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The Arabic Domain Names System: An ESCWA Perspective

Expert Group Meeting on Enabling Environment for the
Development of Arabic e-Services

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Contents

- Background
- Milestones and phases 2003 – 2010
- ESCWA's ADNS Projects
- Part I - Arabic in Domain Names
- Part II - The Top Level Domain Names Space
- Part III – The Proposed Arab TLDs
- Future Outlook
- Link to Internet Governance

Background

- Efforts were initiated between 1998 and 2003 for the use of non-Latin characters in domain names; however, those efforts were detached and conflicting;
- *The IETF issued in March 2003 a set of 'RFCs for Internationalized Domain Names' (IDNs) which were deployed as basis for domain names standards in all languages;*
- In 2003, ESCWA, in cooperation with the League of Arab States (LAS), joined the regional move towards an Arabic Domain Names System (ADNS) as a leader and coordinating body;
- The Arabic Domain Names Task Force (ADN-TF) was formed under the auspices of ESCWA;
- The Arab Working Group on Domain Names and Internet Issues (AWGDNI) was established by the LAS;

Background

- The cooperation between ESCWA and the LAS came in response to the dire need for coordination on the regional level and within the following framework:
 - New technology providers should not compete on setting the basic standards but rather on efficiency levels and cost;
 - All registries and registrars need to be compatible and, most importantly, the domain names themselves have to be unique.
 - In order to satisfy the demand, an entire environment, that takes into account technology standardization, policy and administrative arrangements, as well as new applications, needs to be put in place.
- In 2005, ESCWA published its first study on “Development of an Arabic Domain Name System” which addressed technical, linguistic and operational aspects of this task.

Milestones and Phases 2003 - 2010

- **2003**: establishment of ESCWA Arabic Domain Names Task Force (AND-TF);
- **2004**: first Internet-Draft on Guidelines for and Arabic Domain Name System;
- **2005**: first meeting of AWGDNII resolving linguistic-related issues. Several meetings followed the same year;
- **2006**: second version of the Internet draft and continued testing of the Arab Pilot Project;
- **2007 – 2009**: Phase-I of ESCWA's project for Promotion of the Arabic Domain Name System;
- **2009 – 2010**: Phase-II of the same project.

ESCWA's ADNS Projects

Components and activities:

- The use of Arabic characters in domain names as part of IDNs:
 - The language perspective;
 - The script perspective;
- The Arab TLDs:
 - Acquisition of “.arab” and “عرب.”
 - Establishment of the “.arab” Registry

Part I

Arabic in Domain Names

Overview

- Since the inception of the Internet, domain names were limited to the basic ASCII character set until in 2003 the IETF published a set of three RFCs for IDNs;
- Language communities moved to seize this opportunity of introducing non-Latin characters in domain names; the Arab community was no exception;
- IDNs were foreseen as a milestone for overcoming the language barrier to accessing the Internet and thus reducing the digital divide;
- Implementation of IDNs implied involvement of ICANN to set the rules;

Overview

- The position of ICANN evolved during the years from earlier reluctance to implement IDN at the root level towards more acceptance of IDNs;
- In 2006, ICANN announced its intentions to consider the use of IDN strings in the TLD and planned for a laboratory test → **the test showed no negative impact on involved systems**;
- ICANN launched another test for IDN in October 2007. This test allowed for the use of IDN strings in live root servers, the domain example.test was tested for 11 different languages.

The Language Perspective (1/3)

- In light of ICANN's decision and activities, an Arabic Domain Names Pilot Project (ADNPP) was launched with the following mission statement:

Implementing a test bed for Arabic domain names (ADN) in the Arab world. This will allow for the early experience the use of Arabic domain names by all Arab countries, the identification of their needs, the agreement upon uniform standards, the identification of possible problems, and the development of required tools and policies.

- Implemented between 2005 and 2007, the ADNPP evaluation had the following conclusion:

“In light of the current status of the Arabic pilot project, and given the tests carried by ICANN which confirm the results achieved, the pilot project constitutes a valid “proof of concept” on the use of Arabic characters in a full IDN.IDN implementation”;

The Language Perspective (2/3)

- Developing a new Internet-Draft covering linguistic aspects:
 - The I-D was endorsed by LAS and submitted to the IETF and underwent public viewing and general commenting followed by an extensive editorial process;
 - It successfully passed the IETF revision process and was published as an informational RFC-5564;
- RFC-5564 entitled “Linguistic Guidelines for the Use of the Arabic Language in Internet Domains” represents a technical specification for the use of the Arabic language in IDNs;

The Language Perspective (3/3)

- Specificities of the Arabic language:
 - Diacritics and Shadda: are not permitted in the zone file. If inserted by the users, they will be stripped before IDNA processing;
 - Kasheeda (Tatweel): not permitted;
 - Character folding: which is folding multiple letters which have the same shape into one letter is not permitted. Such as folding (ي and ی) or (و and و).
 - Numerals: the following sets are both supported, however, numeral homogeneity is required in the domain label:
 - 0, 1, 2, 3, 4, 5, 6, 7, 8, 9;
 - ٠, ١, ٢, ٣, ٤, ٥, ٦, ٧, ٨, ٩

The Script Perspective

- Formation of the Arabic Script in IDNs Workgroup (ASIWG):
 - Arabic script is used by many languages other than Arabic: Urdu, Persian, Kurdish, Pashto, etc.
 - ASIWG was formed in March 2008 as a self-organizing group. It aims to harmonize efforts on the use of Arabic script in IDNs by different community groups.
- ASIWG communication means:
 - four face-to-face meetings;
 - online mailing list;
 - Posting technical material and information on its wiki site:
http://www.arabic-script-domains.org/wiki/Main_Page

ASIWG Meetings

ASIWG-I, Dubai, 29-30 March 2008

- witnessed the establishment of ASIWG
- hosted by .ae Domain Administration (.aeDA)
- participants were regional and global Internet experts & representatives of the Arabic script language communities

ASIWG-II, Dubai, 28-29 May 2008

- hosted by .aeDA
- aimed to set the guidelines for the use of Arabic script in domain names
- reached recommendations regarding numerals, <SPACE>, and ZWNJ characters

ASIWG-III, Cairo, 8-9 November 2008

- hosted at the Egyptian National Telecom Regulatory Authority
- deliberations focused on guidelines for adopting Arabic characters in IDNs

ASIWG-IV, Amman, 1-3 April 2009

- hosted by the National Information Technology Centre
- witnessed the participation of the Jawi language
- handled discussions on numerals, registration processes, and funding issues

Outcomes of ASIWG Discussions

Highlights of main discussion outcomes

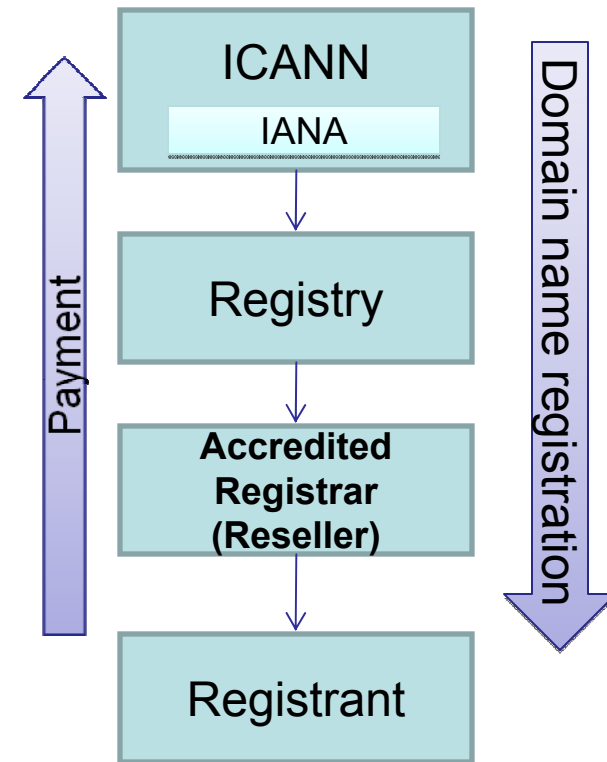
- **Numeral** homogeneity is required for the case of the Arabic script (no mixing at the protocol level);
- Disallow **characters** such as honorific signs and TATWHEEL;
- The use of the **<SPACE>** character in the Arabic script is considered an “Application Layer” issue, and will be either resolved at a later stage or by a different group;
- **Diacritics** (Harakat) currently pose security and operational issues, ASIWG recommended implementing IDNs without diacritics. Once concrete solutions that assure security, implementation, usability and stability exist, ASIWG will recommend appropriate guidelines.

Part II

The Top Level Domain Names Space

The Business of Domain Names

- The domain name industry is currently shaped following a gradual build-up since the formation of IANA in 1972 to the formation of ICANN in 1998.
- The market structure includes several entities:
 - **Registry**: authoritative master database of all domain names registered in a certain TLD, it enters into an agreement with ICANN;
 - **Registrar**: is an organization or commercial entity which manages the reservation of Internet domain names;
 - **Reseller**: a party that has entered into an agreement with an ICANN Accredited Registrar to register domain names on its behalf;
 - **Registrant**: the individual, company or organization holder of the domain name.

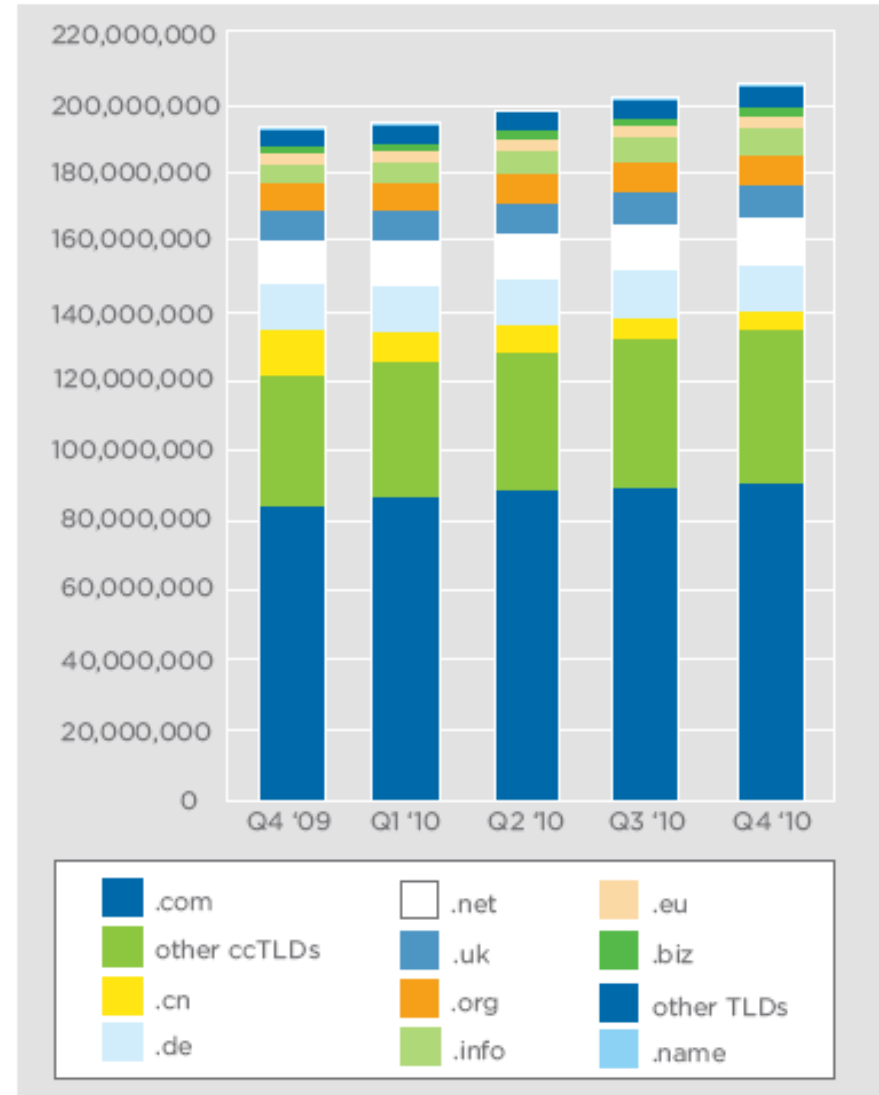


The TLD Industry

- The TLD industry emerged as a **revenue-making industry** as a result of increasing demand for new registrations.
- **User demand increase** is a result of growth of Internet users worldwide and consideration of TLDs as “landmarks”.
- **Internet users** have increased to almost 2 billion in 2010. A 445% increase since the year 2000.
- **Competition** amongst registrars has been the driving force behind promotions and campaigns.
- In the gTLD space, over 900 ICANN Accredited Registrars currently operate in the domain registration business worldwide.

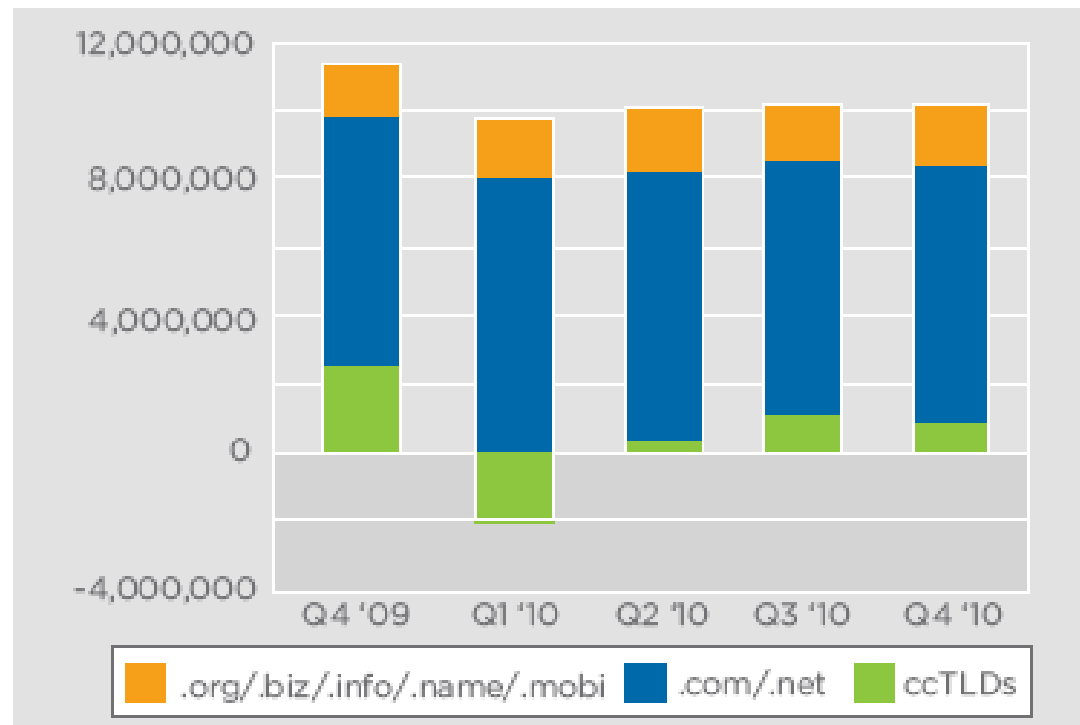
Industry Overview

- At the end of the fourth quarter of 2010, there were over 205 million domain name registrations across all of the TLDs. This represents a 6.3% growth over the year;
- The base of ccTLDs was 80.1 million domain names, a 0.3% increase in one year;
- **.com** remains the leader in the total number of registrations (base size) followed by .de (Germany), .net, .org, .uk, .info, .cn (China), .nl (Netherlands), .eu (European Union) and .ru (Russian Federation) .



Growth of New Registrations

- Over 10 million new domain names were registered in all TLDs in Q4 of 2010.
- Leading the way are **.com** and **.net**.



Source: Verisign. Feb 2011. The Domain Name Industry Brief.

Recent Initiatives

Overview of recent new gTLD launches:

- .EU (2005): > 3.3 million domain names
- .MOBI (2006): close to 1 million domain names
- .ASIA (2007): over 240,000 domain names
- .TEL (2009): over 250,000 domain names

Important success factors:

- Robust technologies and policies, strong vision of the registry
- Access to key distribution channels
- Awareness of the TLD and user adoption
- Aftermarket

Outlook

- **Through the new gTLDs:**

- Expansion as of 2011: ICANN's New gTLD Program;
- In both standard Latin script + Internationalised Domain Names (IDNs)

And through ccTLDs

- ICANN's ccTLD Fast Track: implementation of IDNs at the top;

→ New initiatives can be taken

- by countries: extensions in familiar scripts;
- by regions, cities and language communities: community-based gTLDs;
- by others: companies, organizations, brand owners, etc.

ICANN's New gTLD Programme

- Limited number of available gTLDs limits market dynamics and affect new registration growth.
- The **.com** gTLD has become overcrowded.
- It is assumed that assigning new gTLDs will re-stimulate demand.
- A latent demand for new gTLDs is perceived as follows:
 - demand from cities, regions and regional organizations (similar to the **.cat** sTLD for the Catalan culture and language);
 - demand from countries, communities and organizations that use non-Latin script, in order to adopt gTLDs and ccTLDs in IDN formats;
 - demand from the domain name industry itself, and more in particular certain categories of domain name registrars and resellers;
 - demand from companies or organizations planning to roll-out more innovative uses of the DNS (similar to the launch of **.TEL** sTLD end of 2008).

Part III

The Proposed Arab TLDs

Opportunity for the Arab Region (1/2)

- The need to reserve the **.arab** has a cultural and regional dimension.
- The **.arab** string was selected as such since it is:
 - not confusingly similar to an existing top-level domain or a reserved name;
 - not infringing generally accepted and internationally recognized principles of law;
 - not causing any technical instability;
 - not a reserved word;
 - not contrary to generally accepted legal norms relating to morality and public order that are recognized under international principles of law.

Opportunity for the Arab Region (1/2)

- *The opportunity for “.arab” must thus be seized in view of market and industry opportunities.*
- In their meeting of July 2008, AWGDNII decided to proceed with the necessary steps to apply for the TLD “.arab” and its equivalent in Arabic script “عرب”.
- ESCWA developed a Preliminary Feasibility study on *Establishment of the Domain Name Registry for the “.arab” and “عربي.” Generic Top Level Domains:*
 - an initial assessment of the feasibility of establishing a registry for the “.arab” and “عرب” TLDs;
 - analysis of relevant technical and operational requirements;
 - overview of business, marketing, legal, financial and capital funding aspects.

Practical Steps Towards “.arab”

ICANN Application Dossier

- Based on Applicant Guidebook
- Collaborative effort

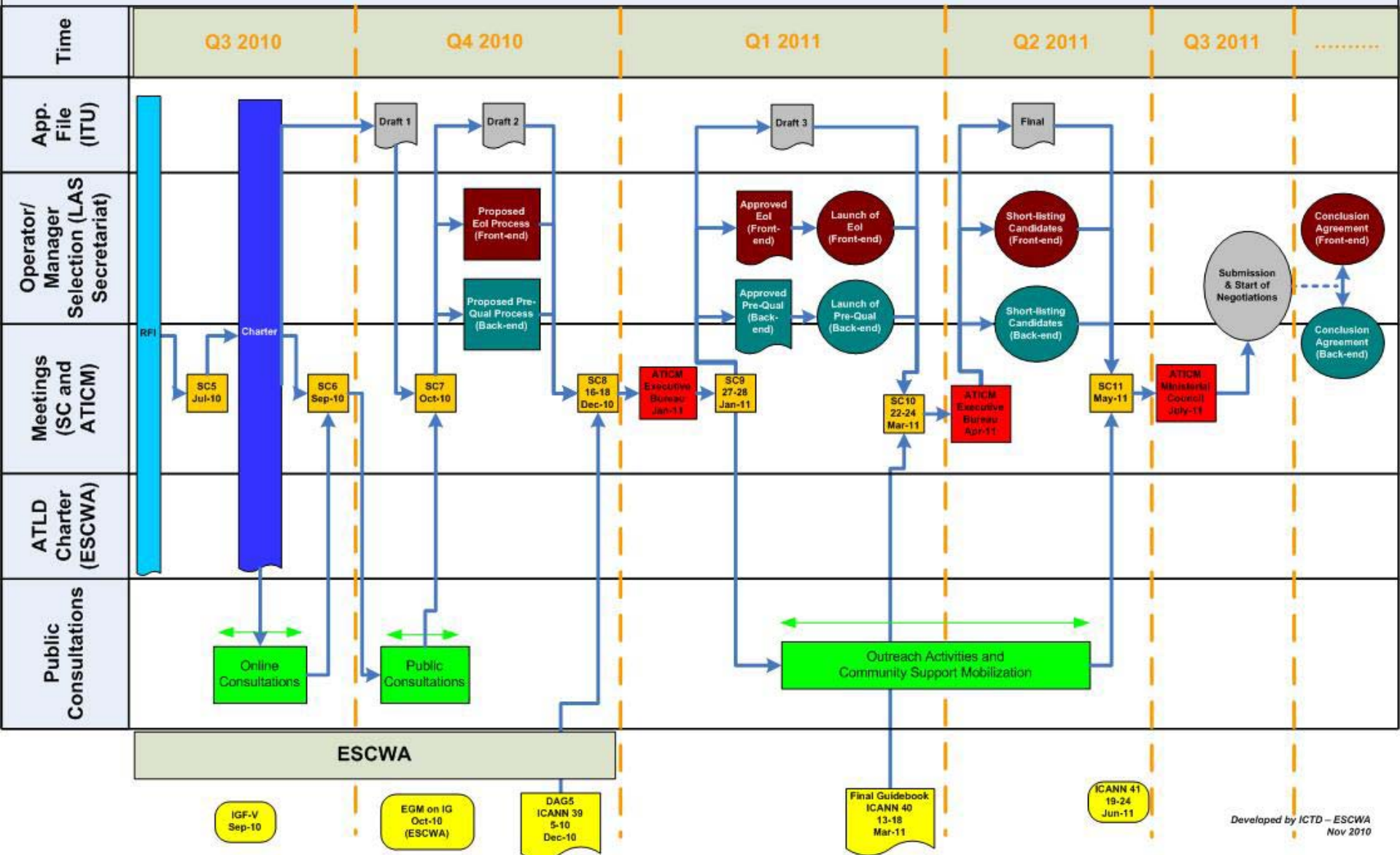
Formation of “.arab” Registry

- Governance Structure
- Type of establishment (private vs. NGO)

The Dot Arab Steering Committee

- ESCWA took part in the formation of DASC as a necessity to:
 - discuss and undertake the means for acquiring the Arab TLDs;
 - build the associated global Registry.
- DASC convened seven meetings in 2010.
- Involved organizations: ESCWA, LAS and ITU.

Arab TLD Project Process Diagram



Application Dossier to ICANN

- Based on the Proposed Final Applicant Guidebook published in Nov. 2010;
- Different modules were assigned by **DASC** to different partners ESCWA, LAS and ITU;
- LAS will be the owner of the Arab TLDs “.arab” and “.عرب”;
- Application dossier will go through ICANN’s evaluation process once the application period is announced.

The “.arab” Registry (1/3)

Mission statement: to promote the Arab community’s identity as well as the use of the Arabic language on the internet, by providing access to domain name registration systems that support the Arabic community and provide the members of this community with effective means to communicate with each other as well as other users of the internet using their own identities, brand names, trademarks and proprietary TLDs.

- The governance structure and implementation modality of the “.arab” Registry raised considerable controversy during DASC meetings:
 - private or not-for-profit;
 - operations outsourced or built in-house.
- A Request for Information exercise was designed and launched by DASC.

The “.arab” Registry (2/3)

The Arab TLD Charter - A Strategic Framework for Defining, Implementing and Managing the Arab gTLDs

- A very comprehensive document covering 2010-2012;
- Developed by ESCWA upon the request of DASC;
- Defines the vision, strategy, rules, and guidelines for all organizations, stakeholders, participants, registrars and registrants who will participate in the “.arab” project.

The “.arab” Registry (3/3)

Arab TLD questionnaire

- To solicit Arab community insights regarding the new Arab TLDs and related policies;
- Part of the public consultations carried by ESCWA in support of the DASC;
- Questionnaire of 39 questions hosted online;
- Reflected an interest in the Arab TLDs with an inclination towards TLDs in standard Latin script “.arab”
- Indicates the importance of performing a detailed market survey.

Future Outlook

Upcoming Activities for Arab TLDs

Phase III for 2011-2012:

- Finalizing **application dossier** in preparation for submission to ICANN;
- **Expression of Interest** process to select the front-end operator of the “.arab” Registry;
- **Pre-qualification Process** to select the back-end technical operator of the “.arab” Registry;
- **Outreach activities** and mobilizing community support;

Link to Internet Governance

Link to Internet Governance

- 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”;
- It has been the subject of an open, bottom-up multi-stakeholder process known as the Internet Governance Forum (IGF);
- Five global IGFs were held between 2006 and 2010.

Internet Governance Themes

- **Critical Internet Resources:** making sure that the following CIR are managed on an equitable basis: (a) the 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 the Arab region and developed regions.
- ➔ • **Cultural and Linguistic Diversity:** improving Internet diversity by increasing digital Arabic content as well as Arabic in domain names.
- **Security:** enhancing the Internet's security and protecting users in the Arab world 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.

Questions?

Thank You