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Arab Roadmap for Internet Governance

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PREFACE AND ACKNOWLEDGEMENTS

The United Nations Economic and Social Commission for Western Asia (ESCWA) is publishing the Arab Roadmap for Internet Governance, in its second edition, as part of the partnership framework with the League of Arab States (LAS) on Internet governance. These efforts build on the ESCWA-LAS 2010-launched Arab Dialogue on Internet Governance (ArabDIG), and fall within the implementation of the AIGF2020 initiative (launched on 18 December 2015) for the development of the Arab Internet Governance Forum (Arab IGF) and the 2010 Roadmap on Internet governance.

This Roadmap is intended to guide all stakeholders and readers who take part in the formulation of national and regional plans for Internet governance that seeks to benefit from digital technologies in sustainable development, and to promote the participation of all stakeholders in the implementation of these plans.

The process leading to the current version of the Roadmap started with the presentation of its initial draft during the Arab High-Level Forum on WSIS and 2030 Agenda for Sustainable Development (Beirut, 8-12 May 2017), followed by reviews of the members of the AIGF2020 Roadmap Working Group who discussed and commented on its content during six virtual meetings that were spread over two months.

The Roadmap was then discussed at the Expert Group Meeting on the Second Arab Roadmap on Internet Governance - the Next Decade (Beirut, 11-12 December 2017), that was held in collaboration with the League of Arab States at the United Nations House, and was adopted by the participants and included in the Concluding Statement of the meeting. The Roadmap will be published online for soliciting public comments for a one-month period, following which it would be finalized as the Second edition of the Arab Roadmap for Internet Governance.

This work was made possible through the efforts of various experts and members of the ESCWA and LAS Arab IGF teams. Mr Ibaa Oueichek, who has prepared the initial draft and chaired the AIGF2020 Roadmap Working Group that has revised the document during virtual meetings; Mr Mansour Farah, who significantly contributed to the review process, and various members of the AIGF2020 Roadmap Working Group and participants in the aforementioned meeting. From the League of Arab States, Mr Khaled Foda, Manager for ICT Development, and Mr Hazem Hezzah, Information Technology Expert for ICT Development, who have supported all the process from development to review. From the ESCWA Arab IGF team: Mr. Ayman El-Sherbiny, Chief of the Information and Communication Technology (ICT) Policies Section, Technology for development Division (TDD); Ms. Mirna Barbar, Programme Management Officer, ICT Policies Section, TDD; and Ms. Zahr Bou-Ghanem, Research Assistant, ICT Policies Section, TDD.

ESCWA welcomes any comments on this document, to be sent by email to the following address: escwa-tdd@un.org.

CONTENTS

ACRONYMS AND ABREVIATIONS

AMAG	Arab IGF Multi-Stakeholder Advisory Group
ARMIG	Arab Roadmap for Internet Governance
ASCII	American Standard Code for Information Interchange
ATICM	Arab Telecommunications and Information Council of Ministers
AWGDN	Arab Working Group on Domain Names
AWGDNII	Arab Working Group on Domain Names and Internet Issues
ccTLD	country code Top Level Domain
CERT	Computer emergency response team
CIR	Critical Internet Resources
CSIRT	Computer Security Incident Response Team
CSTD	Commission on Science and Technology for Development
DNS	Domain Names System
EBJC	Executive Bureau for Joint Coordination
gTLD	generic Top Level Domain
IANA	Internet Assigned Numbers Authority
ICANN	Internet Corporation for Assigned Names and Numbers
ICTs	Information and Communication Technologies
IDN	Internationalized Domain Names
IETF	Internet Engineering Task Force
IGF	Internet Governance Forum
IMT	International Mobile Telecommunications
IoT	Internet of things
IPR	Intellectual property rights
IPv6	Internet Protocol version 6
ISOC	Internet Society
ISPs	Internet Service Providers
ITU	International Telecommunication Union
IXPs	Internet exchange points
LAS	League of Arab States
MAG	Multi-stakeholder Advisory Group
MDGs	Millennium Development Goals
MENOG	Middle East Network Operators Group
NRENs	National Research and Education Networks
NSA	National Security Agency
NTRA	National Telecommunications Regulatory Authority
OTT	Over-The-Top
SDGs	Sustainable Development Goals
TLDs	Top Level Domains
WGIG	Working Group on Internet Governance
WSIS	World Summit on the Information Society
XML	eXtensible Markup Language

1. INTERNET GOVERNANCE, DEFINITION AND ORIGINS

The term "Internet Governance" has been on the table over almost 15 years now, since its formal introduction during the World Summit on the Information Society (WSIS). The term is quite controversial, simply because the Internet has become such a widely-used tool, to an extent that each person could have his/her own understanding of Internet governance. Typically, telecommunications specialists would associate Internet governance with the development of technical infrastructure and Internet protocols. Computer specialists would rather associate the very same term with the development of different standards that would make Internet applications interoperable, such as XML (eXtensible Markup Language) or Java. Communication specialists put the emphasis on the content transferred through the Internet and the various jurisdictions that would apply on this content. Civil society activists would view Internet governance from the perspective of freedom of expression, privacy, and other fundamental human rights. Lawyers are mainly concerned with disputes that may occur and their resolution. More recently plenty of discussions about threats related to the Internet (cyber security and cybercrime) are being carried out as part of political discussions, especially when it comes to the use of Internet as a "secure communication channel" by terrorist groups. [1]

The following formal definition of Internet Governance was introduced during WSIS:
Internet governance is the development and application by governments, the private sector, and civil society, in their respective roles, of shared principles, norms, rules, decision-making procedures, and programmes that shape the evolution and use of the Internet.

This definition was part of the outcomes of the Working Group on Internet Governance (WGIG)[2]. The WGIG was formed after the first phase of the WSIS agreed to continue the dialogue on Internet governance in the Declaration of Principles and Action Plan, adopted on 12 December 2003, and to prepare for a decision at the second phase of WSIS in Tunis during November 2005. In this regard, the first phase of the Summit requested the United Nations (U.N.) Secretary-General to establish the WGIG, which submitted its report at the Tunis phase. The 2005 WSIS Tunis Agenda for the Information Society elaborated on the question of Internet governance, including adopting the definition proposed by WGIG and listing Internet governance issues. An important decision in the Tunis agenda was the establishment of the Internet Governance Forum (IGF), a multi-stakeholder forum convened by the U.N. Secretary-General to function as a space for discussions on public policy issues related to key elements of Internet governance, yet with no decision-making power. Another related term appeared in the Tunis Agenda was that of the "Enhanced Cooperation" process, which was never launched and will be discussed later in this report.

Over the past 12 years, the agenda of the IGF and the issues under discussion have evolved considerably to reflect the evolution of the Internet socially and economically, with the introduction of Web 2.0 and social media, in addition to new technologies like the Internet of things (IoT) and cloud computing. The Internet and its services have become pillars of the modern life, which brings into focus very sensitive issues like big data and the way this data could be used and how to control its usage in order to respect personal privacy, while keeping an adequate level of openness and transparency. The Annex I of this report provides further information about the IGF process, meetings, themes, and renewal.

2. THE SUSTAINABLE DEVELOPMENT GOALS

The Sustainable Development Goals (SDGs) were adopted by the U.N. General Assembly in December 2015. The SDGs aim to end poverty in all its forms by 2030. This includes ending hunger, achieving gender

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[1] Diplo Foundation (2016). An Introduction to Internet Governance, 7th edition. Available from
https://www.diplomacy.edu/resources/books/introduction-internet-governance
[2] https://www.wgig.org/docs/WGIGREPORT.pdf

equality, ensuring well-being and providing affordable, reliable, sustainable and modern energy for all. The SDGs demand action from all countries, address a range of issues, including human rights, armed conflict and climate change, and are based on six essential elements, as the U.N. Secretary General indicated, namely "dignity, people, prosperity, our planet, justice and partnership." Overall, there are 17 identified SDGs, and each goal has specific targets to be achieved over the next 15 years.[3]

The World Bank report on digital dividend published in 2016[4] shows that in the year 2000, when the international development community came together at the United Nations to approve the Millennium Development Goals (MDGs), the digital revolution was just beginning. At that time, there were fewer than one billion mobile phones in use worldwide and just 400 million internet users. In the intervening years to 2015, when the MDGs were reviewed, both indicators have grown by more than sevenfold. Therefore, target 18 – to make available the benefits of new technologies, including information and communication technologies (MDGs) – was one where progress was easy to show. Yet with the SDGs adopted by the U.N. in 2015, the bar has been raised.

As part of a broader goal 9, on infrastructure, industrialization, and innovation, the SDGs commit to "significantly increase access to ICTs and strive to provide universal and affordable access to the Internet in least developing countries (LDCs) by 2020". Given that many developed countries are already close to saturation in terms of mobile penetration, it is logical to focus on Internet access, and specifically on the needs of the LDCs. The two key words in the new target are "universal" and "affordable". Given the current low level of Internet penetration in the LDCs – just over 10 per 100 inhabitants, by the end a required growth rate of 51 percent a year, much faster than the LDCs have achieved since 2000.

The real significance of the Internet for the SDGs is likely to lie in helping to achieve other targets, such as target 3.9 on achieving universal health coverage, target 5b on promoting women's empowerment, or target 10c on reducing the transmission costs of migrant remittances to below 3 percent. As noted, timely, fine-grained information on households, the economy, and the environment can accelerate achievement of the SDGs.

3. REGIONAL ACTIVITIES RELATED TO INTERNET GOVERNANCE

With the onset of the IGF, the Arab Internet community started to become aware of the importance of Internet governance. Arab countries have gradually improved the level of participation and representation of ICT policymaking bodies involved in Internet governance at the annual IGF meetings as well as periodic meetings of Internet Corporation for Assigned Names and Numbers (ICANN) and the International Telecommunication Union (ITU). The IGF has been a useful platform for voicing the concerns and needs of developing countries.

Though initially weak, Arab official and expert representation at the IGFs has improved over the years. As an indicator of the region's concern with Internet governance issues, the League of Arab States (LAS), through the Arab Telecommunications and Information Council of Ministers (ATICM), formed a working group named the Arab Working Group on Domain Names (AWGDN) that started its meetings in January 2005, focusing mainly on the issue of writing domain names using Arabic characters. The teams were renamed after the announcement of Tunis agenda as the Arab Working Group on Domain Names and Internet Issues (AWGDNII) in order to deal with matters related to the Internet and Arabic domain names. The AWGDNII has been meeting on a regular basis to address issues including views of Internet governance at the policymaking level concerning ICANN and other international bodies as the ITU and the Internet Engineering Task Force (IETF).

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[3] https://www.cfr.org/backgrounder/sustainable-development-goals
[4] http://documents.worldbank.org/curated/en/896971468194972881/pdf/102725-PUB-Replacement-PUBLIC.pdf

As a regional U.N. agency, ESCWA was actively involved with the regional Internet governance activities, and became involved with the IGF process since its inception. The Technology for Development Division (formerly ICT Division) of ESCWA actively supported the work of the AWGDNII since its early creation. In 2009, the Division published an important report on the subject of Internet governance entitled "Internet Governance: Challenges and Opportunities for the ESCWA Member Countries"[5]. The study provided an analytical description of the current situation of Internet governance and the role of involved parties. It elaborated areas that are of most concern to the Arab region and provided relevant guidance for addressing related issues through a set of recommendations, making an important contribution to the proceedings of the fourth IGF in 2009 by compiling the views of a wide array of stakeholders.

The Annex II of this report provides further information and details about certain regional activities related to Internet governance:

1. First Arab Roadmap for Internet Governance
2. The Arab IGF
3. Other regional activities (Middle East Network Operators Group and DNS forum).

4. ARAB ROADMAP FOR INTERNET GOVERNANCE

It is important to revise the first Arab Roadmap for Internet Governance (ARMIG), since several changes have occurred at the international and regional levels, which should be taken into consideration in the new Roadmap. These changes are related to the evolution of Internet technologies, their usage, and their impact on social and economic aspects of people's lives. They are also related to changes to the Internet governance processes in the world reflected in maturing IGFs over the years with the continuous introduction of new issues and extension of its mandate. There is also a need to anticipate the changes which will certainly happen in the future and identify an appropriate process for the formulation of a new roadmap.

Several important landmarks and events which significantly impacted the Internet governance processes and concepts since the inception of the first ARMIG are being listed in Annex III of this document, starting with international events followed by regional events.

In this section, we revise the components of the first Roadmap that was introduced in 2010,[6] which will be referred to as ARMIG 1 in this document, and propose needed amendments to those components. The logframe based methodology was adopted in the revision process, with the notable two small enhancements being proposed to the logframe used in ARMIG 1:

1- Wherever possible, the set of potential stakeholders is defined.
2- The expected accomplishments are mostly expressed in terms of policies which need to be developed rather than quantitative indicators. Those are best decided by national governments. It is expected that the Arab IGF become the ideal forum where debates and discussions around expected accomplishments, best means to achieve them and the way to implement them. It should be noted though that the Arab IGF is a discussion forum, which has no decision-making authority, and therefore is not directly responsible or accountable in case these accomplishments are not achieved.

The two other components (guiding principles, and objectives) need to be revised.

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[5] https://www.unescwa.org/publications/internet-governance-challenges-and-opportunities-escwa-member-countries
[6] Arab Roadmap for Internet Governance, Framework Principles and Objectives.
https://www.unescwa.org/sites/www.unescwa.org/files/publications/files/ictd-10-tp-5.pdf

A. Guiding Principles of Internet Governance

The principles which were proposed in ARMIG 1 were formulated before the Internet principles issue was brought to public attention and gathered momentum, and eventually reached a certain consensus in the NetMundial 2014. In the revision process, two issues were considered:

1- The language used in defining the principles, which shifted from merely dictating "how the Internet should be" to "how the region will deal with the continuous Internet evolution, how it has become and how it will become. Another suggested change of language was to refrain from stating "how" those principles may be implemented, and limit the role of the Roadmap to identifying the principles and their meaning, leaving issues related to implementation to the national policies defined by each State.

2- The set of principles themselves need to be revised in order to reflect the evolution of the Internet governance process itself. A good reference would be the principles adopted in NetMundial,[7] which was adopted with a good international consensus.

Therefore, the following new set of principles is proposed, aiming to achieve a multi-stakeholder, transparent and inclusive Internet governance process in the Arab region:

➢ Human centric governance should be sought to ensure that one of the main goals of Internet governance in the region is to promote shared human values and rights in the "virtual" world, which should be similar to those of the "real" world; Internet governance shall promote inclusion, transparency, human development and collaboration amongst various stakeholders for the well-being of the society.

➢ Security, stability and trustworthiness of the Internet should be a high target objective for all stakeholders, with the role and need for the network is continuously gaining importance.

➢ Sustainable innovation, which led to the remarkable growth of the Internet and brought great value to the global society shall be maintained; Internet governance in the region must support the enabling environment which maintains innovation and creativity.

➢ Open Internet and standard-based network which historically allowed voluntary collaboration and participation in the development of the Internet shall be supported by Internet governance in the region.

➢ Protection of intermediaries implies that legal responsibilities intermediaries offering transport and access services are clearly and fairly defined, so they are not held accountable for illegal activity by end users.

➢ Diversity implies that Internet governance must push forward for the respect, protection and promotion of diversity in all its forms, including but not limited to, cultural, linguistic and gender diversity.

B. Strategic priorities for the Arab region

Update of the ARMIG 1 requires identifying strategic priorities for the Arab region by trying to find the best intersection between global Internet governance issues and regional needs. Given the global focus on the SDGs and the 2030 Agenda of Action by all U.N. agencies, followed by the IGF, and given also the regional situation where most of the Arab countries are classified as "developing countries," and as such much more concerned by the achievement of SDGs than developed countries, it becomes obvious that the next phase of the Arab IGF should follow the global trend and include support for SDGs and the 2030

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[7] http://www.netmundial.org/principles

Agenda of Action in its top themes. Therefore, it is important that this new Roadmap document (ARMIG 2) sets this trend for the Arab region.

Therefore, themes which are assigned sufficient priority to be included in the ARMIG 2 are those which are assumed to provide the best support for the SDGs.

The following new set of themes is being proposed (by order of priority):

➢ Meaningful access for inclusion: The term "access" is used in this document with a very broad interpretation. It should not be restricted to its traditional meaning of adding more subscribers online and just improving penetration indicators. It should mean removal of all possible barriers that limit people's possibilities to reach the Internet and deal with it in a comfortable and useful way. These barriers include the language barrier (e.g. domain names in Arabic language), and discrimination again social groups, such as women, and other possible barriers. Therefore, it has been assigned the highest priority.

➢ Trust and security: This is a more general scope than the previous "security" sub-programme and the traditional cybersecurity theme. It involves the national and international legal structures and systems for providing safety, privacy and integrity of the Internet, as well as protecting the property of Internet users, particularly minors and novice users. This also includes the transparency of dealing with the huge amount of data resulting from Internet usage and the need to have an *open data policy*.

➢ Institutional Empowerment: Participating in global public Internet policymaking in order to shape more balanced, accountable, internationalized and transparent institutional governance schemes; this is particularly important after the IANA transition which is presented as "the solution" for this issue. Still, for a number of people and countries, the debate is far from being closed, as several questions remain open. The issue of *Enhanced Cooperation* needs to be addressed in line with the global work on finding an adequate mechanism to implement it. The *participation of developing countries* in policy making has been considerably improved over the years, but there is still a considerable need for a better and more effective involvement in order to avoid further delays in their development (e.g. high fees for gTLD application process, and the conflict resolution mechanism based on auctions which might not be suitable for developing countries). *Public awareness and capacity building* are a fundamental pillar to improve this participation and engage enough people and resource in the Internet governance process.

➢ Internet innovations and emerging eco-systems: This involves the set of issues related to new opportunities offered by the Internet, in the form of economic opportunities or useful applications that could go beyond entertainment and offer a real added value whether economic, social or in other forms.

➢ Human Development: This involves the set of issues related to human rights, youth involvement, activation of Internet's role as an effective tool for social development and relying on the available social media to promote dialog between different active entities in the society and breaking the barriers between various segments of the society.

➢ Critical Internet resources and Internet infrastructure: Making sure that the following critical Internet resources (CIR) are managed on an equitable basis: (a) root zone files and root server system; (b) domain names; (c) Internet protocol addresses; (d) innovative and convergent technologies; and (e) technical standards;

➢ Cultural and Linguistic Diversity: Improving Internet diversity by increasing digital content relevant to the Arab culture and other cultures and local groups from the region.

The following sections present key issues related to these strategic areas, the priority recommendations and the primary stakeholders who will be responsible for action in the specified areas.

(1) Meaningful access for inclusion

Access related discussions used to focus on the traditional aspect of connectivity: the ability to connect to the Internet with good speed and acceptable cost. The convergence between Internet governance issues and SDGs implies that this connectivity, while remaining of critical priority, is not sufficient by itself. This has been stated clearly in the 2016 IGF main session on Sustainable development, Internet and inclusive growth[8], which was built on 2015 IGF main session on Internet economy and sustainable development. The discussion about "inclusive growth" states that a person's ability to access the Internet and the quality of that access is largely influenced by factors such as disabilities, gender, age, education, as well as the nature of online content. Achieving inclusive growth would therefore require the *elimination of all the possible barriers which would disallow or limit the empowerment of people through the use of Internet.*

(a) Broadband access

The role of ICTs in supporting sustainable development is fundamental, with availability of broadband access being one of the most important prerequisites for efficient and good ICT usage. For this reason, broadband connectivity has attracted a lot of attention in ICT policymaking over the last few years. In 2010, the ITU and UNESCO set up the Broadband Commission for Digital Development[9] in order to support U.N. efforts to meet the MDGs. Following U.N. adoption of the SDGs in September 2015, the Commission was re-launched as the Broadband Commission for Sustainable Development to showcase and document the power of ICT and broadband-based technologies for sustainable development. The Commission issued several reports underlining the critical role of broadband in achieving the SDGs. Including the joint statement in its Report on the Special Session of the U.N. Broadband Commission for Sustainable Development at the Annual Meeting of the World Economic Forum in January 2016[10]. The statement says clearly: "As leaders of government, industry, development and investment organizations from around the world, we believe that global Internet connectivity, specifically global broadband connectivity, is a significant enabler to achieve sustainable development for all". The report's title clearly stated the target: "WORKING TOGETHER TO CONNECT THE NEXT 1.5 BILLION BY 2020".

Therefore, the development of ubiquitous broadband infrastructure, appropriately utilizing wired, wireless, fixed and mobile access modes is fundamental for pushing the SDGs forward. It is necessary to formulate appropriate policy approaches, goals and objectives for building and upgrading accessible, affordable and service-rich telecommunication networks that enable connectivity in the information society.

It is important to emphasise that the focus should not be put on technical aspect of projects, but rather on the policymaking aspect in these projects, as Internet governance issues are part of the necessary environment enabling the implementation of these projects.

Connecting 60% of individuals to the Internet by 2020 is a central target of the Connect 2020 Agenda set by the 193 Member States of the United Nations specialized agency for ICTs, the ITU[11]. This target should be considered as a minimum threshold when shaping national policies.

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[8] https://www.intgovforum.org/multilingual/content/igf-2016-main-session-sustainable-development-internet-and-inclusive-growth

[9] http://www.broadbandcommission.org

[10] https://www.itu.int/dms_pub/itu-s/opb/pol/S-POL-BROADBAND.16-2016-PDF-E.pdf

[11] http://www.itu.int/en/connect2020/Pages/default.aspx

The global statistics for Arab countries show considerable room for improvement when it comes to Internet access. By end of 2016, the percentage of people using the Internet in the Arab countries was only 41.6%, equivalent to the percentage in Asia and Pacific, quite higher than Africa (25.1%), but much lower than the CIS countries (Commonwealth of Independent State) (66.6%) and the Americas (65%) and Europe (79.1%)[12].

The ITU statistics data[13] show that in 2015, Internet penetration in Arab countries varied significantly among countries, with certain countries below 20% (Iraq, Libya), and other countries above 90% (Qatar, Bahrain, and UAE). This situation is aggravated by the considerably lower rates for fixed broadband access. The overall rate for the Arab countries by the end of 2016 is a mere 4.8%, considerably lower than that of Asia and Pacific which was at 10.5%, and much lower than other regions (except Africa, which stood at only 0.7%). If we look at country-specific rates, the results are still far from satisfactory. Few countries show rates above 10%: Lebanon (25%), Bahrain (18.6%), UAE (12.9%), Saudi Arabia (11.9%), and Qatar (10.1%), and even these figures are considered as quite low by international standards. This could be justified by the low penetration of the fixed phone network (7.8% by end of 2016), which has been the traditional "bed" for fixed broadband. Fixed broadband is a key element in the development of digital content, because of high speed and low cost.

Reasonable and achievable targets must be defined and national plans devised in order to reach these targets as a high priority item in telecommunication policies. Relying on business and commercial approaches alone for the increase of broadband access will most likely not be sufficient to achieve the goal of widespread broadband access available to all populations. Therefore, universal access policies need to be drafted for this purpose, allowing for alternative and complimentary funding mechanisms.

While the fixed phone penetration, and eventually fixed broadband, it remains quite low in Arab countries, mobile penetration rates are rather good, and in line with international standards. In particular, mobile broadband penetration in 2016 reached 47.6% in the Arab region, according to ITU, with some Arab countries, mainly Gulf countries, reaching very high penetration rates. Given the trend in developing countries of fast increase in number of mobile broadband subscriptions (double digit growth rates), this represents a great opportunity to partially[14] compensate for the low fixed broadband rates, especially with the much faster deployment of mobile broadband networks. However, this would require a lot of frequencies to be freed and made available to operators, with the international trend (ITU-Radiocommunications) to dedicate all frequencies below 10GHz to International Mobile Telecommunications (IMT) services. Therefore, regional coordination in the allocation and efficient use of the radio spectrum is highly needed.

(b) *Meaningful access and inclusion*

Access does not automatically translate to adoption and/or developmental benefits – it also needs to be meaningful to enable beneficial adoption. The Broadband Commission notes that meaningful Internet access requires relevant, affordable content, available in the right language and offering the capability to transform information into actionable knowledge[15]. The same report states that in addition to providing traditional access needs (availability, speed, and affordability), there are also needs for stimulating the development of local and relevant content and services; developing the capacities of people, including their media and information literacy; and understanding the impact of Internet access in terms of socio-cultural developments, economic growth and environmental sustainability. Special attention must be paid to

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[12] ITU-D ICT Facts and Figures 2016 report. http://www.itu.int/en/ITU-D/Statistics/Documents/facts/ICTFactsFigures2016.pdf.
[13] http://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx
[14] It is highly debatable whether MBB (Mobile Broadband) could totally replace FBB (Fixed Broadband), while speeds offered by LTE (long term evolution) are comparable to those offered by NGA FBB (Next-generation access), mobile network cannot be used for massive deployment of services requiring continuous usage of high speed data such as TV broadcast or VOD (Video on demand).
[15] http://www.broadbandcommission.org/Documents/publications/davos-statement-jan2016-en.pdf

enhancing ICT access and skills for the most marginalized groups, including girls, women and people with disabilities.

In a recent report on how ICTs can accelerate action on the SDGs, Dr. Jeffrey D. Sachs, one of the most respected figures in the field of sustainable development research, argues that while ICT is "the most powerful new tool we have for solving the world's major challenges – ending poverty and hunger, ensuring universal access to basic services, and making the transition to a low-carbon economy," "Technology by itself is never a solution. It must be properly deployed – directed towards social purposes – and extended to the poor and to remote regions that markets alone will not serve, at least not in a timely way"[16].

Meaningful access is a challenge that transcends the issue of infrastructure, and requires investments in the development of human capabilities and what the World Bank terms "analogue complements"[17]: For digital technologies to benefit everyone everywhere requires closing the remaining digital divide, especially in Internet access. However, greater digital adoption will not be enough. To get the most out of the digital revolution, countries also need to work on the "analogue complements" by strengthening regulations that ensure competition among businesses, by adapting workers' skills to the demands of the new economy, and by ensuring that institutions are accountable.

(c) *Domain names*

The Arab region has one important barrier to access that is the language barrier. Access is mainly affected by the availability of Arab domain names. Without this, people will have to rely on writing domain names in English, or on Google to find the requested sites (or resources in general). While this could be acceptable to educated users who can handle foreign characters, it could be quite challenging for users who cannot do so and who are the main target of this "inclusive access" policy. There has been a lot of efforts in the Arab region in the field of IDN (Internationalized Domain Names) TLDs (Top Level Domains). The recent introduction of Arabic domain names in its various forms, country code TLD (ccTLD) and generic TLD (gTLD) is a very positive move in the right direction, but these moves will not have a significant impact unless they are accompanied by application support and protocol, which are still missing. For example, it is still not possible to use Arabic domain names in email, which significantly reduces the gain of this important step forward.

A relatively recent report published by ICANN[18] shows a very modest uptake of IDNs in the Arab region. The report stated that out of 6.2 IDNs in the world, in December 2014, there were only 49,000 associated with the MEAC region (Middle East and Adjoining countries), which includes Arab and non-Arab countries, of which 21,000 were ccTLDs and 28,000 were Arabic script gTLDs. Only half of the 21,000 ccTLDs were in Arabic script. The number of Arabic gTLDs dropped to 22000 in mid-2015. The main losses were felt at the second level under traditional gTLDs (eg. .com, .net and .info), which dropped from 26,000 to 19,000 in the six-month period. The handful of Arabic script second level domains under ASCII (character encoding standard) new gTLDs disappeared in the same period. Meanwhile, the number of Arabic script new gTLDs (top level) grew from 2,200 to 4,800 in the same period.

The growth in Arabic script new gTLDs is in part due to timing of launches (e.g. dotMawqe operator of Arabic domain has launched general availability in April 2015), and may also result from users abandoning mixed script, bi-directional domains under ASCII endings in favour of full IDNs.

There are several reasons behind this (very) low uptake of the IDNs in the region. While the introduction of Arab ccTLDs through 2009 fast track[19], was met very positively by the Arab ccTLDs and several

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[16] https://www.ericsson.com/assets/local/news/2016/05/ict-sdg.pdf

[17] http://documents.worldbank.org/curated/en/896971468194972881/pdf/102725-PUB-Replacement-PUBLIC.pdf

[18] https://www.icann.org/en/system/files/files/meac-dns-study-26feb16-en.pdf

[19] https://www.icann.org/resources/pages/fast-track-2012-02-25-en

countries jointed the process very quickly, it is obvious registrants' acceptance was way below expectations. Challenges to Arabic domain names are not only market-based, whereby users have grown accustomed to English TDLs, but also technical. Creating Arabic URLs requires more effort and while acquiring Arabic TLDs may be easy, activating them is not[20]. Therefore, considerable work on both these fronts needs to be done. Policies need to be adopted by governments to encourage (eventually impose) registration of TLDs in Arabic, at least for government agencies. On the technical front, Research and Development (R&D) actions need to be undertaken to address the issues of creating Arabic URLs and providing IDN support to applications. Table 1 provides a logframe for the meaningful access for inclusion priority.

Table 1 – Logframe for meaningful access for inclusion

Objectives	Expected Accomplishments	Stakeholders
To make available adequate and affordable broadband access capacity to everyone in the region.	1- National universal access policies defined. 2- National broadband plans drafted and approved, including national targets (service reach, penetration, speed), and resources allocated to achieve these targets. 3- National Research and Education Networks (NRENs) deployed. 4- NRENs are interconnected to build a regional non-profit NREN as a support for regional cooperation projects in education and research.	Governments, regulators, operators and private sector, with input from stakeholders. Governments with Academic sector.
To provide adequate and affordable international access capacity.	1. National IXPs (Internet exchange points) promoted. 2. Policies and regulations developed to encourage peering and interconnection in the region.	Governments, Regulators and operators.
To improve user experience and the benefits from Internet usage.	1. National standards for service quality and performance established. 2. Resilience and performance of networks improved through adoption of standards and best practices. 3. Healthy competition encouraged through publication of performance reports.	Regulators, private sector and operators.
To improve frequency coordination.	- Frequency management coordinated at the regional level for the best use of frequencies in mobile broadband.	Governments and regulators
To enhance meaningful access.	1- National rules and regulations for competition in the digital services market set. 2- People's skills in the field of ICT developed, enabling consumption and production of content. 3- Accountability of public services using technology to deliver services improved.	Governments, private sector and regulators
To expand TLDs pertaining to the Arab region in global DNS.	1- Role of the Arab region in the decision-making process for developing DNS enhanced. 2- Protocols and applications which fully support the Arab domain names developed and used at a large scale. 3- Policies to encourage registration of Arab domains are developed and implemented.	All stakeholders

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[20] https://www.wamda.com/2015/09/does-your-business-really-need-an-arabic-top-level-domain

	4- Arab ccTLDs supported in developing their local DNS industry and compete successfully in the global DNS market.	

(2) Security and trust

Since the initial 2006 IGF meeting, security has been considered a cornerstone theme. Security involves a wide range of technical topics – DNS, Public Key Infrastructure (PKI), Internet attacks and cybercrime – and policies and legal measures to ensure a safe and secure Internet experience worldwide. Security is a very broad area where multiple topics must be tackled, since ignoring one or more while securing other areas would still jeopardize the safety of Internet users.

The first ARMIG (2010) focused mainly on the protection of assets, whether network assets (hardware, software and connectivity) or personal assets (user devices and data) against various forms of attacks. In this second version of ARMIG, this focus has been extended to cover the issues related to legal enforcement and the protection of users' data and privacy. The trust of the user in the Internet and his acceptance to its adoption, especially for new users, is conditioned by the proper handling of those issues.

The following additional issues have been identified and need to be addressed in order to increase trust and security on the Internet:

➢ Law enforcement: The increased dependence on the Internet in a lot of activities, increases the need to guarantee its safe and lawful use. This cannot be handled only through technical measures, but also would require legislations, which are often confronted by the "lawlessness" of the Internet.

➢ Novice users: The increase of number of Internet users, most of the new users are novice and come from developing countries, with limited to non-existent awareness about cybersecurity risks.

➢ Privacy: The huge amount of data generated by the plethora of applications being used, and the new possibilities to use this data in artificial intelligence applications, which need to be balanced against people's rights to privacy.

➢ Cyber warfare: The Snowden revelations about cyber warfare National Security Agency (NSA) project[21] show clearly that these are not part of science fiction anymore. Given the level of devastation which could be reached by such attacks, this issue should be taken very seriously and addressed at all possible levels.

➢ Risks introduced by new technologies and applications: The new technologies and applications bring with them their own set of issues, including security risks. The first example is the Internet of things (IoT), which brings Internet usage to another world of applications and devices, which are quite sensitive and could be an ideal target for cyber-attacks and even cyber-wars. Another example is the "blockchain" technology,[22] which has triggered a huge interest in the financial industry and which has been praised for its high resilience and security.

(a) Law enforcement

The concept of "security" cannot be confined to the technical aspect only, in addition to this aspect, safe and lawful use of the Internet requires the identification, establishment and maintenance of appropriate national and regional strategies, practices, legislation and initiatives to:

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[21] http://www.pbs.org/wgbh/nova/next/military/snowden-transcript/
[22] https://blockgeeks.com/guides/what-is-blockchain-technology/

- ➢ Regulate the use and control the misuse of Internet resources e.g. regarding user data security, digital identity, authentication, spam, cyber-crime etc.
- ➢ Protect the rights, including the rights of freedom of expression, privacy, access to information and intellectual property of Internet users and content providers.

The Internet is often presented as a "borderless" domain, where information can be stored, accessed, retrieved, and even processed remotely and without restriction. This means that security issues have a "global" aspect, and therefore cannot be handled only through national legislations.

State jurisdiction, traditionally anchored on the principle of territoriality, is increasingly challenged as cyberspace is in principle borderless[23]. Notably, law enforcement agencies' access to criminal evidence is complicated by storage online, often by private companies' servers and abroad in another jurisdiction. This growing lawlessness in cyberspace complicates law enforcement's ability to rapidly secure and obtain digital evidence to prevent and investigate serious crime and terrorism. Generally, no harmonised global approach exists on how to access such information. A wide array of evolving national approaches are threatening to fragment cyberspace, causing conflicting requirements on Internet companies, and posing tough questions about the rule of law, inclusiveness and online rights.

A recent evaluation of the cyber legislations in the Arab region[24] shows that there is a serious gap between Arab countries and developed countries in cyber legislation. Although Arab countries enacted quite a number of cyber laws between 2010 and 2014, most countries still lack a full and homogenous package of cyber laws, with the laws for personal data processing protection and rights to access information missing. The evaluation states also that enforcement of cyber laws is very weak.

An extremely sensitive issue, which could have a very serious impact in the Arab region, is the exploitation of the high levels of privacy offered on the Internet by terrorist organizations, which often communicate through secure channels and go undetected. Terrorist organizations have been using the Internet in all their activities[25]. In addition to the "traditional" use of the Internet to recruit and train terrorists, they used it to collect funds online, to plan and coordinate attacks, and to carry out propaganda activities. The issue of finding the right balance between privacy and the need for governments to exercise lawful interception in order to protect their citizens needs to be addressed.

(b) Novice users

The number of Internet users is increasing at a very rapid rate and coming quite close to 4 billion[26]. The increase in online content and e-services results in an increase in the number of users and vice-versa. However, this puts millions of new and novice Internet users at risk. The Internet today has become a part of almost everyone's daily life in a way or another. This development of the Internet is systematically challenged and questioned by the security and safety problems being exposed. Bringing the next billion users online is a goal shared by all. However, if this growth is to be inclusive and sustainable, new users need to be empowered to protect themselves from the growing problems of malware and cyber fraud[27]. For experienced users, familiarity with these problems helps keep them safe. Yet for those just coming online, dealing with these threats is something that is foreign to them. This is particularly challenging in developing countries (including the Arab region) where the level of experience in dealing with these issues is limited, and where national laws are not always able to protect the citizens from the risks they are exposed to when they use the Internet.

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[23] https://igf2016.sched.com/event/8htI/ws87-law-enforcement-cyberspace-jurisdiction
[24] http://unctad.org/meetings/en/Presentation/CII_EM5_P_NIdlebi_en.pdf
[25] https://www.searcct.gov.my/images/Articles_2016/Articles_2017/Terrorists_Use_Internet_Mac_17.pdf
[26] http://www.internetworldstats.com/stats.htm
[27] https://igf2016.sched.com/event/8hu9/ws111-empowering-and-educating-the-next-billions-of-internet-users

(c) Risks introduced by new technologies and applications:

The first example of these technologies is the Internet of things (IoT), the introduction of which poses a very serious challenge to the security of the Internet. This totally new generation of applications and devices to be introduced during the next few years is a wonderful opportunity and, at the same time, a great source of security concern. These concerns go far beyond the traditional issues of data leakage to reach the possibility of affecting public safety[28]. The expanding IoT network opens up the grid to malicious cyber-attacks. A compromised network doesn't only mean access to private banking details, but also access to public infrastructures such as traffic lights, GPS (Global Positioning System) tracking systems, water services and power plants, which could fall prey to hackers. This raises the stakes for adequate cyber security considerably, since a compromised system has much larger consequences than the organization losing profitability and efficiency. It would be a superficial reflection to say that this technology is still far from being deployed in the Arab region and therefore should not be considered as an important issue. Several vital projects are being deployed around the region as part of development programmes, and these projects usually rely on new technologies. Therefore, it is quite possible that IoT enters through the door of water services and power plants implementation or modernisation and not through a national policy for IoT deployment, which is even more worrying.

Another example is the blockchain technology, which has triggered a huge interest in the financial industry to an extent that in 2016 alone over one billion US dollars were invested in blockchain by financial services[29]. Cyber-attacks raise concerns about its security, particularly since two cyberattack incidents in 2016 on companies using blockchain for digital currencies (DAO and Bitfinex hacks) resulted in huge losses. It is estimated that attacks over DAO in May 2016 cut the value of the currency by a third, and attacks on Bitfinex in June resulted in a loss of about $65m[30]. Table 2 provides a logframe for the security and trust priority.

Table 2 – Logframe for security and trust

Objectives	Expected Accomplishments	Stakeholders
To enhance the legal frameworks related to Internet governance issues and their enforcement at the national and regional levels.	1- National Laws and regulations related to Internet governance security issues revised and completed. 2- Supportive regulations established to govern the conduct of e-transactions. 3- Best practices for regional coordination and legal harmonization implemented. 4- Enhanced capacity of policy makers to better develop and deploy legal frameworks	Governments, with support from regional organizations
To mitigate the risks of cyber crime	1- National and Regional approaches against cybercrime implemented and coordinated. 2- Judicial and enforcement personnel educated about cybercrime. 3- Awareness about cybercrime and the associated risks increased among various user segments and policy makers.	Governments, private sector and civil society.

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[28] https://www.networkworld.com/article/3204007/internet-of-things/5-of-the-biggest-cybersecurity-risks-surrounding-iot-development.html
[29] https://www2.deloitte.com/content/dam/Deloitte/ie/Documents/Technology/IE_C_BlockchainandCyberPOV_0417.pdf
[30] https://www.ft.com/content/05b5efa4-7382-11e6-bf48-b372cdb1043a

To enhance cyber security	1- National CERT/CSIRT agencies deployed (Computer emergency response team/ Computer Security Incident Response Team), with a clear mandate and sufficient means to help fighting malwares and mitigate cyber-attacks. 2- Effectiveness of CERT/CSIRT agencies improved through regional cooperation. 3- A regional CERT/CSIRT for the Arab region is launched. 4- Public awareness of cyber security related issues improved. 5- Vulnerabilities in network operations minimized.	Governments, regulators and operators.
To enhance privacy protection	1- Relevant legislations and regulations related to privacy drafted, approved and enforced. 2- Appropriate entities created for the purpose of overseeing data privacy and data classification. 3- Public awareness of privacy related issues and best practices improved.	Governments, civil society and private sector.
To face security challenges related to new technologies	1- Security aspects related to new technologies identified and disseminated. 2- Information security policies updated in all organizations which deal with new and emerging technologies. 3- Public awareness of security issues related to new technologies improved.	Governments and private sector.

(3) *Institutional empowerment*

Internet governance has evolved during the past few years into a structure that relies mainly on a multi-stakeholder governance model based on bottom-up policymaking such as the model adopted by the ICANN; Internet governance activities in the Arab region are still conducted mainly through governments which rely on intergovernmental model such as the model adopted by ITU. The representation and contribution of Arab stakeholders concerned with Internet governance issues in both models, including governments, the business sector, civil society and academia, has considerably improved over the years, yet remains below the levels to be effective. With the onset of the IGF, the Arab Internet community started to become aware of the importance of Internet governance. Arab countries have gradually improved the level of participation and representation of ICT policymaking bodies involved in Internet governance at the annual IGF meetings as well as periodic ICANN and ITU meetings.

(a) *Participation in the Internet governance process*

Institutional empowerment is simply about the extent of involvement and impact of the Arab region in the overall Internet governance process. The current rules are not necessarily favourable to the development of Internet in the Arab region due to several factors, mainly the "late arrival" of most of the Arab countries to the Internet community, shortage of addresses, and lack of recognized international standards and regulations to define the prices of connectivity and interconnection between data networks. These are clear obstacles that hinder the development of the Internet in the region, which results in a reduction of the ability of these countries to achieve the SDGs. It is important to stress the fact that these issues cannot be solved by countries alone, and not even through regional cooperation. Therefore, the only way to solve these issues is through the Internet governance processes.

The inception/launching of the Arab IGF is perceived as an important milestone, whereby it was possible to bring in the representatives of all sectors to meet and discuss the various issues at stake. The governmental active participation in the forum remains relatively low and needs to be improved. The global IGF has moved relatively away from ICANN centric debates. While it is still an important issue, especially with several stakeholders (mainly governments) expressing concern over accountability proposals supporting the IANA transition[31], there is also a new set of issues related to development and SDGs, which are brought to IGF in line with the U.N. 2030 Agenda for Sustainable Development. The Arab region needs to join this trend and become involved in these issues, especially since most of the countries, if not all, are "developing".

The Arab region was most active in the ICANN fast track and new gTLD processes. It is important to review the outcome of this participation and provide feedback to ICANN in order to prepare for the next round, scheduled for 2020.

(b) Enhanced cooperation

There is also a strong international debate on the enhanced cooperation process, its meaning and the way it needs to be conducted, and there is a working group on enhanced cooperation (WGEC) mandated to develop recommendations to involve stakeholders. The Arab region has already a mechanism for inter-governmental cooperation, which is the ATICM. It is noteworthy that the enhanced cooperation is an inter-governmental cooperation, but the debate about it and about its mechanisms could involve input from other stakeholders.

(c) Capacity building and public awareness

Building public awareness and human capacity are of critical importance, given the low level of awareness and participation in global and regional Internet governance processes. For this purpose, educational initiatives held in the Arab region should be continued in order to:

➢ Raise the profile, value and possibilities of the Internet in the consciousness of the general public in the Arab region.
➢ Accelerate the growth of regional expertise and involvement in Internet operational and governance activities to ensure appropriate representation and protection of the Arab region interests and efficient and effective regional Internet operations.
➢ Enhance the knowledge and expertise of all Arab stakeholders to exploit usage of the Internet and its information resources for achieving national and regional socio-economic development goals.
➢ Communicate the importance of safe and secure use of the Internet.

Table 3 provides a logframe for the institutional empowerment priority.

Table 3 – Logframe for institutional empowerment

Objectives	Expected accomplishments	Stakeholders
To play a substantial role in shaping a more balanced, internationalised, transparent and accountable institutional governance scheme for global public policymaking.	1- Level of active participation of Arab stakeholders in the Internet global public policymaking process improved. 2- IGF process continued 3- Internet governance processes in the region focused on development.	All stakeholders

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[31] http://domainincite.com/20112-governments-split-on-iana-transition

	4- New TLDs processes (fast track and new gTLD) assessed.	
To strengthen Arab governmental cooperation on Internet governance policies.	1- Enhanced Cooperation regional model defined. 2- Arab participation in the WGEC strengthened.	Governments with input for other stakeholders.
To improve strategic awareness.	- Well spread information about Internet governance in Government circles	Governments, academic sector, and civil society.
To develop relationship between national/regional institutions and international Internet governance players.	- Participation of local and regional practitioners increased in International events to build experience and improve exposure.	All stakeholders

(4) Internet innovations and emerging eco-systems

The Internet and related ICTs have the potential to play a pivotal role in achieving more inclusive innovation and development. The Internet economy can contribute towards inclusiveness in various ways: for example, it can help entrepreneurs and small businesses engage in innovations by facilitating access to information at lower cost, by providing a platform for new business opportunities, and by access to new markets[32]. An important report by the World Bank states that technology can be "transformational," providing examples for transformational applications like digital identification systems, business-to-business e-commerce sites, and digital payment platforms. Three main mechanisms are provided about digital technologies to promote development[33]:

> ➢ Inclusion: Online marketplaces can reduce differences in the information available to buyers and sellers (e.g. information asymmetries), enabling more firms in developing countries to engage in international trade.
> ➢ Efficiency: Digital technologies help firms save costs by automating data-intensive production processes and reorganizing their business models, increasing their productive use of capital and labour.
> ➢ Innovation: The transaction costs for each new customer for some online services is almost zero, enabling a scale effect. This scale effect inspires new business models based on the Internet in services ranging from retail trade, transport, and logistics to tourism and finance. Innovations include mobile money, digital marketplaces, price comparator websites, online media and sharing economy.

The Arab region should set policies to contribute to and adopt the new and emerging technologies, given the great opportunities they present for socio economic development, especially for technologies like artificial intelligence, Internet of things, and big data analytics. Table 4 provides a logframe for the Internet innovations and emerging eco-system priority.

Table 4 – Logframe for Internet innovations and emerging eco-system

Objectives	Expected accomplishments	Stakeholder
To push for inclusion in the global market.	1- National policies and initiatives developed to support international online expansion of businesses. 2- Funding mechanisms implemented to support international online expansion.	Governments and private sector.

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[32] https://igf2016.sched.com/event/8hvE/ws212-promoting-innovation-entrepreneurship-in-the-global-south?iframe=no
[33] http://documents.worldbank.org/curated/en/896971468194972881/pdf/102725-PUB-Replacement-PUBLIC.pdf

To increase efficiency of online businesses.	- Business activities automated through platforms and applications.	Governments and private sector.
To enable regional market to maximise the effect of scale.	- Regional policies and agreements drafted and approved to promote exchange of online services at the regional level, allowing for a larger market.	Governments and private sector.
To disseminate knowledge about opportunities.	1- Capacity building programmes targeting business community developed to explain opportunities and challenges of ICT innovations and new technologies. 2- Capacity building programs and curriculums targeting job opportunities developed for new technologies including machine learning, artificial intelligence, blockchain, IoT, etc.	Private sector and civil society.
To participate in the international innovation processes	- Policies and mechanisms developed for contribution to and utilization of new technologies.	All stakeholders

(5) Human development

(a) Gender, Diversity and Youth empowerment

A significant number of women in developing countries, including most Arab countries, do not have access to education and technologies, and do not have sustainable livelihoods, thus living below poverty lines. Access to the Internet is considered a luxury, with women and the poor being comprised among the underserved. Issues include: digital illiteracy, primitive technologies, limited local content, poor infrastructure, high cost of bandwidth, poor quality of service and inadequate policies.

Given the fact that youth are the main users/stakeholders of the Internet, they should be able to participate in Internet governance discussions on equal footing. Meanwhile, capacity building work should also be provided for constructive and meaningful participation to the discussion. Whether structured capacity building approach is better than direct engagement in policy discussions needs further analysis.

The needs of certain segments of the population which might have problems accessing/using the Internet in the traditional means need to be identified, acknowledged and met, to insure inclusion.

(b) Rights and obligations online

As stated in the United Nations 2030 Agenda for Sustainable Development, Goal 16 relating to peace, stability, human rights and effective governance based on the rule of law are important conduits for sustainable development. It is therefore central that this branch is strengthened, giving it greater responsibility and relevance to address new challenges related to the Internet and freedom of expression, allowing users to have a clear knowledge of their rights and obligations online and avoid further complications related to their behaviour. Online ethics against hate speeches need to be promoted and defined by the user communities.

(c) Children rights

An important research report from UNESCO shows that Internet governance bodies give little consideration to children's rights, despite growing calls from international child rights organizations to address their rights in the digital age. Typically, when children are acknowledged it is in the context of child protection against risks (such as sexual harassment, child pornography, bullying, and exposure to advertisement and marketing

and inappropriate content) while their rights to provision and participation are overlooked, so they miss the opportunities that the Internet could offer them mainly in education and learning[34].

Children count as one third of Internet population worldwide, and this ratio should be considerably higher in the Arab region where children represent a much higher proportion of the population than in developed countries. The report states that implementation of child rights in the digital age requires not only adherence to human rights and values, but also empowerment and participation of child users that fosters their creativity, innovation and societal engagement. It is argued that children's rights are everybody's responsibility – from parents to states to the private sector. So what better place to start the dialogue on how these rights can be translated into the digital world than through Internet governance processes. Table 5 provides a logframe for the human development priority.

Table 5 – Logframe for human development

Objectives	Expected accomplishments	Stakeholders
To empower women online	1- Policies to encourage women presence online are developed, with special attention for women who live in unfavourable conditions. 2- Capacity building programs targeting women developed to empower women and increase opportunities provided by Internet.	All stakeholders
To improve youth participation in Internet governance processes	1- Policies developed to educate the youth about the Internet and the opportunities it could present. 2- Capacity building initiatives are launched to bring young people to Internet governance processes.	All stakeholders
To meet the special needs of certain users	- Special user needs identified and acknowledged, and appropriate measures to meet these needs are taken.	
To define users rights and obligations online.	1- Policies and developed to bring users rights and obligations offline to the online world. 2- Codes of ethics defined and promoted to face abuses and hate speeches.	All stakeholders
To extend children rights online	1- A charter for children rights online is developed. 2- Laws (including cyber laws) are updated to ensure that child's access to the Internet does not expose them to risks. 3- Laws and regulation to protect children online are developed and enforced. 4- Policies to disseminate digital literacy among children are developed. 5- Children are given opportunities for meaningful participation in and through digital platforms and services.	All stakeholders

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[34] https://www.unicef-irc.org/publications/pdf/idp_2016_01.pdf

(6)   Critical Internet resources and network infrastructure

Critical Internet resources (CIRs) and network infrastructure refer to resources and infrastructure without which the Internet cannot function. Overseeing these resources on an equitable basis is important for Internet governance functions. Issues relating to their management include:

➢ Administration of the root zone files and root server system;
➢ Administration and allocation of domain names;
➢ Internet Protocol (IP) addresses;
➢ Technical provisions for Internet connectivity.

The old issue (and maybe the one at the origin of the whole debate) about administration of the master root zone file that lies within the jurisdiction of a single government authority has been addressed with the IANA functions transition. The debate is not over yet, but there is a significant change from the 2003 situation.

The relationship between sustainable development and Internet infrastructure can be established through the need to provide reliable and affordable Internet services to users in order to increase their level of participation in terms of numbers and contribution. This cannot be achieved without a reliable and well-developed infrastructure which would also require provisioning of adequate resources.

(a)   DNS servers

The basic stability of the Internet is maintained by means of mirror root servers around the world, including three in the Arab countries. Yet, stability is diminished through increased Internet access, Web devices, and innovative Web applications/services which have the potential to destabilise the Internet. Ensuring the stability, security and resilience of the Internet therefore becomes of paramount importance particularly through formulating policies that reflect global interoperability and cooperation. The security of the domain name system (DNS) falls within the framework of such policies, particularly since the DNS has become the target of malicious activities and attacks. Then again, the DNS has been the subject of effort for expansion into new top-level domains (TLDs) as well as the introduction of Internationalized Domain Names (IDNs), leading to the reinvigoration of the domain name industry including its registrar constituents.

(b)   IPv6 deployment

The Arab region is qualified as "lagging behind" in terms of Internet development (excluding Arab countries with very high income). The problem of critical resources, and in particular the shortage of addresses has a direct impact on the cost and the performance of the Internet in these countries. While IPv6 has been presented as "the solution" for this problem, the adoption of IPv6 in the world is rather slow, and full migration to IPv6 might never happen if left to the traditional Internet usage (mainly Web browsing and exchange of information). This would mean simply that the region's countries would be stuck with the address shortage. This problem would even become harder with the move towards mobile broadband, which needs even more addresses than the fixed broadband. The advent of IoT constitutes a great opportunity to push for IPv6 deployment, and may give a great boost to a global transition towards IPv6, which is quite useful for the region.

(c)   Over-The-Top applications issues

In recent years, the number of demands to governments pressing to start regulating Over-The-Top (OTT) applications[35] have increased significantly. These demands aim to extend the traditional regulation applied to telecommunications and broadcasting services to these new Internet-based OTTs. But the concept of OTT is an open typology, with no clear nor precise definition, that can justify the regulation of any activity performed on the Internet, even the Internet itself. Table 6 provides a logframe for the critical Internet resources priority.

Table 6 – Logframe for critical Internet resources

Objectives	Expected accomplishments	Stakeholders
To develop peering.	- Framework for local and regional IXP deployment and interconnection defined.	Government regulators and service providers.
To deploy IPv6.	- National plans for IPv6 transition elaborated.	Governments, Regulators and ISPs.
To face the OTT challenge.	- Participation in global debate about the OTTs - Issues related to OTTs identified. - National policies to deal with OTTs defined. - Harmonisation of National policies and regional cooperation mechanisms put in place.	Regulators and operators.
To improve DNS operation.	- Best practices related to technical administration of DNS servers implemented.	Operators.

(7)   Cultural and linguistic diversity

Diversity in cyber space is an issue that cuts across the Internet governance debate. It is at the core of a more inclusive information society and was strongly supported in the WSIS Geneva Declaration of Principles and the WSIS Tunis Commitment. The outcomes of both phases of WSIS have stressed the fact that maintaining cultural and linguistic diversity constitutes a prerequisite for the flexible integration of users from different backgrounds in the information age. To satisfy a variety of users, the issue of Internet cultural and linguistic diversity was therefore addressed on three levels: online content diversity, internationalisation of domain names and user diversity. Enhancing user diversity overlaps the issue of Internet access. Thus, improving access will lead to increased numbers of Arab users, which in turn will lead to enhanced user diversity, and consequently helps achieving the SDGs. In addition to the increase of Arab users, the development of content will support SDGs through empowering innovation, creativity and entrepreneurial activities through conducive policies and incubation of new ideas, with the objective of encouraging development of new services, application, content and Internet start-ups in the Arab region. This would also provide a leverage of the Arab region's weight in the global eco-system.

Multilingualism is a key concept for ensuring true diversity. Certain indicators have changed since 2010 in a positive trend for Arabic-speaking Internet users. English remains the most dominant language online, but Arabic has jumped from the seventh to the fourth rank in terms of Internet users by language. However, the usage of the Arabic language in Web content remains very low (only 0.7% of the Web pages have Arabic content[36]); therefore, the need for a great boost for the development of Arabic content is becoming critical. The current status of the content industry within the region and the lack of national strategies for further development are the main obstacles to a flourishing Internet diversity. Investment in research and development is also quite weak, the pursuit of which would greatly enhance the presence of Arabic language

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[35] OTT is a media distribution practice that allows a streaming content provider to sell audio, video, and other media services directly to the consumer over the internet via streaming media as a standalone product, bypassing telecommunications, cable or broadcast television service providers (https://en.wikipedia.org/wiki/Over-the-top_media_services).
[36] https://w3techs.com/technologies/overview/content_language/all

processing tools and applications. This is mainly due to lack of funding, incentives and awareness. One important potential source of content is the successful Arab media industry, which is still not well present on the Internet.

It is also important to notice, that the Arab region is the home of many other non-Arab cultures and languages. These cultures and languages should be considered as an integral part of the region heritage, and therefore associated content should be promoted online.

The development and management of content requires targeted action to spur the creation, collation and distribution of regional information and applications for economic and social development e.g. e-commerce/business, e-government, distance learning, tele-medicine, collaboration, entertainment and more. Table 7 provides a logframe for the cultural and linguistic diversity priority.

Table 7 – Logframe for cultural and linguistic diversity priority

Objectives	Expected Accomplishments	Stakeholder
To increase the presence of the languages and cultures of the Arab region on the Internet.	1- Enabling environment (appropriate infrastructure and institutional support) created for the recognition and protection of Arabic language electronic content. 2- Local cultures and heritage including those not related to Arabic language presented and promoted online. 3- Electronic rights legalised and protected. 4- Strategies to promote the creation, packaging and dissemination/distribution of local content defined and implemented.	All stakeholders

ANNEXES

Annex I - IGF Evolution

(a) IGF topics and issues

The Internet Governance Forum (IGF) was launched in 2006 and renewed twice until 2025. Table 8 shows the evolution of the topics discussed at the IGF since its inception in 2006.

Table 8 – Internet Governance Forum discussion topics

Year	Location	Subthemes
IGF 2016	Jalisco, Mexico	Internet and sustainable development; Access and diversity; Youth and gender challenges pertaining to the Internet; Cybersecurity and Trust; Enhancing Multi-stakeholder Cooperation; Internet and Human Rights; Critical Internet Resources; Internet governance capacity-building.
IGF 2015	João Pessoa, Brazil	Cybersecurity and Trust; Internet Economy; Inclusiveness and Diversity; Openness; Enhancing Multi-stakeholder Cooperation; Internet and Human Rights; Critical Internet Resources.
IGF 2014	Istanbul, Turkey	Access; Content Creation, Dissemination and Use; Internet as engine for growth & development; IGF & The Future of the Internet ecosystem; Enhancing Digital Trust; Internet and Human Right; Critical Internet Resources.
IGF 2013	Bali, Indonesia	Internet Governance Principles; Principles of Multi-stakeholder Cooperation; Security; Access/Diversity; Openness.
IGF 2012	Baku, Azerbeijan	Opportunities offered by Internet in face of disasters; Internet and Human Rights; Critical Internet Resources; Internet Governance for Development (IG4D); Access and Diversity; Security; Openness and Privacy.
IGF 2011	Nairobi, Kenya	IG4D; Access and Diversity; Security; Openness and Privacy, Managing Critical Internet Resources; Emerging Issues.
IGF 2010	Vilnius, Lithuania	Managing critical Internet resources; Security, openness and privacy; Access and diversity; IG4D; Cloud computing.
IGF 2009	Sharm el Sheikh, Egypt	Managing critical Internet resources; Security, openness and privacy; Access and diversity; Internet governance in the light of WSIS principles; Emerging issues: impact of social networks.
IGF 2008	Hyderabad, India	Reaching the next billion; Promoting cyber-security and trust; Managing critical Internet resources; Emerging issues - the Internet of tomorrow.
IGF 2007	Rio de Janeiro, Brazil	Access; Diversity; Openness; Security; Critical Internet resources.
IGF 2006	Athens, Greece	Access; Diversity; Openness; Security.

One important contribution of the WGIG report was the classification of Internet governance issues in order to help clarifying the complexity of Internet governance. This complexity is mainly due to its multidisciplinary nature, with issues related to technology, economy, development, social awareness, legislation and even politics. The report identified four main areas:

1- Issues related to infrastructure and the management of critical Internet resources (CIR).

2- Issues related to the use of the Internet, including spam, network security and cybercrime.
3- Issues relevant to the Internet but that have an impact much wider than the Internet and for which existing organizations are responsible, such as intellectual property rights or international trade.
4- Issues related to the developmental aspects of Internet governance, in particular capacity building in developing countries.

As table 8 shows, the agenda for the first IGF, held in Athens in 2006, was built around the thematic areas of access, security, diversity, and openness. At the second IGF in Rio de Janeiro in 2007, a fifth thematic area was added to the agenda, namely managing CIR. These five thematic areas have influenced the agendas of all subsequent IGF meetings.

The IGF today addresses a set of 40 to 50 specific issues, with the relevance of particular issues changing over time. For example, while spam featured prominently in the WGIG classification in 2004, its policy relevance diminished at the IGF meetings, in which it became one of the less prominent themes within the security thematic area. One important classification groups Internet governance issues into the following seven areas (Kurbalija, 2016, p. 29):

1- Infrastructure.
2- Security.
3- Legal.
4- Economic.
5- Development.
6- Socio-cultural issues.
7- Human rights.

(b) The Multi-stakeholder Advisory Group

The Multi-stakeholder Advisory Group (MAG) was established in 2006 by the U.N. Secretary-General to assist in convening the annual IGF meeting by preparing the programme and schedule. The MAG members serve in their personal capacity, yet are expected to have established linkages with their respective stakeholder groups.

The primary purpose of the MAG is to advise the U.N. Secretary-General on the programme and schedule of the IGF meetings. Concerted efforts should be made by the MAG to improve the IGF process through community consultations, outreach and stakeholder engagement.

With the main aim of advising the U.N. Secretary-General on the programme and schedule for the annual IGF Meeting, the MAG is expected to carry out the following tasks[37]:

1- Develop the detailed programme and schedule of the annual IGF meetings, including the identification of themes, sub-themes and issues taking into account inputs of all relevant stakeholders;
2- Determine how best to plan and organise the annual IGF meeting;
3- Organise main sessions and where necessary participate in dedicated thematic working groups;
4- Select workshops and facilitate the organisation of workshops;
5- Coordinate panels and provide support and guidance to panellists, moderators and speakers at the annual meeting;
6- Support the IGF inter-sessional work;
7- Promote the work of the IGF amongst all stakeholders; foster multi-stakeholder participation and collaboration at the annual IGF meetings and inter-sessional work.

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[37] https://www.intgovforum.org/multilingual/content/mag-terms-of-reference

(c) IGF mandate renewal and improvement process

In the lead up to the completion of the first five-year mandate of the IGF in 2010, the U.N. initiated a process of evaluating the continuation of the IGF, resulting in a U.N. General Assembly resolution to continue the IGF for a further five years (2011-2015)[38]. In addition to the renewed mandate, another U.N. body, the Commission on Science and Technology for Development (CSTD), established a Working Group on Improvements to the IGF (CSTDWG).

The second five-year mandate of the IGF ended in 2015. On 16 December 2015 the U.N. General Assembly adopted the outcome document on the 10-year review of the implementation of the outcomes of the World Summit on the Information Society (WSIS). Among other things the outcome document stresses the need to promote greater participation and engagement in Internet governance discussions that should involve governments, the private sector, civil society, international organizations, the technical and academic communities, and all other relevant stakeholders. It acknowledges the role the IGF has played as a multi-stakeholder platform for discussion of Internet governance issues. It also extends the existing mandate of the IGF, as set out in paragraphs 72 to 78 of the Tunis Agenda, for a third period of ten years.

During the ten-year period, 2015-2025, the IGF should continue to show progress on working modalities, and participation of relevant stakeholders from developing countries. After the U.N. General Assembly extended the IGF's mandate for ten additional years in December 2015, and before the December 2016 IGF meeting in Mexico, an IGF retreat[39] was held during 14-16 July 2016 in Glen Cove, New York, to focus on advancing the 10-year mandate of the IGF. When the IGF mandate was extended, the UN General Assembly called for "progress on working modalities and the participation of relevant stakeholders from developing countries" and "accelerated implementation of recommendations in the report of the UN Commission on Science and Technology for Development (CSTD) Working Group on Improvements to the IGF."

Therefore, the retreat was framed by the mandates of the Tunis Agenda and WSIS+10 review. It also aimed to build on the report of the CSTD Working Group on improvements to the IGF and the many years of reflection of the MAG and the IGF community on improving the working methods of the IGF. The retreat was to focus on "how" the IGF could best work to deliver its role and how it could be best supported. As it focused on the "how", it would not try to carry out the substantive discussions that are to happen in the IGF itself.

The retreat reached the following understandings:

1- In addition to its renewal of the IGF's mandate in December 2015, the U.N. General Assembly expressed expectations, specifically the need to show progress on working modalities and the participation of relevant stakeholders from developing countries, as well as for the accelerated implementation of the recommendations of the CSTD Working Group on improvements to the IGF.

2- There was also recognition that improvements have been and continue to be made on an ongoing basis.

3- The relevance of the IGF in the future is not assured, being dependent inter alia on increased voluntary funding to the multi-donor extra-budgetary IGF Trust Fund Project of the U.N. that funds the IGF Secretariat and on increased participation from a balanced and diverse set of stakeholders.

4- Other fora are emerging for those wishing to engage in discussions about Internet governance. This suggested that the IGF distinctiveness and value within this range of alternatives would need

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[38] https://www.un.org/ga/search/view_doc.asp?symbol=A/RES/65/141
[39] https://www.intgovforum.org/multilingual/content/igf-retreat-documents

to remain sufficient to maintain participation levels from governments and the private sector in particular.

5- A few participants sensed that the Multi-stakeholder Advisory Group (MAG) does not engage all parts of the community who want to take part in the discussion on Internet governance, and the IGF itself as well as the various inter-sessional activities could address this.

6- The IGF has evolved over the years and is now perceived by many as much more than an annual forum. Increasingly, it is seen as an ecosystem including national and regional IGFs, inter-sessional work, best practice fora, dynamic coalitions and other activities.

7- More could be done to take a strategic, long-term view of the role and activities of the IGF, such as through a predictable multi-year programme of work. Even if not undertaken generally, it might be possible to reinvigorate the IGF by taking a longer term view of particular issues, dedicating time and resources to progressing discussions and achieving concrete outcomes on these over time. It might be possible to move towards a continuous, predictable process for programming the work of the IGF. An IGF MAG Working Group to support the formulation of a multi-year strategic work programme for the IGF has been approved by the MAG[40].

8- The IGF innovative and unconventional multi-stakeholder structure and culture, compared to other U.N. processes, is generally felt to be one of its strengths. However, it also made it more difficult to integrate it with other U.N. processes. The same is true with respect to integrating the IGF and its institutional arrangements comfortably into expectations of multi-stakeholder processes. One of the challenges therefore is how to reconcile its bottom-up approach and stakeholder expectations with other multilateral processes within the U.N. system.

9- The role of the MAG, in particular whether the MAG is expected or authorized to take on responsibilities beyond the programming of the annual IGF meetings, needs to be clarified in order to pursue significant innovations in the IGF.

It was generally considered that the IGF Secretariat is under-resourced and hence lacks capacities for its current responsibilities, let alone additional activities.

Annex II - Regional activities related to Internet governance

(a) First Arab Roadmap for Internet Governance

The Arab Regional Roadmap for Internet Governance was envisioned by the United Nations Economic and Social Commission for Western Asia (ESCWA) to fulfill this need, by presenting a clear strategic framework for tackling Internet governance matters from a regional perspective. It was the result of multi-stakeholder involvement, including ESCWA and the League of Arab States as regional organizations, governments, the technical community, private sector and civil society. During 2010, the first Arab Roadmap for Internet Governance (ARMIG 1) developed through several stages, advancing from one version to another through this involvement. It was first posted online for public viewing and commenting during August 2010 and then presented at the fifth IGF meeting in 2010. The Roadmap was finally discussed and deliberated in detail at the Expert Group Meeting on the Regional Roadmap for Internet Governance (25-26 October 2010)[41] that was held at the United Nations House in collaboration with the League of Arab States, and was formally adopted by its participants and included as a key item in the Call of Arab Stakeholders that the group formulated and launched.

The first ARMIG contained three main components:

1- Principles of Internet Governance.

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[40] https://www.intgovforum.org/multilingual/content/working-group-on-multi-year-strategic-work-programme-wg-mwp
[41] https://www.unescwa.org/events/egm-regional-roadmap-internet-governance

2- A methodology for designing, managing and implementing the roadmap inspired by the results-based logical framework (logframe) model.
3- Priority areas for the region presented as sub-programmes in the logframe.

(i) Principles for Internet governance

The first Roadmap relied on the following principles for Internet governance as a common understanding of characteristics that define what the Internet should be in the Arab region (in alphabetical order):

➢ Democratic and collaborative governance should be sought to ensure a transparent and multilateral manner of Internet governance allowing the participation of various segments of society;
➢ Functionality, security and stability of the network must be continuously preserved by adopting technical measures consistent with international standards;
➢ Innovation is to be sought through promoting the continuous development and widespread dissemination of new technologies and models for access and use;
➢ Legal and regulatory frameworks must preserve the dynamics of the Internet as a space for collaboration;
➢ Standardization and interoperability based on open standards will enable all to participate in the development of the Internet;
➢ Unaccountability of the network implies that all action taken against illicit activity on the network must be aimed at those directly responsible for such activities, and not at the means of access and transport;
➢ Universality of Internet access makes the Internet a tool for human and social development, thereby contributing to the formation of an inclusive and non-discriminatory society.

These principles were inspired from the experience of Brazil and the Brazilian Internet Steering Committee[42].

(ii) Methodology and logical framework

The first ARMIG was designed as a logical framework, known technically as "logframe"[43]. The design methodology of the logframe is usually adopted by international agencies (mainly U.N.) for planning its programmes, determining the objectives and expected accomplishments to be reached by adopting certain strategies. Success is measured using well-defined indicators of achievement. The first roadmap was therefore more an articulation of what countries in the region hoped to accomplish than just what must be done.

The logframe is essentially a tool for structuring the main elements in a project and highlighting the logical linkages between them. The main elements are usually: objectives, expected accomplishments, external factors, strategies, activities and indicators of achievement. They are linked in a hierarchical and logical manner. The first ARMIG aimed at linking the first three of those components.

➢ Objectives: An objective is an overall desired achievement involving a process of change and aimed at meeting certain needs of identified end-users, within a given time period. It should answer the question: "What does this sub-programme intend to achieve?"
➢ Expected accomplishments: An expected accomplishment is a concise statement about the intended result, leading towards the achievement of objectives and answering the question: "What must happen in order to meet the objective of the sub-programme?"

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[42] https://www.cgi.br/resolucoes-2009-003-en/
[43] http://usaidprojectstarter.org/content/logical-framework-lf

➢ External factors: External factors are the expected and unexpected factors beyond the programme's control that have a plausible influence on the achievement of the expected accomplishment.

This methodology, called results-based management, is quite solid and used as a standard by several international organizations for planning and managing their projects.

(iii) Internet governance priorities and sub-programmes

In the first ARMIG, sub-programmes included in the logframe were based on the following priorities for the Arab region:

➢ Institutional empowerment: Participating in global public Internet policymaking in order to shape more balanced, accountable, internationalized and transparent institutional governance schemes.
➢ Critical Internet resources: Making sure that the following CIRs are managed on an equitable basis: (a) root zone files and root server system; (b) domain names; (c) Internet protocol addresses; (d) innovative and convergent technologies; and (e) technical standards.
➢ Access: Enhancing Internet access and reducing the divide between Arab and developed regions.
➢ Cultural and linguistic diversity: Improving Internet diversity by increasing digital Arabic content as well as Arabic domain names.
➢ Security: Enhancing the Internet's security and protecting users in the Arab region from cyber threats and risks.
➢ Openness: Facilitating the move towards a more open Internet in the region and using this improved openness for development purposes.

These priorities were selected amongst the issues discussed during the global IGF sessions and which were deemed most relevant for the Arab region.

(b) The Arab IGF

The Arab Internet Governance Forum (Arab IGF) was established in 2012, within the framework of the first Arab Roadmap for Internet governance (ARMIG), and pursuant to the resolutions of the Arab ICT Council of Ministers concerning the Initiative[44]. The Consultation Constitutional Conference on the Arab IGF was held in Beirut during the period from 31 January to 1 February 2012, with the participation of all stakeholder groups from the Arab region. It was held at the invitation of the United Nations Economic and Social Commission for Western Asia (UNESCWA) in collaboration with the League of Arab States (Umbrella Organizations). Based on the discussions held during the conference, the participants agreed to establish the Arab Internet Governance Forum (Arab IGF), provided that a multi-stakeholder Advisory Group (composed of all stakeholder groups) would undertake the organization thereof.

(i) Arab IGF organizational structure

The Arab IGF was established under the joint umbrella of the League of Arab States (LAS) and ESCWA in the light of their roles in the roadmap initiative for Internet governance in the Arab region. Both ESCWA and LAS Organizations play a direct and key role in the activities of the Arab IGF as they take part in the organization of its preparatory and annual meetings in collaboration with the Technical Secretariat of the Forum and hosting entities. They also pay special attention to issues related to the formation of the Arab IGF Multi-Stakeholder Advisory Group (AMAG), and the selection of the hosting entities of the Arab IGF. The AMAG is supported by the Technical Secretariat of the Forum, which was mandated in 2012 to the Egyptian National Telecommunications Regulatory Authority (NTRA). An Executive Bureau for Joint

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[44] http://www.igfarab.org

Coordination (EBJC), comprising representatives of each of the Arab IGF umbrella organizations, and the Technical Secretariat, was formed to ensure the effective and fast communications and consultations between the three parties with regard to the Forum activities.

(ii) Arab IGF meetings

Four Arab IGF meetings were held from 2012 to 2015:

> ➢ Arab IGF-IV: Beirut, 2015 December 17-18, its theme was "Digital Economy for Sustainable Development".
> ➢ Arab IGF-III: Beirut, 2014 November 25-27, its theme was "Enabling Environment"
> ➢ Arab IGF-II: Algiers, 2013 October 1-3, its theme was "Partners for Development".
> ➢ Arab IGF-I: Kuwait, 2012 October 9-11, its theme was "A Better Internet for A Better Arab World".

(iii) Arab IGF assessment process

With the end of the first mandate of the Arab IGF (2012-2015), coinciding with the end of the second mandate of the Global IGF (2011-2015), the Arab Internet community unanimously expressed its desire to extend the mandate of the Arab IGF at the closing session of the third Arab IGF meeting (Beirut, November 2014).

ESCWA and LAS, as umbrella organizations of the Arab IGF, reviewed the work of the Forum in its first mandate and its impact on Internet governance policies in the Arab region and examined the improvements required for the post-2015 period, in light of the lessons learned. At the end of the fourth Arab IGF meeting, on 18 December 2015, the EBJC of the Forum issued an announcement on the initiative of ESCWA and LAS, called the Development of the Arab Forum for Internet Governance Forum AIGF2020. The initiative aimed to evaluate the first phase of the Arab IGF and develop it for the second phase that might extend to 2020, and update the roadmap for Internet governance.

The AIGF2020 expert team conducted a survey about the Arab IGF process. We provide hereby some of the most relevant results of the survey.

a. About the achievement of Arab IGF goals

o 77% of the respondents agree that the forum has achieved the objective of discussing Internet governance policy issues;
o 79% agree that the Forum has achieved the objective of facilitating the exchange of information and practices;
o 64% agree that the Forum has achieved the objective of bringing together multi-stakeholder views;
o 74% agree that the Forum has achieved the objective of discussing emerging technology topics;
o 72% agree that the Forum has achieved the goal of contributing to capacity building and development;
o 65% agree that the Forum achieved the goal of transferring the Arab perspective to the global level;
o 73% agree that the Forum achieved the goal of communicating with regional and global Internet governance forums.

b. About the Roadmap objectives:

A majority of respondents believe that the Arab IGF have successfully helped achieving the ARMIG objectives.

- 55% of the respondents agree that the Forum addressed the issue of the Arabic Domain Name System;
- 54% agree that the Forum addressed TLDs (Top Level Domains) issues;
- 47% agree that the Forum addressed IPv6 (Internet Protocol version 6) and capacity development in its implementation;
- 63% agree that the Forum contributed to raising awareness about the importance of Internet governance;
- 51% agree that the Forum contributed to raising awareness about the importance of access;
- 52% agree that the Forum contributed to the promotion of Arabic language and culture on the Internet while 31% provided neutral answers;
- 48% believe that the level of expansion of the Arab TLDs system is average;
- 43% believe that the level of improvement of Arabic content services is average, 32% believe it is low;
- 44% believe that the level of awareness about cybersecurity is average;
- 44% believe that the level of establishing legal and policy frameworks for cybersecurity is average;
- 41% believe that the level of the Forum's contribution to raising awareness about openness and removing access barriers was moderate;
- 48% believe that the level of the Forum's contribution to improving knowledge exchange and expression of opinion was moderate and 24% believe it was high.

(c) Other regional activities

Several other regional activities related to Internet governance were launched by regional stakeholders. Some of the most relevant activities are the following:

- Middle East Network Operators Group (MENOG):[45] MENOG is an international forum that brings together key players in the Middle East's Internet network operations, including: Network operators, vendors, ISPs, research communities, technical groups, governments and regulators. The first MENOG meeting was held in 2007. The meetings usually focus on the technical issues such as DNS, routing and peering and IPv6 deployment.
- Middle East DNS Forum:[46] The Middle East Domain Names System Forum is a series of annual meetings which started in 2014 in Dubai. The meetings brings together participants from ICANN, ISOC, registries, registrars, registrants, ccTLDs, new gTLD applicants, service providers, brand owners, legal firms, and anyone who has an interest in the DNS industry. The meetings aim to build bridges between interested parties in the region and world experts in the field, share experiences and best practices, update the audience on in the domain name industry at a global level and emerging business opportunities.

Annex III - Important landmarks since ARMIG1

(a) ICANN launching the new gTLD programme

In June 2011, and after a long and complex policy process launched in 2005, ICANN' Board of Directors approved the Applicant Guidebook and authorized the launch of the New gTLD Programme. The application window opened on 12 January 2012. ICANN received 1,930 applications for new gTLDs. On 17 December 2012, ICANN held a prioritization draw to determine the order in which applications would be processed during an initial evaluation and subsequent phases of the programme. These applications were processed by ICANN staff and evaluated by independent third-party experts according to priority numbers.

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[45] https://www.menog.org/
[46] www.mednsf.org

On 22 March 2013, ICANN released the first set of Initial Evaluation Results to applicants and the public. In October 2013, the first new gTLDs were delegated. As of 31 March 2017, the statistics for the new gTLD process are indicated in table 9:

Table 9 – New gTLD process statistics

Item	Number
Total Applications Submitted	1930
Completed New gTLD Programme (gTLD Delegated** - introduced to Internet)	1216
Application Withdrawn	586
Applications that Will Not Proceed/Not Approved	42
Currently Proceeding through New gTLD Programme*	86

Source: ….

Despite the problems which accompanied this event and the multiples contentions which occurred, this programme constitutes a major milestone in the Internet governance history, as it has been one of the most important issues raised over several years. It is important to notice that the Arab domain names were introduced with this process. According to Internet Assigned Numbers Authority (IANA) reports,[47] the .arab TLD passed all the eligibility requests and was delegated to the League of Arab States on 22 May 2017.

This specific issue has been one of the most important issues, which were included in the first ARMIG. Recognizing that ICANN took important steps to provide solutions to the TLDs in generals and internationalized domain names (IDN) in particular does not necessarily imply that these issues should disappear from the roadmap. Actually, they still need to be present and constantly monitored to discover issues related to the usage of those TLDs, and this needs to be addressed in the new version of the roadmap.

(b) Internet Principles[48]

The introduction of this concept started in the U.S.A. with the document entitled "International Strategy for Cyberspace" in May 2011[49]. The document stated that "Activities undertaken in cyberspace have consequences for our lives in physical space, and we must work towards building the rule of law, to prevent the risks of logging on from outweighing its benefits."

In June 2011, the Group of Eight (G8) Summit in Deauville/France adopted a declaration in which the heads of states of the U.S.A., the United Kingdom, Germany, Italy, Canada, France, Japan and Russia agreed on a number of Internet governance principles, including the principle of multi-stakeholderism[50]. In the same year a Ministerial meeting of the Council of Europe adopted a "Declaration on Internet Governance Principles" and the OECD agreed on "Principles for Internet Policy Making". In September 2011, a letter was addressed to the U.N. Secretary-General from the Permanent Representatives of China, the Russian Federation, Tajikistan, and Uzbekistan as a proposal for a Cybersecurity Convention for the U.N. General Assembly. The proposal contained a list of principles under the name "Code of Conduct"[51]. And a similar list of principles included the proposal for the establishment of a "U.N. Council for Internet Related Policies/CIRP" the IBSA Countries (India, South Africa and Brazil) tabled at the 66th UN General Assembly in fall 2011[52].

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[47] https://www.iana.org/reports/tld-transfer/20170522-arab
[48] http://www.circleid.com/posts/20140510_pingo_net_mundial_adopts_principles_on_internet_governance/
[49] https://obamawhitehouse.archives.gov/sites/default/files/rss_viewer/international_strategy_for_cyberspace.pdf
[50] https://www.nato.int/nato_static_fl2014/assets/pdf/pdf_2011_05/20110926_110526-G8-Summit-Deauville.pdf
[51] https://ccdcoe.org/sites/default/files/documents/UN-110912-CodeOfConduct_0.pdf
[52] https://cis-india.org/internet-governance/blog/india-statement-un-cirp

Next to those governmental initiatives, a growing number of non-governmental stakeholders drafted documents with Internet Governance principles, as the private sector based Global Network Initiative (GNI), the Association for Progressive Communication (APC), a global civil society organization and the technical oriented I*-organizations[53]. Also the IGF Dynamic Coalition of Right and Principles proposed a comprehensive document with numerous Internet principles[54]. In Brazil, the national multi-stakeholder Internet Group cgi.br proposed a "Marco Civil" which made its way into the Brazilian parliamentary process, to be finally sanctioned by the President on April 2014[55].

Yet till 2013, there was no real clear set of Internet principles which has a global or even a quasi-global consensus. A comparison of Internet principles documents showed that around 70 percent of the principles were identical, 20 percent very similar and only 10 per cent controversial[56].

1- All parties support the Multi-stakeholder model (MSM) as a basic governance principles;
2- All parties support the historically grown architectural principles of an open Internet (end-to-end principle e2e);
3- All parties identify three main areas for Internet governance policies: Human Rights, Security and Economy;
4- However, the various parties had different priorities with regard to public policy issues.

The IGF became the place for a broader discussion around Internet governance principles. At the 6th IGF in 2011 the Council of Europe organized a workshop under the title: "A Constitutional Moment in the History of the Internet". The debate continued at the 7th IGF in 2012 when the proposal was made to bring the various projects into a process of "enhanced communication".

At the 8th IGF in 2013, for the first time, the main sponsors of the various declarations – OECD, Council of Europe, the governments of Russia, China and India, cgi.br, APC, I* and GNI – were sitting on one table. They concluded that it would make sense to move from enhanced communication to enhanced cooperation and try to "globalise" and "multi-stakeholderise" the process of the making of Internet governance principles.

(c) Sustainable Development Agenda

Following the adoption of the Sustainable Development Goals (SDGs), the global IGF focused on the linkages between Internet governance and the SDGs, which were at the centre of the 10th IGF meeting in 2015 focusing on the crucial role the Internet must play in the successful implementation of the 2030 Agenda for Sustainable Development[57].

The meeting underscored the importance of information and communication technologies (ICTs) and the Internet in implementing the new sustainable development agenda, which sets an ambitious goal to "significantly increase access to information and communications technology and strive to provide universal and affordable access to the Internet in least developed countries by 2020". The 11th IGF meeting in 2016 went much further in establishing the linkage between Internet and the SDGs. The IGF MAG 2016 discussed the importance of sustainable development during its planning process; at IGF2016, there were several sessions at that addressed one or more of the goals and the role of Internet governance. And, in the IGF

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[53] The I* (I-star) organizations include the five Regional Internet Registries (RIRs), ICANN, ISOC, IETF, IAB, W3C and the regional associations of country code domain name registries.
[54] http://www.ohchr.org/Documents/Issues/Opinion/Communications/InternetPrinciplesAndRightsCoalition.pdf
[55] English version of the document: https://www.publicknowledge.org/documents/marco-civil-english-version
[56] https://lists.afrinic.net/pipermail/africann/2011-August/003811.html (main site:
http://news.dot-nxt.com/2011/07/27/internet-principle-hype could not be accessed).
[57] http://www.un.org/sustainabledevelopment/blog/2015/11/sustainable-development-at-center-of-10th-internet-governance-forum/

retreat, held in July 2016, specific reference was made to the integration of the SDGs into the work of IGF. It was recognized that until the adoption of the 2030 Agenda for Sustainable Development and the SDGs, essentially Internet governance and development were operating in relatively parallel paths, and that SDGs and the 2030 Agenda for Action should be supported by the IGF. For this purpose, a specific session entitled "Assessing the role of Internet Governance in the Sustainable Development Goals" was held (with SDGs issues included in several other sessions), where the following policy questions were discussed[58]:

> What are the development priorities that the Internet governance community should be responding to?
> How should the Internet community interact (or improve its interaction) with the mainstream development communities?
> The overriding objective of the sustainable development agenda is to ensure that no one is left behind, addressing fundamental issues of poverty and inequality. What opportunities and threats to this goal arise with the Internet age?
> How do we improve the evidence base on which ICT for Development (ICT4D) is predicated?
> How can the IGF further incorporate awareness about the SDGs into its planning, and into the IGF programme in the following years?
> Are the SDGs being highlighted in your national or regional IGF session?

(d) Several important international events related to Internet governance

1- ITU World Conference on International Telecommunications (WCIT-12)

In December 2012, the International Telecommunication Union (ITU) convened the World Conference on International Telecommunications (WCIT-12) to amend the International Telecommunication Regulations (ITRs), an ITU treaty adopted in 1988[59]. When the ITU members adopted the ITRs in 1988, the Internet had not yet become a global communications phenomenon with social, economic and political implications. The ITRs focused on the interconnection and interoperability of existing communication services and replaced the Telegraph Regulations and Telephone Regulations the ITU adopted in 1973. The ITRs contained general principles rather than detailed rules that formed a pragmatic, flexible framework for international cooperation. The revision of the ITRs triggered a lot of controversy about the intent of the ITU to "take over" the Internet regulation[60]. The WCIT-12 ended without consensus, as of the 144 delegations with voting rights at the WCIT-12, 89 signed the revised ITRs, including many African countries, Brazil, China, Indonesia, Iran, and Russia, while 55 did not, including Australia, members of the European Union (EU), Canada, Japan, and the United States. The act of non-signing, has been described as "drawing a line in the sand saying that the ITU should not even be a forum to talk about Internet-related issues"[61].

2- ITU World Telecommunication/ICT Policy Forum (WTPF-13)

The WTPF-13, held in May 2013 in Geneva, Switzerland, had Internet policy discussions as its core mandate. The event produced six non-binding "Opinions" addressing promotion of broadband deployment, facilitation of a smooth IPv6 transition, and further development of representative multi-stakeholder processes. A key topic of discussion at WPTF-13, however, was a seventh Opinion - promoted by Brazil - on "operationalising the role of governments in the multi-stakeholder model for Internet governance," which took as its premise that the ITU should provide a vehicle for increased government involvement in the daily operation and longer-term policy-making of the Internet.

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[58] https://www.intgovforum.org/multilingual/content/igf-2016-main-session-assessing-the-role-of-internet-governance-in-the-sustainable
[59] http://www.itu.int/en/wcit-12/Pages/itrs.aspx
[60] https://www.asil.org/insights/volume/17/issue/6/internet-governance-and-international-law-controversy-concerning-revision
[61] https://arstechnica.com/tech-policy/2012/12/the-uns-telecom-conference-is-finally-over-who-won-nobody-knows/

Although Brazil's draft Opinion was not adopted at WTPF-13, its principles were supported by many other countries, and Brazil was encouraged to carry the draft Opinion to other appropriate venues, including the ITU Council Working Group on International Internet-related Public Policy Issues (CWG-Internet), specifically established to study Internet governance issues. Late in 2013, Brazil submitted a related contribution (subsequently withdrawn) calling for the establishment of a "multilateral decision-making instance of international internet governance … capable of producing legally binding commitments by member states"; essentially an intergovernmental organization responsible for Internet governance, perhaps facilitated by ITU.

3- The Mass surveillance project by NSA leaked

In June 2013, the Guardian published an article about global surveillance project by the National Security Agency (NSA). The article described a powerful tool developed by NSA for recording and analysing where its intelligence comes from, raising questions about its repeated assurances to Congress that it cannot keep track of all the surveillance it performs on American communications[62].

It is not a surprise that this issue becomes the focus of many of the 150 workshops that took place during the 8th IGF in Bali that year, and dominated the bilateral meetings that took place between governments, the private sector, the technical community, and civil society. Some of the most important questions raised were how to prevent mass surveillance carried out in the guise of targeted surveillance and how to balance cybersecurity and privacy[63].

4- NetMundial: Formulation of a non-binding "Global Roadmap for IG"

After the important leaks about the US government massive interception of world-wide communication systems in 2013, the Brazilian president Dilma Roussef gave a speech at the 68th UN General Assembly in September 2013 and called for a new approach to Internet governance which resulted in the convening of NetMundial in April 2014. The event saw 1,480 people from 97 countries representing a wide range of sectors: government, private sector, civil society, technical community and academia.
The most important achievement of this event was the production of a non-binding multi-stakeholder statement that contained a shared set of principles and a global Internet governance roadmap to guide the evolution of Internet cooperation and governance.

5- The NetMundial Initiative

Months after the NetMundial event, ICANN, the Brazilian Internet Steering Committee (CGI.br) and the World Economic Forum (WEF) funded an "initiative" named after the conference with the goal of working together to apply the NetMundial Principles to address Internet issues in concrete ways.

The NetMundial Initiative (NMI) was launched on 6 November 2014 as an "open source platform" and a "shared public resource" that would provide help to any "calls for assistance on non-technical issues." The ICANN CEO Fadi Chéhadé said: "If there is a cybersecurity issue, or someone who has figured out how to protect children through a browser," then they could use the platform to connect with others as well as crowdsource and fund their efforts. However, plans announced at the same time to create a 25-member Inaugural Coordination Council on which the three organizers would give themselves "permanent seats" sparked immediate criticism and led to a lack of support that blighted all future efforts. As a result, two of the five proposed permanent seats were never taken up.

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[62] https://www.theguardian.com/world/2013/jun/08/nsa-boundless-informant-global-datamining
[63] http://www.intgovforum.org/cms/igf-2013-transcripts/1439-taking-stock-emerging-issues--internet-surveillance

The initiative ran for 18 months until its "mandate" ran out in July 2016. Just prior to that deadline, both ICANN and the WEF said they were withdrawing from the project. At a planning meeting, the US government representative called for the NMI to be shut down. ICANN and the WEF had contributed $200,000 each. Plans for re-election of council members were postponed and then cancelled. The remaining member - CGI.br - initially suggested it would continue the initiative in some form. But in August 2016, the initiative announced an open call for a new group to take over the "solutions map" that was its most significant work product.

6- IANA Transition

In March 2014, the National Telecommunications and Information Administration (NTIA) released a statement[64] that they are intent on transitioning their part of the IANA functions away to the global stakeholder community. The first step in this process was for ICANN to convene stakeholders and create a proposal for how the IANA functions will remain secure and unwavering. The press release outlined a number of principles which the ICANN-community drafted proposal must meet, namely:

> ➢ Support and enhance the multi-stakeholder model;
> ➢ Maintain the security, stability, and resiliency of the Internet DNS;
> ➢ Provide to the needs and expectation of global customers and partners of the IANA services; and,
> ➢ Maintain the openness of the Internet.

The NTIA contract with ICANN at the time of the announcements was set to expire on 30 September, 2014, and members of the ICANN community took that date as a deadline for drafting and agreeing on a proposal. ICANN subsequently published a press release that applauded NTIA's announcement and called it a recognition of the U.S. government to ICANN's "maturation in becoming an effective multi-stakeholder organization".

On the 1st of October 2016, ICANN announced[65] that the contract between ICANN and the United States Department of Commerce NTIA, to perform the IANA functions had officially expired, and that the transfer of IANA functions stewardship from NTIA to ICANN was completed.

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[64] https://www.ntia.doc.gov/press-release/2014/ntia-announces-intent-transition-key-internet-domain-name-functions
[65] https://www.icann.org/news/announcement-2016-10-01-en

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