the term of the Strategy:

1. The Collaboration and Partnership Framework: a set of programmes, initiatives and projects that will contribute to meeting targets.

2. The measurement framework: a set of measurement and monitoring indicators and a guide for each (a large number of which were used in the identification of goals and targets).

3. The National Digital Development Reviews guiding manual.

4. The Arab Digital Development Report.

Cluster 1: The national, regional and international strategic frameworks

This cluster is divided into two subclusters:[19]

○ The first subcluster deals with issues related to WSIS Action Line 1 on the role of Governments and stakeholders in promoting ICTs for development.

○ The second subcluster is on Action Line 11 on international and regional cooperation.

A. National digital strategies: the role of Government and stakeholders

All countries use strategic planning and prepare national strategies in various fields to determine their needs, priorities, objectives and implementation plans. The ICT sector is a key sector that needs such strategies owing to rapid developments therein, and because it has significant influence on other sectors. New ICT technologies are being developed which have gone beyond simply increasing efficiency and improving performance, to carrying out restructuring, as is the case in the digital economy field.

National digital strategies can adopt various approaches, as follows:

○ They can be comprehensive in describing desired development in all sectors and areas through the use of ICTs.

○ They can be sectoral or specific to a given sector, such as the development of the ICT sector or leveraging its applications in the areas of e-health or digital economy.

○ They can be thematic, pertaining to a given theme or a number of interrelated themes, such as the Internet of Things or artificial intelligence.

The Arab Digital Development Report 2022[20] and the research conducted to prepare for the Agenda show that the majority of participating Arab countries have comprehensive digital strategies, and all have sectoral ICT strategies, including e-government strategies or plans. However, only a few have strategies for e-health, e-learning, e-commerce and e-payment. Most have broadband and cybersecurity strategies or action plans, and a few are working on artificial intelligence strategies. In general, Governments develop digital strategies and plans without the active participation of other stakeholders, particularly the private sector and non-governmental organizations.

National digital strategies can adopt various approaches:

They can be **"comprehensive"**, **"sectoral"** or **"thematic"**

Frame 1. List of targets and indicators related to Goal 1.1
Develop comprehensive digital development strategies

Goal

1.1 – Develop comprehensive digital development strategies at the regional and national levels that keep pace with global developments and allow for monitoring of progress.

Targets and indicators

Target 1.1.1 – Develop national agendas or strategies for comprehensive digital development in all Arab countries, taking the regional dimension into account.

Indicator DDR_1.1.1.1 – Number of Arab countries that have comprehensive national digital strategies or digital development agendas.[21]
- Baseline value: 12 countries.
- Medium-term target value: 15 countries.

Target 1.1.2 – Develop strategies for the ICT sector in Arab countries.

Indicator DDR_1.1.2.1 – Number of Arab countries that have an ICT sector strategy.
- Baseline value: 13 countries.
- Medium-term target value: 22 countries.

Target 1.1.3 – Develop digital sectoral strategies in Arab countries.[22]

Indicator DDR_1.1.3.1 – Number of Arab countries that have a sectoral policy/plan for digital learning.
Indicator DDR_1.1.3.2 - Number of Arab countries that have a sectoral policy/plan for digital economy.
Indicator DDR_1.1.3.3 – Number of Arab countries that have a sectoral policy/plan for digital health.
Indicator DDR_1.1.3.4 – Number of Arab countries that have a sectoral policy/plan for smart agriculture.
Indicator DDR_1.1.3.5 – Number of countries that have a sectoral policy/plan for smart transport.

Target 1.1.4 – Design a national thematic policy in one of the areas of digital technologies in all Arab countries.[23]

Indicator DDR_1.1.4.1 – Number of Arab countries that have a national policy/plan for cloud computing.
Indicator DDR_1.1.4.2 – Number of Arab countries that have a national policy/plan for fintech.
Indicator DDR_1.1.4.3 – Number of Arab countries that have a national policy/plan for cybersecurity.
Indicator DDR_1.1.4.4 – Number of Arab countries that have a national policy/plan for the Internet of Things.
Indicator DDR_1.1.4.5 – Number of Arab countries that have a national policy/plan for artificial intelligence.
Indicator DDR_1.1.4.6 – Number of Arab countries that have a national policy/plan for the metaverse and/or virtual reality.

Target 1.1.5 – Adopt an appropriate monitoring and tracking mechanism for digital development in its comprehensive sense at the national level.

Indicator DDR_1.1.5.1 – Number of Arab countries that periodically monitor and review the status of digital development at the national level.
- Baseline value: 12 countries.
- Short-term target value: 14 countries.
- Long-term target value: 22 countries.

Box 1. Proposed actions to achieve Goal 1.1

○ Continue to develop and update national agendas and strategies for digital development to keep pace with needs and developments.

○ Continue to periodically monitor the status of digital development in the Arab region, and collect the necessary data for related indicators in general and the extent to which national agendas and strategies (if any) are implemented in particular.

○ Include regional coordination and integration subjects as an essential part of national digital policies.

○ Develop and update sectoral strategies, policies and plans for emerging ICTs on an ongoing basis, and urge Arab countries to share their national plans with each other.

B. National participation in international and regional cooperation tracks

Building an information society at the national level requires cooperation between the public and private sectors, and with civil society. Cooperation at the international and regional levels is key to successfully transitioning towards an information society, particularly in financing and in implementing digital development programmes and formulating related action plans.

Many Arab countries have launched national initiatives within the framework of the implementation of the WSIS Plan of Action and the 2030 Agenda. Most initiatives relate to ICT applications such as e-education, e-health and e-government. It is difficult to adequately assess these initiatives and their impact, especially since most countries do not measure the digital divide and have not kept pace with different aspects of the information society.

As for coordination between Arab countries in international cooperation issues, it can be considered at the following levels:

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○ **The level of specialized international cooperation and Arab participation in international organizations:**

➔ The Commission on Science and Technology for Development, a very important track that feeds directly into the Economic and Social Council, and then into the United Nations General Assembly. The level of Arab participation is good.

   ○ The Internet Governance Forum enshrined in the Tunis Agenda. Arab participation is limited, especially at the government level.

   ○ Follow-up on the implementation of WSIS and its annual forum organized by ITU. Arab participation is good.

➔ The work of ITU, including the Plenipotentiary Conference, the World Radiocommunication Conference, the World Telecommunication Standardization Assembly and the World Telecommunication Development Conference, in particular its most recent event in Kigali.[24] Arab participation in these actions is good and effective, including:

   ○ The work of the ITU Arab Regional Office. Arab participation therein is good and effective.

There is a need to reflect the regional priorities and outcomes of ITU conferences in the development phase of the implementation mechanism of the Agenda to reflect the decisions of Arab Governments regarding the ICT sector regionally and globally.

→ Conferences of other organizations and United Nations working groups such as:

○ Open-ended Working Group on cybersecurity issues of the United Nations Department of Political Affairs.

○ United Nations Department of Economic and Social Affairs (DESA) on e-government and digital transformation issues.

○ Intergovernmental Group of Experts of the United Nations Conference on Trade and Development (UNCTAD) on e-commerce and the digital economy.

○ United Nations Educational, Scientific and Cultural Organization (UNESCO).

○ United Nations Development Programme (UNDP) for its role in helping countries achieve the SDGs.

○ United Nations Children's Fund (UNICEF).

→ Conferences of other organizations such as the Internet Corporation for Assigned Names and Numbers (ICANN).

○ **The level of comprehensive Arab coordination in specialized fields and issues:**

→ Through the mechanisms of the League of Arab States and other regional organizations.

○ The most important of these are the Arab Telecommunications and Information Council of Ministers and the specialized technical teams, whose work constitutes an entry point for international cooperation with several organizations and at several levels. It is working well, and there are many Arab sectoral strategies that have been put forward and approved at this level.

○ Organizations under the League of Arab States, including the Arab Administrative Development Organization, the Arab Information

and Communication Technology Organization (AICTO), the Arab Federation for Digital Economy, and the Arab Academy for Science, Technology and Maritime Transport.

→ Through ESCWA mechanisms and regional follow-up to WSIS, in particular:

○ Meetings of the Committee on Technology for Development,[25] as an intergovernmental entity that submits its outputs to the ministerial session, including recommendations for action addressed to member States and the ESCWA secretariat.[26]

→ Through joint projects between the League of Arab States and ESCWA, including:

○ The Arab Internet Governance Forum, which is an initiative launched by the League of Arab States and ESCWA in 2012 as part of the Arab Dialogue on Internet Governance. Its last session was held in December 2021.

○ The Arab Digital Cooperation and Development Forum, in partnership with the League of Arab States and key actors in WSIS and Internet Governance Forum programmes, in particular ITU, UNCTAD, DESA and UNESCO. The Forum held its first meeting in December 2021.[27]

The Arab Internet Governance Forum

initiative

launched by the **League of Arab States and ESCWA** in 2012 as part of the **Arab Dialogue on Internet Governance**

Frame 2. List of targets related to Goal 1.2
Enhance participation in international and regional cooperation tracks

Goal | **1.2** – Enhance effective and influential participation in international and regional cooperation tracks.[28]

Targets

○— **Target 1.2.1** – Enhance participation in regional and global forums related to ICT and its applications.

○— **Target 1.2.2** – Coordinate Arab positions on issues raised in international forums on ICT and its applications.

Box 2. Proposed actions to achieve Goal 1.2

○ Continue and support current work and initiatives to coordinate Arab efforts to enhance Arab participation in international and regional cooperation initiatives.

○ Identify regional and global forums related to digital cooperation tracks and maximize the effectiveness of Arab countries in those forums by enhancing participation and coordinating Arab positions and efforts to serve the priorities of the region.

○ Develop a consistent approach among Arab countries for dealing with vital issues such as privacy, personal data protection and the scope of national and regional sovereignty in the digital world, especially when dealing with companies that provide cross-border Internet services.

○ Launch capacity-building programmes targeting policy and decision makers on international issues and international and regional cooperation mechanisms.

○ Review regional and international initiatives on important issues that are in line with the current status of Arab countries.

○ Activate local and regional dialogue between stakeholders with the aim of enhancing consensus on Arab positions on global issues.

Cluster 2: Policies related to infrastructure, governance and the legal environment

This cluster covers aspects and issues directly related to ICT, and is further broken down into two subclusters:

○ The first subcluster is on aspects of digital infrastructure and issues relating to its building, operation, investment and regulation.

○ The second subcluster pertains to the legal environment governing ICT use and related legal issues.

A. ICT infrastructure

Any advancement in ICT is directly related to the development of systems and networks that allow the provision of services to the highest number of subscribers, including fixed and mobile telephone networks, data networks and the Internet. Since the Agenda is broadly meant to serve the SDGs in general and digital development in particular, issues related to market and regulatory structure have also been included within this cluster, because of their direct impact on providing services to the largest segment of users at affordable prices, including in remote and marginalized areas, which is one of the most important requirements for digital development.

1. Structure and regulatory environment of the telecommunications market

This means the extent to which the market is liberalized and competitive. Liberalized and competitive markets are associated with higher resource efficiency, increased quality, and lower prices for subscribers. Competition between operators depends on expanding the market by increasing the number of users, reducing prices, and providing a diverse offering of services. This competitive atmosphere is reflected positively in the digital development process.

The Arab Digital Development Report 2022 shows that most Arab countries have a telecommunications regulatory body or committee, focused on licensing basic voice services, mobile phone companies and Internet service providers (ISPs).[29] In the absence of such a body or committee, the ministry of communications and information technology is responsible for such issues. Basic ICT services are, for historical reasons, generally provided by State-owned companies, which own infrastructure such as copper cables, optical fibre and telephone exchanges. Few Arab countries have started to privatize basic telecommunication services and share the network with other companies to create a competitive environment. Mobile telephony services have become competitive in the great majority of countries, but are still duopolies (with just two companies) in a few countries. ISPs in all Arab countries now have the potential to be fully competitive.

The ITU Global ICT Regulatory Outlook 2020 states that progress by Arab countries through generations of regulation is in general slower than other regions.[30]

However, this trend is expected to change after key reform measures in many countries, and most progress in the region is from the second generation to the third, and to a lesser extent from the third to the fourth. Five Arab countries remain classified within the first generation. The report includes the results of the ICT Regulatory Tracker for Arab countries in 2019. The average scores of Arab countries for the four pillars of the Tracker are as follows:

Regulatory authority	14/20
Regulatory mandate	16/22
Regulatory regime	17/30
Competition framework	15/28

These scores confirm that the necessary institutions exist to promote digital development in Arab countries and their tasks are clear (first and second pillars), but they are not as effective as they should be, especially in terms of competitiveness. In most cases, anti-competitive practices result from keeping a number of basic services exclusive (the most important of which are fixed access networks, infrastructure, international telecommunications and access to international cables) in the hands of a primary operator, usually owned by the State. According to detailed country data from 2020, a number of Arab countries have at least some form of exclusivity in telecommunications services. These practices can reduce the positive impact of competitiveness in providing quality and affordable services, as these services are often managed using a purely rentier approach that limits the ICT sector's effectiveness as an enabling environment and a key tool for economic and social development.

Since maintaining exclusivity

The Global ICT Regulatory Outlook:

Progress through the modern generations of telecommunication

is in general **slower** in **Arab countries** than other regions

is a decision that touches on State sovereignty, with its own reasons and justifications for each State, it is useful to take measures to reduce the negative impact of this exclusivity, in particular on the spread and ease of access to services. This is what regulatory bodies or their equivalents usually do by establishing regulations and controls on areas of exclusivity, so that it is not used unfairly to significantly increase costs to service providers and ultimately users. One measure is cost-based pricing in open access infrastructure networks. In such a case, the exclusive operator can obtain an acceptable profit margin that allows it to achieve a return on investment and continue to provide and develop the service without a significant increase in the costs for service providers.

The ITU Digital Trends in the Arab States Region Report 2021 emphasizes the need to adopt a more collaborative and participatory approach to sector regulation, in which decision makers collaborate with regulators from different sectors and other stakeholders to shift the focus of regulation efforts from behaviours and impact to markets and development.[31] In 2022, ITU issued a special report using a new methodology to measure the performance of countries in regulating the ICT sector. Over the past five years, ITU has been developing this methodology, called fifth-generation collaborative digital regulation or G5 regulation, to monitor the overlap between ICT and other sectors, thus underlining the need for collaboration and coordination in different areas of regulation.[32]

According to the new G5 Benchmark – ICT Regulatory Tracker data for 2020, the performance of Arab countries can be summarized as follows:

○ Arab countries have significantly improved their scores on the ICT Regulatory Tracker, but there are still 10 countries below the third generation, and progress in this area is needed during the lifespan of the Strategy.

○ There is a significant disparity in countries' capabilities in the field of regulation, which calls for work to establish a mechanism to exchange experiences between Arab countries.

○ The Arab region's scores do not look good according to the new methodology, which measures countries' abilities to move to the new (fifth) generation of regulation. No Arab country is classified as leading, only three countries are classified as advanced, 11 countries are classified as transitional, and eight countries are classified as limited.

○ The average score of Arab countries and other regional groupings under the pillars of the model are as follows:

Table 2. Scores of global regions on the ITU G5 Benchmark, 2021

	Maximum score	Africa region	North America	Latin America and the Caribbean	Arab States	Asia-Pacific	Commonwealth of Independent States	Europe
Pillar I: National collaborative governance	32	14.94	21.76	15.54	12.21	14.40	10.29	20.37
Pillar II: Policy design principles	20	8.00	17.13	10.30	7.37	9.33	9.36	13.97
Pillar III: Digital development toolbox	32	9.83	24.92	11.29	10.77	11.67	10.77	18.74
Pillar IV: Digital economy policy agenda	24	7.19	17.58	8.60	8.05	8.95	9.22	14.52
G5 Benchmark		39.96	81.41	45.74	38.40	44.36	39.64	67.60

Source: https://digitalregulation.org/wp-content/uploads/Final-version_clean_E.pdf.

The falling scores for most Arab countries are due to weak results for the pillars of digital development and digital economic policy. The latter has gained special importance since the COVID-19 pandemic and the major digital transitions in many activities, businesses and jobs. If Arab countries' scores are to be improved, it will be in large part through addressing the components in these two pillars.

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Frame 3. List of targets and indicators related to Goal 2.1
Maximize competitiveness and strengthen regulation in the telecommunications sector

Goal **2.1 – Maximize competitiveness and strengthen regulation in the telecommunications sector in Arab countries.**

Targets and indicators

Target 2.1.1 – Encourage competition and set legislative and regulatory controls in the case of sector exclusivity.

Indicator DDR_2.1.1.1 – Number of Arab countries that have special measures to encourage competition and control exclusivity.[33]
- Baseline value: Unmeasured.
- Medium-term target value: 22 countries.[34]

Target 2.1.2 – Increase the global ranking of Arab countries in terms of ICT regulation.

Indicator INT_2.1.2.1 – Digital maturity ranking according to the ICT Regulatory Tracker.
- Baseline value: 12 countries.
- Medium-term target value: 22 countries classified as third generation or higher.

Indicator INT_2.1.2.2 – Country readiness for digital transformation according to the Benchmark of fifth-generation collaborative digital regulation.
- Baseline value: 3 countries classified as advanced, 11 countries as transitional and 8 countries as limited.
- Long-term target value: All countries having improved their classification by at least one level.

Box 3. Proposed actions to achieve Goal 2.1

- Work to define and measure the results of controls on exclusivity in the telecommunications sector.

- Work to enact or update the legislative measures necessary to control exclusivity and increase competitiveness, by the regulators of telecommunications service providers.

- Conduct periodic assessments of competitiveness and the negative effects of exclusivity on the telecommunications market.

- Enact cost-based pricing in the case of exclusive services, especially wholesale services provided by service providers in order to reduce their impact on the cost of service to end users.

- Collaborate between ICT regulators and regulators of other sectors so as to achieve collaborative regulation, given the overlap between ICT and many other sectors.

- Develop regulations to encourage infrastructure sharing between operators as an effective tool to increase the efficiency of networks in accordance with international best practices.

A key objective of regional strategies is to activate the exchange of digital services at the regional level, whether through e-commerce services that allow the purchase of traditional products through electronic platforms, or through the trade of digital services such as online access to digital content. Building the digital single market has been one of the most important goals of the Digital Agenda for Europe. Such exchange of and access to services at the regional level cannot be activated unless there are clear controls on the provision of such services in the interest of all parties: users, service providers and States. These controls mainly address issues of consumer protection, electronic payment, facilitation of border crossing procedures, and the protection of intellectual property in the digital space.

Currently, there are not sufficient cooperation mechanisms to stimulate the regional telecommunication services market, and the development of such mechanisms requires above all collaboration and coordination between the telecommunications sector national regulators. The only such framework currently in place in the region is through the Arab Regulators Network of Telecommunications and Information Technologies.[35] However, the Network does not have official status similar to the League of Arab States organizations, and does not issue binding decisions to its member States, and therefore all documents issued are for information purposes only. Based on global best practices and ITU recommendations, this Network promotes the discussion and awareness of many emerging issues in the sector, and invites its members to respond to such developments.[36] Among the most important of these issues is international roaming between Arab countries, which has been raised since 2008 without tangible progress,[37] and the comparative study of telecommunications prices in Arab countries. Although there are many studies and recommendations, such as a project to exchange experiences in combating international call smuggling and an emergency communications project in the Arab region,[38] it is unclear to what extent countries have implemented the recommendations of these studies, especially since most are of national scope only and target regulators in Arab

countries for local issues, rather than dealing with matters from a regional perspective.

However, given the key role of regulatory bodies in their countries and the powers granted to them by local laws, when there is a desire on the part of participating countries (of which there are relatively many, including many Arab countries that are advanced in the fields of information and communication technology), the Network can enable them to access proposals adopted by countries and turn them into impactful decisions.

Many examples can be cited of negative consequences when effective regional coordination is lacking, notably the absence of any controls in the Arab region related to regional mobile roaming similar to those in the European Union, known as Roam Like at Home.[39]

According to the Arab Digital Development Report 2022, many Arab telecommunications operators have a presence in multiple countries. However, in the absence of regional coordination, operators and users alike are not able to properly enjoy its benefits and opportunities. The continued absence of and lack of access to such services, despite the long history of efforts in this area, confirms that coordination between regulatory bodies needs to be strengthened and mechanisms developed to facilitate consensus on the key issues that hinder the provision of these services regionally.

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Frame 4. List of targets and indicators related to Goal 2.2

Enhance regulatory collaboration and coordination between Arab countries to provide and improve telecommunications and regional digital services

Goal   **2.2 –** Enhance regulatory collaboration and coordination between Arab countries to provide and improve telecommunications and regional digital services.

Targets and indicators

Target 2.2.1 – Expand the availability and use of telecommunications and digital services exchanged between Arab countries, at the regional level.

Indicator DDR_2.2.1.1 – Number of telecommunications or other digital services available regionally.[40]
- Baseline value: Unmeasured.
- Target value: Determined later after the first measurement.

Indicator DDR_2.2.1.2 – Number of countries that have regulatory agreements for telecommunications or other digital services exchanged with other Arab countries.[41]
- Baseline value: Unmeasured.
- Target value: Determined later after the first measurement.

Box 4. Proposed actions to achieve Goal 2.2

- Develop a regional framework agreed upon by regulators to conclude agreements governing regional telecommunications services.

- Regulate and encourage free roaming services between Arab countries, and modernize other digital services in line with developments in the sector.

- Put forward a draft Arab agreement for the integration of telecommunications services, taking into consideration the Arab Trade Agreement as an important cooperation mechanism to promote the regional market of telecommunications services.

- Conduct necessary studies to determine the provision of telecommunications services at the regional level by cooperating with and leveraging the experience of the Arab Regulators Network of Telecommunications and Information Technologies.

- Coordinate among Arab countries regarding the regulation of modern technologies, such as satellite Internet, that may go beyond national regulatory frameworks.

2. Basic services and ICT infrastructure at the national and regional levels

This includes knowing what services are available for mobile telephony and Internet, including fixed and mobile broadband, second-generation wireless network, fibre to the home, the number of ISPs, and the number of mobile networks.

According to the Arab Digital Development Report 2022, there is a clear disparity between Arab countries in terms of telecommunications infrastructure, as Gulf Cooperation Council (GCC) countries have many excellent indicators in mobile penetration rates, Internet accessibility, and international Internet package capacity that are comparable to or above many developed countries. While the indicator scores of most Arab countries are close to the global average, and thus significantly lower than developed country averages, there are also Arab countries that are LDCs in the field of telecommunications.

Consequently, regional targets have been set to reduce gaps between countries and, in many cases, to move the Arab bloc as a whole forward.

If we exclude extreme cases (GCC and LDCs), we find the following:

○ Mobile penetration rates are acceptable to good in most Arab countries, with the average rate in Arab countries about 7.5 per cent lower than the developing country average.

○ Coverage rates of the 3G mobile network are good in most countries, exceeding the developing country average. The 4G coverage needs to be improved, as the average rate in Arab countries is about 18 per cent lower than the global average.

○ There is a large disparity between countries in the size of Internet bandwidth per subscriber, with improvements in recent years, but in general they remain very small. The average in Arab countries is still about 10 per cent lower than the global average, though there are a few countries that exceed the developed country average.

○ Fixed and mobile broadband penetration rates are significantly lower than the global average, and lower than the developing country average.

○ There is considerable variation in the speed of fixed broadband service. There are almost no subscribers with speeds below 2 Mbps in most Arab countries. This speed threshold represents the minimum acceptable as defined by ITU, and there are many other standards that require faster speeds, depending on the nature of the services provided over the Internet, especially content access services.

The targets set by the ITU Connect 2030 Agenda[42] related to enabling and fostering access to and use of telecommunication/ICT, state that worldwide, 55 per cent of households should have access to the Internet by 2020, and 60 per cent of individuals should be using the Internet by 2020. These targets are barely being achieved in the Arab region, owing to low Internet penetration rates and low fixed broadband speeds, which are key elements for the development of digital content.

According to the Arab Digital Development Report 2022

there is

a **clear disparity** between **Arab countries** in terms of **telecommunications infrastructure**

Frame 5. List of targets and indicators related to Goal 2.3
Improve access to basic telecommunications services

Goal **2.3 – Improve access to basic telecommunications services.**

Targets and indicators

Target 2.3.1 – Increase Internet access beyond the global average.

Indicator INT_2.3.1.1 – Percentage of individuals using the Internet.
- Baseline value: 13 countries above the global average.
- Medium-term target value: 22 countries.

Target 2.3.2 – All Arab countries have at least 50 per cent of fixed broadband subscribers with speeds above 10 Mbps.

Indicator INT_2.3.2.1 – Fixed broadband Internet subscriptions per 100 inhabitants, broken down by speed.
- Baseline value: 10 countries.
- Medium-term target value: 22 countries.

Target 2.3.3 – Expand the coverage of 4G mobile networks to exceed the global average.

Indicator INT_2.3.3.1 – Percentage of the population covered by at least a 4G mobile network.
- Baseline value: 13 countries above the global average.
- Medium-term target value: 22 countries above the global average.

Box 5. Proposed actions to achieve Goal 2.3

- Consider the establishment of a joint Arab financing tool to develop infrastructure in Arab countries, and increase access to fixed and mobile broadband services.

- Conduct studies on the investments necessary to develop infrastructure in Arab countries according to each country's needs and the possibilities for stimulating private and external investment.

Frame 6. List of targets and indicators related to Goal 2.4
Improve Internet speed for users and increase the benefits from Internet services and content

Goal **2.4** – Improve Internet speed for users and increase the benefits from Internet services and content.

Targets and indicators

Target 2.4.1 – All Arab countries are above the global average in terms of the international Internet bandwidth per capita, with the exception of the least developed countries.

Indicator INT_2.4.1.1 – International bandwidth per Internet user.
- Baseline value: 6 countries above the global average.
- Target value: All Arab countries except the least developed countries.

Box 6. Proposed actions to achieve Goal 2.4

- Increase investments and financing funds to support the needs of countries and regions that do not provide economic returns for operators of international Internet packages.

3. Internet infrastructure

According to the Arab Digital Development Report 2022, there is variation between countries in national Internet networks depending on geography, the regions served, population, economic status and other factors. Most Arab countries have good national infrastructure to provide telecommunications and Internet services, and have developed backbone networks and broadband communications infrastructure. Adequate infrastructure is vital to meet the growing demands of digital applications. These networks must operate according to the highest international standards, especially when sharing infrastructure to increase the efficiency

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of their use, which is necessary in view of the weak financial capabilities of most Arab countries. National infrastructure is still mostly subject to exclusivity, and therefore its development requires investments financed by State budgets, which may not be readily available in the light of different countries' priorities.

Internet infrastructure in the Arab region can be assessed from a regional perspective based on the following two main criteria:

○ Availability of high-speed regional and international optical cables that allow for the connection of different countries' networks.

○ Readiness of national networks to be connected via Internet exchange points (IXPs).

A key component of backbone networks are Internet exchange points, which are physical locations where equipment is placed for interconnection between different networks. This equipment is usually simple, low-cost and high-performance, and the main goal of these points is to achieve direct connection between Internet service providers within the same country. Internet exchange points have many advantages, including reducing Internet costs, improving performance for users, and attracting external service providers who want to reach local users by offering a single point of contact that allows access to all users at an acceptable cost.[43]

The latest statistical studies measuring the actual impact of IXPs show that they play a pivotal role in raising the quality of access to local content, and improving the quality of service for users.[44] They also show that IXPs are the right place to provide access to local content, when the right environment is available from local and international operators connected to these points.

In the Arab region, 15 countries have IXPs, but there is great disparity between their capacity (the maximum value at one point is 16 Mbps, while the average value at another point is 94 Gbps) and the number of connected entities (70 in one, compared with 4 in another). Only a few are connected to global content providers.[45]

Despite the good number of submarine cables serving the Arab region, and many national IXPs, some of

which date back over 20 years, many of these points do not work as required and their use is limited, which highlights the need for review of how they are operated and managed. Regional exchange of traffic between countries is almost non-existent, and most exchange takes place in Marseille, London or Frankfurt using expensive international links.[46] While in previous years this did not have major effects because of the low volume of traffic between Arab countries compared with the total amount of traffic on the Internet, with the new trend of content service providers connecting servers to Internet exchange points, it is much better to work on accessing local content via IXPs located in the region instead of sending requests to distant servers through international circuits.

According to the ITU Facts and Figures Report 2022, the international bandwidth usage in the Arab region is equivalent to 55 Tbps.[47] Applying international usage models, a large proportion of this bandwidth is used to access social media and online video. These are services and applications that can easily be hosted at IXPs in the Arab region (which do actually exist in a number of points as mentioned above). Directing traffic towards these points rather than using international links would therefore be beneficial both in terms of performance and costs. The savings in connectivity costs could be used to increase the bandwidth used to connect countries and IXPs, allowing for improvement in the average speed of access to websites, which is very low in most countries.

Based on currently available sources of information on international cables, the following observations can be made:[48]

○ There has been significant improvements in the number of marine cables passing through Arab countries, with a special position for certain countries in terms of the number of regional and international cables passing through them.

○ With limited exceptions, there are almost no terrestrial regional cables. The most important is the Regional Cable Network (RCN) project, which connects several countries in the Arab Gulf and the Eastern Mediterranean to Turkey and Europe. However, this cable is currently suspended because of local armed conflicts.

Frame 7. List of targets and indicators related to Goal 2.5
Develop the infrastructure of Internet networks and the structure of interconnection at the national and regional levels

Goal **2.5** – Develop the infrastructure of Internet networks and the structure of interconnection at the national and regional levels.

Targets and indicators

Target 2.5.1 – Provide an Internet exchange point in each country.

Indicator DDR_2.5.1.1 – Number of countries that have at least one national Internet exchange point.
- Baseline value: 15 countries.
- Medium-term target value: 22 countries.

Target 2.5.2 – Provide a number of interconnected regional exchange points to provide high-speed switching services and attract global content providers wishing to reach Arab users.

Indicator DDR_2.5.2.1 – Number of regional IXPs.
- Baseline value: Unmeasured.
- Medium-term target value: 4 IXPs.
- Long-term target value: Unbounded according to countries' capacities.

Indicator DDR_2.5.2.2 – Number of global content providers connected to regional IXPs.
- Baseline value: Unmeasured.
- Target value: Determined later after the first measurement.

Target 2.5.3 – Connect all Arab countries to a regional IXP.

Indicator DDR_2.5.3.1 – Number of Arab countries connected to a regional IXP.
- Baseline value: Unmeasured.
- Medium-term target value: 22 countries.

Target 2.5.4 – Reach 100 per cent of intra-Arab data transferred through regional exchange points or direct connections without the need for international networks.

Indicator DDR_2.5.4.1 – Percentage of intraregional data transferred without the need for international networks.
- Baseline value: Unmeasured.
- Long-term target value: 70 per cent of intraregional data.

> **Box 7.** Proposed actions to achieve Goal 2.5
>
> O Work on finding a mechanism to measure data exchanged internally and externally in the region.
>
> O Activate national IXPs, while studying the most appropriate management model for each country to ensure the success of exchange points.
>
> O Seek out the necessary investments to launch a major Arab project (that could take the form of an alliance between Arab companies) to undertake the following:
>
> → Activate national Internet exchange points.
>
> → Establish regional exchange points.
>
> → Create a network of Internet data centres.
>
> O Connect national and regional exchange points to establish and develop a regional network.

B. Legal environment, ethics and trust building

This sub-pillar includes a set of activities that allow for an appropriate enabling environment to be built for the ICT sector in the Arab region, so as to enable users to interact with the Internet and its services confidently and securely. This requires a legal and regulatory environment that protects user privacy and data, combats misuse, enables electronic transactions, and ensures Internet security.

According to the Arab Digital Development Report 2022, most Arab countries have issued a set of laws covering all aspects of ICT, including legislation regulating electronic transactions, e-signature, e-payment, e-commerce, management of public infrastructure in the ICT sector, and cybercrime. While several countries have issued laws to protect personal data on the Internet, more needs to be done in this area, both in terms of enacting laws and enforcing them on the ground. Such laws regulate the use of user data by electronic service providers, so if they are absent or poorly activated, users will have less desire to use those services for fear that their data could be misused or disclosed. There is no Arab country classified as adequate in data security by the European Union,[49] although multiple countries have data protection laws

and bodies. This may negatively affect the ability of digital service providers in Arab countries to provide their services to European Union citizens. Almost all Arab countries have laws that address issues of cybersecurity and cybercrime, but most were issued before 2010 and therefore may need to be updated.

The institutional framework for enforcing and implementing these laws is just as important as the legislative framework. Promulgating laws and legislation is only the first step on the path of putting it into effect and benefiting from it. Therefore, the issuance of digital signature and electronic transaction laws does not necessarily mean that they have been widely implemented, given that a complete public key infrastructure needs to be built for that purpose. There are no data available on the extent to which these technologies are used in Arab countries.

In terms of their institutional frameworks, most Arab countries have not established specialized national bodies to enforce these laws. In the absence of such bodies, the task is usually assigned to the competent ministry (often the ministry of ICT), or to other less independent administrative entities or councils

created for this purpose. Many countries have created specialized cybersecurity bodies under various names, and a few have established national authorities for personal data protection.

According to the 2020 Global Cybersecurity Index measured by ITU,[50] there is a large gap between the top 10 Arab countries and the other Arab countries. The weakness of the second group of countries is concentrated in the areas of national cybersecurity strategies (NCS) and policies, capacity-building and international cooperation.

In recent years, several Arab countries have made significant progress, mainly due to great efforts to build capacity in the field of cybersecurity.

A key regional initiative in the field of cybersecurity is the Arab Convention on Combating Information Technology Offences, which was approved by the Council of Arab Ministers of Justice on 21 December 2010 and entered into force on 6 February 2014 after it was ratified, approved and/or accepted by seven Arab countries. While the number of participating countries remains somewhat limited, it represents a first step to securing a shared regional legal framework.

In the same vein, AICTO issued the Arab Cybersecurity Vision in October 2021,[51] pursuant to Arab governmental decisions aimed at building the capacity of the Arab region in the ICT sector, in particular the decisions of the Arab Economic and Social Development Summit at its fourth ordinary session (Beirut, 20 January 2019). Resolution No. 56(4)(c)(3) of 20 January 2019 (point 3) states: "To task the General Secretariat, in coordination with the competent ministerial councils and the

Arab Information and Communication Technology Organization and sources of expertise available in Arab countries, to study the development of a common Arab vision in the field of technology, digital economy and cybersecurity".

This initiative also led to the issuance of a vision entitled "Towards a secure unified Arab society – integrated into the global digital economy and self-sufficient in the field of solutions and expertise supporting digital trust and protection of Arab cyberspace".

Among other initiatives in the field of e-trust and digital certification is the Regional Digital Trust Network (Arab-African e-Certification Authorities Network – AAECA-Net), which is overseen by AICTO.[52] This network consists of multiple regional stakeholders seeking to build digital trust and strengthen e-certification regionally. It works to harmonize systems and mutual recognition between electronic certification institutions in Arab countries on the one hand, and between them and the rest of the world on the other hand. It also oversees coordination of legal and legislative frameworks and policies related to e-signature, e-authentication and digital trust services among Arab countries, based on relevant international experiences. AAECA-Net currently has 11 member States, represented by their national electronic/digital certification institutions.

Another important initiative is the Arab Regional Cybersecurity Center, which was established by ITU and Oman in 2012.[53] It carries out many activities in the fields of capacity-building, institutionalization, and international cooperation, with the participation of many Arab countries.

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Frame 8. List of targets and indicators related to Goal 2.6
Activate the use of digital signature services and electronic transactions at the national and regional levels

Goal   **2.6 – Activate the use of digital signature services and electronic transactions at the national and regional levels.**

Targets and indicators

Target 2.6.1 – All countries have an effective national digital signature and certification authority.

Indicator DDR_2.6.1.1 – Number of Arab countries that have an effective national digital signature and certification authority.
- Baseline value: Unmeasured.
- Medium-term target value: 22 countries.

Target 2.6.2 – Conclude mutual recognition agreements for digital signature and certification services.

Indicator DDR_2.6.2.1 – Number of Arab countries that have mutual recognition agreements for digital signature services with other Arab countries.
- Baseline value: Unmeasured.
- Target value: Determined later after the first measurement.

Box 8. **Proposed actions to achieve Goal 2.6**

- Work to establish, activate and continuously develop national digital signature and certification authorities.

- Prepare an agreement specifying the conditions for harmonizing laws on digital signature and certification, and electronic transactions in all Arab countries.

- Benefit from the experiences of the Arab Network for Digital Trust.

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Frame 9. List of targets and indicators related to Goal 2.7
Personal data protection of users

Goal | 2.7 – Personal data protection of users.

Targets and indicators

Target 2.7.1 – All Arab countries have updated laws and implementing regulations for personal data protection.

Indicator DDR_2.7.1.1 – Number of Arab countries that have updated laws for personal data protection.
- Baseline value: 10 countries.
- Medium-term target value: 22 countries.

Indicator DDR_2.7.1.2 – Number of Arab countries that have personal data protection authorities.
- Baseline value: Unmeasured.
- Medium-term target value: 15 countries.
- Long-term target value: 22 countries.

Indicator INT_2.7.1.3 – Number of Arab countries classified as at least "adequate" by the EU or any other entity in data protection.[54]

Box 9. Proposed actions to achieve Goal 2.7

- Complete the issuance of laws compatible with international best practices for personal data protection in all Arab countries, including mechanisms for regional and international cooperation.

- Prepare an Arab agreement for the protection, governance and exchange of data.

- Work to accede to relevant regional and international conventions.

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Frame 10. List of targets and indicators related to Goal 2.8
Enhance cybersecurity in the Arab region

Goal 2.8 – Enhance cybersecurity in the Arab region.

Targets and indicators

Target 2.8.1 – Update laws to combat cybercrime and enhance cybersecurity in all Arab countries.

Indicator DDR_2.8.1.1 – Number of Arab countries that have updated laws to combat cybercrime and cybersecurity.[55]

- o Baseline value: 12 countries.
- o Medium-term target value: 22 countries.

Target 2.8.2 – Most Arab countries accede to the Arab Convention on Combating Information Technology Offences and have the necessary mechanisms for its implementation.

Indicator DDR_2.8.2.1 – Number of Arab countries that have implemented the Arab Convention on Combating Information Technology Offences.

- o Baseline value: 7 countries.
- o Medium-term target value: 12 countries.

Target 2.8.3 – All Arab countries have national cybersecurity strategies.

Indicator DDR_2.8.3.1 – Number of Arab countries that have a national cybersecurity strategy.

- o Baseline value: 11 countries.
- o Medium-term target value: 22 countries.

Target 2.8.4 – Improve the performance of all Arab countries in the field of cybersecurity.

Indicator INT_2.8.4.1 – Global Cybersecurity Index.

- o Baseline value: Twelve Arab countries are in the second half of the ranking.
- o Medium-term target value: All countries improve their ranking by at least 5 points (except for countries currently in the top 20 in the world).

Target 2.8.5 – Establish national computer emergency response centres in all Arab countries.

Indicator DDR_2.8.5.1 – Number of Arab countries that have national computer emergency response centres.

- o Baseline value: 17 countries.
- o Medium-term target value: 22 countries.

Target 2.8.6 – Ensure collaboration and coordination between all national computer emergency response centres in Arab countries.

Indicator DDR_2.8.6.1 – Number of Arab countries that have cooperation agreements with other Arab countries for coordination between national computer emergency centres.

- o Baseline value: 12 countries.
- o Medium-term target value: 22 countries.

Box 10. Proposed actions to achieve Goal 2.8

O Ratify the Arab Convention on Combating Information Technology Offences by the concerned authorities and establish mechanisms to implement it in each country.

O Formulate national cybersecurity strategies that include integrated national security policies, critical and resilient infrastructure, national audit mechanisms and capacity-building programmes and launch necessary security initiatives.

O Prepare and implement awareness programmes targeting users, communities and different sectors with the aim of promoting a positive image of cybersecurity.

O Strengthen cooperation and technical interaction with the private sector and the technical community to protect network and data security by activating communication, building trust and developing a more effective cooperative framework with those stakeholders.

O Strengthen regional cooperation to support cyber resilience, which consists of maintaining data integrity and the ability of systems to provide services even when under attack.

O Complete the establishment of national computer emergency response centres.

O Establish a regional network of computer emergency centres recognized at the regional and international levels.

O Establish an observatory of cybersecurity indicators in the Arab region.

O Study the development of a general framework for "digital sovereignty" to enhance cybersecurity in the Arab region.

O Develop and implement an Arab cybersecurity strategy.

Cluster 3: Policies related to digital economy, employment and trade

This cluster in the Arab Digital Agenda addresses two main themes related to the following:

○ Describing the main ways to improve the ICT sector in the Arab region.

○ Highlighting the positive economic impact of employing the capabilities of the ICT sector in various aspects of modern life.

A. Building the ICT sector

Building and developing the ICT sector requires cooperation between the public and private sectors and between all economic actors, irrespective of the size of their economic activity, especially startups. In addition, other contributing factors should be available, the most important of which are investments, funding sources, research and development, and innovation capabilities. In general, the ICT sector includes telecommunications services, computer hardware manufacturing, software development, IT service provision, call centres, technical training, Web design, digital content development, and localization and provision of technological solutions to emerging problems.

1. ICT companies

ICT companies constitute the main lever of the sector, thus the need for analysing the status of the various companies operating in the sector, particularly those that provide services and technological solutions, and those involved in sales and manufacturing of ICT goods.

However, Arab countries lack sufficient publicly available data on ICT companies, and most data focuses on telecommunication companies and Internet service providers. A few countries have

some data (that is sometimes incomplete) on software development and content development companies. In general, official databases specialized in this area remain limited in the region.[56] There are several private websites on the Internet that serve as directories for companies, some of which include advanced search capabilities.[57] However, these directories generally lack verified information, and it is unclear whether they are updated periodically and reflect reality. They do not include a unified classification of companies and therefore are unreliable in advanced fields, such as building relationships between business-to-business (B2B) companies, and forging digital partnerships between government agencies among Arab countries (G2G). Ideally, these data, when available, form the nucleus of economic digital platforms between Arab countries, including digital integrated systems for investment, industry and trade.

In the Arab region, part of these data is usually available at ministries concerned with the management of corporate records (business register). Such data could already exist but not in a format that can be published, or records may not be designed to clearly show ICT activities in a separate classification or in a manner similar to other activities (such as trade in equipment).

Frame 11. List of targets and indicators related to Goal 3.1
Classify companies operating in the ICT sector and avail their data

Goal 3.1 – Classify companies operating in the ICT sector and avail their data.

Targets and indicators

Target 3.1.1 – Adopt a unified classification for companies operating in the ICT field in Arab countries, in accordance with international standards.

Indicator DDR_3.1.1.1 – Number of Arab countries that have adopted a unified international classification of the registers of companies operating in the fields of ICT.

- Baseline value: Unmeasured.
- Target value: Determined after approval of the classification by the relevant Arab organizations.
- Long-term target value: 22 countries.

Target 3.1.2 – Establish an Arab framework for the development and harmonization of business registers in Arab countries with the aim of facilitating access to statistical data on companies working in the ICT field.

Indicator DDR_3.1.2.1 – Number of countries that have adopted an Arab framework to facilitate access to statistical data on companies working in the ICT field.

- Baseline value: Unmeasured.
- Target value: Determined after creating the framework.

Box 11. Proposed actions to achieve Goal 3.1

- Adopt a unified classification for companies operating in the ICT sector in Arab countries, to be reviewed and periodically updated (e.g., every two or three years).

- Create incentives for companies to adopt the new classification in their official reports.

- Build a unified regional database for companies specializing in the ICT sector, in collaboration with relevant authorities (such as statistical agencies and chambers of commerce),and provide an easy and safe access to it.

Frame 12. List of targets and indicators related to Goal 3.2 Encourage investment in ICT companies

Goal   3.2 – Encourage investment in ICT companies.

Targets and indicators

○─ **Target 3.2.1 –** Develop investment in ICT companies.

Indicator DDR_3.2.1.1 – Value of the tangible and intangible assets of companies operating in the ICT sector.

○─ **Target 3.2.2 –** Increase financial institutions' investments in the venture capital of ICT companies.

Indicator DDR_3.2.2.1 – The contribution of venture capital investments in ICT sector companies.

Box 12. Proposed actions to achieve Goal 3.2

○ Launch programmes to support companies specializing in ICT, including:

→ Increase incentives to promote the growth of companies in the sector.

→ Implement tax breaks and simplify procedures related to this sector to attract foreign and domestic investment.

→ Encourage loans to startups and establish specialized funds to support them, especially those launched by young entrepreneurs.

→ Establish special economic zones and technological incubators.

→ Develop a co-financing mechanism affiliated with the League of Arab States (mechanisms could be part of existing funds, and preferably include the private sector, universities and research institutions in charge of the ICT sector development).

2. Research, development, innovation and measurement mechanisms in the field of ICT

ICT is one of the most advanced fields of technology in the modern world. It is a lever for the national economy and for development in the Arab region, as many ICT innovations contribute not only to the development of the sector itself, but to all other sectors. Such developments would not have been possible without significant investments in research and development (R&D) in ICT technologies. Government investment in research and development is one of the areas with the highest returns in economic terms, and in development in general. The global average return on government investment in research and development over the past decade was around 20 per cent, greater than returns on investments in asset classes such as stocks and bonds. This investment is important since this return is distributed over various types of economic activities, and is not limited to the sector itself.[58]
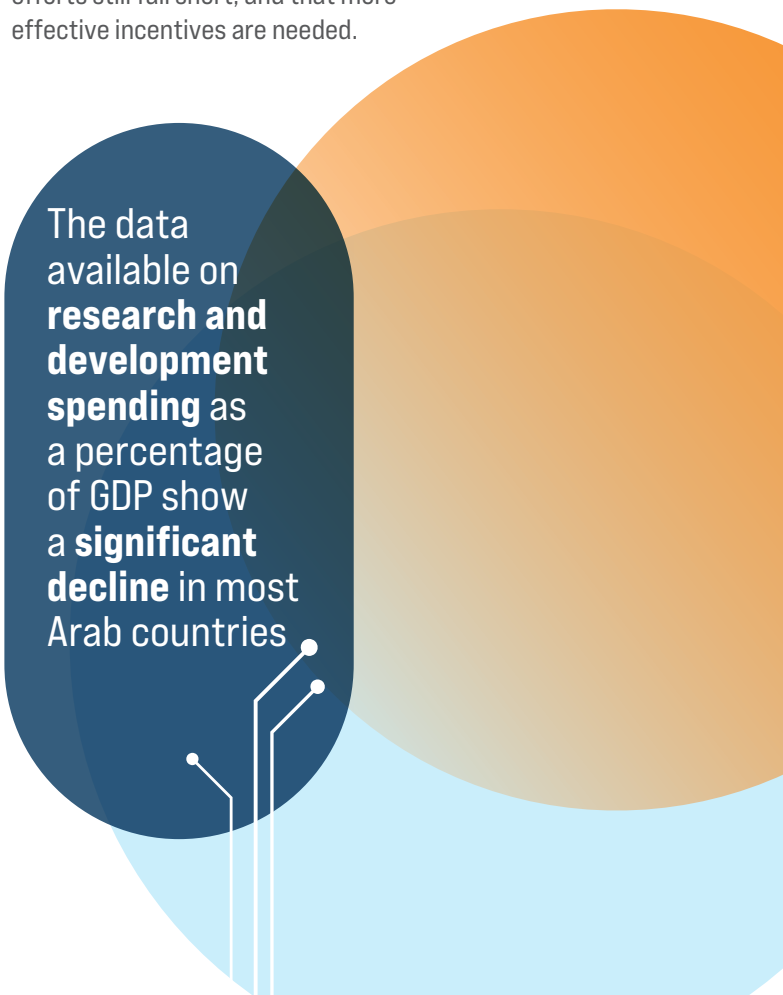
According to the Arab Digital Development Report 2022, several Arab countries have research and development strategies, whether general or sectoral, specializing in ICT fields. In most cases, however, these strategies still need mechanisms for their implementation, the most important of which is funding and building an integrated system for research, development and innovation. While a few countries have succeeded in building integrated systems, most are still far from completing the components of these systems. Consequently, the implementation of most strategies remains partial and limited, and there is insufficient quantitative data to assess progress in implementation. Further efforts are therefore needed in this area.

The few data available for recent years on research and development spending as a percentage of GDP show a significant decline in most Arab countries. This is evident in the average of Arab countries, which is almost a third of the global average. The notable exception is the United Arab Emirates and, to some extent, Egypt, where rates are much higher than in other countries.

According to the UNESCO Institute for Statistics, spending on research and development is generally weak in Arab countries,[59] and there is a lack of sufficient and updated data to efficiently assess the situation. The data show that most Arab countries spend less than 0.9 per cent of their GDP on research and development, which is low compared with the global average of 1.93 per cent, and the middle-income country average of 1.3 per cent (figures for 2020). The persistence of these low rates means that developed countries, which have the capacity to fund research, can maintain their monopoly of ICT and related innovations. If Arab countries do not increase their spending rates, they will face great difficulties and strong competition globally from leading countries in the ICT sector, which will reap the largest share of jobs and tax revenues from the economic growth generated by these technologies, while Arab countries remain confined to consuming these technologies without profiting from them.

While the Arab Digital Development Report 2022 states that most Arab countries are encouraging investment in the ICT sector, the above figures show that these efforts still fall short, and that more effective incentives are needed.

The data available on **research and development spending** as a percentage of GDP show a **significant decline** in most Arab countries

Frame 13. List of targets and indicators related to Goal 3.3
Activate and revitalize R&D efforts in the ICT field

Goal **3.3 – Activate and revitalize R&D efforts in the ICT field.**

Targets and indicators

Target 3.3.1 – Increase the share of spending on R&D in the Arab region to keep pace with global levels and emerging economies.

Indicator INT_3.3.1.1 – Research and development expenditure as a proportion of GDP.
- Baseline value: Less than 0.64 per cent.
- Medium-term target value: Double the current value in each country.
- Long-term target value: Triple the current value in each country.

Target 3.3.2 – Achieve a tangible increase in the number of patents submitted by Arab countries.

Indicator INT_3.3.2.1 – Patent filings (as a percentage of the global total).
- Baseline value: Below 0.3 per cent of the global total.
- Medium-term target value: 1 per cent of the global total.

Target 3.3.3 – Stimulate innovation in Arab countries.

Indicator INT_3.3.3.1 – Global Innovation Index.
- Baseline value: Four Arab countries are in the first half of the ranking.
- Medium-term target value: All Arab countries move up 10 places.

Box 13. Proposed actions to achieve Goal 3.3

- Launch joint Arab research programmes in areas related to digital technology.

- Provide incentives for R&D, including tax cuts, facilitate procedures, and establish zones for these activities.

- Activate partnerships and leverage R&D initiatives, programmes and grants from regional and international organizations.

B. Economic impact of ICT

1. Contribution of the ICT sector to the national economy

This refers to the contribution of the ICT sector to countries' GDP, in addition to its contribution to the growth of various sectors, such as education, manufacturing integration, trade exchange and automation.

ICT is one of the most important levers of economic and social development, so up-to-date data on ICT and its contribution to the national economy is of paramount importance. The few available statistics provided by the World Bank for Arab countries are old and outdated, and therefore difficult to rely on in strategic planning. In their data on the contribution of ICT to national economies, Arab countries show revenues from the telecommunications sector given the lack of data on other areas, such as sector expenditures, trade in ICT goods and services, and percentages of purchases on the Internet. There is therefore a need to include the measurement of the sector's economic contribution within the goals of the Agenda.

Frame 14. List of targets and indicators related to Goal 3.4
Monitor the contribution of the ICT sector to the national economy

Goal   **3.4 –** Monitor the contribution of the ICT sector to the national economy.

Targets and indicators

Target 3.4.1 – Enhance the periodic measurement of the contribution of the ICT sector to the national economy in all Arab countries.

Indicator DDR_3.4.1.1 – Number of Arab countries conducting periodic national measurements of the contribution of the ICT sector to the national economy.
- Baseline value: Unmeasured.
- Medium-term target value: 15 countries.
- Long-term target value: 22 countries.

Box 14. Proposed actions to achieve Goal 3.4

- Conduct national surveys on the contribution of the ICT sector to the national economy.
- Participate in similar international surveys that provide data on the digital economy and on the contribution of ICT to the national economy.

In the absence of reliable and updated direct indicators on this topic, sources of information were sought that could give a credible picture of the economic contribution of ICT in Arab countries. This contribution is typically reflected in trade figures, Internet activities, patents and the labour force in the sector.

The following three reliable sources used by key measurement models related to the ICT sector size were explored:

◌ Database of patent filings at the World Intellectual Property Organization (WIPO). Arab countries submit less than 0.5 per cent of the total number of patent filings worldwide, although there has been a clear increase in recent years in some Arab countries.[60]

◌ Mobile application development: this indicator within the GSMA Mobile Connectivity Index measures the ratio of active mobile applications developed to the number of people in a country.[61] Most Arab countries ranked in the second half of countries for this indicator in 2019.

◌ Digital participation and content creation subindex, which comprises three variables that measure the following activities performed by users from a country: the number of commits on GitHub, the number of edits on Wikipedia, and the number of top-level domains registered, including all possible domains (national, global and

multilingual). According to this subindex, in 2019, most Arab countries were in the fourth and fifth quintiles. There were a few countries in the third and second quintiles, but no countries in the first quintile.[62]

The 2022 WIPO Global Innovation Index ranks 132 countries, including 14 Arab countries (there are eight Arab countries not classified because of a lack of data). The vast majority of Arab countries fall in the second half of the ranking, although there have been improvements in the rankings of most Arab countries since the previous version, with more countries now in the top half and others strongly approaching the mid-point.[63]

As for the use of ICT in developing and increasing the efficiency of industrial production, Arab countries have been almost constant on the World Bank indicator of manufacturing value added as a percentage of GDP, at around 12 per cent over the past 10 years (up to 2020), while the global average is 15 per cent and the low-income and middle-income country average is 20 per cent.[64] This means that Arab countries have not benefited from ICT to adequately increase their industrial efficiency. It would be useful for countries to develop relevant strategies, which extend beyond the industrial sector to include all productive areas where digital technologies can increase their efficiency.

Overall, the passage of time without significant improvement in the contribution of ICT to the economy will deepen the existing difficulty, which can be summarized as follows: is there still an opportunity for Arab countries to catch up with innovation in ICT, especially that innovation is gradually concentrated in one limited set of countries, while other countries become merely markets for the consumption of services via local agents?[65] We live in an era of transnational giants that seek to constantly expand their markets and acquire initiatives and small businesses to prevent any chance of competition. Uber's purchase of Careem is a stark example of how difficult it is for national companies to persevere in the face of these giants' enormous ability to absorb local innovation and turn it to their advantage.

Frame 15. List of targets and indicators related to Goal 3.5
Promote the ICT sector in the Arab region

Goal **3.5 – Promote the ICT sector in the Arab region.**

Targets and indicators

Target 3.5.1 – Increase the number of companies specializing in emerging technologies in ICT fields.

Indicator DDR_3.5.1.1 – Number of companies specialized in emerging technologies (in ICT fields) in each country.
- Baseline value: Unmeasured.
- Target value: Determined later after the first measurement.

Target 3.5.2 – Increase the foreign direct investment attracted by ICT companies.

Indicator DDR_3.5.2.1 – Percentage of foreign direct investment in ICT companies.
- Baseline value: Unmeasured.
- Target value: Determined later after the first measurement.

Target 3.5.3 – Raise the share of the ICT sector's contribution to GDP.

Indicator DDR_3.5.3.1 – Share of the ICT sector's contribution to GDP.
- Baseline value: Unmeasured.
- Target value: Determined later after the first measurement.

Box 15. Proposed actions to achieve Goal 3.5

- Develop policies that ensure the appropriate environment to promote and launch companies specialized in emerging technologies in ICT fields.

- Attract foreign and domestic investment in ICT companies.

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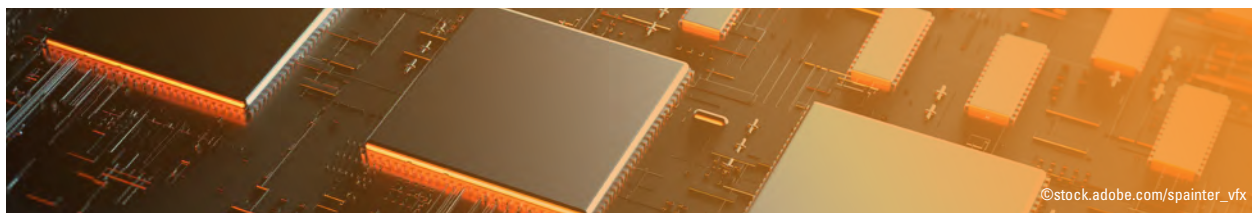
Frame 16. List of targets and indicators related to Goal 3.6
Enhance ICT use in the various productive sectors

Goal 3.6 – Enhance ICT use in the various productive sectors.

Targets and indicators

Target 3.6.1 – Develop private initiatives to introduce ICT in manufacturing, agriculture and other productive sectors in all Arab countries.

Indicator DDR_3.6.1.1 — Number of Arab countries that have approved plans to introduce ICT in manufacturing, agriculture, trade and other productive sectors.

- Baseline value: Unmeasured.
- Medium-term target value: 15 countries.
- Long-term target value: 22 countries.

Box 16. Proposed actions to achieve Goal 3.6

- Launch programmes and initiatives to provide an enabling environment to support the productive sectors through ICT, with a focus on the use of open sources and the exchange of experiences between Arab countries, relevant partners and stakeholders.

- Provide funding for the productive private sector to support digital transformation plans and projects in its various economic activities.

- Activate the Arab digital economy support fund.

- Encourage small companies to implement the Digital Agenda projects.

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2. Trade in ICT goods and services, and supporting services

This refers to the proportion of sales and purchases (exports and imports) of ICT goods and services (hardware and software) out of all goods and services.

According to the latest data available from the World Bank, ICT service exports in the Middle East and North Africa (MENA) region (excluding high-income countries) were just 4.4 per cent of total global ICT service exports in 2019, which is low compared to the global average of 11.5 per cent for the same year.[66]

Exports of ICT goods also made up a much lower proportion of the global average, according to the World Bank statistics for 2020, as the average value of Arab countries was only 4.1 per cent, which is less than a third of the global average of 12.7 per cent (in 2019) and 14.3 per cent (in 2020).[67]

Imports of ICT goods made up 9.4 per cent of imports of all goods in 2019 in Arab countries; however, by excluding high-income countries, the share drops to 4.8 per cent.[68] This means that Arab countries do not import enough goods that are essential for ICT advances (and do not produce them either).

Frame 17. List of targets and indicators related to Goal 3.7
Promote exports of ICT goods and services in Arab countries

Goal | 3.7 – Promote exports of ICT goods and services in Arab countries.

Targets and indicators

Target 3.7.1 – Increase exports of ICT goods.

Indicator INT_3.7.1.1 – ICT goods exports (as a percentage of total goods exports).
- Baseline value: 4.1 per cent (average value for Arab countries).
- Medium-term target value: Reach the global average.

Box 17. Proposed actions to achieve Goal 3.7

- Launch programmes and marketing initiatives for exports of ICT goods.
- Provide incentives to support companies exporting ICT goods.
- Raise the quality of ICT goods through awareness raising and training on international standards.
- Develop an Arab agreement to establish a unified Arab digital market, taking into consideration the Arab Trade Agreement.

3. E-business

This subcluster includes topics related to the availability of e-business services in Arab countries, in particular online banking and e-commerce. It is also concerned with the maturity of applications associated with these services, such as B2B and business-to-consumer (B2C) e-commerce, and the measurement of the availability and use of e-commerce standards (such as electronic payment systems) in various economic activities.

The Arab Digital Development Report 2022 concluded that the e-business sector is still developing in most Arab countries. While many Arab countries have laws on e-banking and e-commerce, some still struggle with limited e-payments and e-commerce transactions. The volume of online purchases is still small compared with physical purchases.

Online sales in the Arab region remain limited in general, at less than 2 to 3 per cent of total sales[69] compared with 21 per cent globally in 2021.[70] This percentage is expected to continue to rise owing to the COVID-19 pandemic, which caused a

significant decline in traditional businesses and pushed people towards e-commerce, even for basic necessities such as food, clothing and many other goods and services. E-commerce cannot be developed based on local markets alone, since most Arab countries with high income levels have limited populations (with the exception of Saudi Arabia), and their domestic markets are too small to attract service providers individually. The best solution would be to promote regional e-commerce so that national borders are not an obstacle to such trade (along the lines of the European Union and its Digital Single Market), but this requires many legislative and technical measures that have not yet been approved.

A study by Mastercard of people's desire to use electronic payments in several countries[71] found that there is a promising future for e-commerce in the region[72].

The following are key findings of this study:

1. Around 95 per cent of consumers in the MENA region will consider using at least one emerging payment method, such as cryptocurrency, QR codes and contactless payments (bank card or another technology such as a smartphone or a smartwatch).

2. Around 65 per cent of respondents said that, since the pandemic, they had tried new payment methods that they would not have used in normal circumstances.

3. Around 61 per cent of consumers in the MENA region said that they would avoid businesses that did not accept electronic payments of any kind.

4. Around 73 per cent of consumers in one Arab country said that e-payment methods helped them save money.

Taken together, these responses show that the development of e-business, especially e-commerce, has a promising future in the Arab region. National and regional Arab digital strategies should meet the aspirations of producers and consumers, so as to develop their mutual economic ties and to transform the economy into a modern model that attracts investments.

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Frame 18. List of targets and indicators related to Goal 3.8
Expand the e-commerce market in Arab countries

Goal **3.8 – Expand the e-commerce market in Arab countries.**

Targets and indicators

Target 3.8.1 – Increase the volume of transactions using e-commerce mechanisms.

Indicator INT_3.8.1.1 – Transactions using e-commerce mechanisms as a proportion of GDP in each country.

- Baseline value: Unmeasured.
- Medium-term target value: Three times the baseline value.

Indicator DDR_3.8.1.2 – Value of business-to-business (B2B) e-commerce transactions as a proportion of all e-commerce transactions.

- Baseline value: Unmeasured.
- Target value: Determined later after the first measurement.

Indicator DDR_3.8.1.3 – Number of Arab countries that have laws and/or regulatory frameworks related to e-commerce and e-payment.

- Baseline value: Unmeasured.
- Target value: Determined later after the first measurement.

Box 18. Proposed actions to achieve Goal 3.8

- Complete the package of legislation and rules regulating e-commerce and e-payment in Arab countries.

- Develop regulatory frameworks for financial technology services and coordinate with central banks and national and Arab financial institutions in this regard.

- Develop a legal and technical framework for regional cross-border e-commerce.

- Update the Greater Arab Free Trade Area (GAFTA) Agreement to include e-commerce.

- Develop periodic measurement to monitor the size of corporate e-commerce transactions.

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Frame 19. List of targets and indicators related to Goal 3.9
Positive adoption of digital currencies in accordance with a beneficial legal framework for the economy

Goal **3.9** – Positive adoption of digital currencies in accordance with a beneficial legal framework for the economy.

Targets and indicators

Target 3.9.1 – Develop appropriate regulations for digital currencies, enabling secure currency transfer and legal financing of commercial transactions in Arab countries.

Indicator DDR_3.9.1.1 – Number of Arab countries that have regulations for digital currencies.
- Baseline value: Unmeasured.
- Medium-term target value: At least 10 Arab countries.

Box 19. Proposed actions to achieve Goal 3.9

- Develop legislative frameworks for trading digital currencies that are accepted and issued by central banks (whether locally or internationally) in coordination with national and Arab financing institutions.

- Explore the possibility of issuing a unified Arab digital currency, guided by the visions of national central banks.

- Develop the necessary legislation and procedures for digital currencies, in coordination with central banks, taking into account the national readiness for their positive adoption, which may vary from one Arab country to another according to the status of the national economy.

4. Employment in the ICT sector

As at 2021, ITU statistics include data on the level of skills of individuals in the ICT field in 14 Arab countries.[73] Seven countries have crossed the threshold of 10 per cent of individuals with advanced skills, and five have crossed the 15 per cent threshold. These figures are relatively good in international terms, with 11 countries above 10 per cent globally and 6 above 15 per cent.

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Frame 20. List of targets and indicators related to Goal 3.10
Develop individuals' ICT skills

Goal **3.10 – Develop individuals' ICT skills.**

Targets and indicators

Target 3.10.1 – Enhance advanced ICT skills among individuals in all Arab countries.

Indicator DDR_3.10.1.1 – Proportion of youth and adults with ICT skills, by type of skill.
- Baseline value: Partly measured.
- Medium-term target value: All Arab countries above the 10 per cent threshold.

Box 20. Proposed actions to achieve Goal 3.10

- Work on developing and fostering advanced capabilities in ICT through collaboration between Governments, the private sector and civil society.

- Encourage the revision of educational curricula in accordance with the modern requirements of the labour market and the digital society.

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5. E-employment

This refers to the use of ICT as a means of searching and finding work (online, SMS, advertising, social and professional networks).

While there have been many initiatives to maximize jobs and direct employment opportunities generated by the ICT sector, statistics on employment growth in this area in

Arab countries and detailed information on youth employment, particularly young women, are not available. In addition, the lack of relevant statistics complicates assessing the balance between jobs generated by the sector and those that disappear due to automation in industrial, commercial and service processes. Despite the spread of e-employment mechanisms in many countries, remote work is still limited and focused on youth employment, while initiatives for remote work targeting women or persons with disabilities remain rare and limited to a few Arab countries.

Frame 21. List of targets and indicators related to Goal 3.11 Increase remote work opportunities

Goal | 3.11 – Increase remote work opportunities.

Targets and indicators

Target 3.11.1 – Increase remote work opportunities by leveraging ICT in Arab countries.

Indicator DDR_3.11.1.1 – Remote work opportunities as a percentage of all work opportunities in each country.
- Baseline value: Unmeasured.
- Medium-term target value: At least 1 per cent in each country.

Box 21. Proposed actions to achieve Goal 3.11

○ Use ICT tools and applications to encourage remote work.

○ Develop supporting frameworks to legalize remote work.

Frame 22. List of targets and indicators related to Goal 3.12
Increase companies' productivity by developing the capacities of employees in ICT

Goal 3.12 – Increase companies' productivity by developing the capacities of employees in ICT.

Targets and indicators

Target 3.12.1 –Develop training programmes for companies and their employees in ICT fields that are appropriate to economic sectors.

Indicator DDR_3.12.1.1 – Percentage of companies that have ICT training programmes in each country.
- Baseline value: Unmeasured.
- Medium-term target value: At least 10 per cent of companies in each country.

Box 22. Proposed actions to achieve Goal 3.12

- Provide awareness-raising and training programmes to urge companies and employers in different sectors to train workers in ICT fields.

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Cluster 4: Policies related to digital transformation and social inclusion

Topics under this cluster are divided into the following three main axes:

○ Ensuring the accessibility of digital transformation to the largest possible number of beneficiaries, whether individuals or institutions. This empowerment will not be effective unless digital transformation covers various aspects of life, adapting it to specific contexts to suit the needs of users.

○ Building the capacity of all in the field of ICTs for development, and developing the necessary skills to take full advantage of the information society.

○ Finding practical applications for digital transformation in the education, health and administrative fields.Describing the main ways to improve the ICT sector in the Arab region.

A. Enabling and providing universal access to information, knowledge, applications and content

ICTs allow people worldwide to access information, knowledge and content on the Internet (in all its forms) almost instantaneously, thus benefiting and empowering individuals, communities and societies.

This area aims to increase the overall ability of users to access, through ICTs, information relevant to their interests, various forms of knowledge, digital applications and content on the Internet.

Action line C3 of the WSIS Plan of Action requires that ICTs enable:

(a) Access to official public information;

(b) Access to scientific knowledge;

(c) Access to digital public libraries and archives;

(d) The use of ICTs for all initiatives;

(e) Access to open source data and free software;

(f) Public access to information.

1. Universal access: availability, development, affordability and adaptation

Universal access refers to the appropriateness and effectiveness of access for the following target groups:

○ Individuals in general (citizens, migrants, displaced persons).

○ Children (especially the marginalized).

○ Women (especially the marginalized).

○ Youth (especially the marginalized).

○ Older persons (especially the marginalized).

○ People with disabilities (especially the marginalized).

○ Other disadvantaged and vulnerable groups.

As at 2021, ITU statistics on ICT price basket show that the costs of broadband Internet access in Arab countries, whether fixed broadband or mobile

Internet, are high for a large segment of society.[74] The cost of fixed broadband Internet access is much higher than mobile broadband costs, and clearly exceeds the target set by the ITU Broadband Commission of 2 per cent of gross national income (GNI) per capita by 2025. Ten Arab countries achieve this goal in terms of mobile Internet access, compared with only three countries for fixed broadband. This may be related to the existence of good competition in the mobile phone market, while fixed Internet suffers from monopoly practices, especially monopoly over the access network (which remains the property of the main operator in many Arab countries). Moreover, mobile service has many more users in the region than fixed broadband, which may lead to better economies of scale. The cost of mobile service is steadily falling, while the cost of fixed phone service is declining more slowly.

Frame 23. List of targets and indicators related to Goal 4.1 Enable broadband Internet access at reasonable prices

Goal   4.1 – Enable broadband Internet access at reasonable prices.

Targets and indicators

○– **Target 4.1.1 – Reach a ceiling of 2 per cent of GNI per capita for the cost of Internet access in all Arab countries.**

Indicator INT_4.1.1.1 – Cost of mobile broadband Internet access as a percentage of monthly GNI per capita.
  - Baseline value: 10 countries meet the 2 per cent ceiling.
  - Medium-term target value: 22 countries meet the 2 per cent ceiling.

Indicator INT_4.1.1.2 – Cost of fixed broadband Internet access as a percentage of monthly GNI per capita.
  - Baseline value: 3 countries meet the 2 per cent ceiling.
  - Medium-term target value: 22 countries meet the 2 per cent ceiling.

Box 23. Proposed actions to achieve Goal 4.1

○ Work to reduce the cost of fixed broadband access as this serves families and contributes to the empowerment of vulnerable groups.

○ Take measures to embrace the trend towards reducing the costs of mobile broadband Internet access (such as increasing spectrum efficiency).

Regarding the digital divide in youth and women's access to the Internet, which is a key indicator of access, and according to the ITU Facts and Figures Report,[75] women's access to the Internet in the Arab region in 2022 was 65 per cent, which is good when compared with a lower-middle-income country average of 51 per cent and a global average of 63 per cent, especially since some Arab countries are classified as LDCs, among which the global average is 30 per cent.

The gender equality ratio is low in the Arab region at only 87 per cent on average, while the global average was 92 per cent in 2022. However, the region's average is higher than the lower-medium-income country average of 84 per cent. There has been significant improvement over the past three years, which must be maintained.

The proportion of youth using the Internet in Arab countries increased much faster than in other regions, from 68 per cent in 2019 to 79.6 per cent in 2022,[76] exceeding the averages of developing countries and of the world (74.8 per cent). During the same period, Internet penetration among youth in other regions was either constant or slightly increasing. These percentages indicate the keenness of Arab youth to adopt and use the Internet. However, the gap between the proportion of young and older people using the Internet remains high compared with developed countries, which is in line with the global trend where the younger generation is driving greater Internet use.

Frame 24. List of targets and indicators related to Goal 4.2
Promote Internet access for all segments of society, especially women

Goal   4.2 – Promote Internet access for all segments of society, especially women.

Targets and indicators

Target 4.2.1 – Increase Internet access rates among women in all Arab countries.

Indicator INT_4.2.1.1 – Gender parity score in Internet use.
- Baseline value: 87 per cent.
- Medium-term target value: Global average.

Target 4.2.2 – Increase Internet access rates among users in rural areas in all Arab countries

Indicator INT_4.2.2.1 – Percentage of Internet users in urban areas compared to those in rural areas.
- Baseline value: 1.42 per cent.
- Medium-term target value: 1.2 per cent.

Box 24. Proposed actions to achieve Goal 4.2

○ Participate in global statistics to better measure Internet access among all segments of society (especially women).

○ Develop capacity-building programmes for women on Internet use, with a focus on rural areas.

Frame 25. List of targets and indicators related to Goal 4.3
Strengthen digital accessibility for persons with disabilities in the Arab region, and enable them to access e-services

Goal 4.3 – Strengthen digital accessibility for persons with disabilities in the Arab region, and enable them to access e-services.

Targets and indicators

Target 4.3.1 – Achieve a significant increase in the number of Arab countries with a national digital accessibility policy for persons with disabilities.

Indicator INT_4.3.1.1 – Number of Arab countries that have a national digital accessibility policy for persons with disabilities.
- Baseline value: Unmeasured.
- Medium-term target value: 7 countries.

Target 4.3.2 – Build the capacity of Arab countries to achieve digital accessibility for persons with disabilities.

Indicator INT_4.3.2.1 – Digital Accessibility Rights Evaluation (DARE) Index.
- Baseline value: Two Arab countries ranked among the top twenty in the world.
- Target value: To be determined based on upcoming round of the DARE Index.

Box 25. Proposed actions to achieve Goal 4.3

- Launch awareness-raising and training programmes on digital accessibility.

- Develop national digital accessibility policies in line with digital transformation strategies and programmes.

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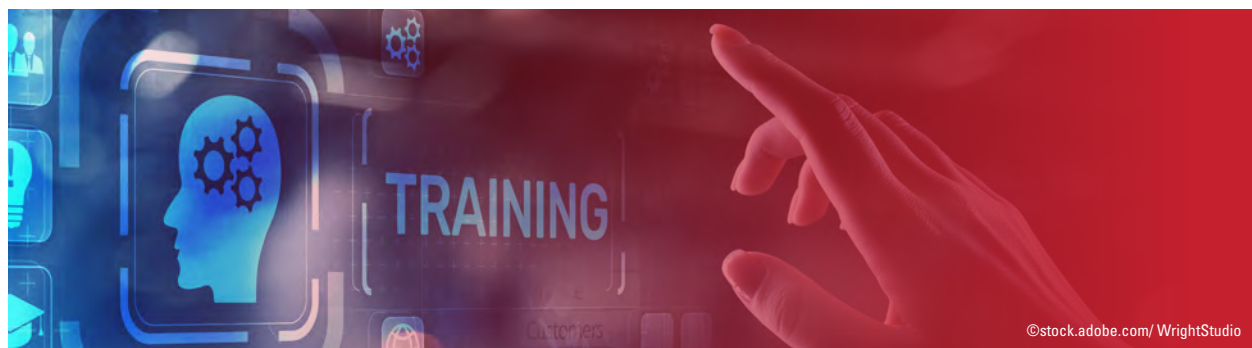
Frame 26. List of targets and indicators related to Goal 4.4
Empower youth through meaningful use of the Internet

Goal 4.4 – Empower youth through meaningful use of the Internet.

Targets and indicators

Target 4.4.1 – Promote and develop programmes to empower and protect youth in their meaningful use of the Internet in all Arab countries.

Indicator INT_4.4.1.1 – Number of Arab countries that have programmes to empower and protect youth in their meaningful use of the Internet.

- Baseline value: Unmeasured.
- Medium-term target value: 22 countries.

Box 26. Proposed actions to achieve Goal 4.4

- Include modules on the safe use of the Internet in school curricula.
- Prepare integrated curricula to raise awareness, empower and protect youth on the Internet.
- Establish national committees involving all relevant authorities to develop programmes and initiatives to protect youth online.

2. Empowerment: education, entertainment, political participation and economic return

This refers to identifying the main purpose of usage by targeted groups. There is insufficient data for analysis, yet it is necessary to set goals, even at a minimum level, for educational and essential healthcare uses, as they are key pillars of sustainable development and can greatly benefit from ICT.

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Frame 27. List of targets and indicators related to Goal 4.5
Enhance and improve access to the Internet in rural and remote areas

Goal 4.5 – Enhance and improve access to the Internet in rural and remote areas.

Targets and indicators

Target 4.5.1 – Increase access rates for schools, health and community centres, especially in rural and remote areas in all Arab countries.

Indicator INT_4.5.1.1 – Proportion of schools with Internet access.[77]
- Baseline value: Unmeasured.
- Medium-term target value: Twice the value after the first measurement.

Indicator DDR_4.5.1.2 – Percentage of health centres with Internet access.
- Baseline value: Unmeasured.
- Medium-term target value: Twice the value after the first measurement.

Box 27. Proposed actions to achieve Goal 4.5

- Activate universal service funds so that they are not limited to the traditional concept of financing individual access, but also covering the costs of connecting vital facilities together, including schools and health centres.

- Take measures to support education and scientific research networks in Arab countries and facilitate their connectivity to the Internet at reasonable costs, given the importance of the services and content they provide.

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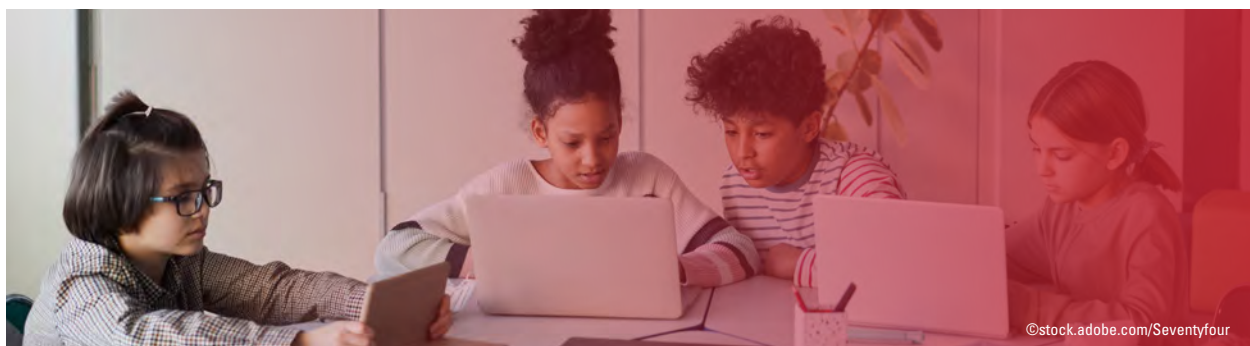
B. Building capacity in ICT for development

All members of society, according to their capabilities and needs, must possess the skills to take full advantage of the information society. Therefore, community capacity-building in the field of ICT is at the heart of inclusive and sustainable development. In this context, ICT can make a number of contributions, including the following:

○ Achieving education for all through the delivery of education services and teacher training, especially vocational and higher education in science, technology, engineering and mathematics (STEM).

○ Providing better conditions for lifelong learning, so that digital technologies can be employed to meet the needs of both men and women in advanced stages of life, and enabling people outside formal education to improve their professional skills in line with today's market demands.

○ Promoting contributions to social life, political participation and social cohesion, through various social, professional, academic, media and other digital communication platforms.

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Digital literacy initiatives should be **strengthened**

particularly those targeting

○ women
○ and marginalized groups

1. Use of ICT in education and training, including e-learning

Numerous initiatives have been launched to establish institutions and centres, some of which are affiliated with schools and universities, to provide training on ICT tools with the aim of increasing the capacity of citizens to benefit from ICTs. A few Arab countries also have virtual universities for distance education.

2. Training programmes for capacity-building in the use of ICT for development

Several measures have been taken to use ICT in education, including the use of e-learning in literacy and the inclusion of information technology in curricula. However, there is a lack of adequate computer labs, a weak digitization of curricula and a slow transition to e-books, which raise difficulties. Moreover, the launch of digital literacy initiatives, particularly those targeting women and marginalized groups, should be strengthened.

Frame 28. List of targets and indicators related to Goal 4.6
Enhance and improve access to the Internet in rural and remote areas

Goal 4.6 – Maximize the benefits of ICT in the education sector.

Targets and indicators

Target 4.6.1 – Increasing the number of users of e-learning and virtual learning in various fields, education levels and regions in all Arab countries.

Indicator DDR_4.6.1.1 – Percentage of those enrolled in e-learning and virtual learning in the country compared to total educational enrolment.

- Baseline value: Unmeasured.
- Medium-term target value: Twice the value after the first measurement.

Box 28. Proposed actions to achieve Goal 4.6

- Review the ICT curricula in formal education.

- Urge ministries of education and higher education to adopt virtual learning for basic and university education and lifelong learning and training.

- Activate the criteria for accrediting digital education, especially in ICT specializations.

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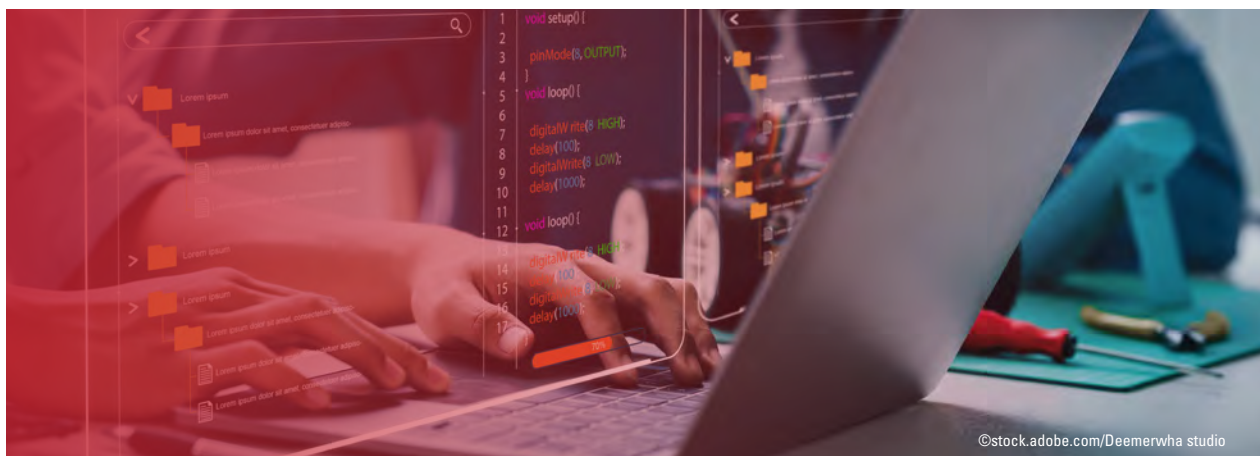
C. ICT applications

Within the framework of national e-strategies, ICT applications can support sustainable development in the areas of public administration, business, education and training, health and employment. These applications can either be back office (servicing and supporting the automation process or the application itself), or web or mobile applications.

1. E-government

E-government includes the use of ICT in the public administration of government agencies to facilitate and accelerate work between them and with citizens (such as administrative automation, automation of customs processing, automation of tax and revenue management systems, digitization of information, and remote interaction with all citizens).

When addressing e-government, the following aspects need to be considered:

○ The availability of e-government services and the coordination level between them, including interactions between central Governments and local authorities (G2G), interactions between

Governments and citizens through government portals (G2C), and interactions between Governments and businesses (G2B).

○ The availability and use of e-procurement applications.

○ The accessibility of these applications and services for persons with disabilities.

○ The existence of a government portal for electronic services and the nature of services it provides.

According to the Arab Digital Development Report 2022, most countries have e-government programmes with varying degrees of development. Some countries offer hundreds of electronic services to their citizens, while others offer no interactive services and only provide information and forms that can be downloaded, for example. A major obstacle to the progress and expansion of these programmes is a lack of electronic payment tools and electronic procurement.

According to the E-Government Survey 2022 conducted by DESA, most Arab countries score below the average of 0.61 on the E-Government Development Index (EGDI). However, the report noted significant improvement in the results of several countries that had made large strides towards the average compared with previous versions. Only a few Arab countries are in the highest ranking of "very high". The report also shows that many Arab countries have decent results in the Human Capital Index (which is a subindex of the EGDI), but lag behind in the other two indices, namely Online Service and Telecommunication Infrastructure.

The Arab Digital Development Report 2022

shows that

some countries **offer hundreds of electronic** services to their citizens

while others **offer no interactive services**
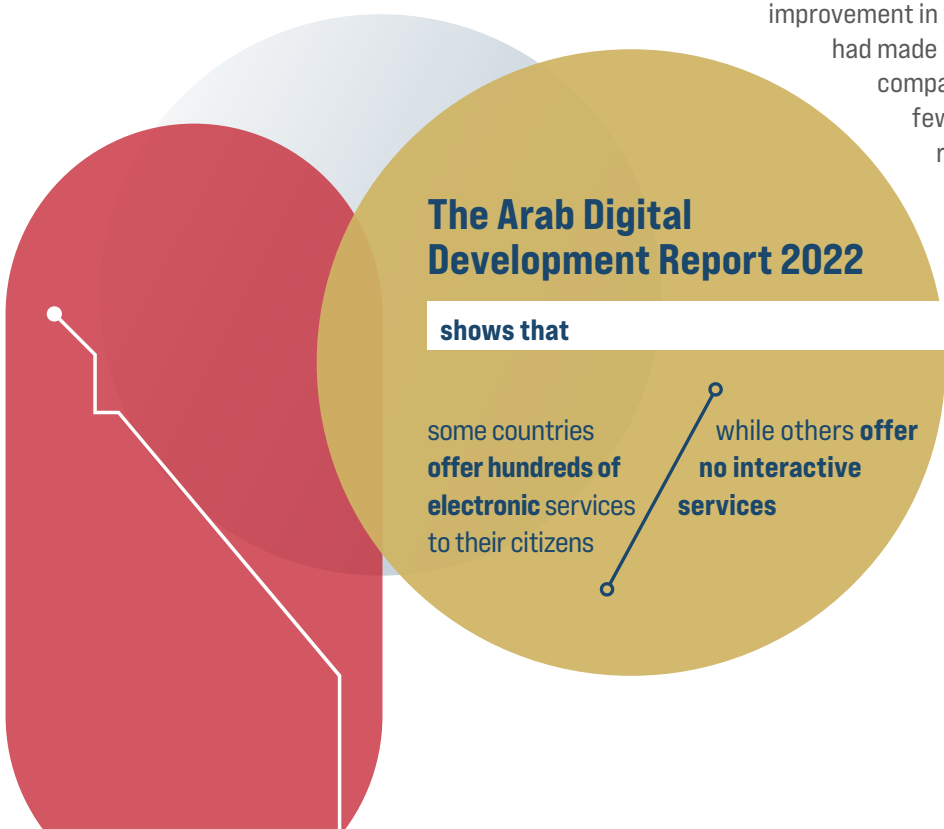
Frame 29. List of targets and indicators related to Goal 4.7
Develop integrated e-government infrastructure and services in Arab countries

Goal 4.7 – Develop integrated e-government infrastructure and services in Arab countries.

Targets and indicators

Target 4.7.1 – Increase the scores of Arab countries on the E-Government Development Index above the global average.

Indicator INT_4.7.1.1 – E-Government Development Index.
- Baseline value: 13 countries below average.
- Medium-term target value: All countries increase their score by at least 10 per cent.
- Long-term target value: 22 countries above the global average.

Target 4.7.2 – Ensure and enhance interoperability between e-government systems in Arab countries.

Indicator DDR_4.7.2.1 – Existence/development of a national interoperability framework in Arab countries.
- Baseline value: Unmeasured.
- Target value: Determined later after the first measurement.

Target 4.7.3 – Develop e-government services, expand the scope of their use and improve user satisfaction in all Arab countries.

Indicator INT_4.7.3.1 – Government Electronic and Mobile Services Index (GEMS).
- Baseline value: 13 countries.
- Medium-term target value: All countries make annual progress on the GEMS Index.

Target 4.7.4 – Strengthen open data initiatives in all Arab countries.

Indicator DDR_4.7.4.1 – Number of Arab countries that have initiatives in the field of open data.
- Baseline value: Unmeasured.
- Medium-term target value: 11 countries.
- Long-term target value: 22 countries.

Box 29. Proposed actions to achieve Goal 4.7

- Expand e-government services to make them interactive in all Arab countries.
- Develop common electronic services between Arab countries.
- Enact legislation and regulations related to open data.

Frame 30. List of targets and indicators related to Goal 4.8

Increase the efficiency and quality of infrastructure used in the provision of e-government services

Goal   Goal 4.8 – Increase the efficiency and quality of infrastructure used in the provision of e-government services.

Targets and indicators

Target 4.8.1 – Develop national data centres with cloud environments to provide e-government services in Arab countries.

Indicator DDR_4.8.1.1 – Number of Arab countries that have national data centres with cloud environments to provide e-government services.
- Baseline value: Unmeasured.
- Medium-term target value: 11 countries.
- Long-term target value: 22 countries.

Target 4.8.2 – Existence of regional data centres.

Indicator DDR_4.8.2.1 – Number of regional data centres.
- Baseline value: Unmeasured.
- Medium-term target value: At least one centre.

Box 30. Proposed actions to achieve Goal 4.8

- Develop national and regional cloud environments.
- Prepare Arab guidelines on cloud computing.

2. E-health

ICT applications can also be used to strengthen the health sector, and automate many related actions or data that improve its response to health challenges. This need has been confirmed in the light of the COVID-19 pandemic. When addressing e-health, a number of factors should be available at the State level (in addition to initiatives and projects for

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regional cooperation in the field of health), including the following:

○ Ensuring broad access to global medical knowledge and relevant content resources to advance public health, women's and men's health issues, and diseases such as HIV/AIDS, malaria, tuberculosis and COVID-19.

○ Identifying national programmes that address and promote sexual and reproductive health, targeting both men and women and raising awareness within the community.

○ Developing national programmes to combat epidemics, including malaria and COVID-19.

○ Using telemedicine for underserved areas and at-risk populations.

○ Ensuring the maturity and wide application of the following health-care information systems:

　○ Patient care management.

　○ Preservation of electronic health records.

　○ Pharmaceutical management.

　○ National health-care databases.

○ Using ICT systems to monitor and control the spread of infectious diseases, and to provide medical and humanitarian assistance in disasters and emergencies.

Most Arab countries provide online access to basic medical knowledge, including public health information for men, women and children. However, many advanced uses in this field remain rare and have limited impact, such as telemedicine and connections between hospital management systems and health centres. GCC countries have advanced digital portals to follow up on patients and ensure they get the right medicines.

Frame 31. List of targets and indicators related to Goal 4.9
Increase the efficiency of the health sector through ICT

Goal 4.9 – Increase the efficiency of the health sector through ICT.

Targets and indicators

Target 4.9.1 – Increase ICT use in the health sector in all Arab countries.

Indicator DDR_4.9.1.1 – Number of Arab countries using ICT in any e-health field.
- Baseline value: Unmeasured.
- Medium-term target value: 22 countries.

Box 31. Proposed actions to achieve Goal 4.9

○ Formulate national e-health strategies, including networked hospital management systems, pharmaceutical management systems, and telemedicine and digital health follow-up systems.

○ Take the necessary measures to ensure the quality, protection and privacy of electronic health records and data.

Cluster 5: Policies related to culture and media

A. Cultural identity and linguistic diversity

Cultural and linguistic diversity and respect for cultural identity and traditions are essential for the development of the information society. Digital content, particularly on the Internet, preserves language, facilitates its development, and promotes cultural diversity while sustaining socioeconomic development. In addition, digital content development can play a major role in preserving national heritage.

Using ICT to support cultural and linguistic diversity

This includes the following points:

○ Using ICTs in a country to preserve linguistic diversity and cultural heritage, and making them available as a living part of today's culture.

○ Strengthening the availability and development of information systems to ensure continued access to archived digital information and multimedia content in digital repositories, and support for archives and cultural collections such as museums and national libraries that constitute the human memory of societies.

○ Highlighting the development of national digital archives and digitizing public, heritage, scientific and cultural information.

○ Assessing the extent to which websites are used to preserve the cultural identity of individuals, peoples

and cultural groups, and to promote countries' linguistic diversity.

In the Arab region, there are no publicly accessible Arabic digital libraries like the famous Gutenberg project,[78] and most existing sites are individual efforts or commercial in nature. One of the most important libraries currently available is the UNESCO Arabic Digital Library, which is jointly supported and funded by 26 libraries and cultural bodies from 19 countries, including Arab countries. Yet despite all this support, this library contains just 2,400 documents that readers can read only page by page and cannot download to browsing devices.[79]

Over the past decade, many efforts have been made to adopt the Arabic script in domain names to overcome accessibility barriers to Arabic content on the Internet. Although many top-level domains for countries are registered in Arabic, their use remains limited (the number of registered domains ranges from 6 on the low end to about 2,800 in the countries with the most registrations, which is low compared to the equivalent domains in Latin script for the same countries).[80] There are no studies on the reasons behind the poor use of domain names in Arabic, but one key factor is certainly a lack of support by applications, especially e-mail applications. Accordingly, work is needed to strengthen global efforts for universal acceptance, which aims to enhance various applications' support to internationalized (non-Latin) domain names.

Frame 32. List of targets and indicators related to Goal 5.1
Promote Arabic cultural and media content on the Internet

Goal 5.1 – Promote Arabic cultural and media content on the Internet.

Targets and indicators

Target 5.1.1 – Increase the volume of Arabic cultural and media content on the Internet.

Indicator INT_5.1.1.1 – Percentage of digital Arabic content on the Internet.

Target 5.1.2 – Increase the percentage of web pages in Arabic.

Indicator INT_5.1.2.1 – Percentage of websites that provide content in the Arabic language.[81]
- Baseline value: 1 per cent of websites provide Arabic content (as of 3 October 2022).
- Long-term target value: Double the percentage of websites that provide content in the Arabic language.

Box 32. Proposed actions to achieve Goal 5.1

- Work to establish an Arabic digital library available on the Internet.

- Organize national and regional competitions to promote digital Arabic content.

- Develop applications that use new approaches (gamification & monetization) as they provide opportunities to enhance Arabic cultural and media content.

- Create a framework for measuring digital Arabic content on the Internet.

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Frame 33. List of targets and indicators related to Goal 5.2
Activate registration of domain names in Arabic

Goal   5.2 – Activate registration of domain names in Arabic and promote their acceptance.

Targets and indicators

Target 5.2.1 – Register top-level domains in Arabic for all Arab countries.

Indicator INT_5.2.1.1 – Number of Arab countries that have a country code top-level domain registered in Arabic.
- Baseline value: 15 countries.
- Medium-term target value: All Arab countries have Arabic country code top-level domains.

Target 5.2.2 – Increase the number of domain names for each country in Arabic.

Indicator DDR_5.2.2.1 – Percentage of domain names registered in Arabic in each country.
- Baseline value: To be determined.
- Long-term target value: Double the percentage of domain names registered in Arabic in all countries.

Box 33. Proposed actions to achieve Goal 5.2

- Encourage countries to complete the procedures for registering their country code top-level domains in Arabic.

- Work to increase accredited domain registrars in the Arab region.

- Activate the registration of Arabic country code top-level domains and public domains.

- Support global efforts for universal acceptance aimed at enhancing support from various applications to internationalized (non-Latin) domain names.

B. Media

1. Media diversity, independence and pluralism

This refers to the diversity and ownership of media in Arab countries; the availability of government support for media institutions, journalists and media personnel; the governance of the media sector, including legislation regulating the sector; the protection of media freedom; and the availability of multiple sources of information. In

addition, work must be done to increase the contribution of the media sector to supporting freedom of expression and the plurality of political and intellectual orientations. Attention should also be paid to how gender is portrayed in the media, the elimination of forms of discrimination in this regard, and the extent to which women are empowered in journalistic work, especially as editors-in-chief and journalists.

The media landscape in the Arab region is diverse, yet in many countries it is subject to government oversight and direct censorship. Digital media have increased and diversified sources of information, and reduced government censorship of the media in general. Many Arab countries have updated their media legislation to take electronic media into account, resulting in the emergence of many private electronic newspapers.

2. Media and its role in the information society

This refers to the role of media (including print and broadcast media as well as new media) in developing the information society. It also refers to the extent to which traditional media are used to bridge the knowledge gap and facilitate the flow of knowledge, especially in rural

areas. The role of the media in preserving the cultural identity of peoples and promoting the linguistic diversity of countries should be strengthened.

Traditional one-way media (print newspapers, radio and television) continue to be popular in Arab countries, yet they are coupled with the sustained proliferation of newer media.

3. Convergence between ICT and the media

This refers to national readiness for the convergence of television, the Internet and the telephone. Many Arab countries have joined the process of convergence between ICT and the media, reflected in updating legislation, establishing multidisciplinary regulatory bodies, or providing television content via the Internet. However, these experiments are still in their infancy, and require the application of the principles of technological neutrality and non-discriminatory spectrum assignment.

4. Social media

This refers to the extent to which social media plays a role in raising awareness and building the information society, and the extent to which it is used to preserve the cultural identity of individuals and ethnic and cultural groups, and to promote countries' linguistic diversity.

There is a general consensus on the benefit of social media in terms of accelerating social interaction, exchanging information, identifying problems at the local level, devising solutions, and increasing knowledge and creativity. This is always accompanied by discussions on the need for balanced use and attention to the problems that can emerge from the application of these technologies.

It is important to note the growing role of social media, which generates revenue by attracting users and then targeting them with advertising. There are many websites that have some type of media role, without being subject to the controls and expectations of media work or relevant legislation.

The role of media

in bridging

the knowledge gap, preserving the **cultural identity** of peoples and promoting the **linguistic diversity** of countries **should be strengthened**

Frame 34. List of targets and indicators related to Goal 5.3
Achieve convergence between ICT and the media

Goal   5.3 – Achieve convergence between ICT and the media.

Targets and indicators

Target 5.3.1 – Develop strategies to achieve convergence between ICT and the media in Arab countries.

Indicator DDR_5.3.1.1 – Number of Arab countries that have strategies to achieve convergence between ICT and the media.

- Baseline value: Unmeasured.
- Long-term target value: All countries.

Target 5.3.2 – Establish technological platforms specialized in providing access to media content.

Indicator DDR_5.3.2.1 – Number of Arab countries that have platforms specialized in providing access to media content.

- Baseline value: Unmeasured.
- Long-term target value: All countries.

Target 5.3.3 – Complete the laws related to publishing on the Internet, especially those related to communication with the public and intellectual property rights.

Indicator DDR_5.3.3.1 – Number of Arab countries that have laws dealing with issues of publishing on the Internet.

- Baseline value: Unmeasured.
- Long-term target value: All countries.

Target 5.3.4 – Issue the necessary regulations and licenses to provide access to media content via telecommunication networks, through collaboration between telecommunications regulatory authorities and media regulators.

Indicator DDR_5.3.4.1 – Number of Arab countries that have a licensing system that covers issues of access to media content through telecommunications networks.

- Baseline value: Unmeasured.
- Long-term target value: All countries.
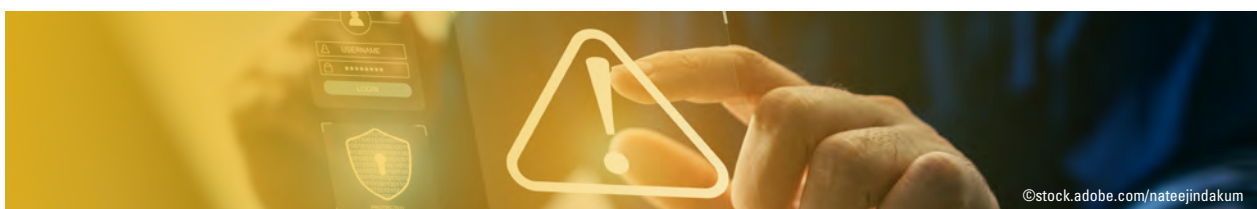
Box 34. Proposed actions to achieve Goal 5.3

- Formulate and implement official ICT and media convergence strategies.
- Build specialized platforms to provide dual or triple access services to media content.
- Prepare a guiding document on laws related to Internet publishing issues.
- Draft a guiding document on the communications licensing system that allows access to media content.
- Develop an Arab guiding model for ICT and media convergence strategies.

Frame 35. List of targets and indicators related to Goal 5.4
Maximize the benefits of social media while reducing its potential negative impacts

Goal 5.4 – Maximize the benefits of social media while reducing its potential negative impacts.

Targets and indicators

Target 5.4.1 – Develop specialized websites and platforms to detect fake news in Arab countries.

Indicator DDR_5.4.1.1 – Number of websites specialized in detecting fake news on the Internet.
- Baseline value: Unmeasured.
- Target value: Determined later after the first measurement.

Box 35. Proposed actions to achieve Goal 5.4

- Launch awareness-raising initiatives and programmes to benefit from social media and reduce its negative impacts.
- Develop awareness-raising programmes to address the misuse of ICT such as deepfakes and social engineering.
- Strengthen regional cooperation to develop a unified methodology for handling offensive content on social media.

Chapter three:
Implementation mechanisms of the Agenda
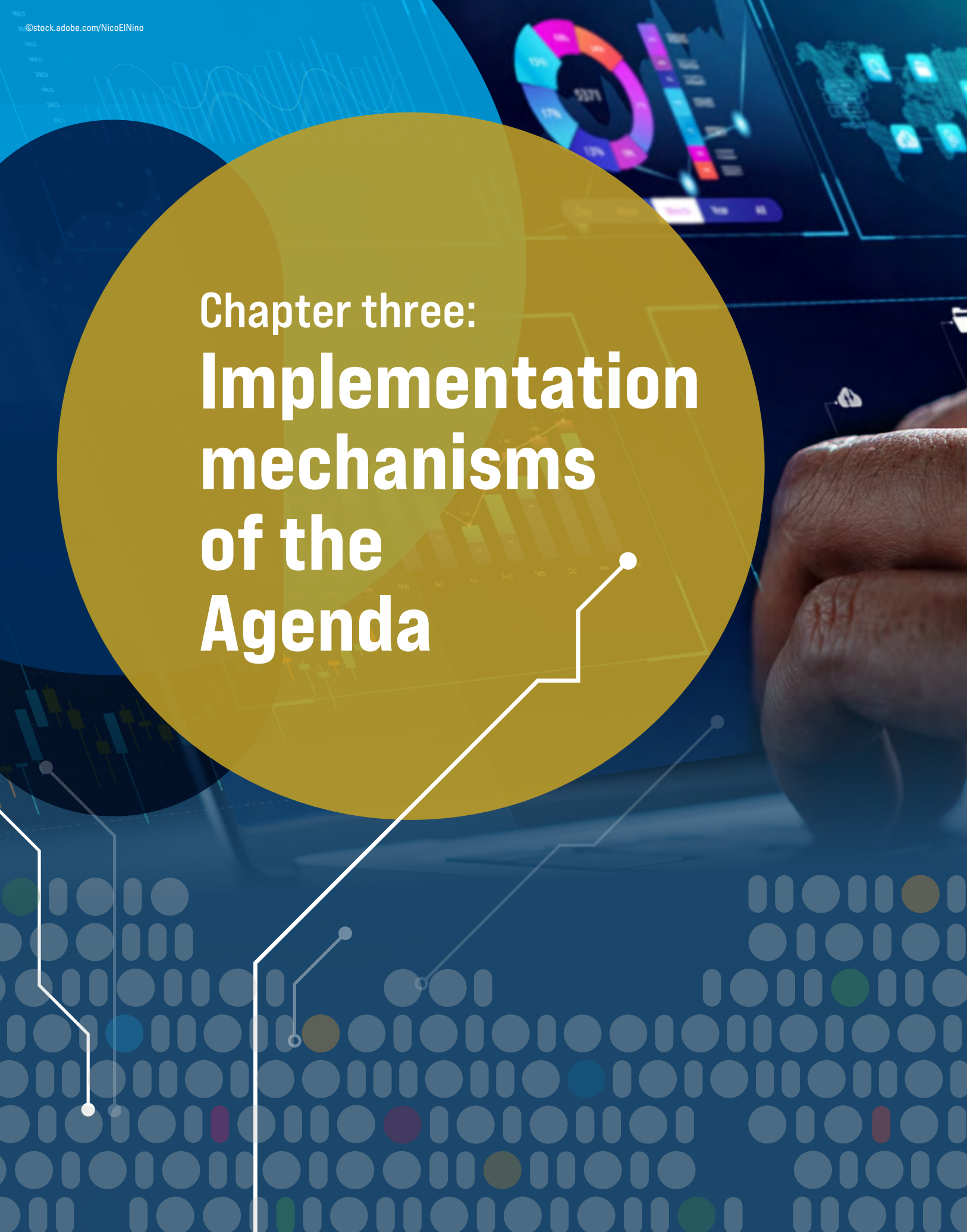
Chapter three:
Implementation mechanisms of the Agenda

To ensure the successful implementation of the Arab Digital Agenda's goals and targets within the set timeline, it is necessary to identify an appropriate implementation framework based on mechanisms derived from best practices and similar regional experiences, as explained in the sections below. It is also necessary to develop a dedicated mechanism for the periodic review of the Agenda, so as to update it in line with global and regional developments. In general, the Agenda's implementation process can be classified into the following three main areas: implementation mechanisms; analysis, monitoring and follow-up mechanisms; and management and sustainability mechanisms.

The pursuit of the Agenda's goals and targets aims to advance digital development for the purpose of inclusive development in the Arab region. The Agenda's implementation relies on the following principles:

○ Implementation cannot be limited to one party owing to the comprehensive, complex and cross-sectoral nature of the Agenda topics.

○ It should be accessible to all stakeholders, irrespective of their roles.

○ It can take place at the regional (bilateral or multilateral), national or local levels.

○ It can take place at the level of the Ministry of Information and Communication Technology or another competent ministry, and at the level of sectoral ministries such as the Ministry of Economy, the Ministry of Commerce, the Ministry of Health or even central banks.

○ It can be a continuation of existing efforts or take place through new initiatives or projects.

○ It does not have a specific starting point but has requirements for success (adoption, funding, resources, appropriate description) that need to be met for its inception.

○ There is no central authority entitled to initiate or suspend projects.

While the above-mentioned principles are open and flexible, the main and pivotal role in implementation lies with sovereign States at the national level, as regional development is only the accumulation of country-specific success and progress. Important regional coordination is undertaken by regional organizations and relevant United Nations organizations to avoid duplication or conflict of efforts, and to consolidate a course of action that serves the mission of the Arab Digital Agenda and helps achieve its goals and targets, through an inclusive and participatory process involving all stakeholders, according to their respective roles.

The Agenda's implementation process

can be classified into three main areas:

○ **Implementation** mechanisms

○ **Analysis, monitoring and follow-up** mechanisms

○ **Management and sustainability** mechanisms

Like the WSIS Action Lines, an implementation mechanism must be put in place that takes into account the inputs of all stakeholders equally.[82] Stakeholders should be responsible either at the level of a specific goal or at the level of a set of goals, with a specific regional programme concerned with a number of goals, projects and initiatives. The following matrix shows the distribution of roles through a participatory process aimed at promoting the implementation of goals by interested stakeholders:

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Table 3. Template of a matrix distribution of programmes, goals and stakeholders

Goals of the Agenda	Stakeholder 1	Stakeholder 2	Stakeholder 3	Stakeholder 4	Stakeholder 5	Stakeholder 6	Stakeholder 7	Stakeholder 8
Goal 1			▨	▨				
Goal 2	▨							
Goal 3	▨							
Goal 4	▨							
Goal 5					▨			
Goal 6					▨			
Goal 7					▨			
Goal 8		▨						
Goal 9		▨						
..			▨					
..			▨			▨	▨	
..			▨					
..								▨
Goal 35								▨

Figure 3. Example of the potential distribution of programmes among stakeholders according to the Agenda's conceptual framework

Arab Digital Agenda: goals, targets and measurement indicators				
	Policies related to infrastructure, governance and the legal environment	**Policies related to digital economy, employment and trade**	**Policies related to digital transformation and social inclusion**	**Policies related to culture and media**
Strategy: proposed actions to achieve the Agenda goals and targets	ICT infrastructure	Building the ICT sector	Enabling and providing universal access to information, knowledge, applications and content	Cultural identity and linguistic diversity
			Building capacity in ICT for development	
	Legal environment, ethics and trust building	Economic impact of ICT	ICT applications	Media
	Programmes, initiatives and projects			

Figure 3 shows several programmes in which one (or more) stakeholders can support one (or more) sub-programmes to achieve a portfolio of goals. Early in 2023, following the adoption of the Agenda, the relationship between programmes, stakeholders and goals will be articulated.

A. Implementation mechanisms

1. Scheduling implementation priorities

Based on the ESCWA conceptual framework for digital development, which consists of five clusters, chapter two of the Agenda presents the main goals and subgoals included under each cluster, following a situational assessment of digital development in the Arab region and the identification of implementation gaps. To be implemented, these goals require achieving a number of targets that are presented in detail in the agenda.

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Measurable and target-specific indicators have also been identified. The target values of each indicator were determined according to their baseline value captured during the Agenda's development phase. A number of necessary actions have also been proposed that directly contribute to achieving these goals.

The target values of indicators were distributed over the following three periods: the short term (2023–2026), the medium term (2027–2030), and the long term (2030–2033). To schedule implementation priorities, the short-term target values were analysed and the associated actions were studied to identify those to be implemented immediately after the launch of the Agenda.[83]

In addition to supporting existing efforts, initiatives and projects related to the Agenda, it is important to prioritize the set of actions necessary to support Agenda implementation.

A number of actions have also been identified that are linked to highly important goals, and can be transformed into effective initiatives through simple efforts and easily accessible funding. Most actions are based on existing or semi-existing structures, systems and mechanisms that can be upscaled and mainstreamed at the national and regional levels.

Figure 4. The Arab Digital Agenda timeframe

ADA	2023	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Three periods		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Short term 2023-2026	ADA adoption – edition 1.0		ADA 2.0								
Medium term 2027-2030						ADA 3.0					
Long term 2031-2033									ADA 4.0		

	Implementation mechanisms: scheduling implementation priorities – analysis, monitoring and follow-up mechanisms – management and sustainability mechanisms
	The Collaboration and Partnership Framework

2. Developing a methodology for listing, reviewing and approving projects and initiatives

After defining the Agenda's pillars, subthemes, goals, targets and actions, a set of relevant projects and initiatives were identified and included in the Collaboration and Partnership Framework. These projects and initiatives represent the implementation track of the Agenda, which begins with its adoption and official launch. This track is an implementation plan that achieves the Agenda's goals and targets in a gradual manner within specified time periods.

In this context, a special methodology was adopted to define initiatives and projects and determine how to include them under the Agenda. A form was formulated to describe a project or initiative, including the necessary information that must be provided by a project or initiative's owner. This form takes into account initiatives that may already exist (to prevent duplication and waste of resources) and the possibility of new partners joining them. It includes the following two main tables related to an initiative or project:

(a) The first table identifies linkages between the initiative and the Agenda's plan, goals and focus areas, and verifies its alignment with the SDGs and the Agenda's goals and indicators;

(b) The second table specifies activities supporting the initiative and the indicators measuring its success, and identifies the responsible entity, partners and funders, the financial value, the timeframe and other details related to the implementation of the initiative or project.

As part of efforts to forge partnerships and collaborations, it was announced that initiatives and projects that would contribute to achieving the Agenda's goals and targets could be submitted. According to specific mechanisms and criteria, the proposed initiatives would be considered by the Joint Technical Committee responsible for the follow-up of the Agenda's development, then submitted to the Working Group on the Arab ICT Strategy. This task will later be included in the mandate of one of the committees working on the Agenda's governance.

The process of accepting, reviewing and approving projects or initiatives is not time-bound and continues throughout the Agenda's lifecycle.

The continuous call for initiatives and projects related to the Agenda's goals relies on gradual implementation, as it is difficult to launch a large number of projects and initiatives at once upon the Agenda's approval. This would require mobilizing capabilities, forging partnerships and securing the necessary funding, which is a time-consuming process that needs project management studies.

A series of initiatives linked to highly important actions and goals have been identified, and are expected to be launched in the first implementation phase of the Agenda, as shown in box 36 under five clusters.

The Collaboration and Partnership Framework

represents

an **implementation plan** that **achieves the Agenda's goals** and targets in a gradual manner

Box 36. Initiatives proposed by members of the Joint Technical Committee as key implementation initiatives

Cluster 1: The national, regional and international strategic frameworks

- ESCWA initiative to promote and monitor digital development and its indicators in the Arab region.
- National monitoring centres for ICT indicators.
- The Arab International Digital Cooperation and Development Forum.

Cluster 2: Policies related to infrastructure, governance and the legal environment

- The Arab joint initiative for Internet infrastructure.
- The Regional Digital Trust Network (AAECA-Net), which is an open-ended project of the Arab ICT Organization since 2017.
- Establishing an Arab centre for cybersecurity, which includes a regional network of computer emergency centres recognized at the regional and international levels, and a monitor for cybersecurity indicators in the Arab region.
- Enhancing confidence, security and privacy in the use of telecommunications/information and communication technologies in the era of new and emerging digital technologies (ITU).
- Developing digital infrastructure for smart sustainable cities and communities (ITU).
- Developing means of digital regulation (ITU).

Cluster 3: Policies related to digital economy, employment and trade

- Creating a portal for Arab ICT companies.
- Promoting digital commerce in the Arab region.
- Building an integrated Arab vision for investments in digital technology companies that are competitive at the global level.
- Building capacities and encouraging digital innovation, entrepreneurship and future foresight (ITU).

Cluster 4: Policies related to digital transformation and social inclusion

- Establishing regional government data centres.
- ITU Regional Initiative on "Sustainable Digital Economy through Digital Transformation".
- Promoting e-accessibility (Arab Digital Inclusion Platform).
- The distance learning accreditation initiative.

Cluster 5: Policies related to culture and media

- Establishing a non-profit portal for Arab cultural content.

As mentioned above, the regional priorities and key outcomes of ITU conferences must be taken into account in the Agenda's implementation phase to reflect the decisions of Arab Governments regarding the ICT sector regionally and globally.

It is also necessary to take into account regional priorities, the outcomes of United Nations conferences, and ESCWA outputs on digital cooperation and digital development at the regional and global levels.

3. Linkages with forums supporting the Agenda's goals, targets and initiatives

This section summarizes the linkages between the Arab Digital Agenda and regional ICT events, such as the Arab Internet Governance Forum, the digital cooperation forums, and the Summit on the Information Society in the Arab region. These forums are a valuable opportunity to meet stakeholders, introduce the Arab Digital Agenda and its goals and initiatives, and invite those interested to contribute to its implementation according to their respective roles. A consultative conference and expert meetings on the Arab Digital Agenda, and the Arab International Digital Cooperation and Development Forum (including the fifth meeting of the Joint Technical Committee and the Core Research and Technical Cooperation Mechanism, and the first preparatory meeting for the second session of the Arab International Digital Cooperation and Development Forum 2023) were held in Dubai, the United Arab Emirates, from 25 to 27 October 2022.[84]

4. Developing national digital strategies and agendas in line with the Arab Digital Agenda

This track aligns with national digital development reviews, and primarily aims to encourage countries to prepare their national digital agendas, while taking advantage of data provided by these reports, and the capabilities of national teams that are in charge of data collection and coordination. It is directly related to one of the Agenda's goals (particularly in cluster 1) in which achieving progress – in line with the goals of the regional Arab Digital Agenda – allows decision makers to build a benchmark for the development of their national digital strategies, and therefore contribute to digital development, both nationally and regionally, in a consistent and integrated manner.

If there are national digital strategies or agendas (whether inclusive or sectoral), it is necessary to harmonize them with the Arab Digital Agenda, especially with regard to specific goals and targets adopted at the national level. This is a simple process in theory but it is essential, as it represents a quick starting point through which countries seek to achieve their national goals and targets, thus ensuring their effective contribution to the success of the Arab Digital Agenda in a synchronous, homogeneous and integrated manner.

5. Enhancing direct and indirect funding modalities

Direct funding includes the possibility of creating a fund or special account under the auspices of the League of Arab States. Such a fund could rationalize and coordinate the channelling and transfer of funds to priority projects, which would be identified through agreed mechanisms. Indirect funding is received through projects and initiatives included by partners and stakeholders within the framework of partnerships, as part of their efforts to support the implementation of the Arab Digital Agenda. Defining the standard operating procedures of funding, both direct and indirect, is the responsibility of the components described in the section on management and sustainability.

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B. Analysis, monitoring and follow-up mechanisms

To ensure quality and accuracy, a number of tracks supporting the Agenda's implementation were adopted.

1. The Arab Digital Development Report process and its related national digital development reviews

Since its inception, the Agenda's design has been closely linked, at the national and regional levels, to the digital development review process launched by ESCWA since 2018. The Agenda benefited from this process, which matured as a result of the revision of reports in collaboration with representatives and specialists from participating States. The Agenda's structure is based on a set of key thematic clusters and sub-clusters used in the digital development reports. Many indicators used to monitor and track the achievement of targets in the Agenda are used in national digital development reviews, and will be measured periodically through these reports. Box 37 shows the structure of the Arab Digital Development Report and its links to the Arab Digital Agenda.

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The Agenda's design

has been closely linked

at the **national** and **regional** levels, to the digital development review process launched by ESCWA since 2018

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Box 37. The Arab Digital Development Report: structure and linkage with the Arab Digital Agenda

The regional report prepared by ESCWA is mainly based on the national digital development reviews prepared by Arab countries. It also includes international data for comparisons and recommendations specific to Arab countries. The report consists of three main chapters, including several headings:

Chapter 1:
Shifts in digital technology trends and user behaviour at the international and regional levels

- The status of the world and the region in terms of using ICT, building the information society and foreseeing the digital future (through reports issued by specialized institutions in this regard).
- Analysing, coordinating and extracting useful data with a focus on digital development at the regional level.

Chapter 2:
Review of information society status in the Arab region

- Summary of the national digital development reviews formulated using the guiding manual based on the five clusters.
- Summary of the national reviews of Arab countries participating in the project, with the addition of analyses and comparisons that give an accurate picture of the status of the Arab region with regard to the development of the information society and sustainable development.
- Search for additional data and information issued by international and regional organizations that provide a clear and comprehensive picture of the regional situation.

Chapter 3:
The Arab Information Society from a development perspective

This chapter provides an analysis of the Arab Information Society, through a specific development perspective on inclusiveness in building the information society in the Arab region and empowering community members. It focuses on sustainable and resilient recovery from the COVID-19 pandemic, the economic and social situation, and the environmental dimensions of sustainable development to build a comprehensive and effective path towards achieving the 2030 Agenda.

Correlation between the Arab Digital Development Report and the Arab Digital Agenda

- The Arab Digital Agenda is designed based on the conceptual framework for digital development, which was developed by ESCWA for the preparation of national digital development reviews, and the Arab Digital Development Report.
- The information provided by the Arab Digital Development Report should be leveraged in a dual phase:
  → The preparation phase of the Arab Agenda, where the Arab Digital Development Report was adopted as an important source of data and analysis, among other sources.
  → The tracking and monitoring phase of the Agenda implementation, where the Arab Digital Development Report is a major source of indicators for monitoring.

National digital development reviews therefore support the implementation of the Arab Digital Agenda, as participating Arab countries contribute to the Agenda's formulation and implementation by preparing periodic digital development reports (national and regional) through the approved mechanism. The outputs of this track will constitute the main benchmark for the measurement and monitoring process that will take place during the Agenda's lifecycle, as part of the follow-up, management and sustainability mechanisms.

2. Measurement model and national observatories for digital development indicators

To inform the situational assessment of the Arab region in terms of digital development – and the process of conducting national reviews and preparing and using relevant reports to formulate the Agenda, monitor the implementation of its targets, and develop it periodically – it is necessary to undertake the following:

○ Establish national observatories that collect the necessary data to calculate the value of indicators used in the digital development reviews and in the measurement model, based on existing mechanisms in each country. All observatories should export the national indicator values using the format described in the measurement and monitoring model (annex 2).

○ Build a digital platform that allows the compilation and presentation of data resulting from national observatories, national and regional development reviews, project tracking reports, national agendas that keep pace with the Agenda, and decisions taken within the management and sustainability framework.

a. Interlinkages between national observatories and the Arab Digital Agenda

Most of the Agenda's goals are accompanied by measurable targets based on indicators defined within the measurement and monitoring model (annex 2), which is used in the development of national and regional reports and agendas. These indicators are divided into the following two groups:

○ International indicators that are measured and published by specialized organizations.

○ Indicators that are based on the national digital development reviews of Arab countries.

According to the Agenda plan, the values of indicators will be captured through **national observatories** established during the first implementation phase of the Agenda, and will build on the results of national digital development reviews and relevant international indicators. As a result, periodic monitoring reports will be issued to track the implementation of the Agenda's goals, and will be one of the components of the management and sustainability framework aimed at assessing the effectiveness and progress of the Agenda's implementation. At the time of the drafting of the present document, the measurement model was used to develop the Agenda's goals and targets, including 85 indicators, of which 24 were retrieved from international indicators (28 per cent) and 61 were derived from the Arab Digital Development review process (72 per cent).

b. Role of the national observatories in the periodic development of the Agenda

The periodic monitoring report is used to prepare the Agenda evaluation report at the end of each stage. The monitoring report includes an assessment and analysis of gaps between target values and the indicator values, which will help to prepare the necessary proposals to update the Agenda. These may include the following:

1. Taking new actions within the Agenda.

2. Adding new goals in the five clusters of the Agenda, if necessary.

3. Adjusting (by increasing or decreasing) the values of some targets and indicators.

4. Proposing that the Arab Telecommunications and Information Council of Ministers issues some recommendations to motivate countries to achieve the specified values and attain them faster, if necessary.

Box 38. Regional strategies, agendas and measurement models

Among the studied regional strategies, the Digital Agenda for Europe is the only one that includes a complete measurement model, while the Asian and African strategies do not include measurement mechanisms. In the Latin American Digital Agenda, there is a simpler measurement mechanism, which tracks many indicators, such as mobile access indicators including broadband access, and Internet access indicators for rural and urban households. Most of these indicators are related to infrastructure.

C. Management and sustainability framework

The management and sustainability framework stems from decisions taken at the twenty-fourth meeting of the Arab Telecommunications and Information Council of Ministers, held in December 2020, pursuant to a request from the League of Arab States to ESCWA on launching a joint technical cooperation project for the development and implementation of the Agenda and its plan. Accordingly, the partnership continues through the secretariats of the League of Arab States and of ESCWA, which complement each other to sustain the project, coordinate action and prepare inputs for the Working Group on the Arab ICT Strategy. This work is carried out with the participation of all partners from Arab and international organizations and countries that have joined the project since its inception. Partnerships have been built with a number of organizations that are active in various fields of digital development, as follows:

○ **Secretariat of the League of Arab States,** which consists of the Arab Telecommunications and Information Council of Ministers as a decision maker, and a specialized technical team, namely

the Working Group on the Arab ICT Strategy, which submits studies and proposals to the Council through the ICT Permanent Committee. This could be expanded through the creation of joint research working groups emanating from the Arab Telecommunications and Information Council of Ministers, and from other specialized councils in the League of Arab States (such as the Council of Arab Ministers of Economy and Trade, the Council of Arab Ministers on Sustainable Development, the Council of Arab Ministers of Social Affairs, the Council of Arab Ministers of Justice, the Council of Arab Ministers of Interior, and the Council of Arab Ministers of Information).

○ **Secretariat of ESCWA,** which is tasked with managing the technical cooperation project for the development and implementation of the Arab Digital Agenda and, where ESCWA constitutes the sustained house of expertise to manage this project, through the Core Research and Technical Cooperation Mechanism and the Joint Technical Committee.

Box 39. Key organizations

Partners from Arab organizations

○ Arab Information and Communication Technologies Organization (AICTO).

○ Arab Federation for Digital Economy / Council of Arab Economic Unity.

○ Arab Administrative Development Organization (ARADO).

○ Mohammed Bin Rashid School of Government in the United Arab Emirates.

○ Arab Academy for Science, Technology and Maritime Transport.

Partners from international and United Nations organizations

○ ITU Arab Regional Office, Cairo.

○ UNESCO Cairo Office.

○ UNCTAD, Geneva.

○ DESA, New York.

○ World Health Organization, Regional Office for the Eastern Mediterranean (WHO-EMRO), Cairo.

○ Food and Agriculture Organization (FAO) Regional Office for Near East and North Africa.

Presidency of the Working Group on the Arab ICT Strategy, and the Ministry of Communications and Information Technology in Egypt.

Annex 1:
Series of meetings to develop the Arab Digital Agenda

Annex 1 sets out the meetings held to develop the joint project between ESCWA and the League of Arab States for the development and implementation of the Arab ICT Strategy (the Arab Digital Agenda).

Date	Title
21 December 2020, online	ESCWA-League of Arab States workshop on building strategic partnerships for the development of the Arab ICT Strategy (Arab Digital Agenda), with the participation of United Nations organizations and Arab organizations and entities.
23–24 March 2021, online	First ESCWA-League of Arab States Joint Workshop on Developing the Arab Digital Agenda / Information and Communications Technology Strategy – A standalone side-event in parallel to the 32nd Working Group on the Arab ICT Strategy.
27 September 2021, online	ESCWA-League of Arab States joint project for the development and implementation of the Arab ICT Strategy (Arab Digital Agenda) – The first meeting of the Joint Technical Committee.
23–25 November 2021, hybrid, Semiramis Hotel, Cairo	ESCWA-League of Arab States joint project for the development and implementation of the Arab ICT Strategy (Arab Digital Agenda) – The second meeting of the Joint Technical Committee, including a workshop for researchers and experts from countries and organizations participating in the project, within the framework of the Core Research and Technical Cooperation Mechanism.
9 December 2021, video conference	The thirty-third session of the Working Group on the Arab ICT Strategy.
7–10 March 2022, hybrid, Royal Maxim Palace Kempinski Hotel, New Cairo	ESCWA-League of Arab States joint project for the development and implementation of the Arab ICT Strategy (Arab Digital Agenda) – The second expert group meeting for researchers and experts from countries and organizations participating in the project, within the framework of the Core Research and Technical Cooperation Mechanism.
23–26 May 2022, hybrid, Semiramis Hotel, Cairo	Regional expert group meeting on the Arab ICT Strategy (Arab Digital Agenda) and national digital development reviews; it discussed the interlinkage between both tracks, progress made and lessons learned (mid-term review).
4–7 July 2022, online	A series of events on the development of the Arab Digital Agenda (Arab ICT Strategy), in preparation for the fiftieth meeting of the Executive Bureau of the Arab Telecommunications and Information Council of Ministers. (The third meeting of the Joint Technical Committee, the second joint ESCWA and the League of Arab States regional workshop, and the thirty-fourth session of the Working Group on the Arab ICT Strategy).
4–6 October 2022, online	Fourth meeting of the Joint Technical Committee and the Core Research and Technical Cooperation Mechanism.
25–27 October 2022, United Arab Emirates	ESCWA-League of Arab States joint project for the development and implementation of the Arab ICT Strategy (Arab Digital Agenda), the consultative conference and expert meetings on the Arab Digital Agenda, and the Arab International Digital Cooperation and Development Forum (including the fifth meeting of the Joint Technical Committee and the Core Research and Technical Cooperation Mechanism, and the first preparatory meeting for the second session of the Arab International Digital Cooperation and Development Forum 2023).
16–17 November 2022, online	A workshop for the Joint Technical Committee and the Core Research and Technical Cooperation Mechanism, within the thirty-fifth meeting of the Working Group on the Arab ICT Strategy.
23–24 November 2022, Egypt	Fiftieth Meeting of the Arab ICT Permanent Committee.
22 and 23 January 2023, Egypt	The fifty-first meeting of the Executive Bureau of the Arab Telecommunications and Information Council of Ministers and the twenty-sixth meeting of the Council.

Annex 2:
Measurement and monitoring model

Indicators are used in a dual phase during the Agenda's lifecycle:

1. The analysis phase that allows monitoring and analysing the current situation, discovering weaknesses and strengths, and identifying gaps in the Agenda development process.

2. The implementation phase where indicators are used to track progress in the implementation of the agenda/strategy and to identify values for goals and indicators with a view to reaching them in the final phase of the agenda/strategy lifecycle (when possible), within the management and sustainability framework.

1. Symbols of indicators used in the Arab Digital Agenda

Each of the indicators used in the Arab Digital Agenda consists of two parts: the prefix and a set of digits, connected with a dash (_), as follows: prefix_digits; for example, DDR_1.2.3.4.

The prefix

○ **DDR:** shows that the indicator source is digital development reviews, (**D**igital **D**evelopment **R**eports), which are periodically issued by the Arab countries participating in this project.

○ **INT:** shows that the source of these indicators are reports or databases belonging to an international organization (**INT**ernational), notably United Nations organizations, ITU, the World Bank, UNESCO, ESCWA and others.

The digits

○ The first digit refers to the cluster to which this indicator belongs (DDR_**1**.2.3.4).

○ The second digit refers to the goal assigned to the cluster indicated in the first digit (DDR_1.**2**.3.4).

○ The third digit refers to the target of the goal indicated in the second digit (DDR_1.2.**3**.4).

○ The fourth digit refers to the indicator that measures/monitors the target indicated in the third digit (DDR_1.2.3.**4**).

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2. List of international indicators used in the Arab Digital Agenda

The following list presents selected international indicators (currently 24) that the experts participating in the development of the agenda agreed to use to measure and monitor the implementation of the Agenda goals and targets. A special booklet will be later issued, containing a practical guide to the basic information used to define each international indicator mentioned in the Agenda.

Indicator symbol	Indicator name	Source
INT_2.1.2.1	Digital maturity ranking according to the ICT Regulatory Tracker.	ITU
INT_2.1.2.2	Country readiness for digital transformation according to the Benchmark of fifth-generation collaborative digital regulation.	ITU
INT_2.3.1.1	Percentage of individuals using the Internet.	ITU
INT_2.3.2.1	Fixed broadband Internet subscriptions per 100 inhabitants, broken down by speed.	ITU
INT_2.3.3.1	Percentage of the population covered by at least a 4G mobile network.	ITU
INT_2.4.1.1	International bandwidth per Internet user.	ITU
INT_2.7.1.3	Number of Arab countries classified as at least "adequate" by the EU or any other entity in data protection.	EU
INT_2.8.4.1	Global Cybersecurity Index.	ITU
INT_3.3.1.1	Research and development expenditure (as a proportion of GDP).	UNESCO Institute for Statistics
INT_3.3.2.1	Patent filings (as a percentage of the global total).	WIPO
INT_3.3.3.1	Global Innovation Index.	WIPO
INT_3.7.1.1	ICT goods exports (as a percentage of total goods exports).	The World Bank
INT_3.10.1.1	Proportion of youth and adults with ICT skills, by type of skill.	ITU
INT_4.1.1.1	Cost of mobile broadband Internet access as a percentage of monthly GNI per capita.	ITU
INT_4.1.1.2	Cost of fixed broadband Internet access as a percentage of monthly GNI per capita.	ITU
INT_4.2.1.1	Gender parity score in Internet use.	ITU
INT_4.2.2.1	Percentage of Internet users in urban areas compared to those in rural areas.	ITU
INT_4.3.2.1	Digital Accessibility Rights Evaluation (DARE) Index.	Global Initiative for Inclusive ICTs (G3ict)
INT_4.5.1.1	Proportion of schools with Internet access.	UNESCO Institute for Statistics
INT_4.7.1.1	E-Government Development Index.	DESA
INT_4.7.3.1	Government Electronic and Mobile Services Index (GEMS).	ESCWA
INT_5.1.1.1	Percentage of digital Arabic content on the Internet.	To be determined
INT_5.1.2.1	Percentage of websites that provide content in the Arabic language.	http://w3techs.com
INT_5.2.1.1	Number of Arab countries that have a country code top-level domain registered in Arabic.	Internet Assigned Numbers Authority (IANA)

3. List of Arab indicators used in the Arab Digital Agenda

The following is a list of indicators included in the Arab Digital Agenda (currently 61 indicators) that are measured (or will be measured) directly through the monitoring and follow-up mechanisms applied during the Agenda lifecycle (some of which are already measured through the periodic reviews of the status of digital development in the Arab region).

In the upcoming period, these indicators and their metadata will be developed with a guide to measure them, in partnership with member States and organizations joining this project.

Indicator symbol	Indicator name
DDR_1.1.1.1	Number of Arab countries that have comprehensive national digital strategies or digital development agendas.
DDR_1.1.2.1	Number of Arab countries that have an ICT sector strategy.
DDR_1.1.3.1	Number of Arab countries that have a sectoral policy/plan for digital learning.
DDR_1.1.3.2	Number of Arab countries that have a sectoral policy/plan for the digital economy.
DDR_1.1.3.3	Number of Arab countries that have a sectoral policy/plan for digital health.
DDR_1.1.3.4	Number of Arab countries that have a sectoral policy/plan for smart agriculture.
DDR_1.1.3.5	Number of Arab countries that have a sectoral policy/plan for smart transport.
DDR_1.1.4.1	Number of Arab countries that have a national policy/plan for cloud computing.
DDR_1.1.4.2	Number of Arab countries that have a national policy/plan for fintech.
DDR_1.1.4.3	Number of Arab countries that have a national policy/plan for cybersecurity.
DDR_1.1.4.4	Number of Arab countries that have a national policy/plan for the Internet of Things.
DDR_1.1.4.5	Number of Arab countries that have a national policy/plan for artificial intelligence.
DDR_1.1.4.6	Number of Arab countries that have a national policy/plan for the metaverse and virtual reality.
DDR_1.1.5.1	Number of Arab countries that periodically monitor and review the status of digital development at the national level.
DDR_2.1.1.1	Number of Arab countries that have special controls to encourage competition and control exclusivity.
DDR_2.2.1.1	Number of telecommunication or other digital services available regionally.
DDR_2.2.1.2	Number of Arab countries that have regulatory agreements for telecommunications or other digital services exchanged with other Arab countries.
DDR_2.5.1.1	Number of Arab countries that have at least one national Internet exchange point.
DDR_2.5.2.1	Number of regional IXPs.
DDR_2.5.2.2	Number of global content providers connected to regional IXPs.
DDR_2.5.3.1	Number of Arab countries connected to a regional IXP.
DDR_2.5.4.1	Percentage of intraregional data transferred without the need for international networks.
DDR_2.6.1.1	Number of Arab countries that have an effective national digital signature and certification authority.
DDR_2.6.2.1	Number of Arab countries that have mutual recognition agreements for digital signature services with other Arab countries.
DDR_2.7.1.1	Number of Arab countries that have updated laws for personal data protection.
DDR_2.7.1.2	Number of Arab countries that have personal data protection authorities.
DDR_2.8.1.1	Number of Arab countries that have updated laws to combat cybercrime and cybersecurity.
DDR_2.8.2.1	Number of Arab countries that have implemented the Arab Convention on Combating Information Technology Offences.

Indicator symbol	Indicator name
DDR_2.8.3.1	Number of Arab countries that have a national cybersecurity strategy.
DDR_2.8.5.1	Number of Arab countries that have national computer emergency response centres.
DDR_2.8.6.1	Number of Arab countries that have cooperation agreements with other Arab countries for coordination between national computer emergency centres.
DDR_3.1.1.1	Number of Arab countries that have adopted a unified international classification of the registers of companies operating in the fields of ICT.
DDR_3.1.2.1	Number of Arab countries that have adopted an Arab framework to facilitate access to statistical data on companies working in the ICT field.
DDR_3.2.1.1	Value of the tangible and intangible assets of companies operating in the ICT sector.
DDR_3.2.2.1	The contribution of venture capital investments in ICT sector companies.
DDR_3.4.1.1	Number of Arab countries conducting periodic national measurements of the contribution of the ICT sector to the national economy.
DDR_3.5.1.1	Number of companies specialized in emerging technologies (in ICT fields) in each country.
DDR_3.5.2.1	Percentage of foreign direct investment in ICT companies.
DDR_3.5.3.1	Share of the ICT sector's contribution to GDP.
DDR_3.6.1.1	Number of Arab countries that have approved plans to introduce ICT in manufacturing, agriculture, trade and other productive sectors.
DDR_3.8.1.1	Transactions using e-commerce mechanisms as a proportion of GDP in each country.
DDR_3.8.1.2	Value of business-to-business (B2B) e-commerce transactions as a proportion of all e-commerce transactions.
DDR_3.8.1.3	Number of Arab countries that have laws and/or regulatory frameworks related to e-commerce and e-payment.
DDR_3.9.1.1	Number of Arab countries that have regulations for digital currencies.
DDR_3.11.1.1	Remote work opportunities as a percentage of all work opportunities in each country.
DDR_3.12.1.1	Percentage of companies that have ICT training programmes in each country.
DDR_4.3.1.1	Number of Arab countries that have a national digital accessibility policy for persons with disabilities.
DDR_4.4.1.1	Number of Arab countries with programmes to empower and protect youth in their meaningful use of the Internet.
DDR_4.5.1.2	Percentage of health centres with Internet access.
DDR_4.6.1.1	Percentage of those enrolled in e-learning and virtual learning in the country compared to total educational enrolment.
DDR_4.7.2.1	Existence/development of a national interoperability framework in Arab countries.
DDR_4.7.4.1	Number of Arab countries that have initiatives in the field of open data.
DDR_4.8.1.1	Number of Arab countries that have national data centres with cloud environments to provide e-government services.
DDR_4.8.2.1	Number of regional data centres.
DDR_4.9.1.1	Number of Arab countries using ICT in any e-health field.
DDR_5.2.2.1	Percentage of domain names registered in Arabic in each country.
DDR_5.3.1.1	Number of Arab countries that have strategies to achieve convergence between ICT and the media.
DDR_5.3.2.1	Number of Arab countries that have platforms specialized in providing access to media content.
DDR_5.3.3.1	Number of Arab countries that have laws dealing with issues of publishing on the Internet.
DDR_5.3.4.1	Number of Arab countries that have a licensing system that covers issues of access to media content through telecommunications networks.
DDR_5.4.1.1	Number of websites specialized in detecting fake news on the Internet.

Annex 3:
Review of regional digital agendas

This annex provides a summary of the most important regional digital strategies, mostly in the form of "digital agendas" that define future goals for a specific timeframe in their respective regions, in addition to proposals for the required activities and deadlines to achieve the desired goals. Depending on available data, the summary also presents the mechanisms followed by these strategies/agendas in developing programmes and projects aimed at implementing the required actions by mentioning titles of the most important programmes and projects without details on their implementation. It describes the governance mechanisms used in approving the strategy components and tracking their implementation, and indicates measurement tools that help to compare the goal with achieved deliverables and, eventually, update the strategy based on new requirements.

1. Digital Agenda for Europe

The Digital Agenda for Europe (DAE) is one of seven flagship initiatives of the Europe 2020 strategy, entitled "A strategy for smart, sustainable and inclusive growth".[85] Launched in May 2010, the DAE aimed to identify the key enabling role that the use of ICTs would play if Europe were to achieve its 2020 ambitions.[86]

a. DAE goals and areas of action

DAE aims to set the path towards maximizing the development opportunities offered by ICTs in the social and economic fields, in particular the Internet, which represents a vital medium for economic and social activities, including doing business, work, entertainment, communication and the free expression of opinions. The successful implementation of the DAE will spur innovation and economic growth and contribute to improving the daily lives of citizens and businesses alike. Therefore, the broader dissemination and more effective use of digital technology would enable Europe to address its major challenges, and

provide Europeans with a better life by facilitating better health care, safer and more efficient transport solutions, a cleaner environment, new media opportunities, and easier access to public services and cultural content.

The DAE defines the main activities for Europe, therefore enabling it to systematically address challenges facing it. These challenges are classified into the following seven areas: (1) fragmented digital markets; (2) lack of interoperability; (3) rising cybercrime and risk of low trust in networks; (4) lack of investment in networks; (5) insufficient research and innovation efforts; (6) lack of digital literacy and skills; and (7) missed opportunities in addressing societal challenges. To address these problems, a number of 101 activities were identified and grouped into seven areas of action or pillars, as follows:

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○ **Digital single market:** During the DAE formulation, European e-markets were assessed as disconnected due to multiple barriers, affecting not only access to telecommunications services across Europe, but also what global Internet services and content should be.

○ **Interoperability and standards:** The EU has shown some weakness in the areas of digital space standard-setting and related public procurement and coordination between public authorities, which has prevented the digital services and devices used by Europeans from working together properly.

○ **Trust and security:** The DAE includes several important actions to address the concerns of people who may refrain from using online activities due to security concerns. These concerns are mainly attributable to ICT networks and end-user terminals, which remain vulnerable to a wide range of increased risks. Countering the spread of attacks is also becoming increasingly complex and costly.

○ **Fast and high-speed Internet access:** To keep pace with world leaders, such as South Korea and Japan, Europe needs download rates of 30 Mbps for all its citizens, and at least 50 per cent of European households need to subscribe to Internet connections with speeds above 100 Mbps by 2020.

○ **Research and innovation:** At the time of the programme's approval, the EU investment in ICT research was less than half of the United States investment in the field. The digital programme seeks to maintain Europe's competitiveness by increasing coordination and halting Europe's fragmented efforts.

○ **Promoting digital literacy, skills and inclusion:** At the time of the programme's approval, more than 50 per cent of Europeans used the Internet every day, but 30 per cent had never used it. As more and more daily tasks are carried out online, everyone needs enhanced digital skills to fully participate in society.

○ **ICT benefits for the EU community:** The digital programme focuses on using the power of ICTs to improve the quality of life in areas such as the environment, healthcare, cultural diversity and e-government services.

The DAE document did not include any operational items (such as programmes or projects), but strictly described pillars and sub-pillars (activities), which numbered 101 activities, in addition to thirteen main objectives. Until 2020, the DAE has given rise to several sectoral strategies, such as the Digital Single Market strategy adopted in 2015,[87] and several legislative initiatives and decisions taken at the level of European institutions (mainly the European Parliament and the European Council), with the aim of facilitating the implementation of the DAE goals. These include, for example, decisions on the EU-wide wholesale roaming rate, the facilitation of online buying and selling, the transnational transit of parcels to encourage European e-commerce, and the European cybersecurity decision.

b.   Governance model

Governance mechanisms

DAE governance is based on the mechanisms presented in figure A3.1. These mechanisms are embedded in EU institutions, which were built through decades of joint action.[88] Reports and proposals are submitted to the EU institutions (European Parliament and European Council), which, in their respective roles, take decisions and pass legislation to achieve the DAE goals. A simplified description of these mechanisms is provided below:

1. An annual report, known as the Digital Agenda Scoreboard, is prepared and includes an assessment of the 13 DAE goals.

2. An annual conference, the Digital Agenda Assembly, is held (in June) to discuss the report, assess implementation progress and diagnose challenges. It gathers representatives of EU member States and institutions (including the European Parliament) and representatives of citizens and industry bodies (including the ICT industry).

3. The results of the conference are presented in the form of a Yearly DA Communication report, which is submitted to the European Council for decision-making.

Figure A3.1 The DAE governance model
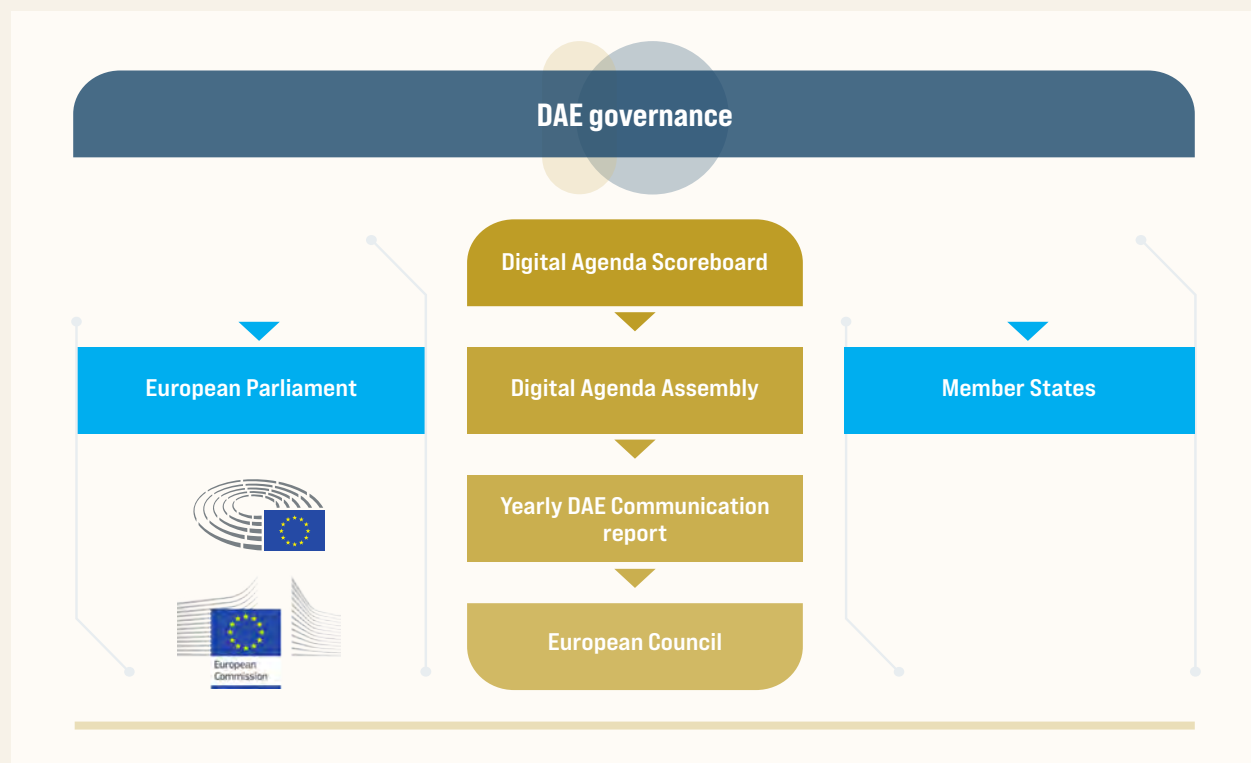
c. Measurement tools

To track and measure the success of the DAE implementation, its goals need to be compared with the achieved deliverables, especially since many of these goals are quantitative and measurable. For this purpose, the EU launched a special index,[89] the Digital Economy and Society Index (DESI),[90] which aims to measure the performance of EU member States in a wide range of areas directly related to the DAE areas of action, from measuring connectivity and digital skills to tracking the digitization of companies and public services. The values included in the index, are calculated annually and published in a special report on the DAE portal.[91]

d. Next phase

After the DAE implementation period expired, a European strategy for digital transformation was prepared. It is known as the Digital Decade and is considered, along with the "green transformation" (for the environment), as the pillar of the European

economy recovery following the COVID-19 pandemic. The strategy, which was submitted to the European Parliament on 9 March 2021, included the main themes and goals to be achieved by 2030 in four key areas: skills, government, infrastructure and the business sector.[92]

2. Digital Agenda for Latin America and the Caribbean

The first edition of the Digital Agenda for Latin America and the Caribbean (eLAC2018) was adopted in 2015 at the Fifth Ministerial Conference on the Information Society in Latin America and the Caribbean, which was held in Mexico. At the sixth Ministerial Conference on the Information Society in Latin America and the Caribbean, held in Colombia in April 2018, an updated version of the digital agenda (eLAC2020) was approved. The latest edition (eLAC2022) was launched at the Seventh Ministerial Conference on the Information Society in Latin America and the Caribbean, held on 26 November

2020.[93] The timeframe of this digital agenda is limited to two years, allowing for continuous review and development.

a. eLAC goals and areas of action

The updated eLAC contains 39 goals classified into the following nine areas of action:[94]

1. Digital infrastructure.
2. Digital transformation and the digital economy.
3. Digital government.
4. Inclusion and digital skills and other competencies.
5. Emerging technologies for sustainable development.
6. Trust and digital security.
7. Regional digital market.
8. Digital regional cooperation.
9. Combatting the pandemic and facilitating economic recovery and reactivation.

The emergence of the latest version of eLAC coincided with the COVID-19 pandemic outbreak, which significantly influenced the agenda orientations. The latest eLAC document included proposals aimed at strengthening the role of distance education in national education systems, supporting the qualification of teachers in the fields of

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digital training and supporting the development of digital educational content.

b. Governance model

Governance mechanisms

In its first editions, the eLAC did not include any governance procedures, but the publication of eLAC2020 in 2018 was accompanied by a definition of the governance structure. This structure carries out follow-up tasks, and consists of five components that work in mutual coordination and cooperation:[95]

1. The Ministerial Follow-up Conference, which evaluates the achievement of agreed objectives and the necessary changes or amendments to the follow-up mechanism.

2. The board of directors, which includes elected representatives of subregions. Its main tasks are to supervise activities within the framework of the programme, ensure compliance with the agreements adopted by the Ministerial Conference, act as a representative of the eLAC platform, organize cooperation activities at the regional and international levels, and establish supporting structures to assist it in the performance of its tasks.

3. National focal points that are designated by member countries and that establish mutual contact at the national level. The main tasks of focal points are to ensure the participation of their countries in the eLAC formulation; to ensure adequate support for the representation of their countries at the Ministerial Conference and its preparatory meetings; and to identify the focal points of working groups.

4. Working groups, considered as the main cooperation avenues for the eLAC success, are led by focal points and their task is to achieve the eLAC goals.

5. The Technical Secretariat led by the Economic Commission for Latin America and the Caribbean (ECLAC).

This structure has remained the same in the latest version of the strategy. For sources of information, this structure relies on regional cooperation procedures, which measure, analyse and discuss policies related to the strategy goals, as shown in figure A3.2:[96]

Figure A3.2 eLAC governance mechanism
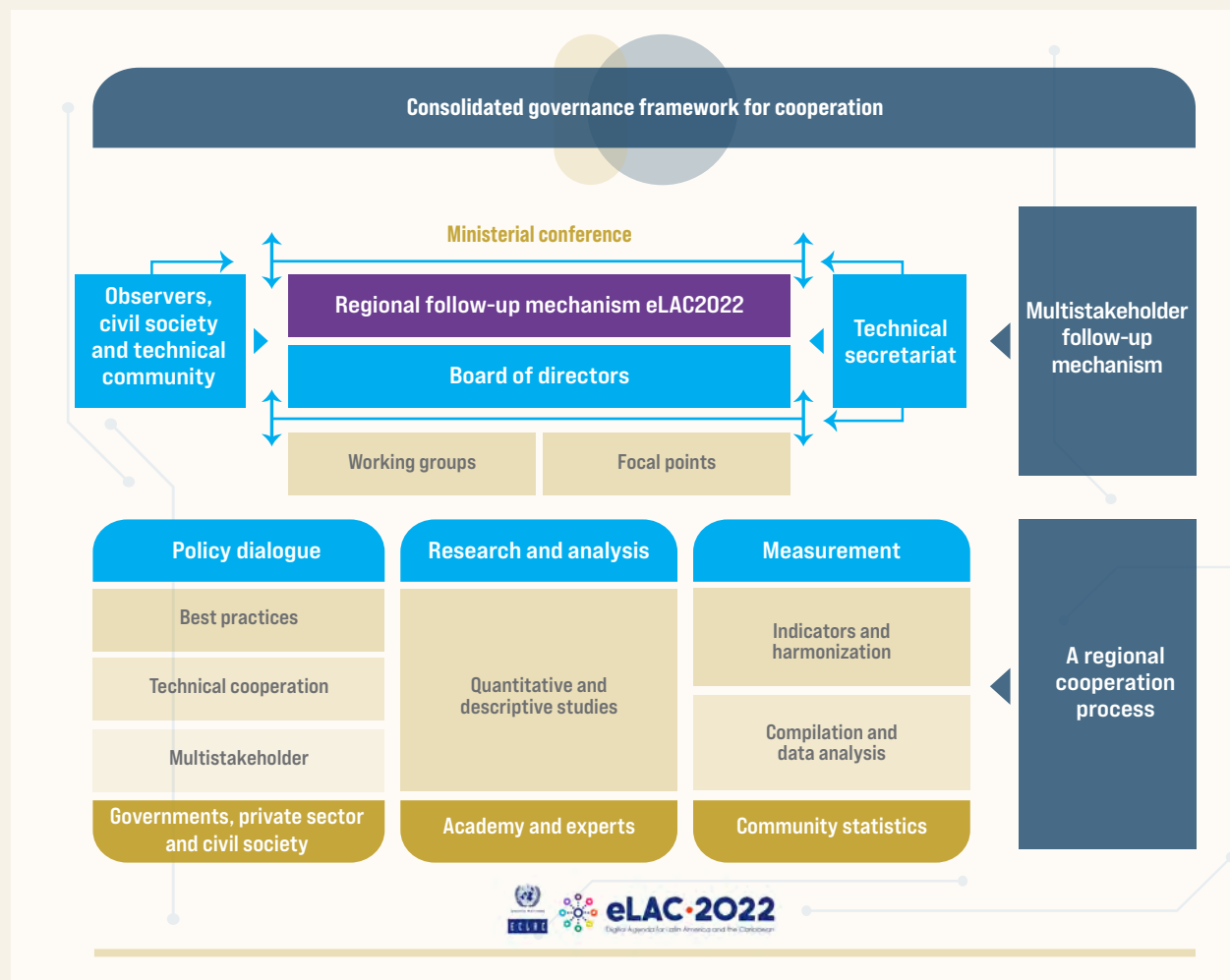
c. <u>Measurement tools</u>

eLAC does not include tools for measuring achievement, nor does it include quantitative and measurable goals. However, it relies on several general indicators to assess progress in achieving its goals, such as mobile access indicators, including mobile broadband access, and Internet access indicators for rural and urban households.

3. Digital Transformation Strategy for Africa

The Digital Transformation Strategy for Africa 2020–2030 is considered as the main document among the regional digital strategies of Africa. There are many other sector-specific strategies, such as the Digital Economy for Africa Initiative, the African Digital Identity Toolkit, the African Top-Level Domain Strategy (.africa), and the African Cybersecurity Strategy. **There is no clear correlation between any of these strategies and the Digital Transformation Strategy for Africa.**

This strategy is drafted as a master plan aimed at guiding a coherent digitization agenda that mobilizes the capacities of many implementing partners, avoids duplication of efforts and optimizes the investment of already limited resources. It was formulated by the African Union through a cooperative approach with various stakeholders, including international organizations and many

partner institutions. Several consultations were also held with the private sector and civil society institutions. It was finalized at the Extraordinary Summit of African Heads of State, which was held in Addis Ababa on 9–10 February 2020.[97]

Integrated and inclusive digital society and economy in Africa that improves the quality of life of Africa's citizens, strengthen the existing economic sector, enable its diversification and development, and ensure continental ownership with Africa as a producer and not only a consumer in the global economy.

The overall objective of the strategy is to rely on digital technologies and innovation to achieve the transition of Africa's societies and economies to the modern digital age, with the aim of promoting integration in Africa, generating inclusive economic growth, stimulating employment generation, bridging the digital divide between Africa and the rest of the world, eradicating poverty, and achieving economic and social development.

a. Strategy goals and areas of action

The strategy includes 17 objectives divided into the following four themes:

1. Enabling environment, policies and regulations.
2. Digital infrastructure.
3. Digital skills and human capacities.
4. Digital innovation and entrepreneurship.

Most goals do not include specific measurable targets (with the exception of the goal related to Internet access rates, speed and cost).

In addition, the strategy identifies a number of vital sectors where digital technology will be introduced, such as digital industry, digital commerce and financial services, digital government, digital education, digital health, and digital agriculture. It also identifies many cross-sectoral areas that support the digital ecosystem, including digital content and applications, digital identity, emerging technologies, cybersecurity, privacy and protection of personal data, and research and development.

The strategy contains the following sections (for each goal):

1. General definition of the goal.
2. Current situation and analysis of the problem.
3. Proposed policies and auxiliary actions.

b. Governance model and follow-up mechanisms

As the strategy is still in its early stages, it does not include any description of governance and follow-up processes, nor does it include evaluation and feedback mechanisms, which could be developed later (as in eLAC).

c. Measurement tools

The strategy does not mention any specific tools to measure progress in the implementation of its goals.

4. Asia-Pacific Information Superhighway

At its seventy-third meeting in 2017, the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) endorsed the master plan and regional cooperation framework for the Information Superhighway in South-East Asia. These two complementary documents constitute together the Asia-Pacific Information Superhighway (AP-IS) strategy (or initiative). The main objective of the strategy is to bridge the digital divide between countries of that region, which show substantial variance in ICT growth indicators.

The master plan includes several strategic initiatives and specific goals with set timeframes for the period 2019–2022.[98] It is divided into four main pillars, all of which revolve around basic infrastructure and regional coordination at the level of legislation, regulations and controls to respond to the main problem facing the region, namely digital divide.

ESCAP began developing the AP-IS strategy by conducting a situational analysis, which showed that international connectivity in the Asia-Pacific region relied mostly on submarine cables, and that many countries suffered from poor and unreliable communications infrastructure. The lack of optical links between countries has resulted in limited international bandwidth available to each individual,

especially in landlocked countries that have no access to submarine cables. Studies have found a digital divide in low-income countries, and even in emerging economies, and highlighted the need for policies aimed at increasing access rates. Based on these results, the AP-IS strategy was launched to be a catalyst for the development of regional broadband networks, improving reliability and failure resistance, and resolving coverage and cost problems, thus contributing to bridging the digital divide at the intraregional and interregional levels. It also serves to support the achievement of SDGs and stimulate the growth of digital economy in the Asia-Pacific region.

a. Goals and areas of action

The master plan includes the following four main pillars:

1. **Strengthen regional broadband connectivity** through cross-border network building and transit rights negotiations.

2. **Establish policies and systems for intraregional Internet traffic management through more efficient management** of regional traffic within subregions.

3. **Promote resilience in ICT infrastructure** that should continue to function despite natural disasters.

4. **Achieve broadband Internet access** for all by reducing access costs at the national and regional levels.

The master plan has identified three main goals for the medium term (2019–2022):

1. **Achieve an affordable and highly reliable regional Internet connection** by identifying missing links and mobilizing multi-sectoral capacities to extend optical fibres, improving the regulatory environment, and promoting open access to necessary infrastructure.

2. **Build a sufficient number of IXPs at the national and subregional levels** (the region includes five subregions), and apply the generally accepted rules in the management of Internet traffic to improve the quality of service and reduce high transit costs.

3. **Increase broadband access** rates by improving the regulatory environment and market practices in the

region that often limit competition in international transit markets and connectivity in the national infrastructure. Thus, accelerating regulatory reforms in terms of connectivity costs (locally and internationally) is a high priority among measures aimed at reducing the cost of Internet access.

The master plan also included a number of initiatives to improve broadband connectivity in the region, based on key issues identified by member countries and partners at the first session held in 2017, as follows:

- **First initiative:** Identify, coordinate, deploy, expand and integrate regional backbone networks, in collaboration with member countries and subregional organizations.

- **Second initiative:** Establish a sufficient number of IXPs at the national and subregional levels and set out common principles on Internet traffic exchange to decrease transit costs and improve service quality.

- **Third initiative:** Conduct socioeconomic studies to monitor digital development at the regional level.

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○ **Fourth initiative:** Enhance ICT infrastructure resilience in the Asia-Pacific region.

○ **Fifth initiative:** Develop policies and regulations for leveraging existing infrastructure, and inclusive broadband initiatives.

○ **Sixth initiative:** Build capacities in all digital fields.

○ **Seventh initiative:** Create project financing mechanisms based on public-private partnerships.

For each of these initiatives, the master plan provides an accurate description in two tables. The first table, which aims to link the initiative to the master plan and its objectives, includes the following areas:

○ Related information society action lines (WSIS Action Lines).

○ SDGs (SDG targets).

○ SDG indicators.

○ AP-IS targets (e.g., achieving at least one direct fibre link to a neighbouring country).

○ The outputs of the initiative related to the AP-IS master plan outputs (e.g., developing

regional networks for telecommunications infrastructure).

○ AP-IS focus areas (e.g., identifying missing links).

The second table, on the implementation of the initiative itself, identifies the following areas:

○ Supporting activities.

○ Success indicators.

○ Responsible party.

b. **Governance model**

AP-IS is based on a two-tier governance model, as shown in figure A3.3:[99]

1. **Subregional level:** In each subregion, a steering committee is formed to study potential initiatives that can be launched at the subregional level and their compatibility with the overall AP-IS strategy objectives, in cooperation with relevant partners from international and regional organizations and bodies.

2. **Asia-Pacific level:** The senior steering committee fulfils follow-up, coordination and advisory functions for the subregional committees, reporting to various governmental organizations through the ESCAP Secretariat.

The master plan is not a substitute for national initiatives or those of other ICT stakeholders, but rather aims to add further momentum to those initiatives by achieving the master plan objectives.

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Figure A3.3 AP-IS governance model
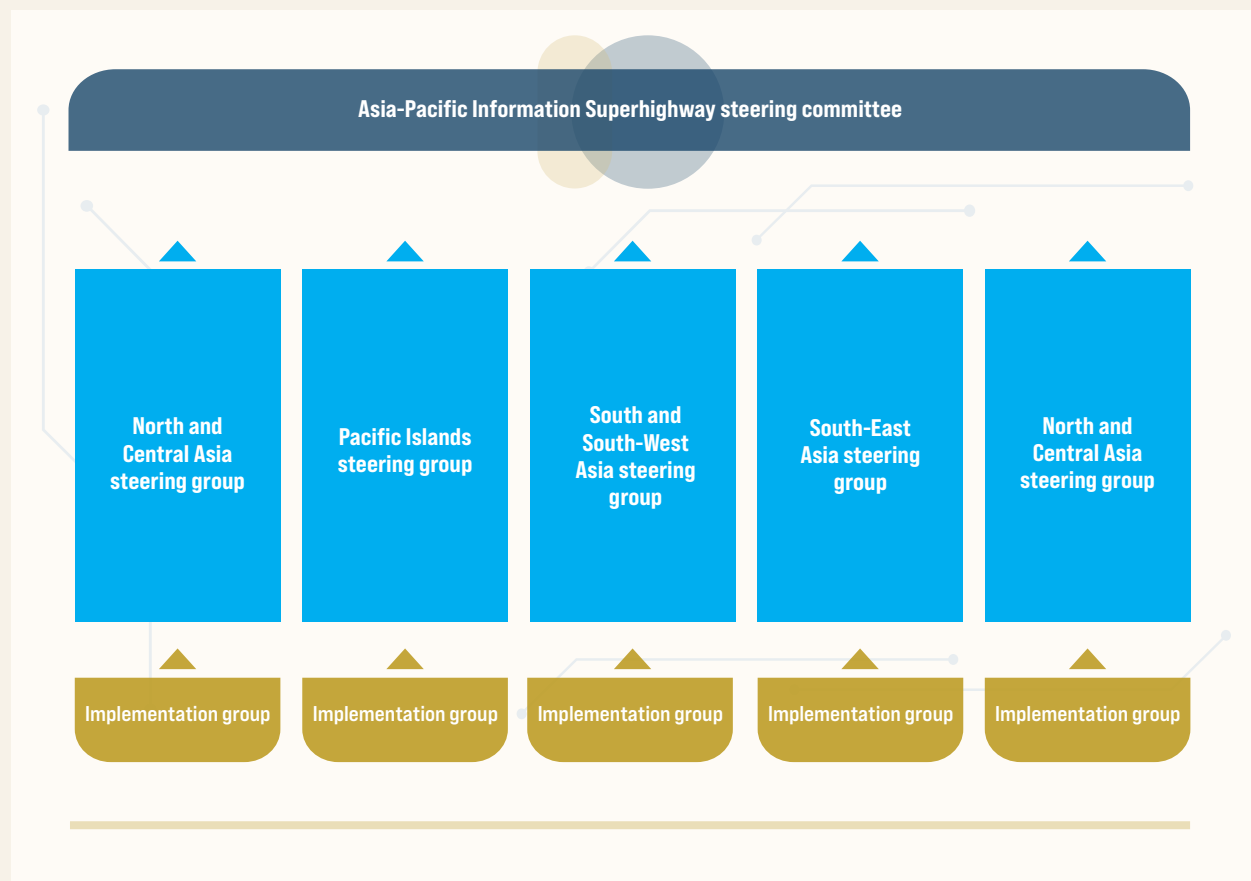
5. ICT strategy for French-speaking countries

On 10 December 2021, the ministerial council of the group of French-speaking countries approved the ICT strategy for French-speaking countries for the years 2022–2026. The strategy aims to achieve a more inclusive digital space at the service of humanity, so that digital transformation can serve as a driver of growth, social solidarity and connectivity in the space of French-speaking countries.[100]

This strategy includes the following five main themes:

(a) Bridging the digital divide of French-speaking peoples;

(b) Improving digital capacity-building, especially for youth, women and persons with disabilities;

(c) Developing digital public policies;

(d) Developing and facilitating access to digital content in French;

(e) Promoting innovation and encouraging the development and use of digital technologies in a manner that respects human rights.

This strategy can be seen as a general framework for countries to formulate their national ICT strategies, and work is underway to prepare its implementation plan.

Endnotes

1   The approved vision included activating the ADA by supporting its implementation, monitoring, measurement and analysis, and by upholding its management, sustainability and continuous development. As soon as the ADA was adopted, partnerships began to expand to support the ADA implementation and continuous development, either horizontally by including new partners, or vertically by strengthening cooperation with existing partners to implement specific programmes and projects.

2   Members of Arab Governments are subject to change and their names are included in the list of partners and contributing entities in Arabic alphabetical order.

3   The members of the Joint Technical Committee and of the Core Research and Technical Cooperation Mechanism joined the ADA preparation process at different stages. Their names are included in the list of partners and contributing entities (Arab Governments and United Nations and Arab organizations partnering in the joint project).

4   Source and methodology for including names in the list of participants from Arab States: The names are listed in Arabic alphabetical order; the list includes the names of participants as received from the General Secretariat of the League of Arab States and from national focal points. These participants were engaged in: (a) The thirty-second to the thirty-fifth meetings of the Working Group on the Arab ICT Strategy that focused on actions needed to develop the ADA. (b) The membership of the Joint Technical Committee and the Core Research and Technical Cooperation Mechanism, based on official letters exchanged through the General Secretariat of the League of Arab States with the national focal points, in addition to the names of those who participated in any of their meetings. (c) The second round of national digital development reviews for 2022–2021 that were used as inputs for the preparation of the Arab Digital Development Report 2022 (which provided the baseline for the ADA targets). (d) The consultative conference on the ADA, held in a hybrid format in Dubai, the United Arab Emirates on 26 October 2022, before the ADA was referred to the ATICM, the Economic and Social Summit and the Arab Summit for its adoption. (e) The provision of comments on the semi-final version of the ADA through the League of Arab States.

5   Source and methodology for including names in the list of multi-stakeholder participants: The names are listed in Arabic alphabetical order; the list includes the names of participants in the consultative conference on the ADA, which was held in a hybrid format in Dubai, the United Arab Emirates on 26 October 2022, before the ADA was referred to the ATICM, the Economic and Social Summit and the Arab Summit for its adoption.

6   ESCWA vision on the work modalities for producing, developing and implementing the Arab Information and Communication Technology Strategy (Arab Digital Agenda). E/ESCWA/CL4.SIT/2020/TP.7.

7   See box 39.

8   Under the umbrella of the joint project, the Core Research and Technical Cooperation Mechanism consists of a team of experts and researchers in the secretariats of ESCWA and of the League of Arab States, in addition to a number of technical researchers from international and regional organizations and bodies supporting the Working Group. Each Arab country that wishes to join the project also appoints one or more national researchers as a focal point (in line with relevant specifications) to work in coordination with experts and researchers at ESCWA and with other regional and international researchers. The Core Research and Technical Cooperation Mechanism is responsible for the periodic development of the scientific content of the Agenda, including all its components and executive work plan. It also facilitates the study and approval of initiatives and projects, evaluates progress based on monitoring and measurement reports, prepares a progress report at the end of each stage and sends it to the Joint Technical Committee for deliberation, and provides inputs for the Working Group on the Arab ICT Strategy to make recommendations thereon. Its members include experts from partner countries and organizations. This mechanism is developed as needed and in consultation between key partners.

9   As part of the joint project, the Working Group on the Arab ICT Strategy will form a small working group under it to serve as the Joint Technical Committee, the permanent link between the Working Group on the Arab ICT Strategy and the secretariats of the League of Arab States and of ESCWA. The Joint Technical Committee comprises representatives of all Arab States wishing to join the project, a representative of the secretariat of the League of Arab States, a representative of the Arab Information and Communication Technologies Organization (AICTO), the executive director of the project from ESCWA, the chair of the Working Group on the Arab ICT Strategy from the League of Arab States, and representatives of organizations wishing to participate such as the International Telecommunication Union (ITU), subject to the approval of Arab States and the secretariat of the League of Arab States. This mechanism is developed as needed, in consultation with key partners.

10 The terms "digital technology" and "information and communication technology" are used interchangeably in the present document.

11 A/RES/125/70.

12 The WSIS track will be reviewed in 2025, contributing to the review of the implementation of the 2030 Agenda.

13 Valuable inputs and contributions were also received from the United Nations Economic Commission for Africa, the United Nations Economic and Social Commission for Asia and the Pacific, the United Nations Economic Commission for Europe and the United Nations Economic Commission for Latin America and the Caribbean, as well as a number of specialized departments and task forces in various councils of ministers of the League of Arab States.

14 https://digitallibrary.un.org/record/540377?ln=en.

15 www.unescwa.org/publications/arab-digital-agenda-arab-information-communication-technology-sustainable-development.

16 The conclusions regarding the current situation of Arab countries in promoting digital development and the information society for 2022–2021 are included in detail in the Arab Digital Development Report 2022. They were used to identify the gaps and issues that the Agenda worked to address. The Arab Digital Development Report is therefore a companion document to the Agenda.

17 Shown in the volume on the measurement model.

18 https://www.unescwa.org/publications/national-digital-development-reviews-2021.

19 https://digitallibrary.un.org/record/565826?ln=en.

20 Forthcoming.

21 Digital development agendas, comprehensive digital development strategies and any other similar items are included under this indicator. In the future, a broader scope could be used. For example, the number of Arab countries with comprehensive national digital development agendas or strategies; or the number of Arab countries with a national digital agenda aligned with the Arab Digital Agenda.

22 The indicators for the sectoral strategies do not currently have target values and are included for purposes of tracking. Indicator values will be updated based on the data provided in future digital development reviews.

23 The indicators for the thematic strategies do not currently have target values and are included for purposes of tracking. Indicator values will be updated based on the data provided in future digital development reviews.

24 www.itu.int/en/ITU-D/Conferences/WTDC/WTDC21/Pages/default.aspx.

25 The ESCWA Committee on Technology for Development was established pursuant to ESCWA resolution 315 (XXVIII) of 18 September 2014, which was adopted by the Economic and Social Council in resolution 35/2014 of 17 November 2014. The Committee follows regional priorities in the area of technology, recognizing the vital role that technology plays in achieving development goals, including those related to ICT, Internet governance, the digital economy and the information society, and those related to scientific research and technology transfer. It is responsible for following up on relevant regional and international tracks, conferences and forums, coordinating the region's efforts to implement its resolutions and recommendations, and supporting cooperation with regional organizations such as the League of Arab States.

26 The 2018 ESCWA session issued the Beirut Consensus on Technology for Sustainable Development in the Arab Region. The fourth meeting of the Committee on Technology for Development, held in Beirut on 14 and 15 November 2022, issued a set of recommendations that welcomed the Arab Digital Agenda/ Arab ICT and Digital Development Strategy 2033–2023 as a common long-term Arab framework, and recommended that it be used to work on developing national digital agendas that are consistent with it and based on national digital development reviews. It reiterated the call by ESCWA to continue working on developing and activating the Arab Digital Agenda/Arab ICT and Digital Development Strategy 2033–2023, continue supporting member States in several areas, including national plans, policies and strategies for digital development, and promoting the transfer of successful experiences among them to accelerate the implementation of the 2030 Agenda.

27 https://dcdf-2021.unescwa.org/.

28 This goal has no indicators, and progress in this area will be determined by evaluation of instances of participation in international and regional coordination and cooperation tracks.

29 https://www.unescwa.org/sites/default/files/pubs/pdf/arab-digital-development-report-2019-english_0.pdf.

30 www.itu.int/dms_pub/itu-d/opb/pref/D-PREF-BB.REG_OUT01-2020-PDF-E.pdf.

31 www.itu.int/en/myitu/Publications/2021/04/07/12/19/Digital-Trends-in-the-Arab-States-region-2021.

32 Based on ESCWA calculations using data available at https://app.gen5.digital/benchmark.

33 Countries without exclusivity are considered as meeting this condition.

34 If a country does not have any form of exclusivity, it is considered as meeting this condition.

35 https://aregnet.org.

36 https://aregnet.org/ar/المشاريع-الحالية/المشاريع.

37 https://aregnet.org/ar/item/المشاريع-الحالية/المشاريع/مشروع-دراسة-التجوال-الدولي-بين-الدول-العربية-346.

38 https://aregnet.org/ar/المنجزة-المشاريع/المشاريع.

39 https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:02012R0531-20170615.

40 Regional telecommunication and digital service indicators do not currently have target values and will be measured for tracking.

41 The number of regional agreements does not currently have target values, but will be measured for tracking purposes.

42 www.itu.int/en/ITU-D/LDCs/Pages/Connect-2020-Agenda.aspx.

43 www.internetsociety.org/wp-content/uploads/2015/10/ISOC-PolicyBrief-IXPs-20151030_nb.pdf.

44 www.internetsociety.org/wp-content/uploads/2021/10/Measuring-the-Impact-of-Local-IXPs-EN.pdf.

45 Packet Clearing House, Internet exchange point directory reports. https://www.pch.net/ixp/dir (accessed on 6 October 2021).

46 Presentation by Christine Arida from the National Telecommunications Regulatory Authority (NTRA), Egypt at Workshop on Peering and Interconnection in the Arab World. www.itu.int/en/ITU-D/Regional-Presence/ArabStates/Pages/Events/2018/IXP18/IXP18.aspx.

47 www.itu.int/itu-d/reports/statistics/facts-figures-2022/.

48 www.submarinecablemap.com.

49 https://ec.europa.eu/info/law/law-topic/data-protection/international-dimension-data-protection/adequacy-decisions_en.

50 www.itu.int/dms_pub/itu-d/opb/str/D-STR-GCI.01-2021-PDF-E.pdf.

51 Arab Cybersecurity Vision – Arab ICT Organization (AICTO) – October 2021, https://www.mtc.gov.tn/fileadmin/user_upload/livret_Aicto_Vf.pdf.

52 www.etrustnet.org.

53 https://arcc.om/?GetLang=en.

54 This indicator is used for tracking purposes only.

55 "Updated" means not more than 10 years old.

56 https://itida.gov.eg/english/pages/companies-database.aspx.

57 For example, the following website provides advanced search of more than 1,300 companies operating in the field of informatics and the Internet in Algeria: https://dz.kompass.com.

58 www.rdworldonline.com/how-important-is-rd-for-economic-growth/. For example, every dollar invested in the United States-funded Human Genome Project had a return of more than 141$ in the form of new drugs, products, services and jobs.

59 http://data.uis.unesco.org/index.aspx?queryid=3684#.

60 https://www.wipo.int/ipstats/en/statistics/country_profile/.

61 https://www.mobileconnectivityindex.com/.

62 www.tandfonline.com/doi/full/10.1080/00220388.2018.1554208.

63 www.wipo.int/edocs/pubdocs/en/wipo-pub-2000-2022-section1-en-gii-2022-at-a-glance-global-innovation-index-2022-15th-edition.pdf.

64 https://data.worldbank.org/indicator/NV.IND.MANF.ZS.

65 www.arabdevelopmentportal.com/blog/digital-revolution-and-inequality-arab-world.

66 https://data.worldbank.org/indicator/BX.GSR.CCIS.CD.

67 https://data.worldbank.org/indicator/TX.VAL.ICTG.ZS.UN.

68 https://data.worldbank.org/indicator/TM.VAL.ICTG.ZS.UN.

69 https://go-globe.ae/e-commerce-in-middle-east-statistics-and-trends/.

70 www.morganstanley.com/ideas/global-ecommerce-growth-forecast-2022.

71 Mastercard New Payments Index.

72 https://thefintechtimes.com/mastercards-payment-index-shows-95-of-mena-consumers-want-to-try-new-digital-payment-methods/.

73 www.itu.int/en/ITU-D/Statistics/Dashboards/Pages/Digital-Development.aspx. https://www.itu.int/itu-d/reports/statistics/2021/11/15/ict-skills/.

74 www.itu.int/en/ITU-D/Statistics/Dashboards/Pages/IPB.aspx.

75 www.itu.int/hub/publication/d-ind-ict_mdd-2022/.

76 www.itu.int/en/ITU-D/Statistics/Documents/facts/ITU_regional_global_Key_ICT_indicator_aggregates_Nov_2022.xlsx.

77 For schools, access can be indirect through the National Education Network, which is common and even desirable, and is included in the indicator's description.

78 www.gutenberg.org/.

79 www.wdl.org/ar/language/#languages-ara.

80 https://research.domaintools.com/statistics/tld-counts/.

81 https://w3techs.com/technologies/overview/content_language.

82 The implementation mechanism should be formulated in the light of these principles.

83 These include topics that are important in the region and globally, including issues related to climate change or to strengthening regional preparations for global forums such as the Global Digital Compact, which is expected to outline common principles for an open, free and secure digital future for all, and issues related to the future of WSIS beyond 2025.

84 It is recommended to organize further similar events during 2023 following the Agenda adoption and to hold public consultations with stakeholders from the private sector, academia, civil society organizations and community groups such as youth, women and persons with disabilities to explore their views on the strategy.

85 European commission, communication of 3.3.2010 COM (2010) 2020 final (accessed on 30 March 2021).

86 European Commission Communication of 19.05.2010, "A Digital Agenda for Europe" COM (2010) (accessed on 30 March 2021).

87 https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52015DC0192&from=EN (accessed on 30 March 2021).

88 Presentation delivered at a workshop on the strategy on 25 March 2021.

89 The term model was used to refer to composite indices to avoid confusion between them and simple indicators.

90 https://digital-strategy.ec.europa.eu/en/policies/desi (accessed on 30 March 2021).

91 https://digital-strategy.ec.europa.eu/.

92 https://ec.europa.eu/info/strategy/priorities-2019-2024/europe-fit-digital-age/europes-digital-decade-digital-targets-2030_en#documents. https://eur-lex.europa.eu/legal-content/EN/TXT/DOC/?uri=CELEX:52021DC0118&from=en.

93 www.cepal.org/en/pressreleases/countries-latin-america-and-caribbean-approved-elac2022-digital-agenda.

94 https://conferenciaelac.cepal.org/7/en/documents/digital-agenda-elac2022.

95 https://www.cepal.org/es/publicaciones/43444-monitoreo-la-agenda-digital-america-latina-caribe-elac2018.

96 Presentation delivered at a workshop on the strategy on 25 March 2021.

97 https://au.int/sites/default/files/documents/38507-doc-dts-english.pdf.

98 https://digitallibrary.un.org/record/3881995/files/ESCAP_CICTSTI_2020_INF_1-EN.pdf.

99 https://digitallibrary.un.org/record/3881995/files/ESCAP_CICTSTI_2020_INF_1-EN.pdf.

100 www.francophonie.org/sites/default/files/2021-12/SFN_CMF_39_10122021.pdf.

Within the framework of the close partnership between the Economic and Social Commission for Western Asia (ESCWA) and the League of Arab States, the Arab Digital Agenda was prepared as a long-term framework aimed at developing and implementing the Arab Information and Communications Technology Strategy, in collaboration with United Nations organizations and specialized bodies at the regional and international levels. Arab countries are deploying great efforts to accomplish progress towards localizing and leveraging digital technology to fulfil Arab people's aspirations of equal opportunities, well-being, prosperity and stability, given the importance of digital technology in achieving sustainable development.

The Arab Digital Agenda includes several goals, targets and actions at the national and regional levels, in addition to several tracks that support the agenda, such as the monitoring and measurement track, which complements the national digital development reviews launched by ESCWA in the Arab region since 2018. It provides a sustainability framework that defines mechanisms for the implementation, evaluation, review and periodic updating of the agenda, and ways to unite the efforts of all stakeholders in this area. The 10-year agenda seeks to improve the performance of the entire Arab region, thus enabling it to assume the position it deserves at the global level and to have an active and influential role in international decision-making forums related to digital technology.