



**Regional Preparatory Meeting
for WTDC-21 for Arab States (RPM-ARB)**
Virtual, 7-8 April 2021



Document RPM-ARB21/12-E
6 April 2021
English only

Director, Telecommunication Development Bureau

Desk Research: GAP Analysis Report on the Status of Thematic Priorities of the
Development Bureau of the International Telecommunication Union
in the Arab Region

Agenda item:

Item 4

Summary:

This document contains a report that aims to identify the current gaps and required remedies to be addressed and resolved within the region.

Expected results:

RPM-ARB is invited to note this document.

References:

N/A

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Summary of the Desk Research Report on:

GAP Analysis on the Status of Thematic Priorities of the Development Bureau of the International Telecommunication Union in the Arab Region

Issued by the ITU Regional Office for Arab States – 2021



Disclaimer

This report is based on a desk study research using publicly available data online through websites of Policy Makers and Regulators in the Arab Member States as well as data available from reports produced in the past by the International Telecommunication Union (ITU). The ITU understands that there is room for improvement in this report and kindly request Member States to engage with the regional office in a way forward to enhance the remedies related to the various Thematic Priorities of the ITU Development Bureau.

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1 Introduction

The ITU's regional office for Arab states has embarked on a mission to identify the current gaps and required remedies to be addressed and resolved within the region. As a first step the office has appointed external experts to conduct a desk research study identifying the level of implemented actions within the member states in the region in relation to the 10 Thematic Priorities that the Development Bureau of the International Telecommunication Union is currently working on. These Thematic Priorities have been identified as a result of the Member States programmes identified in the World Telecommunication Development Conference (WTDC-17) held in Buenos Aires in 2017.

The regional office of the ITU hopes that this report will contribute positively towards the preparations for the upcoming World Telecommunication Development Conference as well as for planning purposes within the region in relation to activities and projects that the regional office should carry out as a priority.

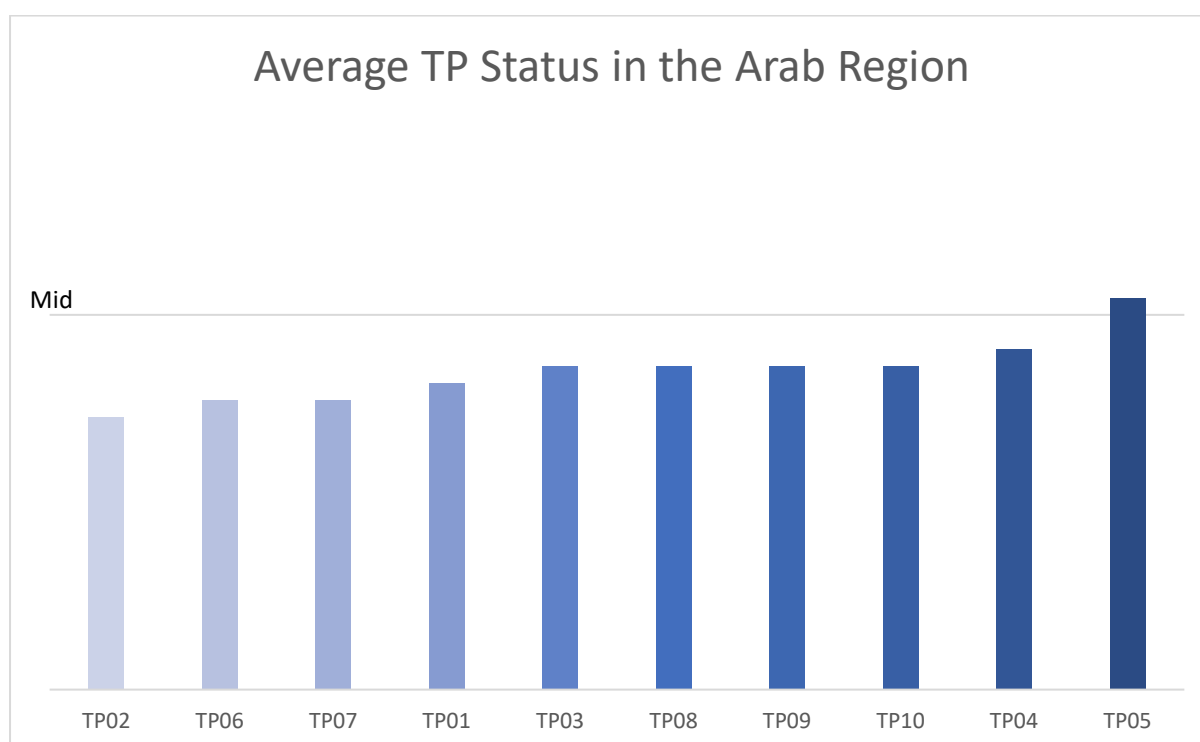


Figure 1: Average TP Status in the Arab Region

This document is a summary of the GAP Analysis review and a more detailed document will soon be published by the ITU Regional Office for Arab States.

2 Project objective and scope

- a. The objectives of this Gap Analysis are to compare the current status and national strategies of the ICT sector in the 22 Member States of the ITU Arab Region versus existing and planned ITU programs, in order to support the future state necessary to support a dynamic digital economy, identifying gaps and making baseline recommendations for the steps needed to bridge those gaps.

- b. The timeline for the data gathering and report drafting phase of the project was 06 January to 26 February 2021.
- c. Further in-depth country-by-country strategic program insight and development to be the subject of future engagement.

3 Methodology

- a. The approach taken was to review the country performance against the ten ITU Thematic Priorities, compare this current status against the publicly available national priorities and identify any gaps.
- b. Through discussion with both Thematic Priority and Regional coordinators, experts identified areas where current ITU programs could be expanded to address gaps when compared to national needs and priorities.
- c. Recommendations for each Thematic Priority were made with the aim of bridging these identified gaps. These recommendations have been prioritised and collated to provide the shortlist in this summary document.

4 Country Specific Recommendations

4.1 ALGERIA (PEOPLE'S DEMOCRATIC REPUBLIC OF)

a. Telecommunication and Digital infrastructure (TP01)

- i. Work with Algeria on an IPV6 Centre as an alternative to a host country outside the region.
- ii. Accelerate liberalisation of the wireline sector, introduce mobile number portability, and national mobile roaming to stimulate competition. This can be performed by the ARCEP.

b. Cybersecurity (TP02)

- i. The Ministry of Communication and Government should look into developing the requirements for further training and capacity building support for DZ-CERT as the first line of defence in order to build more cybersecurity expertise and skills.
 - i. Recommend working with the ITU to conduct a training needs analysis for the identification of skills gap
 - ii. ITU to identify and recommend training partners based on needs analysis and specialised areas.
 - iii. Develop a training roadmap based on the training needs analysis for current and emerging threats.

c. Emergency Communications (TP03)

- i. Work with the Ministry of Post and Telecommunications to develop a risk assessment plan.

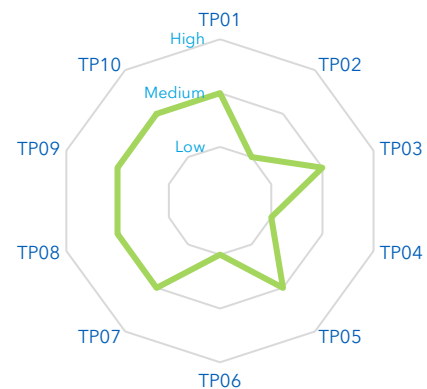


Figure 2: General Indication of GAP report for Algeria

- d. Policy and Regulation (TP04)
 - i. A focus on the remaining state monopoly, such as international traffic, and on the outcomes from the 2018 Law (including Local Loop Unbundling, Infrastructure sharing and Protection of Personal Data) would be recommended initial steps.
 - ii. Algeria should investigate the steps it needs to take to sign the Malabo Convention.
- e. Statistics (TP05)
 - i. Algeria's robust participation in the IDI suggests strong potential for inclusion in ITU's 'Big Data for Measuring the Information Society' project, which explores ways that big data from the ICT sector can be used to improve and complement existing statistics and methodologies to measure the information society. While the UAE is the only Arab State to be involved in the project, its successes and lessons from the project can be replicated to other states, including Algeria.
- f. Capacity Development (TP06)
 - i. Develop a tailored capacity building programme to meet specific country needs.
- g. Digital Services and Applications (TP07)
 - i. The ITU may help and support in development and implementation of national digital transformation strategy covering e-government, e-health, e-agriculture and e-education; this includes development of digital services and applications as well as sharing best practices and capacity building in these areas.
- h. Environment (TP08)
 - i. The ITU along with its partners may work closely with Algeria in preparing a national WEEE legislation/law/policy/strategy as well as support in its implementation.
- i. Digital Inclusion (TP09)
 - i. ITU could collaborate with other international organisations, NGOs and donor agencies on projects aimed at increasing rates of digital inclusion, especially among youth and women.
- j. Digital Innovation Ecosystems (TP10)
 - i. The ITU has the capacity, expertise, frameworks and tools to review maturity of the existing digital innovation ecosystem in Algeria. Specifically, the ITU can engage with Algeria in developing innovation country review and/or digital innovation profile so that digital innovation gaps(s) can be identified and bridged; the ITU can even be involved in implementing the necessary solution(s) to bridge the digital innovations gap(s) such as developing appropriate digital innovation strategies and programmes.

4.2 BAHRAIN (KINGDOM OF)

a. Telecommunication and Digital infrastructure (TP01)

- i. Motivate the TRA to develop and rapidly implement regulation which will encourage network and spectrum sharing among operators – this is especially important for 5G network rollouts.

b. Cybersecurity (TP02)

- i. TRA should make it mandatory for all CNI organisations to be ISO27001 certified. As part of the NCSS, to include the requirement for all CNI to start on the ISO27001 process. CNI organisations to identify key areas for the ISO27001 certification and to be approved by the relevant authority. TRA to develop an appropriate timeline for CNI organisations to complete the implementation of ISO27001 process and the certification.

c. Emergency Communications (TP03)

- i. Conduct a review of overlapping priorities and authorities between various institutions connected to Bahrain’s emergency communications planning. There appear to be too many ministries with various areas of responsibility, and a lack of communication between these entities.

d. Policy and Regulation (TP04)

- i. Discuss requirements for further capacity and capability building programs to increase the policy and regulatory talent pool, especially with regard to meeting the demands presented by the digital ecosystem.
- ii. A commitment to graduation to G5 status (collaborative regulation).

e. Statistics (TP05)

- i. Bahrain remains a candidate for participation in other ITU projects, such as ITU’s Big Data for Measuring the Information Society’ project, which explores ways that big data from the ICT sector can be used to improve and complement existing statistics and methodologies to measure the information society.

f. Capacity Development (TP06)

- i. Encourage Bahrain to be a DTC host, when an open call will be made for more potential DTCs to join the network at the end of the first phase (September 2021), contributing to the expansion of capacity and thus enhancing delivery capability.

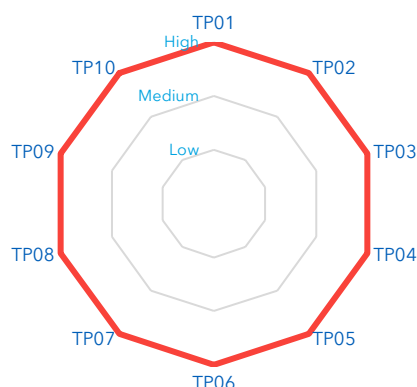


Figure 3: General Indication of GAP report for Bahrain

- g. Digital Services and Applications (TP07)
 - i. Since various strategies and policies in Bahrain call for the use of emerging and evolving technologies such as IoT, AI, Robotics, Machine to Machine (M2M) services, Net Neutrality, Big Data and Blockchain in digital services and application, the ITU may help and assist in promoting such evolving and emerging technologies through jointly trialling and testing these technologies as well as conducting national/regional capacity building activities such as conferences, seminars, workshops, forums and training programmes.
- h. Environment (TP08)
 - i. ITU may help and support in bridging the expertise and awareness gaps related to management of WEEE through policy support, conducting capacity building exercises such as seminars, trainings, workshops and sharing of best practices targeting officials and key players.
- i. Digital Inclusion (TP09)
 - i. Providing digital skills training whilst identifying strategic partners for development of digital skills for youth and women are some of the key factors to bridging the digital divide. This would assist in identifying decent job opportunities for youth.
- j. Digital Innovation Ecosystems (TP10)
 - i. The ITU can engage with Bahrain in developing innovation country review and/or digital innovation profile so that digital innovation ecosystem gaps(s) can be identified and bridged with an aim to boost the future rankings as well as enhance digital innovation ecosystem

4.3 COMOROS (UNION OF THE)

a. Telecommunication and Digital infrastructure (TP01)

- i. Dovetail ANRTIC “Connect a school, connect a community” project cooperation into GIGA project participation.
 - i. See if mapping has already been conducted via the program.
 - ii. Outline a path forward to overlay on the ANRTIC program to leverage baseline into GIGA success story.

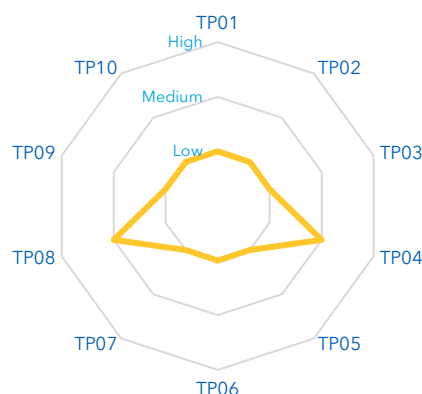


Figure 4: General Indication of GAP report for Comoros

b. Cybersecurity (TP02)

- i. Ranked last in the region, Comoros is an LDC economy where funding is a key issue in the development of cybersecurity initiatives. It is recommended that ITU assist in securing funding from key monetary organisations.
 - i. ITU can conduct a cybersecurity posture assessment to identify its current posture and where it should be.

- ii. Based on the gaps identified, key cybersecurity initiatives should be identified to address it.
 - iii. Cybersecurity initiatives identified to be categorised into suitable projects with budgets and timelines.
 - iv. Identified cybersecurity projects can be used as a source to secure funding from monetary organisations such as the Islamic Development Bank and the World Bank.
- c. Emergency Communications (TP03)
 - i. Provide assistance in developing a cohesive and independent National Emergency Telecommunications Plan using ITU guidelines.
 - i. Work with the DGSC and COSEP on priorities
 - ii. Coordinate with outside organizations such as Red Crescent, UNDP and World Bank in determining areas where significant needs exist.
- d. Policy and Regulation (TP04)
 - i. Drive increase in demand for services through further support for government digitisation and through the development of ICT education for youth and other demographic sectors of the population.
 - ii. Comoros should investigate the steps it needs to take to ratify the Malabo Convention.
- e. Statistics (TP05)
 - i. The weak ability of the government to collect data suggests that its scope to participate in projects, such as ITU's 'Big Data for Measuring the Information Society' project, is limited, given that available data sets available to the regulator to present are likely to be incomplete and lean.
- f. Capacity Development (TP06)
 - i. The Capacity Development efforts should be focused on enabling environments such as Policy Development, Regulatory Framework and Cost Modelling.
- g. Digital Services and Applications (TP07)
 - i. ITU could provide support around development and/or implementation of the following strategies
 - i. working closely with the World Bank: national agriculture strategy, national digital strategy,
 - ii. working closely with the government: national e-health strategy.
- h. Environment (TP08)
 - i. The ITU along with its partners may work closely with Comoros in preparing a national WEEE legislation/law/policy/strategy as well as support in its implementation.
- i. Digital Inclusion (TP09)
 - i. ITU could promote the development of an ICT Youth Strategy, promoting an increased use of ICT in the education sector. Emphasis should be placed on the use of ICT in education from an early age.

- ii. ITU could collaborate with other international organisations, NGOs and donor agencies on projects aimed at increasing rates of digital inclusion, especially among youth and women.
- j. Digital Innovation Ecosystems (TP10)
 - i. The ITU could support Comoros in developing innovation country review and/or digital innovation profile so that digital innovation gaps(s) can be identified and bridged. The ITU can then be involved in implementing the necessary solution(s) to bridge the digital innovations gap(s) such as developing appropriate digital innovation strategies and programmes.

4.4 DJIBOUTI (REPUBLIC OF)

a. Telecommunication and Digital infrastructure (TP01)

- i. Offer assistance and collaboration on Djibouti Digital 2024 smart city campaign, to include training and capacity building.
 - i. Attract hyperscale cloud providers, such as Amazon Web Services and Microsoft Azure to establish a presence in the country by emphasising its geographical advantage.
 - ii. Accelerate the development of Djibouti as a regional data centre platform through greater investments into subsea cables in order to boost regional connectivity.
 - iii. Encourage diversity and increased training and employment of women in ICT, as a key aspect of the smart city campaign.

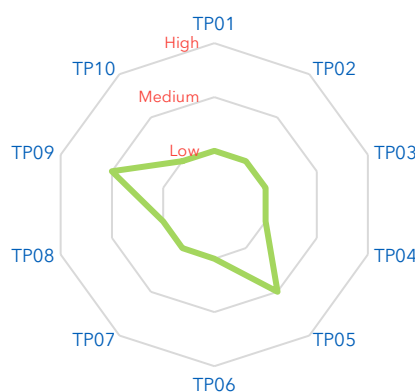


Figure 5: General Indication of GAP report for Djibouti

b. Cybersecurity (TP02)

- i. Ranked in the bottom three and regarded as one of the least cyber-secure countries in the world, Djibouti is an LDC economy where funding is a key issue in the development of cybersecurity initiatives. It is recommended that ITU assist in securing funding from key monetary organisations.
 - i. ITU can conduct a cybersecurity posture assessment to identify its current posture and where it should be.
 - ii. Based on the gaps identified, key cybersecurity initiatives should be identified to address it.
 - iii. Cybersecurity initiatives identified to be categorised into suitable projects with budgets and timelines.
 - iv. Identified cybersecurity projects can be used as a source to secure funding from monetary organisations such as the Islamic Development Bank and the World Bank.

c. Emergency Communications (TP03)

- j. Digital Innovation Ecosystems (TP10)
 - i. The ITU has the capacity, expertise, frameworks and tools to assist Djibouti in developing this sector. Specifically, the ITU can engage with Djibouti in developing innovation country review and/or digital innovation profile so that digital innovation gaps(s) can be identified and bridged; the ITU can even be involved in implementing the necessary solution(s) to bridge the digital innovations gap(s) such as developing appropriate digital innovation strategies and programmes.

4.5 EGYPT (ARAB REPUBLIC OF)

a. Telecommunication and Digital infrastructure (TP01)

- i. Engage in conversations regarding best practices in terms of pricing and fees in accordance with international standards.
 - i. Improve its spectrum pricing. High reserve prices in its 4G LTE licensing process were a significant burden for operators.
 - ii. Take a proactive role in reforming interconnection fees regime, instead of letting operators decide on such arrangements – such as fixed-to-mobile interconnection fees - by themselves. Interconnection fees have been a sticking point in the market, and while a resolution was reached between the NTRA and operators in September 2019 after a 10-year dispute, legislation will more adequately address matters in this area.

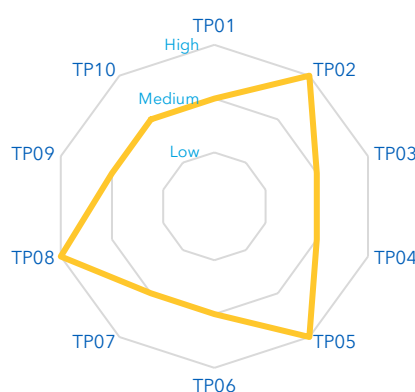


Figure 6: General Indication of GAP report for Egypt

b. Cybersecurity (TP02)

- i. With Egypt facing major threats to its CNI, it is recommended that the Supreme Council for CIIP prioritise and intensify initiatives and efforts related to the protection of its critical information infrastructure. Initiatives such as making it mandatory for all CNI to be ISO27001 certified will ensure better protection, defence and mitigation against cyber threats and attacks.
 - i. As part of the NCSS, to include the requirement for all CNI to start on the ISO27001 process.
 - ii. CNI organisations to identify key areas for the ISO27001 certification and to be approved by the relevant authority.
 - iii. Supreme Council to develop an appropriate timeline for CNI organisations to complete the implementation of ISO27001 process and the certification.

- c. Emergency Communications (TP03)
 - i. Leverage Egypt's experience and focus on natural disaster communications to help other countries in the region.
 - i. Coordinate with the IDSC, DRR and other organizations such as UNHCR and FAO around a best practices case study.
 - ii. Outline adherence to the Sendai Framework
 - iii. Investigate potentially innovative aspects in the national early warning system
- d. Policy and Regulation (TP04)
 - i. ITU could provide technical support to assist in the finalisation of legislation on e-commerce to regulate financial transactions, so that it can be introduced.
- e. Statistics (TP05)
 - i. Participation in ITU's capacity development programmes, as well as other ITU events, including expert group meetings and technical trainings and workshops will also further boost Egypt's long-term capacity building efforts and allow it to better identify areas of development and focus.
- f. Capacity Development (TP06)
 - i. Encourage development of a DTC in Egypt to support the national priority identified (Digital Egypt ICT 2030 Strategy).
- g. Digital Services and Applications (TP07)
 - i. The ITU may help and assist in prompting such evolving and emerging technologies through jointly trialling and testing these technologies as well as conducting national/regional capacity building activities such as conferences, seminars, workshops, forums and training programmes.
- h. Environment (TP08)
 - i. The ITU may support and help Egypt in the implementation and enforcement of the newly issued Waste Management Regulation Law No. 202 of 2020.
- i. Digital Inclusion (TP09)
 - i. Priorities identified in the ICT 2030 Strategy (Digital Egypt), especially fostering digital inclusion, should be supported in practical terms by ITU where possible.
- j. Digital Innovation Ecosystems (TP10)
 - i. the ITU can engage with Egypt in developing innovation country review and/or digital innovation profile so that digital innovation gaps(s) can be identified and bridged.

4.6 IRAQ (REPUBLIC OF)

a. Telecommunication and Digital infrastructure (TP01)

i. Look at following best practices for building out a robust Telecom infrastructure sector.

i. Accelerate the liberalization of the telecoms sector and establish a comprehensive investor protections regime to stimulate FDI into the telecoms sector; allow independent foreign-owned infrastructure providers to deploy passive infrastructure such as towers and fiber.

ii. Encourage the wireline incumbent to focus investments into wireline networks and allow for local loop unbundling (LLU) to allow alternative operators to offer services, thus stimulating competition.

iii. Provide guidance on the development of an ICT action plan and telecommunication law as well as clearly defined roles and duties of the industry regulators. Continue to work on a clear spectrum allocation and management policy and assist in the transition from analogue to digital broadcasting to free up spectrum resources. Establish a clear spectrum allocation and licensing regime with competitive/low reserve prices to ensure more funds are available for operators to invest into networks.



Figure 7: General Indication of GAP report for Iraq

b. Cybersecurity (TP02)

i. A key priority in Iraq is to develop more cybersecurity capacity and capabilities

i. ITU to assist Iraq to conduct a Cybersecurity posture assessment and a Training Needs Analysis to identify cybersecurity skills and development gap

ii. Focus should be on the development of the National CERT and CNI organisations' capabilities and capacity.

iii. Identify key cybersecurity training and strategic cyber initiatives.

iv. Collaborate with ITU and the RCC to identify key training partners and organisations to provide specialised training and key initiatives in Iraq.

v. Develop roadmap for trainings and the development of a National CERT.

c. Emergency Communications (TP03)

i. Offer development of a National Strategy based on ITU Guidelines for a National Emergency Telecommunication Plan.

- i. Work with Emergency Telecommunications Cluster to coordinate with NGOs and UN agencies
 - ii. Support need for baseline ICT infrastructure through Connect2Recover in order to support Emergency Communications.
 - iii. Provide guidance for implementing the Sendai Framework, with consideration to political and geographic issues.
- d. Policy and Regulation (TP04)
 - i. The ITU may support in the development and implementation of digital financial services/inclusion related policy and regulations, working with the government in formulating regulations and legislation in accordance with international standards.
- e. Statistics (TP05)
 - i. Participation in ITU's capacity development programmes will also improve Iraq's overall long-term capacity in data gathering and dissemination. Iraq's participation in other ITU events, including expert group meetings and technical trainings and workshops will assist with its broader capacity building efforts. Better benchmarks and data on household use will also assist it with future investment and development initiatives.
- f. Capacity Development (TP06)
 - i. Develop a tailored capacity building programme to meet specific country needs.
- g. Digital Services and Applications (TP07)
 - i. The ITU to expand the scope of its current work with the Iraqi government under Du3M to cover development and implementation of a national digital transformation strategy covering important areas such as e-health, e-education and e-agriculture.
- h. Environment (TP08)
 - i. The ITU to expand the scope of its current work with the Iraqi government to cover the preparation of a national WEEE legislation/law/policy/strategy as well as support in its implementation.
- i. Digital Inclusion (TP09)
 - i. ITU could collaborate with other international organisations, NGOs and donor agencies on projects aimed at increasing rates of digital inclusion, especially among youth and women.
- j. Digital Innovation Ecosystems (TP10)
 - i. The ITU to expand the scope of its current work with the Iraqi government to cover development and implementation of a national digital transformation strategy covering development of digital innovation ecosystem.

4.7 JORDAN (HASHEMITE KINGDOM OF)

a. Telecommunication and Digital infrastructure (TP01)

- i. Support Jordan's efforts to reach the targets of its REACH2025 initiative through growth in ICT. Lower taxation rates in the telecoms sector in order to incentivize investments from operators into their networks to ensure quality service delivery. Establish a separate Universal Service Obligation (USO) fund contributed to by operators in order to fund the deployment of shared infrastructure in rural areas. Ensure that MVNOs do not distort the market significantly by establishing price floors for telecoms services.

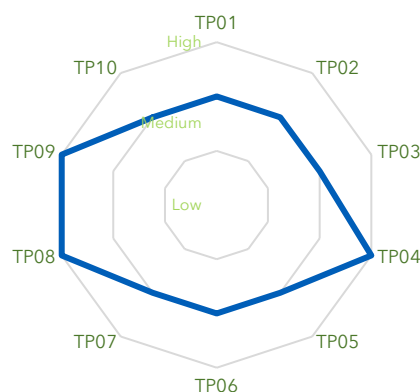


Figure 8: General Indication of GAP report for Jordan

Work closely with the private sector through public-private partnerships (PPPs) in order to accelerate the deployment of digital infrastructure. Accelerate the establishment of internet exchange points (IXPs) by fast-tracking construction and operational permits; regulation to establish an IXP in Jordan was passed in May 2020. Ease the process for fibre companies (fibrecos) to deploy infrastructure by accelerating the approval of building permits and allow shared access to state-owned infrastructure such as ducts and poles.

b. Cybersecurity (TP02)

- i. A key challenge in Jordan is the development of an appropriate legal and regulatory framework which is vital as the country's connectivity is growing rapidly. ITU can assist to review Jordan's current legislation and identify areas for development and enhancement based on current and emerging threats. ITU can identify legal experts from the region or internationally to help revise the legislation and its conformity to international standards. Jordan to review final draft for approval and implementation.

c. Emergency Communications (TP03)

- i. Work with National Centre for Security and Crises Management to overcome lack of cohesive planning and coordination. Offer planning services based on Draft Model Policy and Regulatory Framework on use of Telecom/ICTs in Emergency and Disaster Management and ITU Guidelines for National Emergency Telecommunication Plans. Provide assistance with completing the Jordan National Disaster Risk Reduction Strategy

d. Policy and Regulation (TP04)

- i. The ITU could assist with the finalisation and implementation of data protection legislation, for example through sharing of best practices from the region, such as DITC, ADGM and Qatar.

- e. Statistics (TP05)
 - i. Increasing completion of the IDI suggests that Jordan can participate in ITU's 'Big Data for Measuring the Information Society' project in the long run. The project explores ways that big data from the ICT sector can be used to improve and complement existing statistics and methodologies to measure the information society.
- f. Capacity Development (TP06)
 - i. In line with the initiative to strengthen and develop e-Learning nationally, encourage policymaking staff and staff from the regulatory authority to benefit from the ITU's current capacity building programmes such as SMTP, QoS TP, ICT & CC TP, IoT TP, C&I TP and other training programmes available on ITU academy.¹
- g. Digital Services and Applications (TP07)
 - i. The ITU may help and support in the implementation of the Jordanian Digital Transformation Strategy 2020 including developing the necessary knowledge and skills for accomplishing this important strategy; specific example could be development of digital government architecture. Moreover, the ITU with its partners may assist Jordan in trialling and testing the latest and emerging technologies such as AI, IoT, Big Data and Blockchain in digital services and applications.
- h. Environment (TP08)
 - i. The ITU may help Jordan in the implementation and enforcement of the legislation once published.
- i. Digital Inclusion (TP09)
 - i. ITU could collaborate with other international organisations, NGOs and donor agencies on projects aimed at increasing rates of digital inclusion, especially among youth and women.
- j. Digital Innovation Ecosystems (TP10)
 - i. The ITU can engage with Jordan in developing innovation country review and/or digital innovation profile so that digital innovation ecosystem gaps(s) can be identified and bridged.

4.8 KUWAIT (STATE OF)

- a. Telecommunication and Digital infrastructure (TP01)
 - i. Commit to establishing a clear timeline for the privatisation of state-owned telecoms operators in order to boost operational efficiency.
 - i. If privatisation is difficult, explore the use of 5G as a fixed-wireless service as a means to bridge the gap in wireline access infrastructure.

¹ <https://academy.itu.int/index.php?lang=en>

- ii. Ensure that its licensing of new MVNOs in the market does not result in price competition and significant cannibalisation of existing market shares.

b. Cybersecurity (TP02)

- i. As mandated in the national cybersecurity strategy, Kuwait needs to plan for the establishment of a national CERT.

- i. ITU can conduct a CERT assessment to identify its readiness
- ii. Based on the CERT assessment conducted, identify resources required and its readiness
- iii. Develop a roadmap for the establishment of a National CERT and training requirements for resources identified.

c. Emergency Communications (TP03)

- i. Leverage Kuwaiti experience and clearly defined plan as an example for other countries in the region
 - i. Potential financial contribution from Kuwait to assist in emergency communications.
 - ii. Case study and review of GCC Emergency Management Centre projects
 - iii. Example of collaboration with ITU and adopting frequency plan based on ratification of the Tampere Convention.

d. Policy and Regulation (TP04)

- i. The ITU should work closely with CITRA to assist it to graduate through the generations of regulation through, for example, provision of capacity development and sharing of best practices.

e. Statistics (TP05)

- i. Kuwait's robust participation in the IDI suggests strong potential for inclusion in ITU's 'Big Data for Measuring the Information Society' project, which explores ways that big data from the ICT sector can be used to improve and complement existing statistics and methodologies to measure the information society. While the UAE is the only Arab State to be involved in the project, its successes and lessons from the project can be replicated to other states, including Kuwait.

f. Capacity Development (TP06)

- i. Encourage members to benefit from the ITU's current capacity building programmes such as SMTP, QoS TP, ICT & CC TP, IoT TP, C&I TP and other training programmes available on ITU academy.

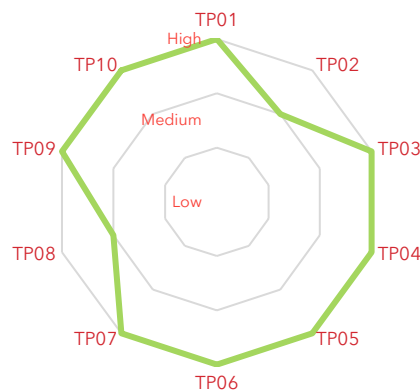


Figure 9: General Indication of GAP report for Kuwait

- g. Digital Services and Applications (TP07)
 - i. The ITU may have the opportunity to assist Kuwait in developing the proposed single national digital transformation strategy/program as well as support in its implementation and evaluation; such a single strategy/program should cover key areas such as e-government, e-health, e-health and e-agriculture.
- h. Environment (TP08)
 - i. The ITU along with its partners may work closely with Kuwait in preparing a national WEEE legislation/law/policy/strategy as well as support in its implementation.
- i. Digital Inclusion (TP09)
 - i. Encourage Kuwait to be a DTC host, when an open call will be made for more potential DTCs to join the network at the end of the first phase (September 2021), contributing to the expansion of capacity and thus enhancing delivery capability.
- j. Digital Innovation Ecosystems (TP10)
 - i. The ITU can engage with Kuwait in developing innovation country review and/or digital innovation profile so that digital innovation ecosystem gaps(s) if any can be identified and bridged with an aim to boost the future rankings as well as enhance digital innovation ecosystem.

4.9 LEBANON

a. Telecommunication and Digital infrastructure (TP01)

- i. Provide best practices in ICT guidelines and Lebanon seeks to stabilise their Telecom market:
 - i. Issue a clearly defined tender to foreign services providers to manage the two state-owned telecoms companies. Work closely with appointees to ensure quality services are delivered and solve operational conflicts to reduce investment risks.
 - ii. Establish a clear timeline for the introduction of a third mobile operator or explore further liberalisation opportunities of the wireline sector.
 - iii. Allow third-party passive infrastructure operators – such as fibrecos and towercos - to enter the market. Motivate operators to leverage the new infrastructure to offer services at lower fixed costs.



Figure 10: General Indication of GAP report for Lebanon

- b. Cybersecurity (TP02)
 - i. The Lebanon government should intensify its efforts to setup and institutionalise the National Cyber Security and Information System Agency (NCSIA) as per the draft national cyber security strategy
 - i. Develop clear objectives and outcomes for the governing body. The focus is to manage and coordinate all cybersecurity related initiatives and activities in the country.
 - ii. Identify the resources and budgets needed to setup the governing organisation
 - iii. Identification of roles and responsibilities based on the available resources within the country. For resources unavailable, need to have a plan to develop those skills and expertise.
 - iv. Develop a roadmap and timeline to setup and institutionalise the organisation.
- c. Emergency Communications (TP03)
 - i. Engage with Lebanon Emergency Telecommunications Sector to develop a case study for Emergency Communications based on the Port blast and aftermath
 - i. Take political sensitivities into account but seek to outline lessons to be learned for Emergency Communications
 - ii. Use the resulting information to provide guidance and feedback on draft Emergency Communications Plan in accordance with ITU NETP Guidelines
- d. Policy and Regulation (TP04)
 - i. The ITU may help in the development of knowledge and skills through conducting regional capacity building activities on digital policy development and a regulatory framework fit for the digital economy. This capacity building programme should enable the regulator to deliver more regulatory certainty.
- e. Statistics (TP05)
 - i. It is highly recommended that Lebanon improves its foundational capabilities in relation to data gathering and dissemination. The ITU hosts capacity development programmes to assist governments and regulators in this area, as well as expert group meetings and technical trainings and workshops which can assist with broader capacity building efforts. This will be critical in allowing Lebanon to identify core areas which require development and a concerted focus.
- f. Capacity Development (TP06)
 - i. The Capacity Development efforts should be focused on enabling environments such as Policy Development, Regulatory Framework and Cost Modelling.
- g. Digital Services and Applications (TP07)
 - i. The ITU in partnership with other UN organizations and major partners help and support in the implementation of the above mentioned strategies and plans (Digital Transformation Strategy, National Agriculture Strategy);

specific example could be the development of digital government architecture for the e-government system.

- h. Environment (TP08)
 - i. The ITU along with its partners may work closely with Lebanon in preparing a national WEEE legislation/law/policy/strategy as well as support in its implementation.
- i. Digital Inclusion (TP09)
 - i. ITU could collaborate with other international organisations, NGOs and donor agencies on projects aimed at increasing rates of digital inclusion, especially among youth and women.
- j. Digital Innovation Ecosystems (TP10)
 - i. The ITU can engage with Lebanon in developing innovation country review and/or digital innovation profile so that digital innovation gaps(s) can be identified and bridged.

4.10 LIBYA (STATE OF)

- a. Telecommunication and Digital infrastructure (TP01)
 - i. Work with the Libyan government to improve and re-establish Telecom services and infrastructure. Look for opportunities to support infrastructure improvements which have degraded due to civil strife and conflict. Work with regional infrastructure development banks to secure concessional loans to build out infrastructure. Further explore the use of satellite services to provide temporary connectivity to areas where fixed infrastructure is difficult to be deployed.
- b. Cybersecurity (TP02)
 - i. With the existence of a national cybersecurity agency and CERT, Libya needs to work on developing its national cybersecurity strategy. The NCSS will serve as a national Framework for cybersecurity related activities and initiatives. ITU can provide its expertise to assist Libya in identifying key elements for its NCSS. Identify Libya’s national objectives and priorities, define policy and regulatory measures, identify critical information infrastructure, develop timeline and identify resources required and identify internal and external experts to develop the NCSS
- c. Emergency Communications (TP03)
 - i. Identify ways to work with other international organizations for emergency communications for health care and humanitarian efforts. Work with WFP, WHO, Red Cross and other UN organizations to distil most urgent

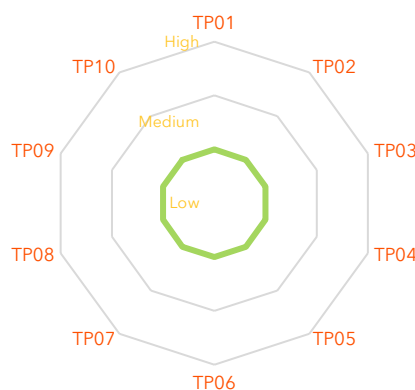


Figure 11: General Indication of GAP report for Libya

requirements and funding needs where ITU can fill the gaps. Work with commercial satellite providers to create communications networks where required independent of national infrastructure.

d. Policy and Regulation (TP04)

- i. ITU should provide technical and capacity development support to assist in the creation of a new and independent Telecommunication Regulatory Authority.

e. Statistics (TP05)

- i. It is suggested for Libya to participate in ITU capacity development programmes, which assist governments and regulators in ICT data collection and dissemination efforts. Libya's participation in other ITU events, including expert group meetings and technical trainings and workshops will assist with its broader capacity building efforts. Improved ability to benchmark the status of development of its ICT sector against that of its peers will also help better identify areas it should focus on.

f. Capacity Development (TP06)

- i. ITU should provide technical and capacity development support to assist in the creation of a new and independent Telecommunication Regulatory Authority.

g. Digital Services and Applications (TP07)

- i. Similar to the e-education and tele-medicine individual initiatives launched during Covid-19 period, the ITU along with international organizations and partners may help and support Libya slowly and gradually in developing most needed and desirable applications and services that will benefit government, businesses and citizens during these difficult times.

h. Environment (TP08)

- i. No specific recommendations can be made here due to the fact that Libya is in a conflict zone. However, the ITU along with international organizations and partners may help and support Libya slowly and gradually in developing most needed and desirable ICT infrastructure and services that will benefit government, businesses and citizens during these difficult times.

i. Digital Inclusion (TP09)

- i. ITU could collaborate with other international organisations, NGOs and donor agencies on projects aimed at increasing rates of digital inclusion, especially among youth and women.

j. Digital Innovation Ecosystems (TP10)

- i. No specific recommendation can be made here due to the fact that Libya is in a conflict zone. However, the ITU along with international organizations and partners may help and support Libya slowly and gradually in developing most needed and desirable ICT infrastructure and services that will benefit government, businesses and citizens during these difficult times.

4.11 MAURITANIA (ISLAMIC REPUBLIC OF)

a. Telecommunication and Digital infrastructure (TP01)

i. Provide guidance on engagement with external investment to build infrastructure in Mauritania:

i. Explore liberalisation in the fixed segment to encourage more competition and further innovation of existing services.

ii. Allow independent foreign-owned infrastructure providers to deploy passive infrastructure such as towers and fibre.

iii. Deploy infrastructure networks to underserved areas as a part of universal access obligation.

iv. Explore the usage of satellite services to provide connectivity to rural region.

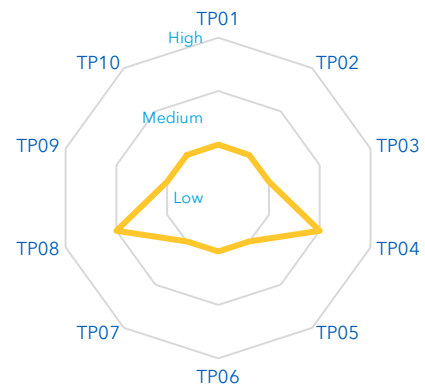


Figure 12: General Indication of GAP report for Mauritania

b. Cybersecurity (TP02)

i. Mauritania needs to establish its national CERT. The National Cybersecurity Agency can collaborate with ITU to setup its national CERT.

i. ITU can conduct a second CERT assessment to identify its readiness as it had conducted the assessment in 2015 which will be outdated.

ii. Based on the CERT assessment conducted, identify resources required and its readiness

iii. Develop a roadmap for the establishment of a National CERT and training requirements for resources identified.

c. Emergency Communications (TP03)

i. Provide assistance in developing a cohesive and independent National Emergency Telecommunications Plan using ITU guidelines.

i. Work with the National Crisis Management Centre on priorities

ii. Coordinate with NATO on determining areas where significant needs exist.

iii. Provide training to reduce reliance on NATO expertise

d. Policy and Regulation (TP04)

i. The ITU may support in the development and implementation of digital financial services/inclusion related policy and regulations, working with the government in formulating regulations and legislation in accordance with international standards.

e. Statistics (TP05)

i. It is recommended that Mauritania improves its foundational capabilities in relation to data gathering and dissemination. The ITU hosts capacity development programmes to assist governments and regulators in this

area, as well as expert group meetings and technical trainings and workshops which can assist with broader capacity building efforts. These programmes will also help with improving Mauritania's ICT data gathering capabilities and allow it to identify areas of focus for investment.

- f. Capacity Development (TP06)
 - i. Develop a tailored capacity building programme to meet specific country needs.
 - ii. The Capacity Development efforts should be focused on enabling environments such as Policy Development, Regulatory Framework and Cost Modelling.
- g. Digital Services and Applications (TP07)
 - i. The ITU along with international organizations and partners (i.e. Islamic Development Bank, African Development Bank Group, UNICEF and the World Bank) may help and support Mauritania in developing and implementing a national transformation strategy covering important areas such as e-government, e-health, e-educations and e-agriculture.
- h. Environment (TP08)
 - i. The UNU and the ITU project to be aligned and complementing the project funded by the Global Environment Facility.
- i. Digital Inclusion (TP09)
 - i. ITU could collaborate with other international organisations, NGOs and donor agencies on projects aimed at increasing rates of digital inclusion, especially among youth and women.
- j. Digital Innovation Ecosystems (TP10)
 - i. The ITU has the capacity, expertise, frameworks and tools to assist Mauritania in developing this sector. Specifically, the ITU can engage with Mauritania in developing innovation country review and/or digital innovation profile so that digital innovation gaps(s) can be identified and bridged; the ITU can even be involved in implementing the necessary solution(s) to bridge the digital innovations gap(s) such as developing appropriate digital innovation strategies and programmes.

4.12 MOROCCO (KINGDOM OF)

- a. Telecommunication and Digital infrastructure (TP01)
 - i. Explore the use of satellite connectivity to provide telecoms services to rural areas where wireline infrastructure cannot adequately serve.
 - i. Work on a clear spectrum allocation and management policy
 - ii. Emphasize new Ka band technologies and access
 - iii. Ensure removal of barriers such as site-by-site licensing
- b. Cybersecurity (TP02)
 - i. Morocco should look into developing more cybersecurity expertise and skills which is a major shortage in the country.

- i. Recommend working with the ITU to conduct a training needs analysis for the identification of skills gap
- ii. ITU to identify and recommend training partners and suitable trainings based on needs analysis and specialised areas.
- iii. ITU can recommend suitable trainings that is available via its academy to further increase Morocco's talent pool.
- iv. Develop a training roadmap based on the training needs analysis for current and emerging threats.

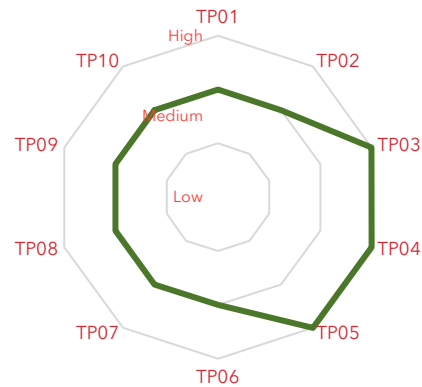


Figure 13: General Indication of GAP report for Morocco

- c. Emergency Communications (TP03)
 - i. Leverage Morocco's evident willingness to work with international organizations for further ITU engagement.
 - i. Engage with Morocco and other UN organizations such as UNESCO for future Emergency Communication planning.
 - ii. Provide assistance in developing a Risk Management Policy in under the Sendai Framework.
- d. Policy and Regulation (TP04)
 - i. Morocco is one of the world leaders in collaborative regulation, and the leader in the region, therefore there is an opportunity to share lessons learned from the experience and best practices with other Arab states to assist them in their journey.
 - ii. Morocco should investigate the steps it needs to take to sign and ratify the Malabo Convention.
- e. Statistics (TP05)
 - i. Morocco remains a candidate for participation in ITU's 'Big Data for Measuring the Information Society' project, which explores ways that big data from the ICT sector can be used to improve and complement existing statistics and methodologies to measure the information society. While the UAE is the only Arab State to be involved in the project, its successes and lessons from the project can be replicated to other states, including Morocco.
- f. Capacity Development (TP06)
 - i. Encourage Morocco to take a leadership role encouraging other Arab Member States by promoting the benefits of capacity development and online learning.

- g. Digital Services and Applications (TP07)
 - i. The ITU may assist in development and implementation of a new Morocco Digital Plan for the coming years covering the key areas such as e-government, e-health, e-education and e-agriculture.
- h. Environment (TP08)
 - i. The ITU along with its partners may work closely with Morocco in preparing a national WEEE legislation/law/policy/strategy as well as support in its implementation.
- i. Digital Inclusion (TP09)
 - i. ITU should encourage Morocco to be a DTC host, when an open call will be made for more potential DTCs to join the network at the end of the first phase (September 2021), contributing to the expansion of capacity and thus enhancing delivery capability.
- j. Digital Innovation Ecosystems (TP10)
 - i. The ITU may help and support in bridging the expertise and skills gaps explained above through conducting capacity building exercises such as seminars, trainings, workshops and sharing of best practices. Moreover, the ITU may assist in the development of a new Morocco Digital Plan for the coming years that takes into account digital innovation ecosystem.

4.13 OMAN (SULTANATE OF)

a. Telecommunication and Digital infrastructure (TP01)

- i. Explore the potential of Oman being a regional host to an IPv6 centre.

b. Cybersecurity (TP02)

- i. A key recommendation is for Oman to play a more active and coordinated role in the region as the host of the Regional Cybersecurity Centre.
 - i. A more coordinated approach is needed between ITU and the RCC to plan for strategic cybersecurity initiatives in the region.
 - ii. Assist countries lacking cybersecurity expertise to provide and share key cyber threat information to prevent and defend against it.
 - iii. Create a formal communication process between the RCC and other Arab region countries for information sharing
 - iv. Increase regional initiatives such as child online protection, awareness programs, cyber drills, etc. in the region to foster collaboration and knowledge sharing.

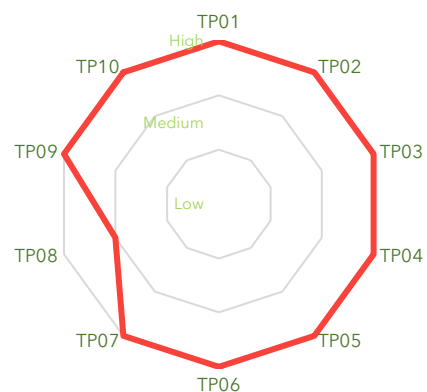


Figure 14: General Indication of GAP report for Oman

- c. Emergency Communications (TP03)
 - i. Leverage Omani experience and clearly defined plan as an example for other countries in the region
 - i. Develop a case study for the Oman National Emergency Management Systems (ONEMS) plan and rollout.
 - ii. Compare to the ITU Guidelines for National Emergency Telecommunication Plans and identify best practices and potential improvements.
- d. Policy and Regulation (TP04)
 - i. The ITU may support in the development and implementation of digital regulation and transformation related policies and strategies.
- e. Statistics (TP05)
 - i. Oman remains a candidate for participation in ITU's 'Big Data for Measuring the Information Society' project, which explores ways that big data from the ICT sector can be used to improve and complement existing statistics and methodologies to measure the information society.
- f. Capacity Development (TP06)
 - i. Encourage members to benefit from the ITU's current capacity building programs such as SMTP, QoS TP, ICT & CC TP, IoT TP, C&I TP and other training programs available on ITU academy.²
- g. Digital Services and Applications (TP07)
 - i. Since various strategies and policies in Oman call for the use of emerging and evolving technologies such as IoT, AI, Robotics, Machine to Machine (M2M) services, Net Neutrality, Big Data and Blockchain in digital services and application, the ITU may help and assist in promoting such evolving and emerging technologies through jointly trialling and testing these technologies as well as conducting national/regional capacity building activities such as conferences, seminars, workshops, forums and training programs.
- h. Environment (TP08)
 - i. The ITU along with its partners may work closely with Oman in preparing a national WEEE legislation/law/policy/strategy as well as support in its implementation. Furthermore, the ITU may help and support in bridging the expertise and awareness gaps related to management of WEEE through conducting capacity building exercises such as seminars, trainings, workshops and sharing of best practices targeting officials and key players.
- i. Digital Inclusion (TP09)
 - i. Providing digital skills training whilst identifying strategic partners for development of digital skills for youth and women are some of the key factors to bridging the digital divide. This would assist in identifying decent job opportunities for youth.

² <https://academy.itu.int/index.php?lang=en>

- j. Digital Innovation Ecosystems (TP10)
 - i. The ITU can engage with Oman in developing innovation country review and/or digital innovation profile so that digital innovation ecosystem gaps(s) if any can be identified and bridged with an aim to boost the future rankings as well as enhance digital innovation ecosystem.

4.14 PALESTINE (STATE OF)

- a. Telecommunication and Digital infrastructure (TP01)
 - i. Encourage participation in the GIGA project in order to expand connectivity to communities. Also, motivate participation in the Connect2Recover initiative, given the high prevalence of Covid-19 infections in the market.

- b. Cybersecurity (TP02)
 - i. Palestine faces key funding issues in the development of cybersecurity initiatives. It is recommended that ITU assist in securing funding from key monetary organisations.

- i. ITU can conduct a cybersecurity posture assessment to identify its current posture and where it should be. A key focus would be the development of its National CERT.
 - ii. Based on the gaps identified, key cybersecurity initiatives should be identified to address it.
 - iii. Cybersecurity initiatives identified to be categorised into suitable projects with budgets and timelines.
 - iv. Identified cybersecurity projects can be used as a source to secure funding from monetary organisations such as the Islamic Development Bank and the World Bank.

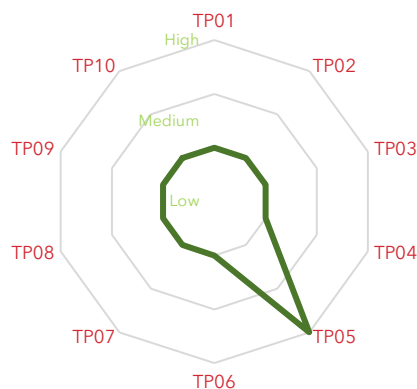


Figure 15: General Indication of GAP report for Palestine

- c. Emergency Communications (TP03)
 - i. Solidify Common Alerting Protocol (CAP) early warning system plans to project status.
 - i. Outline and remove political and practical barriers to project completion
 - ii. Take steps to ensure long-term integrity and sustainability of the project
- d. Policy and Regulation (TP04)
 - i. The ITU may support in the development and implementation of digital financial services/inclusion related policy and regulations, working with the government in formulating regulations and legislation in accordance with international standards. This in turn will support the development of e-commerce initiatives.

- e. Statistics (TP05)
 - i. Palestine has shown a strong survey response in spite of inherent challenges. It is advised that Palestine continue to build foundational capabilities in data collection and dissemination. Participation in ITU's capacity development programmes and other ITU events, including expert group meetings and technical trainings and workshops will assist with long-term capacity building efforts. It will also be able to better identify areas which require urgent development.
- f. Capacity Development (TP06)
 - i. Develop a tailored capacity building programme to meet specific country needs.
- g. Digital Services and Applications (TP07)
 - i. The ITU in partnership with other UN organizations and major partners help and support in the implementation of the Covid-19 response plan as well as the new national digital transformation plan (covering the key important areas such as e-government, e-health and e-education).
- h. Environment (TP08)
 - i. The ITU along with its partners may work closely with Palestine in preparing a national WEEE legislation/law/policy/strategy as well as support in its implementation.
- i. Digital Inclusion (TP09)
 - i. ITU could promote the development of an ICT Youth Strategy, promoting an increased use of ICT in the education sector. Emphasis should be placed on the use of ICT in education from an early age.
- j. Digital Innovation Ecosystems (TP10)
 - i. Prior to release the final version of the new strategy, the ITU may work closely with Palestinian government and ESCW in developing innovation country review and/or digital innovation profile so that digital innovation gaps(s) can be identified and bridged. The ITU can then be involved in implementing the necessary solution(s) to bridge the digital innovations gap(s)

4.15 QATAR (STATE OF)

- a. Telecommunication and Digital infrastructure (TP01)
 - i. Explore the possibility of utilising the Qatar Fund for Development to sponsor GIGA projects in the Arab region. The Qatar Fund for Development recently signed an MOU with the Ministry of Education in Kenya to support 250,000 out-of-school children (OOSC) in Kenya.
- b. Cybersecurity (TP02)
 - i. Qatar faces major threats to its critical national assets and thus should make it mandatory for all CNI organisations to be ISO27001 certified. The ISO27001 looks into the controls needed to ensure supply chain is protected and the controls needed to be implemented which is a vital area identified by Qatar.

- i. As part of the NCSS, to include the requirement for all CNI organisations to start on the ISO27001 process.
- ii. CNI organisations to identify key areas for the ISO27001 certification and to be approved by the relevant authority.
- iii. Develop an appropriate timeline for CNI organisations to complete the implementation of ISO27001 process and the certification.

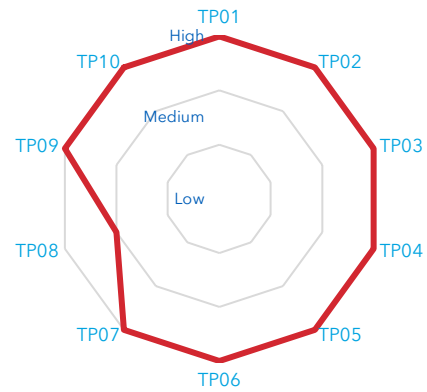


Figure 16: General Indication of GAP report for Qatar

- c. Emergency Communications (TP03)
 - i. Work with Qatar to develop a case study on their involvement with the Zero Project, intended to improve access to emergency telecommunications and ICT for individuals with disabilities.
 - i. Track progress and any outcomes of the project since its inception in 2014.
 - ii. Recognize Qatar for ranking 1st worldwide in the 2020 Digital Accessibility Rights Evaluation Index.
- d. Policy and Regulation (TP04)
 - i. Encourage the administration to take the steps necessary to graduate from G3 to G4 in the ITU generations of regulation.
- e. Statistics (TP05)
 - i. Qatar's robust participation in the IDI suggests strong potential for inclusion in ITU's 'Big Data for Measuring the Information Society' project, which explores ways that big data from the ICT sector can be used to improve and complement existing statistics and methodologies to measure the information society. Qatar possesses robust fundamentals which make it a good participant in the project, following on the UAE which is the only Arab state member in the big data project.
- f. Capacity Development (TP06)
 - i. Encourage Qatar to take a leadership role to inspire other Arab Member States by promoting the benefits of capacity development and online learning.
- g. Digital Services and Applications (TP07)
 - i. Since various strategies and policies in Qatar call for the use of emerging and evolving technologies such as IoT, AI, Robotics, Machine to Machine (M2M) services, Net Neutrality, Big Data and Blockchain in digital services and application, the ITU may help and assist in promoting such evolving and emerging technologies through jointly trialling and testing these technologies as well as conducting national/regional capacity building activities such as conferences, seminars, workshops, forums and training programmes.

- h. Environment (TP08)
 - i. Based on conclusions drawn from the Global E-waste Monitor 2020, the ITU along with its partners may work closely with Qatar in preparing a national WEEE legislation/law/policy/strategy as well as support in its implementation.
- i. Digital Inclusion (TP09)
 - i. ITU should invite Qatar to be a Digital Inclusion champion, a role model for other Arab States to emulate.
- j. Digital Innovation Ecosystems (TP10)
 - i. The ITU can engage with Qatar in developing innovation country review and/or digital innovation profile so that digital innovation ecosystem gaps(s) if any can be identified and bridged with an aim to boost the future rankings as well as enhance digital innovation ecosystem.

4.16 SAUDI ARABIA (KINGDOM OF)

- a. Telecommunication and Digital infrastructure (TP01)
 - i. Engage with ITU on AI and IoT programs and events
 - i. Engage in AI for Good conference
 - ii. Participate in Focus Group on Machine Learning for 5G (FG-ML5G), Focus Group on Artificial Intelligence for Health (FG-AI4H)
 - iii. Further participation in IoT Global Standards Initiative.
 - iv. Additional IoT workshops such as the one in October 2019
 - v. Further review of KPIs as outlined by the June 2020 Factsheet under the United for Smart Sustainable Cities (U4SSC) initiative.
- b. Cybersecurity (TP02)
 - i. With high percentage of children having devices connected to the Internet, it is recommended that Saudi intensify efforts through strategic awareness programs to educate the younger generation on cyber threats and how to be safe online especially in protecting their information and identity.
 - i. Identify key challenges and threats facing children online
 - ii. Develop relevant initiatives and activities to promote a culture of security and best practices for parents and children
 - iii. Identify suitable cybersecurity experts that can act as ambassadors to promote awareness in schools and universities.

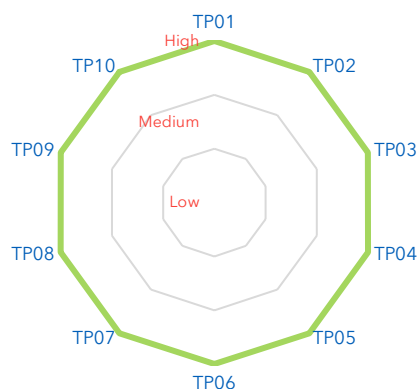


Figure 17: General Indication of GAP report for Saudi Arabia

- iv. Identify suitable media channels that can be used to disseminate key information such as TV, radio, social media and government portals.
 - v. Saudi can also collaborate with ITU on their COP program and use the available resources together with Saudi's own customised resources for all their activities.
- c. Emergency Communications (TP03)
 - i. Work with KSA to continue to serve in a leadership role in the region, identifying specific areas where KSA can make a significant contribution, such as outlining improvements or modelling emergency services and best practices for Red Crescent and Red Cross first responder communication plans.
- d. Policy and Regulation (TP04)
 - i. Encourage CITC to take the necessary steps to graduate from G4 to G5 in the ITU Generations of Regulation framework.
- e. Statistics (TP05)
 - i. Active participation in capacity development programmes tailored to Saudi Arabia's context can also help the government and the regulator sharpen its data collection and dissemination efforts. This will also assist it to identify areas of development in its broader ICT sector.
- f. Capacity Development (TP06)
 - i. Encourage Saudi Arabia to be a DTC host, when an open call will be made for more potential DTCs to join the network at the end of the first phase (September 2021), contributing to the expansion of capacity and thus enhancing delivery capability.
- g. Digital Services and Applications (TP07)
 - i. The ITU may help and assist in promoting such evolving and emerging technologies through jointly trialling and testing these technologies as well as conducting national/regional capacity building activities such as conferences, seminars, workshops, forums and training programmes.
- h. Environment (TP08)
 - i. The ITU may help and support in releasing the new regulation (e-waste management) as well as its implementation, monitoring, enforcement and promoting e-waste in Saudi Arabia.
- i. Digital Inclusion (TP09)
 - i. ITU should encourage Saudi Arabia to be a DTC host, when an open call will be made for more potential DTCs to join the network at the end of the first phase (September 2021), contributing to the expansion of capacity and thus enhancing delivery capability.
- j. Digital Innovation Ecosystems (TP10)
 - i. The ITU can engage with Saudi Arabia in developing innovation country review and/or digital innovation profile so that digital innovation ecosystem gaps(s) if any can be identified and bridged with an aim to boost the future rankings as well as enhance digital innovation ecosystem.

4.17 SOMALIA (FEDERAL REPUBLIC OF)

a. Telecommunication and Digital infrastructure (TP01)

- i. Explore the buildout of telecoms infrastructure using infrastructure programs – such as the Somaliland Development Fund programme (SDF2) - which is being used to fund access infrastructure such as ports and basic utilities.

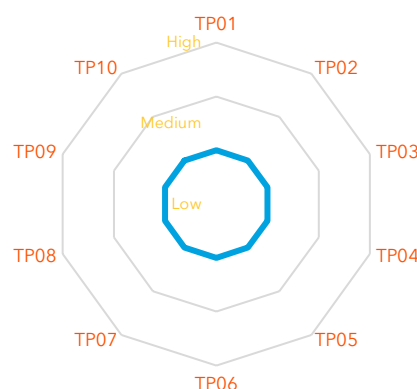


Figure 18: General Indication of GAP report for Somalia

b. Cybersecurity (TP02)

- i. Ranked in the bottom four of the Global Cybersecurity Index (GCI), Somalia is an LDC economy where funding is a key issue in the development of cybersecurity initiatives. It is recommended that ITU assist in securing funding from key organisations.

- i. ITU can conduct a cybersecurity posture assessment to identify its current posture and where it should be.
- ii. Based on the gaps identified, key cybersecurity initiatives should be identified to address it.
- iii. Cybersecurity initiatives identified to be categorised into suitable projects with budgets and timelines.
- iv. Identified cybersecurity projects can be used as a source to secure funding from monetary organisations such as the Islamic Development Bank and the World Bank.

c. Emergency Communications (TP03)

- i. National stakeholders should be involved in reviewing the NETP for disaster management, including UN organizations, such as WFP, UNDRR, etc, in order to have their input, comments and feedback. This is important because it will align ITU efforts with regional or country-based initiatives from these international organizations in order to have a common approach in terms of Emergency Telecommunications and its role on disaster management.

d. Policy and Regulation (TP04)

- i. Encourage the administration to take the steps necessary to graduate from G3 to G4 in the ITU generations of regulation.

e. Statistics (TP05)

- i. The limited ability of the government to collect data also suggests that its scope to participate in projects, such as ITU's 'Big Data for Measuring the Information Society' project, is limited, given that available data sets available to the regulator t present are likely to be incomplete and lean.

- f. Capacity Development (TP06)
 - i. Develop a tailored capacity building programme to meet specific country needs. The Capacity Development efforts should be focused on enabling environments such as Policy Development, Regulatory Framework and Cost Modelling.
- g. Digital Services and Applications (TP07)
 - i. Since the focus of the National ICT Policy & Strategy 2019-2024 are e-government and the use of emerging and evolving technologies, the ITU may help in development of digital government architecture as well as assist in promoting evolving and emerging technologies through jointly trialling and testing these technologies and conducting national capacity building activities.
- h. Environment (TP08)
 - i. ITU should approach Somalia to understand the current status of the WEEE and accordingly discuss and agree appropriate action(s).
- i. Digital Inclusion (TP09)
 - i. ITU could promote the development of an ICT Youth Strategy, promoting an increased use of ICT in the education sector. Emphasis should be placed on the use of ICT in education from an early age.
- j. Digital Innovation Ecosystems (TP10)
 - i. The ITU can engage with Somalia in developing innovation country review and/or digital innovation profile so that digital innovation gaps(s) can be identified and bridged; the ITU can even be involved in implementing the necessary solution(s) to bridge the digital innovations gap(s) such as developing appropriate digital innovation strategies and programmes.

4.18 SUDAN (REPUBLIC OF THE)

- a. Telecommunication and Digital infrastructure (TP01)
 - i. Take advantage of removal of sanctions to explore the usage of newly available Ka-band and Low Earth Orbit (LEO) satellite services to provide connectivity in areas not sufficiently served by wireline infrastructure.
 - i. Conduct cost/benefit analysis of where physical infrastructure vs Satellite terminals make financial sense.
 - ii. Continue existing work on a clear spectrum allocation and management policy to ensure adequate satellite coverage.
 - iii. Ensure limitation of regulatory barriers such as site by site licensing and spectrum allocation.

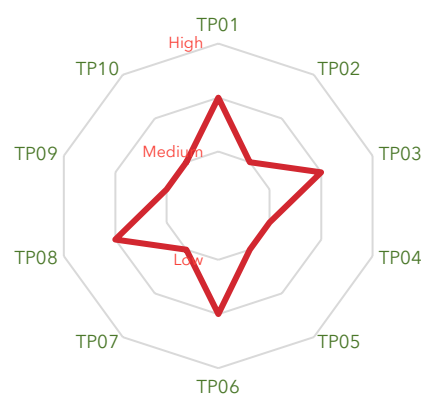


Figure 19: General Indication of GAP report for Sudan

b. Cybersecurity (TP02)

- i. It is recommended that Sudan have one lead agency that looks after cybersecurity which manages all the other sub agencies.
 - i. There are currently 3 agencies that has different cybersecurity tasks and initiatives. Need to evaluate these agencies and its role to eliminate any overlap of initiatives.
 - ii. Sudan should look into establishing a lead agency such as the National Security Council that is able to manage and coordinate all cybersecurity activities and initiatives in the country. The lead agency will also manage all sub-agencies involve in cybersecurity initiatives.
 - iii. Identify the ministry for this lead agency to be at.
 - iv. Identify key resources needed with clear objectives and priorities.
 - v. Develop a timeline and budgets needed to establish this lead agency.
 - vi. Collaborate with ITU & RCC for identification of roles and responsibilities.

c. Emergency Communications (TP03)

- i. Identify additional commercial Satellite service providers beyond Sudan national satellite to create communications networks independent of reliance on national infrastructure, potentially in line with ETC engagement above and in accordance with Tampere convention parameters. Perhaps leverage new opportunities for shared satellite platforms rather than the massive investment required for a national independent satellite program such as SRSS-1 or leased Arabsat-06A capacity.

d. Policy and Regulation (TP04)

- i. The ITU may support in the development and implementation of digital financial services/inclusion related policy and regulations, working with the government in formulating regulations and legislation in accordance with international standards.

e. Statistics (TP05)

- i. It is highly recommended that Sudan improve it foundational capabilities in relation to data gathering and dissemination, and seek funding for such efforts. The ITU hosts capacity development programmes to assist governments and regulators in this area, as well as expert group meetings and technical trainings and workshops which can assist with broader capacity building efforts. Such events should be tailored for Sudan's specific circumstances, such as data collection and reporting which accounts for its efforts to reconstruct damaged infrastructure. Completion of the survey will also enable it to gauge which sub-sectors require urgent redevelopment.

f. Capacity Development (TP06)

- i. Develop a tailored capacity building programme to meet specific country needs.

- ii. The Capacity Development efforts should be focused on enabling environments such as Policy Development, Regulatory Framework and Cost Modelling.
- g. Digital Services and Applications (TP07)
 - i. The ITU to support during the implementation, monitoring and evaluating of the existing strategies (e-government, e-agriculture, e-education); for instance, the ITU could assist in developing digital government architecture. As for the e-health, the ITU may help and assist in developing a revised strategy as well as its implementation. The ITU may involve other partners as applicable to each area.
- h. Environment (TP08)
 - i. The ITU along with its partners may work closely with Sudan in preparing a national WEEE legislation/law/policy/strategy as well as support in its implementation.
- i. Digital Inclusion (TP09)
 - i. ITU could promote the development of an ICT Youth Strategy, promoting an increased use of ICT in the education sector. Emphasis should be placed on the use of ICT in education from an early age in order to help young people around three areas of action – empower, engage and participate.
 - ii. ITU could collaborate with other international organisations, NGOs and donor agencies on projects aimed at increasing rates of digital inclusion, especially among youth and women.
- j. Digital Innovation Ecosystems (TP10)
 - i. The ITU has the capacity, expertise, frameworks and tools to assist Sudan in developing this sector. Specifically, the ITU can engage with Sudan in developing innovation country review and/or digital innovation profile so that digital innovation gaps(s) can be identified and bridged; the ITU can even be involved in implementing the necessary solution(s) to bridge the digital innovations gap(s) such as developing appropriate digital innovation strategies and programmes.

4.19 SYRIAN ARAB REPUBLIC

- a. Telecommunication and Digital infrastructure (TP01)
 - i. Look for opportunities to support infrastructure improvements which have degraded due to civil strife and conflict.
 - i. Work with regional infrastructure development banks or concessional loans provided by foreign states to build out infrastructure.
 - ii. Further explore the use of satellite services to provide temporary connectivity to areas where fixed infrastructure is difficult to be deployed.
 - iii. Work with humanitarian and other UN services in support of establishing basic services.

b. Cybersecurity (TP02)

- i. With very little cybersecurity initiatives in place, the key priority is to develop skills and expertise in the country.
 - i. ITU to assist Syria to conduct a Cybersecurity posture assessment and a Training Needs Analysis to identify cybersecurity skills and development gap
 - ii. Identify key cybersecurity training and strategic cyber initiatives.
 - iii. Collaborate with ITU and the RCC to identify key training partners and organisations to provide specialised training and key initiatives in Syria.
 - iv. Develop roadmap for trainings and strategic cybersecurity initiatives.

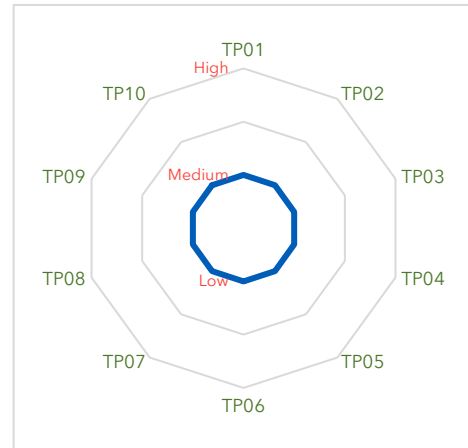


Figure 20: General Indication of GAP report for Syria

c. Emergency Communications (TP03)

- i. Work with the ETC to develop and fine-tune emergency telecommunications plans, strategy and practices.
 - i. Identify ways to with other international organizations for emergency communications for health care and humanitarian efforts.
 - ii. Work with commercial satellite providers to create communications networks independent of national infrastructure.
 - iii. Provide assistance for management training for emergency communication projects.

d. Policy and Regulation (TP04)

- i. Work closely with ITU Regional Office for capacity development and information sharing.

e. Statistics (TP05)

- i. It is highly recommended that Syria improves it foundational capabilities in relation to data gathering and dissemination. The ITU hosts capacity development programmes to assist governments and regulators in this area, as well as expert group meetings and technical trainings and workshops which can assist with broader capacity building efforts. Such events should be tailored for Syria’s specific circumstances. This will allow proper benchmarking with its regional peers and allow for proper allocation of aid and funding efforts.

f. Capacity Development (TP06)

- i. Develop a tailored capacity building programme to meet specific country needs.

- g. Digital Services and Applications (TP07)
 - i. The ITU in partnership with other UN organizations and major partners help and support in the implementation of the new national digital transformation plan (covering the key important areas such as e-government, e-health and e-education).
- h. Environment (TP08)
 - i. The ITU along with international organizations and partners may help and support Syria slowly and gradually in developing most needed and desirable ICT infrastructure and services that will benefit government, businesses and citizens during these difficult times.
- i. Digital Inclusion (TP09)
 - i. ITU could promote the development of an ICT Youth Strategy, promoting an increased use of ICT in the education sector. Emphasis should be placed on the use of ICT in education from an early age in order to help young people around three areas of action – empower, engage and participate.
- j. Digital Innovation Ecosystems (TP10)
 - i. The ITU may work closely with Syrian government and ESCW in developing innovation country review and/or digital innovation profile so that digital innovation gaps(s) can be identified and bridged. The ITU can then be involved in implementing the necessary solution(s) to bridge the digital innovations gap(s).

4.20 TUNISIA

a. Telecommunication and Digital infrastructure (TP01)

- i. Leverage Tunisia’s ICT leadership in the francophone region:
 - i. Continue to leverage Tunisia’s expertise in digital broadcasting to be used as model for other less developed francophone countries.

b. Cybersecurity (TP02)

- i. A key challenge in Tunisia is the development of an appropriate legal and regulatory framework which is vital.
 - i. ITU to work with the Ministry to identify its weaknesses and challenges in developing its legal framework.
 - ii. Identify resources needed from internal and external based on Tunisia’s objectives and priorities.
 - iii. ITU can identify legal experts from the region or internationally to help develop an appropriate legislation framework and its conformity to international standards.

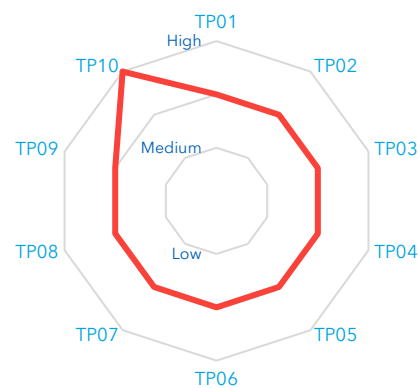


Figure 21: General Indication of GAP report for Tunisia

- iv. Tunisia to review final draft for approval and implementation.
- c. Emergency Communications (TP03)
 - i. Leverage Tunisia's recent efforts in Emergency Communications as an example to the francophone region.
 - i. Create case study on MCTEN cooperation with telecom providers for an early warning system.
- d. Policy and Regulation (TP04)
 - i. The ITU should encourage Tunisia to take the necessary steps to graduate from G3 to G4 in the generations of regulation.
 - ii. Tunisia should investigate the steps it needs to take to ratify the Malabo Convention.
- e. Statistics (TP05)
 - i. Overall, it is encouraged that Tunisia builds on its capabilities by engaging with the ITU on capacity development programmes. Participation in other periodic ITU events such as expert group meetings, technical trainings and workshops will also assist with its broader capacity building efforts.
- f. Capacity Development (TP06)
 - i. Encourage members to benefit from the ITU's current capacity building programmes such as SMTP, QoS TP, ICT & CC TP, IoT TP, C&I TP and other training programmes available on ITU academy.
- g. Digital Services and Applications (TP07)
 - i. The ITU may help and support in the implementation of "Digital Tunisia 2020"; for instance, the ITU may assist in developing digital government architecture.
- h. Environment (TP08)
 - i. The ITU along with its partners may work closely with Tunisia in preparing a national WEEE legislation/law/policy/strategy as well as support in its implementation.
- i. Digital Inclusion (TP09)
 - i. ITU could promote the development of an ICT Youth Strategy, promoting an increased use of ICT in the education sector. Emphasis should be placed on the use of ICT in education from an early age in order to help young people around three areas of action – empower, engage and participate.
- j. Digital Innovation Ecosystems (TP10)
 - i. The ITU can engage with Tunisia in developing innovation country review and/or digital innovation profile so that digital innovation gaps(s) can be identified and bridged.

4.21 UNITED ARAB EMIRATES

a. Telecommunication and Digital infrastructure (TP01)

i. Work with the UAE on continuing leadership and support for other countries in the region.

i. Enhance partnership programs to deliver satellite to underserved areas in surrounding countries.

ii. Enhance regional partnership programs to share knowledge on IoT, AI and other emerging technologies.



Figure 22: General Indication of GAP report for United Arab Emirates

b. Cybersecurity (TP02)

i. A key challenge for UAE is the development of a comprehensive legal and regulatory framework.

With connectivity growth in the UAE, it is crucial to have the necessary legislation in place.

i. ITU to work with TRA to identify key challenges in developing its legal framework.

ii. Identify resources needed from internal and external based on UAE's objectives and priorities.

iii. ITU can identify legal experts from the region or internationally to help develop an appropriate legislation framework and its conformity to international standards.

iv. UAE to review final draft for approval and implementation.

c. Emergency Communications (TP03)

i. Work with UAE to serve a greater leadership role in the region. Based on leading efforts in this area, ITU should identify specific areas where UAE can make a significant contribution, such as:

i. Develop guidelines for National Emergency Telecommunication Plans in alignment with existing ITU guidelines

ii. Draft case studies for effective use of Satellite for emergency telecommunications

iii. Work with member states for regional standardization and spectrum harmonization

d. Policy and Regulation (TP04)

i. An "integrated regulation" approach to the telecoms sector will assist in UAE graduating from G3 to G4 on the ITU generations of regulation.

ii. Encourage UAE to take a leadership role in a regional framework that will enable digital trade via cross border data flows.

e. Statistics (TP05)

i. The UAE is already a participant in ITU's 'Big Data for Measuring the Information Society' project, which explores ways that big data from the

ICT sector can be used to improve and complement existing statistics and methodologies to measure the information society. Its lessons with the project can be used as a model for other Arab States, which may be interested in participating in the programme if it achieves tangible results for the UAE.

- f. Capacity Development (TP06)
 - i. Encourage UAE to take a leadership role to inspire other Arab Member States by promoting the benefits of capacity development and online learning.
- g. Digital Services and Applications (TP07)
 - i. Since various strategies and policies in the UAE call for the use of emerging and evolving technologies such as IoT, AI, Robotics, Machine to Machine (M2M) services, Net Neutrality, Big Data and Blockchain in digital services and application, the ITU may help and assist in promoting such evolving and technologies through jointly trialling and testing these technologies as well as conducting national/regional capacity building activities such as conferences, seminars, workshops, forums and training programmes.
- h. Environment (TP08)
 - i. The proposed new regulation in UAE for e-waste management will enhance and improve the current practices for collection, recycling and disposal of e-waste as well as producing official data related to collection, disposal, segregation and disposal of e-waste. On this note, the ITU may help and support in releasing the new regulation (e-waste management) as well as its implementation, monitoring and enforcement.
- i. Digital Inclusion (TP09)
 - i. ITU should invite UAE to be a Digital Inclusion champion, a role model for other Arab States to emulate.
 - ii. ITU should encourage UAE to be a DTC host, when an open call will be made for more potential DTCs to join the network at the end of the first phase (September 2021), contributing to the expansion of capacity and thus enhancing delivery capability.
- j. Digital Innovation Ecosystems (TP10)
 - i. The ITU can engage with the UAE in developing innovation country review and/or digital innovation profile so that digital innovation ecosystem gaps(s) if any can be identified and bridged with an aim to boost the future rankings as well as enhance digital innovation ecosystem.

4.22 YEMEN (REPUBLIC OF)

- a. Telecommunication and Digital infrastructure (TP01)
 - i. Look for opportunities to support infrastructure improvements which have degraded due to civil strife and conflict.
 - i. Engage with humanitarian and UN organizations.
 - ii. Identify areas where Yemen may benefit from outside funding and support.

b. Cybersecurity (TP02)

- i. Ranked second last in the region, Yemen is an LDC economy where funding is a key issue in the development of cybersecurity initiatives due to its unstable conditions. It is recommended that ITU assist in securing funding from key monetary organisations.
 - i. ITU to evaluate the stability in the country for future cybersecurity initiatives
 - ii. ITU can conduct a cybersecurity posture assessment to identify its current posture and where it should be.
 - iii. Based on the gaps identified, key cybersecurity initiatives should be identified to address it.
 - iv. Cybersecurity initiatives identified to be categorised into suitable projects with budgets and timelines.
 - v. Identified cybersecurity projects can be used as a source to secure funding from monetary organisations such as the Islamic Development Bank and the World Bank.

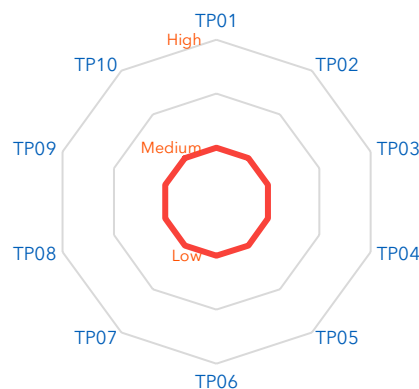


Figure 23: General Indication of GAP report for Yemen

c. Emergency Communications (TP03)

- i. The Emergency Telecommunications Cluster (ETC) the Yemen Humanitarian Response Plan 2021 is the only cluster that has no funding. ITU should work with partners to identify sources funding and in-kind contributions and lead efforts for this cluster.
 - i. Identify ways to with other international organizations for emergency communications for health care and humanitarian efforts, particularly the Central Emergency Response Fund (CERF) and building on any progress made by the World Bank Emergency Crisis Response Project (ECRP).
 - ii. Identify impacted communities and work with Humanitarian responders and commercial Satellite service providers to create communications networks independent of reliance on national infrastructure, potentially in line with ETC engagement above.

d. Policy and Regulation (TP04)

- i. ITU to collaborate with key international organisations to secure funding for basic initiatives such as capacity building and awareness programs for the introduction in a timely manner of the necessary legal and regulatory frameworks.

e. Statistics (TP05)

- i. It is suggested that Yemen participate in ITU capacity development programmes, which assist governments and regulators in ICT data

collection and dissemination efforts. This will better allow it to gauge the development or status of its ICT sector relative to other regional peers.

- f. Capacity Development (TP06)
 - i. The Capacity Development efforts should be focused on enabling environments such as Policy Development, Regulatory Framework and Cost Modelling.
- g. Digital Services and Applications (TP07)
 - i. The ITU along with international organizations and partners may help and support Yemen slowly and gradually in developing most needed and desirable applications and services that will benefit government, businesses and citizens during these difficult times.
- h. Environment (TP08)
 - i. No specific recommendations can be made here due to the fact that Yemen is in a conflict zone. However, the ITU along with international organizations and partners may help and support Yemen slowly and gradually in developing most needed and desirable ICT infrastructure and services that will benefit government, businesses and citizens during these difficult times.
- i. Digital Inclusion (TP09)
 - i. ITU could collaborate with other international organisations, NGOs and donor agencies on projects aimed at increasing rates of digital inclusion, especially among youth and women.
- j. Digital Innovation Ecosystems (TP10)
 - i. No specific recommendations can be made here due to the fact that Yemen is in a conflict zone. However, the ITU along with international organizations and partners may help and support Yemen slowly and gradually in developing most needed and desirable ICT infrastructure and services that will benefit government, businesses and citizens during these difficult times.

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