Guidelines for Advancing Universal Acceptance (UA) Adoption

UA Expert Working Group

Draft for Public Comment

20 February 2026

Table of Contents

Executive Summary

Universal Acceptance (UA) is a technical best practice that ensures all valid domain names and email addresses, regardless of script, language, or character length, can be equally used by all Internet-enabled applications, devices, and systems. UA remains an area of focus in the FY26–30 Strategic Plan for facilitating digital inclusion and is necessary for the New gTLD Program: 2026 Round.

The Universal Acceptance Expert Working Group (UA EWG) was set up to develop guidelines for ICANN organization's (org's) work on UA adoption. Based on the scope of the UA EWG, defined in its charter, it has worked toward identifying strategic and practical mechanisms for encouraging UA adoption across a diverse set of stakeholders. The stakeholders include big tech organizations, open-source communities, standards organizations, software development professionals, system administrators, Domain Name System (DNS) industry, hosting and Internet service providers, public sector and intergovernmental organizations, and academia.

At the outset, the UA EWG identifies the importance of defining what it means to be UA-ready for a variety of stakeholders in the context of multilingual Internet and how it is dependent on internationalization of the technology stack. For big tech organizations, it is important to capture the economic, business, social, linguistic, and cultural value of this work in the messaging, while also arguing for interoperability, security, and trust aspects achieved by supporting UA. For open-source systems, the UA EWG notes that it is important to prioritize fixing issues both from the way the technology stack is set up vertically, the category of applications, and the usage of the software applications. Both messaging and capacity-building may be needed for the maintainers of the software. In addition, it is essential to work with standards organizations to update relevant core and ancillary standards. A coordinated approach is necessary to avoid "chicken-and-egg" barriers between underlying platform providers and higher-level application and service providers.

For software development professionals and system administrators, the UA EWG points to the need for developing the right messaging, building capacity, and identifying the strategies to reach out to them. Given the limited number of experts who understand these concepts, especially internationalization, the UA EWG emphasizes training trainers. The DNS industry also has a crucial role and should be encouraged to adopt UA by using the right messaging and reaching out to relevant stakeholders. It is also suggested to develop an issue report to address UA support by registries and registrars, and explore policies to incentivize adoption. Efforts should be made to determine the extent and reasons for gaps in UA adoption by the hosting providers, develop out-of-the box technical solutions, and build their awareness and capacity to deploy them.

Public sector leadership can accelerate UA adoption by updating digital public infrastructure through policy, regulation, and procurement. The UA EWG suggests engaging with public sector organizations in conjunction with ICANN's Governmental Advisory Committee (GAC) and in collaboration with intergovernmental organizations to raise further awareness nationally and

globally. Further, the UA EWG encourages working with academic institutions to integrate UA-related coursework into technical degree programs as well as additional disciplines, including Internet governance and linguistics. The UA EWG also suggests working with academic institutions to conduct research studies and disseminate the results.

Indicators allow setting a baseline and measuring progress. The UA EWG suggests developing a framework to measure efforts and outcomes in the areas of awareness, policy support, implementation, and capacity development; promoting collaboration to gather, process, and publish data, and encourages mechanisms that promote self-reporting.

The UA EWG views ICANN org as having a key coordinating role that involves developing messaging, engaging with technical and DNS industry, public sector and intergovernmental organizations, and academia as well as collaborating with stakeholders to build capacity. ICANN org should also help disseminate knowledge and measure and report progress. UA adoption will help strengthen consumer trust, enhance interoperability and security, and advance digital inclusion. These guidelines promote the global public interest by supporting a diverse, multilingual, and inclusive Internet through UA adoption. They have been developed to guide ICANN org's work on UA adoption. ICANN org will assess the guidelines, prioritize them, and provide updates as it implements them.

Introduction

UA ensures that all valid domain names and related email addresses, regardless of length, language, or script, can be used in all Internet-enabled applications, devices, and systems. In a UA-ready[1] world, Internet users can choose an online identity in the language or script of their choice and ensure that their chosen domain names and email addresses will work seamlessly on the Internet. Achieving UA-readiness is essential to enabling a more linguistically diverse Internet.

UA remains an area of focus in the FY26–30 Strategic Plan for facilitating digital inclusion. UA and Internationalized Domain Names (IDNs) are also key components of the New gTLD Program: 2026 Round, which will contribute to competition, innovation, and consumer choice in the DNS.

The UA EWG was established by ICANN org in August 2025 at the direction of the President and CEO to develop guidelines for ICANN org's work on UA adoption with different stakeholders. The charter of the UA EWG identifies ten questions in its scope of work, along with the composition of the group, as provided in Appendix A.

The UA EWG worked to develop guidelines to address these questions, which are presented below. The guidelines are intended to support strategic engagement, capacity development,

[1] "UA-ready" refers to systems that have the ability to accept, validate, store, process, display, and interoperate with all valid domain names and email addresses, including IDNs and EAI, in accordance with applicable standards.

standards alignment, and measurement efforts necessary to advance UA adoption in a sustainable and measurable manner.

Guidelines

UA EWG has identified multiple guidelines for advancing UA adoption for implementation by ICANN org. These guidelines are categorized based on the ten questions in its charter. In addition, the UA EWG has included some general guidelines as these are applicable across multiple questions. These guidelines are presented below.

General

1. **Define Universal Acceptance.** Define what it means to be fully UA-ready, as this is not well understood by all big tech organizations and communities maintaining open-source software. Internally this work may be aligned with the internationalization function within such organizations. This will also help organizations that are early adopters to do more toward UA adoption. This requires understanding the broader technology stack and associated dependencies on internationalization standards and technology, e.g. as illustrated by Unicode in the diagram below.

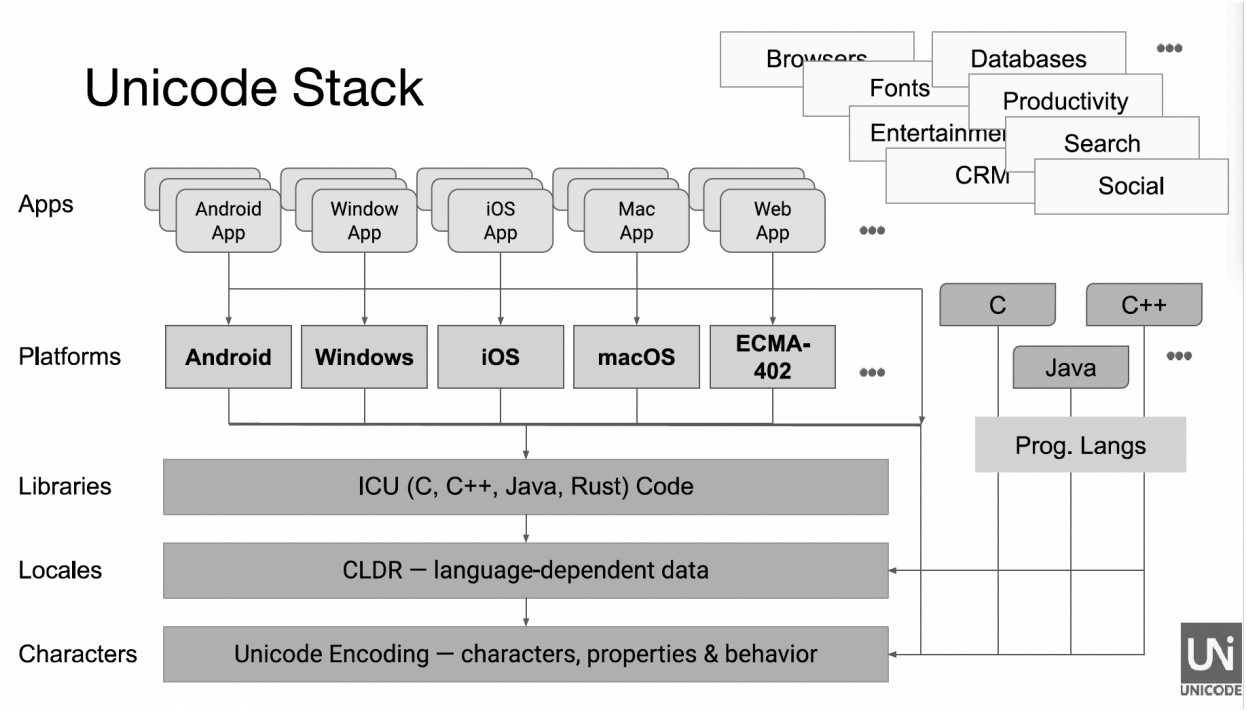

Figure 1: Technology Stack and Internationalization Illustrated by Unicode

UA is the operational outcome of internationalization across the technology stack. UA cannot be achieved through isolated fixes or front-end changes alone. Lack of internationalization support on key technologies impedes UA, since UA is dependent on internationalization.

Additionally, based on existing materials, developing a brief visual checklist of success criteria that lowers the barrier of understanding needed to grasp the importance of the issue would be helpful for the executives of many large companies. Some executives may be unaware of what a properly internationalized domain name (or email address) would look like in Arabic, Hindi, or Chinese languages, for example.

Various platforms and applications, e.g. operating systems, browsers, etc., may implement the standards to varying degrees and in different ways for different functions and languages. Identifying a core set will help set a baseline.

2. **Create a Dedicated Webpage for Each Stakeholder.** Develop a webpage for each stakeholder with materials needed and guidance on what the stakeholder can do to support UA-readiness. The stakeholders include, but are not limited to, big tech organizations, open-source communities, developers, system and email administrators, academic institutions and their faculty, and public sector organizations.

Charter Question 1

Different big tech organizations are structured differently. What are the strategies ICANN org may use to encourage them to adopt UA in their applications and systems? As there are many big tech organizations globally and regionally, what criteria should ICANN org use to prioritize engagement with them?

3. **Showcase Economic and Business Value.** Big tech organizations are naturally incentivized by revenue and growth, as ascertained by number of users, business value, or internal specific metrics. Aligning UA to these aspects is the best way to drive traction and success on UA adoption. Convincing examples could include:
    a. Conducting a study that shows the business and economic value of implementing UA.
    b. Documenting digital transformation projects within the countries that help the citizens connect.
    c. Identifying how many people cannot access their platform because they cannot sign up with internationalized email addresses.
    d. Showcasing a role model that adopted UA through a case study to demonstrate UA's business value, e.g., a government using UA-ready software, showing the market demand based on the language and the script.

4. **Showcase Social and Cultural Value.** Explain why financial return is not the only driver of UA adoption. Position UA as a public good that enables online multilingualism, access, and equity. For multilateral organizations, e.g. UNESCO, UA is not just a

technical requirement; it supports culture and language. UA enables online diversity, access in all scripts, and broader development. Pitching the political and public relation upside of enabling languages for local and global users can also be useful for big tech organizations. Reach out and advocate this aspect with those involved in policy, public affairs, legal, regulatory, sales and marketing – distinct from technical teams – to communicate how this helps the big tech organization to add value. Effective engagement should be supported by documented, data-backed examples, such as:

a. Using cases from early adopters in big tech who already support UA and recognized it as a trend for future growth.
b. Presenting analogy with a "good Internet citizen," could help but is still not the main driver.
c. Considering policy-driven strategies that have proven successful in past initiatives, such as the "Internet for Trust" initiative, which led to the Guidelines for the Governance of Digital Platforms.
d. Identifying policy and regulatory developments to support local languages may prompt governments to mandate UA requirements – whether through legislation or as a condition for public procurement – effectively shifting UA from a "nice-to-have" to a "must-have" (e.g., the Welsh language requirement for operating in Wales).
e. Sharing examples of work by international organizations that make the case for UA's importance, e.g., the UN International Decade of Indigenous Languages (2022-2032), the 2003 Recommendation Concerning the Promotion and Use of Multilingualism and Universal Access to Cyberspace and the Global Roadmap for Multilingualism in the Digital Era.

5. **Showcase Technical Value.** Interoperability and security are important technical aspects for big tech organizations. Showing limitations in interoperability and security challenges for applications that do not support UA, especially in a multilingual environment, can present a convincing argument for them to prioritize UA adoption.
    a. Noting that not supporting multilingualism and UA may open up security issues that hit large proportions of large tech platforms' user bases due to either lack of understanding or lack of full technical support.
    b. Providing a plug-and-play kind of a solution when approaching big tech organizations, such as standards, technical guidance, toolkits, and libraries that can be used and deployed easily (e.g., EAI testbed). Use them in joint workshops.
    c. Where possible, sharing real-world examples of UA adoption.

6. **Use Tailored Messaging.** Due to organizational complexity, when engaging with big tech organizations, one is not dealing with a single entity. Big tech organizations usually have diverse structures, product teams, and functions, requiring tailored engagement, rather than "one-size-fits-all" approaches. The challenge lies in coordinating multiple internal functions that have a stake in different technologies and aspects. Some engagement strategies to consider include:

a. Avoiding technical jargon and acronyms when communicating with high-level decision makers, as they may misinterpret the issue as a simple language or translation problem.
b. Talking to the right people and engaging with multiple internal teams at the same time. It can be helpful to identify a focal point to help orchestrate outreach and technical work that is needed across the diverse teams in that organization and to motivate them.
c. Avoiding a single top-down approach. While leadership engagement is important, a top-down approach tends to be less effective. Instead, identify individuals within technical teams and corporate social responsibility functions. Such teams grasp technical specifics, so it is valuable to engage with them at multiple levels – both inside and outside the organizations (e.g. university alumni networks).
d. Engaging across all levels. Executives should see UA as a driver of growth, global inclusion, and compliance. Engineering and product leaders must view it as future-proofing and eliminating technical debt. Sales teams should view UA support as an enabler for sales, while customer-facing teams benefit from seamless onboarding and user satisfaction.
e. Providing some recognition mechanisms for the organizations and people involved.
f. Creating peer influence. Identify the name of the big tech organizations that should adopt UA. Then shortlist UA supporters who can connect to these organizations and engage through other organizations active in these areas, e.g., Internet Engineering Task Force (IETF), Unicode Consortium, World Wide Web Consortium (W3C), and ICANN.
g. Forming partnerships and coalitions with multilateral bodies to mainstream UA, e.g. “international days”.

7. **Prioritize Engagement.** The ability to implement UA is dependent on foundational internationalized systems already in place. Start with the “tech stack” dependency model and reach out to companies in the taxonomy list in strategic order, from core levels rising to higher levels.
    a. There could be a “chicken-and-egg" situation where vendors at foundational levels won't invest in UA until the organization at a higher level asks, while those industry leaders at the higher level won't commit until their foundational vendors can deliver. In such cases, engage at multiple levels.
    b. Identifying the key companies to approach, and identifying how to influence each company, including what each may care about beyond the financial benefits. Then identify the right teams within each company, the relevant incentives, and the corresponding communications approach.

Charter Question 2

Different open-source communities are structured differently. What are the strategies ICANN org may use to encourage them to adopt UA in their applications and systems?

As there are many open-source projects and applications globally and regionally, what criteria should ICANN org use to prioritize engagement with them?

8. **Prioritize Fixing the Open-Source Tools Based on Functions.** Identify, prioritize, and fix IDN- and UA-related core functionality horizontally across multiple platforms. This would help address dependencies of higher-level software tools and applications. As part of analyzing an organization for the core technologies listed, it needs to be determined that the product foundationally supports internationalization. These core technologies include the following:
    a. Validating email mailbox and domain name.
    b. Supporting email addresses in local languages.
    c. Linkifying domain names and email addresses.
    d. Managing “slugs”, or the information that follows the domain name in a URL.
    e. Managing credentials for signing in and (two-factor) authentication.
    f. Enabling email (and electronic direct mail) sending services.
    g. Updating the spam filters.
    h. Managing DNS operations (including dynamic DNS services).

9. **Prioritize Fixing the Open-Source Tools Based on Applications.** Identify, prioritize, and fix IDN- and UA-related issues vertically within an end-user software application. This would help enable end-user applications to be UA-ready. These software applications include the following:
    a. Social media applications
    b. Content management systems
    c. Learning management systems
    d. Customer relationship management (CRM) systems
    e. Software to host and manage domain names and email addresses
    f. Open health record systems
    g. Programming languages and frameworks
    h. Email sending, receiving, and exchanging software
    i. Instant messaging applications
    j. Browsers
    k. Office productivity software

10. **Prioritize Open-Source Software Applications in High Use.** There is a large variety of open-source software available. The projects which serve a significant global user base, have societal impact, and/or are trending should be prioritized, e.g. Mozilla, WordPress, etc. Also, projects with strong governance and active contributor networks should be preferred. Additional prioritization factors include the following:
    a. Addressing core or foundational issues first as higher-level software would have dependencies on them.
    b. Prioritizing applications for which core dependencies are addressed.
    c. Prioritizing software for which the key maintainer(s) are supportive of incorporating the upgrade.

d. Supporting multilingual and culturally inclusive projects, especially those which align with human rights and open governance, as they have more incentive to integrate IDN and related UA support, e.g., Wikimedia.
e. Engaging with open platforms, especially communities embedded in education and knowledge-sharing, e.g. Moodle, Open EdX and other open platforms, as these would be more open to supporting a broad multilingual user base.

11. **Engage With Open-Source Software Maintainer(s).** Open-source developers are either paid by their employer to do the work or they want to contribute to the common good. The main motivator for the second group is the sense of purpose and the belief that their software genuinely makes a positive impact on the world. For the first group, the main motivator is financial reward, so it will be more difficult to reach this group without it. It may be helpful to also share return-on-investment for the organization to motivate them. There are other mechanisms to engage, including the following:
    a. Partnering with regional and other organizations that focus on the local community to help scale the work. Examples are Code for Africa, Latin American commons, or FOSSASIA, which serve local linguistic and cultural needs. UNESCO has a program for Small Island Developing States (SIDS).
    b. Motivating students at universities to get involved in contributing to open-source software to support their languages and scripts. Such projects could be identified and shared with the universities.
    c. Engaging with major institutional users of open-source software as an effective mechanism to influence maintainer prioritization, e.g., International Federation of Library Associations and Institutions (IFLA) which congregates 2.8 million libraries and these libraries interact with local communities.
    d. Engaging with governments. Projects may prioritize supporting UA features requested by the public sector.

12. **Develop Capacity of Open-Source Software Maintainer(s).** We cannot assume that open-source contributors, no matter how technical they are, understand what internationalization is and how to implement it, and such a knowledge gap can hinder UA implementation. In such cases, there may be a need to train these software maintainers on internationalization and the work needed for UA. In addition, showing them actual contributions made to the open-source software can also be helpful.

Charter Question 3

Are there any specific standards ICANN org should contribute toward promoting UA adoption across applications and systems? Are there any emerging topics to consider for standards work for UA which ICANN org should consider? Which organizations should it collaborate with for the work? How should ICANN org prioritize its contribution to standards work related to UA?

13. **Support Baseline Standards.** Many of the baseline standards are already in place, so there should be more focus and efforts to promote their adoption. In addition, efforts should continue to make any updates to these standards where gaps are identified, e.g., more work is needed on displaying bidirectional identifiers. IGOs, e.g., UNESCO through its recommendations on multilingualism online, and governments can help with this promotion and adoption. These standards include the following:

    a. IETF:
        i. IDNs: RFCs 3492, 5890-95
        ii. EPP: RFCs 5730–5734
        iii. RDAP: RFCs 7480–7484
        iv. OAuth: RFCs 6749, 6750
        v. URIs/IRIs: RFCs 3986-87
        vi. Email: RFCs 6530-33, 6855-58
    b. Unicode:
        i. UAX15 Unicode Normalization Forms: https://www.unicode.org/reports/tr15/
        ii. UTS36 Unicode Security Considerations: https://www.unicode.org/reports/tr36/
        iii. UTS39 Unicode Security Mechanisms: https://www.unicode.org/reports/tr39/
        iv. UTS46 Unicode IDNA Compatibility Processing: https://www.unicode.org/reports/tr46/
        v. UTS 58 Unicode Link Detection and Serialization (draft): https://www.unicode.org/reports/tr58/tr58-1.html
    c. W3C and WhatWG:
        i. HTML: https://html.spec.whatwg.org/
        ii. Language enablement for various languages: https://www.w3.org/International/i18n-drafts/nav/languagedev#reviews
        iii. URL - Living Standard: https://url.spec.whatwg.org/
    d. Others:
        i. ECMA Javascript TC39: https://tc39.es/
        ii. ISO User Interfaces: ISO/IEC JTC 1/SC 35 https://www.iso.org/committee/45382/x/catalogue/p/0/u/1/w/0/d/0
        iii. FIDO OpenID: https://openid-old.osuosl.org/tag/fido/

14. **Interact With Standards Organizations.** Participate in internationalization work at the relevant standards organizations and contribute to integrating UA requirements in relevant standards, e.g. W3C's Internationalization working group.
    a. There are few internationalization experts around the world and they are already stretched, so many standardization efforts are short-staffed. Therefore, making contributions toward developing standards and testing implementations can help make progress in evolving them to support UA.

b. Motivating other organizations to contribute to relevant internationalization and UA-related work in standards. Supporting the experts in training technical staff can help develop additional capacity to work on the standards.
c. Other standards being developed may need internationalization support, and in such cases the relevant working groups would consult with internationalization-related working groups. Keeping UA on the agenda for the internationalization-focused working groups can percolate UA support to other standards through such interactions.

15. **Work With National/Regional and Technical Standards Organizations.** In addition to international standards organizations, it may be important to interact with country-specific standards organizations, e.g. ANSI and Internet Society of China, as well as any industry standards groups, e.g. IETF and Web Hypertext Application Technology Working Group (WHATWG).

Charter Question 4

What are the best platforms and mechanisms to reach out to software development professionals to encourage them to adopt UA in the tools, applications, and systems they design and develop? What capacity development strategies and materials may be needed for software developers to promote UA adoption?

16. **Develop Outreach Strategy.** Start with identifying the list of potential stakeholders, e.g. college students, young professionals, managers, and decision makers. Determine a list of relevant organizations, conferences/events, and networks to target these stakeholders. Here are some examples:
    a. Organizations: Global organizations such as Institute of Electrical and Electronics Engineers (IEEE) Computer Society, ISOC, Association for Computing Machinery (ACM), UNESCO, and national organizations such as NASSCOM (India).
    b. Conferences/Events: Unicode Technical Workshop (UTW), W3C TPAC, GITEX (held in United Arab Emirates), Internet Governance Forums (IGFs), IEEE and ACM conferences, Pycon, DevRelCon, EuroPython, Web Summit, IETF, CloudFest, African Internet Summit, The European Dialogue on Internet Governance (EuroDIG).
    c. Networks: Developers communities for different platforms, including but not limited to, Google, Android, Microsoft, Mozilla, WordPress, etc., WITSA, computer societies, JSConf.
    d. Learning platforms: Platforms including Coursera, EdX, Udemy, LinkedIn, and others.
    e. Campaigns: Promote UA and its resources to boost visibility among active coders, for example, Stack Overflow, http://Dev.to, GitHub, GitLab, and through other channels like podcasts.

17. **Develop Capacity Development Materials.** Pull together materials and useful resources to conduct this outreach. These include:
    a. Definition: As discussed earlier, have a clear definition of UA and its dependency on foundational internationalization.
    b. Messaging: Develop role-specific messaging for developers, engineering managers, and technical leadership to support UA. Messaging may also be needed for other roles, including policy, sales, etc. What is the bottom-line benefit for a developer and their organization, and why should someone work on UA (e.g. address digital divide, promote sales, increase interoperability, improve security, meet public procurement needs, etc.)?
    c. Existing materials: Collate existing materials on foundational elements of internationalization and UA, e.g., by W3C, Unicode, UA Steering Group.
    d. Studies: Showcase UA business case, impact of IDN and UA implementation across the world, success stories, policy requirements.
    e. Technical materials: Develop UA-compliant starter templates, provide multilingual technical training resources, maintain issue logs in open-source repositories, (e.g. email validators, linkification, login forms, content management systems, etc.). Create practical checklists and roadmaps to support UA-readiness for CTOs and technical decision makers. UA checks should be designed for integration into modern development workflows, including CI/CD pipelines and automated testing frameworks.
    f. Incentives: Organize hackathons, support competitions, and awards.

18. **Identify Trainers Who Can Contribute.** The pipeline of people who are skilled in internationalization, IDNs, and UA is limited and retiring. There is a sense of urgency to transfer these skills.
    a. Identify existing experts who can help disseminate the message on why internationalization and UA are needed and engage with them to help promote UA.
    b. Train faculty and technical developers who are interested in acquiring internationalization skills to support the outreach. The training should include both the motivation as well as the technical aspects of the diverse workstreams.

19. **Showcase UA Adoption to Motivate Others.** Work with organizations willing to adopt UA and develop case studies on their path to adoption, and their success stories.
    a. If global organizations, e.g. UN organizations, ICANN, can become UA-ready, their work can motivate other organizations.
    b. Local organizations, e.g. Internet Society (ISOC) Chapters, ICANN At-Large Structures (ALSes), IT Associations, organizations advocating for multilingualism and promoting local cultures.

Charter Question 5

What are the best platforms and mechanisms to reach out to system administrators to encourage them to adopt UA for email servers and other relevant systems? What capacity development strategies and materials may be needed for system administrators to promote UA adoption?

20. **Develop Capacity Development Materials.** Pull together materials and useful resources to conduct awareness and capacity development. These include:
    a. Materials: Frequently Asked Questions (FAQs) and materials about configuring name servers, web hosts, email systems, and email servers, as well as what additional challenges organizations may encounter and how to debug them.
    b. Resources: Educational resources that show how such systems can be set up (e.g. ICANN's self-hosting email server supporting EAI) and additional relevant technical UA-related resources.
    c. Conferences/Events: Network Operators Groups (NOGs), e.g. AfNOG, LACNOG, MENOG, NANOG, SANOG, FOSDEM and others that are relevant for system and email administrators and email providers.
    d. Update Platforms: Work to make global services, such as SendGrid, UA-ready to allow developers to create, configure, and use accounts to send out emails.

21. **Develop Outreach Strategy.** Create awareness of UA's opportunities among system administrators and email administrators.
    a. Analysis: System administrators may be reluctant to turn on internationalization due to complications in other systems. Perceived operational risks of service disruption are common barriers to enabling internationalization, IDN, and UA support. Impact analysis of such systems can provide more insight and confidence to system administrators. Improving support of the clients of these systems will be helpful.
    b. Mitigation: Where solutions are more complex, ICANN could provide evidence or guidance, such as case studies (e.g., examples of deployments and use) to accelerate progress.
    c. Messaging: Develop compelling messaging for system and email administrators to support UA. There should be messaging to mitigate such a position, emphasizing that without their back-end support, applications enabling front-end support still cannot be inclusive by providing multilingual interfaces (i.e. back-end support becomes the bottleneck).
    d. Campaigns: Use the messaging to reach out to these stakeholders through online campaigns to raise awareness and point them to the online resources.
    e. Case Studies: Develop case studies to motivate system and email administrators to support UA, focusing on broader multilingual and inclusive Internet messaging.

Charter Question 6

How may ICANN org further encourage the DNS industry, including gTLD and ccTLD registry, registrars, and resellers, to support UA in their systems during the registration process?

22. **Develop Messaging for the DNS Industry.** The messaging for the DNS industry should cover business, social, and technical aspects for the different stakeholders. If the DNS industry is not equipped to adopt UA, then it may not expect the broader industry to adopt UA.
    a. UA adoption is tied to business growth, increasing domain name and specifically IDN sales.
    b. UA adoption needs technical updates for interoperability, not just for specific regions and languages, but for enabling a global Internet. This is relevant for the DNS industry as a whole.
        i. This includes updating customer and user interfaces and implementing UA-compliant Extensible Provisioning Protocol (EPP) and Registration Data Access Protocol (RDAP).
        ii. For example, if a customer buying an IDN through a registrar panel cannot enter or process an internationalized email address in a registrar form, or if the registry cannot store an internationalized email address provided by the registrar, UA adoption is hindered.
    c. UA adoption is essential for multilingual Internet, as IDNs and UA are the foundation for accessing online local content in local language. UA supports linguistic diversity and Internet access for a global audience. Leveraging UNESCO's multilingual, cultural, and heritage themes would strengthen the messaging.
    d. Periodic self-assessment of the registry and registrar system for UA-readiness would help identify systemic gaps and track progress over time.

23. **Outreach to the Stakeholders.** ICANN should use messaging to reach out to all the relevant stakeholders in the DNS industry.
    a. The DNS industry stakeholders include at least the following:
        i. gTLD registries
            1. ASCII gTLDs (ASCII gTLDs need to support IDN and long TLDs in nameservers, childhosts and contact email addresses)
            2. IDN gTLDs
            3. GeoTLDs
            4. Brand gTLDs
            5. Community-based gTLDs
        ii. ccTLDs
            1. ASCII ccTLDs (ASCII ccTLDs need to support IDN and long TLDs in nameservers, childhosts and contact email addresses)
            2. IDN ccTLDs
            3. Government-led ccTLDs

iii. ICANN-accredited registrars
iv. ccTLD registrars
v. Domain resellers
vi. Regional stakeholders including the regional TLD organizations (e.g., APTLD, CENTR), Network Operators Groups (NOGs) (e.g., SANOG, MENOG),
vii. National governments and regulators who oversee or manage ccTLDs

b. Some TLDs (e.g., ccTLDs and GeoTLDs) are closer to their local community. Therefore, while the focus should remain on the DNS industry as a whole, such TLDs (especially those offering IDNs) and their registrars, resellers, and registry service providers may be prioritized. Their leadership can provide examples for implementation more broadly in the DNS industry.

24. **Consider Developing an Issues Report for UA Adoption**. The ICANN community and the ICANN Board may discuss developing an issues report to identify the existing gaps in registries and registrars. The community can explore developing policies for promoting UA adoption across registries and registrars, including possible incentive-based approaches. This work should align with ICANN's Strategic Plan to promote consumer trust. UA issues may dilute consumer trust in the DNS and the globally unique and authoritative root system maintained by ICANN.

25. **Work With International Governmental Organizations (IGOs).** IGOs, e.g. UNESCO, can help ICANN to make UA adoption part of the global digital agenda, encouraging Member States to include UA adoption by the DNS industry and the broader digital industry in their national action plans. This will be especially helpful in cases where the ccTLDs are directly managed by the government entities or have a close relationship with the government and can affect national policies.

26. Support Building Capacity of the DNS Industry. ICANN should identify gaps in UA adoption (e.g., through surveys or other analyses methodologies) and, as needed, should continue to provide materials and training on UA by the DNS industry. ICANN's work should build on the roadmap for making registry and registrar systems UA-ready already published.

a. Identify the relevant open-source tools and libraries, as well as gaps, for the stakeholders to integrate into their systems to make it UA-ready.
b. Develop technical training materials and FAQs for UA adoption by the DNS industry.
c. Coordinate and work with regional industry groups (e.g., APTLD and LACTLD) to create awareness and build technical capacity among the stakeholders.
d. Develop case studies showing successful implementation and benefits of adopting UA.

Charter Question 7

What mechanisms may ICANN org use to encourage hosting providers and Internet service providers to be able to provide IDN and EAI hosting services to registrants? What capacity development strategies and materials may be needed for this purpose?

27. **Ascertain the Extent and Reason for the Gap in UA Adoption.** Survey hosting providers as well as engage in in-depth case studies, to determine if their reason for not supporting IDNs and EAI is due to lack of awareness, insufficient business motivation, technical gaps in technology, or limitations in technical capacity. The extent of these factors could vary for different regions and different types of providers.

28. **Enable Out-of-the-Box Solutions.** Most hosting providers use existing web-hosting software systems configured with web servers and email clients. ICANN should work to enable these tools to support UA in their default configurations and include documentation to support deployment and maintenance.

29. **Build Capacity of Hosting Providers to Support UA.** Reach out to relevant audiences (e.g., at NOGs) to create awareness and build capacity using the existing tools to support UA. Showcase IDNs and EAI testbeds to encourage UA adoption.

30. **Encourage UA Adoption Through Relevant Messaging.** Just market-driven messages alone are probably not enough, as lack of full support in existing tools creates technical and customer support challenges.
    a. Making a business case for a broader customer base may still present a good argument, especially in geographies where local languages are used prevalently. Trust and quality of experience can enhance the business case.
    b. Triggering the messaging on socio-cultural heritage and local language usage for digital inclusion, in which governments can play a significant role with appropriate market interventions.
    c. Motivating Internet service providers with progressive adoption of technical standards.

Charter Question 8

What are the most effective mechanisms for ICANN org to reach out to the public sector, including suggested relevant ministries, to promote UA adoption? How can ICANN seek support and collaboration from intergovernmental organizations to achieve these mutually relevant goals? What are the materials needed to promote both awareness and adoption of UA in the public sector?

31. **Engage With Multiple Stakeholders Within the Public Sector.** There are many different ministries and departments within a public sector that may be relevant to engage with when it comes to raising the awareness of UA and sharing that UA cannot

be solved only by market forces. Achieving UA requires a joint effort that includes public sector intervention.

a. There are multiple relevant public sector organizations, for example the following:
    i. Ministries of Language, Culture
        1. Language authorities
    ii. Ministries of IT, Telecom, ICT, or Communication
        1. Internet regulator
        2. ccTLDs (if managed by the public sector)
    iii. Ministries of Foreign Affairs
        1. Embassies for e-visa applications
    iv. Ministries of Education
    v. Ministry of Internal Affairs and the Home Affairs
    vi. Ministry of Commerce and Industries
    vii. Emergency Management Agency for multilingual emergency alerts
b. When reaching out to ministries and the public sector, create a clear, policy-oriented messaging strategy to motivate them to adopt UA. UA may be positioned as part of national digital public infrastructure and e-governance standards. This messaging should focus on value-driving factors tied to national priorities such as:
    i. Digital economy and digital inclusion
    ii. Local language enablement
    iii. Citizen-centric governance (e.g. by making e-government services accessible to citizens by deploying them using domain names and email addresses in local languages)

32. **Collaborate With IGOs in Reaching Out to Public Sector Organizations.** IGOs like UNESCO can leverage their long-standing multilateral platforms and intergovernmental frameworks to advance UA. This includes high-level engagement through the UN Global Digital Compact, WSIS, and other platforms involving ministers and government leaders.
    a. UNESCO has had a mandate since 2003 to advance multilingualism in cyberspace, which involves monitoring progress with its 194 Member States and the relevant ministries. Various UNESCO programs can support UA outreach, such as:
        i. The "Information for All" program, which has strong ties with developing countries.
        ii. The "World Atlas of Languages" project.
        iii. The "International Decade of Indigenous Languages" (2022-2032), which provides another UN-level platform.
        iv. UNESCO also has networks which could be used to create UA awareness. These structures bring together academia, governments, civil society, technical experts, and the private sector, providing strong platforms for collaboration and connection. These include:
            1. UNESCO field offices and National Commissions (where the Ministry of Education, Ministry of ICT, Ministry of Culture are

participating) to encourage integrating UA into national digital strategies.
2. UNESCO Chairs at universities globally.

v. UA-focused training modules in the Massive Open Online Course (MOOC), which UNESCO uses to train civil servants working in digital policy.

b. ITU also focuses on IDNs and UA through its Resolution 133 and Resolution 82. Some more details in the recent WTDC-25 report.
   i. May also be useful to engage on platforms where regulators interact, e.g. ITU GSR, as the regulators may manage the ccTLDs in some countries.
c. National, regional, and global IGF meetings also present relevant opportunities.
d. World Summit on Information Society's recent WSIS+20 deliberations also include a focus on UA, in addition to earlier focus on IDNs.
e. Other UN organizations, e.g., the regional commissions of the UN: ECA (Africa), ECE (Europe), ECLAC (Latin America & Caribbean), ESCAP (Asia & Pacific), and ESCWA (Western Asia), which are established by the Economic and Social Council (ECOSOC) to promote regional economic and social development.

33. **Explore Additional Relevant Organizations.** Reach out to other relevant organizations that interact with the public sector to create UA awareness and adoption, e.g. The World Bank, Asian Development Bank, African Commission, Alliance Francaise, and others. These also include standards bodies like International Organization for Standardization (ISO).

34. **Engage With GAC Representatives.** This could be also coordinated by reaching out to GAC representatives, e.g. through GAC's UA Working Group. ICANN may encourage governments through their GAC representatives to form a local task force, and ccTLDs, local tech, and representatives from the public sector could be part of it.
    a. ICANN meetings present a good oopportunity to reach high-level government representatives to explain why UA is critical and how to promote local adoption.

35. **Involve Civil Society.** Civil society bridges policy, people, and technology, and can facilitate showcasing UA adoption directly to their communities. Civil society organizations that advocate for a multilingual Internet to address the digital divide can highlight the role of IDNs and UA in accessing the multilingual Internet, and lead by example, e.g. by using IDNs to deploy websites in local languages and making their email systems UA-ready, as well as by sharing examples of how UA adoption can create real impact. This will help build demand for the multilingual Internet and domain names and email addresses in local languages in the community.
    a. Similar to the engagement with GAC representatives, engagement with At-Large Structures should be explored.

Charter Question 9

What are the most effective mechanisms for ICANN org to reach out to academia to promote UA adoption? How can ICANN seek support and collaboration from universities to achieve these mutually relevant goals? What are the materials needed to promote both awareness and adoption of UA in academia?

36. **Academic Engagement Is a Long-Term Strategy.** While this creates many engagement opportunities, the impact is gradual, making it a long-term investment (2-10 years) rather than a short-term solution. On the other hand, the academic community is diverse globally and far more primed to see the intrinsic value in a social, non-market sense, coupled with profound talent and expertise at very early stages in their careers, who will become the future leaders and shape the technology.
    a. Given the long-term nature of academic engagement, success may focus on a variety of indicators, including curriculum integration, faculty capacity, on-campus technical environment supporting UA, student exposure, projects conducted in these areas, and job placement.

37. **Academic Engagement Across Multiple Disciplines.** Engagement with universities should not be limited to computer science, but should also reach out to other fields like engineering, law, business, linguistics, public policy, and international affairs. UA should also be part of the arts and culture studies. It is recommended that UA be embedded as added value within existing courses rather than just as extra coursework.
    a. Developing curricular recommendations to share in these disciplines. ICANN should also consider relevant inter-disciplinary courses due to the social, linguistic, and cultural aspects of IDNs and UA.
    b. Developing materials and test environments for the trainers and conduct workshops for training the trainers in different parts of the globe.
    c. Encouraging that students learning about the DNS and email addressing systems should learn about IDNs and UA as foundational technologies rather than as a “nice-to-have”.

38. **Mechanisms for Integrating UA in Curricula.** ICANN should work with organizations that can influence curricular updates. Going to those organizations that set curriculum at international, regional, or national levels would help scale such efforts.
    a. Given that ACM-IEEE curricular recommendations are used to update curricula by universities globally, updating the recommendations to include UA will help integrate these concepts downstream in the university curricula around the world.
    b. Sharing similar recommendations with education ministries through UNESCO channels.
    c. Exploring additional organizations, for example International Linguistics Association, International Federation of Library Associations and Institutions, and others, such as textbook publishers.

39. **Focus on Creating Hubs and Networks.** Rather than aiming for widespread adoption across thousands of universities, a smaller number of institutions (e.g., 25-100) can serve as anchor hubs and should be networked to contribute to each other.
    a. Connecting these hubs into broader academic networks through conferences, journals, and associations on a national and regional basis. Such hubs make it easier to engage talent, host training, and access otherwise distant networks. A portfolio of regional hubs, combined with a network-based strategy rather than institution-by-institution outreach, can achieve broad impact efficiently.
    b. Networking the hubs and other institutions to share their experiences and learn from each other as they integrate UA concepts in their core curricula.

40. **Mechanisms for Disseminating UA Capacity.** Various engagement and capacity-building mechanisms should be integrated to reach academic audiences. These should include engaging with academia through the following channels:
    a. Workshops and conference presentations
    b. Journal articles
    c. Internships
    d. Longitudinal studies
    e. Student groups and organizations
    f. Libraries and museums
    g. Textbooks and open-access materials in online and printed formats
    h. Awards and other incentives

41. **Utilize UNESCO's Channels.** UNESCO has direct linkages with education ministries and other local, regional, and international bodies, which can be leveraged to promote UA curriculum integration in universities. These include UNESCO chairs, workshops and conferences, relationships with associations e.g. International Federation for Library Association (IFLA) and UNESCO's global alliance on capacity-building at public administration schools.

Charter Question 10

What aspects of UA adoption should be measured generally, as well as specific to different types of stakeholders, to create awareness of the gaps and gauge progress over time? Who would be good collaborators, and how do we encourage self-reporting on these indicators by the stakeholders?

42. **Clear indicators which are not costly to measure over time.** Indicators need to be at the right level, where it is clear what is measured, how these contribute to the level of support, and who will measure and report on them. As data collection is the most elaborate and expensive step, the indicators should be reasonably high-level so that they are not complex or expensive to measure over time. Some related indicators include ITU's ICT Development Index (IDI) and UNESCO's Internet Universality Indicators.

a. Indicators are important as they enable evidence-based decision-making, highlight persistent gaps, and accelerate global adoption of UA to support a multilingual Internet.
b. Identifying UA-related indicators ICANN org can measure directly over time and develop a UA reporting dashboard that can visually show and track progress on UA.
c. Working with the organizations that collect related data directly, to see if relevant indicators may be included in existing frameworks.

43. **Indicators focus on multiple stakeholders and on the different aspects of UA-readiness.** The indicators should cover measuring the following aspects over time, with some example measures indicated for each aspect below:

    a. **Awareness.** Are the stakeholders sufficiently promoting Universal Acceptance of all domain names and email addresses? These are indicated by the UA awareness events and promotions organized by the public sector, local DNS industry (including the ccTLD(s)), academia, business, community, civil society and media and their outcome:
        i. UA Day and other events that promote UA awareness
        ii. Media and social media promotions by the DNS industry, including the gTLD and ccTLD manager(s)
        iii. Panels on UA-related issues at national and international Internet governance forums
        iv. Increase in UA awareness among different stakeholders
    b. **Policy support.** Does the government have a policy framework to enable the Universal Acceptance of all domain names and email addresses based on relevant global standards? If so, is it being effectively implemented? These are indicated by the policy and regulatory frameworks, including those supporting local languages, and adoption of UA-relevant technical standards:
        i. National policies concerning relevant internationalization and UA support, including for local language communities
        ii. National definitions and standards aligned with the international definition and standards relevant for UA
        iii. Regulatory strategies concerned with UA, including procurement requirements concerning UA for government systems and e-government services (e.g., including UA as part of contracting requirements, and requiring bidders to have UA-ready systems)
        iv. Number of e-governance systems that are UA-ready
    c. **Implementation.** Use of domain names in local languages for major government websites, government e-services, e-commerce platforms, and social networking applications. This includes support for email addresses in local languages for major government websites, government e-services, e-commerce platforms, social network applications, and other user-oriented software:

i. Registration numbers of domain names in local languages under gTLDs and ccTLD(s) (normalized over language population)
ii. Email servers listed in gTLD and ccTLD zone files (based on MX records) supporting email addresses in local languages
iii. Data on use of domain names and email addresses in local languages from social network platforms, government departments, and e-commerce platforms (where published or available upon request)
iv. Measuring end-to-end success of end-user journey through an application using any domain name and email address, a key cross-cutting indicator across sectors
v. Publication of technical papers, case studies, and assessments on UA adoption for broader visibility and guidance

d. **Capacity development.** Is there sufficient capacity development to technically implement Universal Acceptance of all domain names and email addresses in diverse local languages for a multilingual Internet? This includes integration of UA curriculum into technical IT-related degree programs in universities, integration of UA curriculum into technical training programs by the public sector for small and medium industry, IT industry, and start-ups:
i. Recommendations on inclusion of UA in technical IT-related curricula by national or regional curricular bodies
ii. Universities integrating UA in technical IT-related degree programs
iii. Inclusion of UA concepts in technical courses offered by IT-related vocational training programs
iv. Recommendations on supporting UA by software and computer associations by training professionals
v. Availability of UA teaching materials, testing tools, guidelines, and checklists
vi. Estimated students graduating with relevant technical knowledge
vii. Estimated professionals with relevant technical training

44. **Collaborating for reporting on UA adoption progress.** Effective measurement and sustained progress on UA adoption will require collaboration across multiple stakeholders when it comes to collecting and managing relevant indicators. ICANN should play a key coordinating role by defining UA-relevant indicators, measuring indicators that fall within its direct remit, and maintaining a consolidated UA reporting dashboard.
a. Working with IGOs to explore the inclusion of UA-related indicators within existing global measurement frameworks and indices. IGOs may help coordinate with national efforts by relevant public sector organizations for aggregating data.
b. Engaging with the DNS industry, major application providers including email providers, e-commerce systems, content management systems, and social media platforms to assess end-to-end UA-readiness and real-world user experience across applications.

c. Collecting data to the extent feasible, across different stakeholders at regional and national levels, and over time.
d. Collaborating with, but are not limited to, the following: IGOs (including ITU and UNESCO), TLD managers (including ccTLD and gTLD registries), public sector organizations (including regulators), academia and accreditation bodies, big tech organizations and open-source communities.

45. **Encourage self-reporting.** To ensure the availability of reliable and comparable data over time through self-reporting, ICANN should work with IGOs to encourage self-reporting from their member states.
    a. Utilize existing frameworks and channels, minimizing additional burden, while clearly demonstrating the relevance and value of contributions.
    b. Develop UA self-assessment templates aligned with the indicators and measurement framework.
    c. Create incentives for stakeholders to report on UA-readiness, to help improve data availability.

Conclusion

The UA EWG considers that ICANN has a key coordinating role when it comes to developing messaging, engaging with technical and DNS industry, public sector and intergovernmental organizations, and academia, as well as collaborating with stakeholders to build capacity. ICANN should also help disseminate knowledge and measure and report progress. UA adoption will help strengthen consumer trust, enhance interoperability and security, and advance digital inclusion.

These guidelines have been developed to guide ICANN org's work on UA adoption. ICANN org would assess the guidelines, prioritize them, and provide updates as it implements them.

Appendix A: Contributors

	Name	Affiliation	Member
1	Abdalmonem Tharwat Galila (Alt: Aderonke Adeniyi (Sola-Ogunsola))	National Telecommunications Regulatory Authority (NTRA) of Egypt (Nigerian Communications Commission (NCC))	GAC nominee
2	Cathy Wissink	UNICODE Consortium	CEO nominee
3	Edmon Chung (co-chair)	DotAsia	ALAC nominee
4	Guilherme Canela (Alt: Tarja Turtia, Xianhong Hu, David Castillo Parra)	United Nations Educational, Scientific and Cultural Organization (UNESCO)	CEO nominee
5	James Galvin	Identity Digital	ICANN Board Liaison
6	Jiankang Yao	China Internet Network Information Center (CNNIC)	CEO nominee
7	Nabil Benamar	Moulay Ismail University Of Meknes, Morocco	SSAC nominee
8	Nitin Walia	XgenPlus	GNSO nominee
9	Richard Ishida	World Wide Web Consortium (W3C)	CEO nominee
10	Sami Mohamed Ali	Telecommunications Regulatory Authority (TRA), Bahrain	ccNSO nominee
11	Sarmad Hussain (co-chair)	Internet Corporation for Assigned Names and Numbers (ICANN)	CEO nominee
12	Sean Bedford	Meta	CEO nominee
13	Thomas Mullaney	Stanford University	CEO nominee

Appendix B: Global Public Interest and Human Rights Impact Considerations

The UA EWG guidelines are meant to enhance consumer trust in the DNS and promote the global public interest in the operational stability of the Internet. By advancing support for all valid domains in Internet systems, the guidelines help ensure that all Internet users, regardless of geography, language or script, can reliably access and use the DNS. This in turn ensures operational stability, reliability, security, global interoperability, resilience, and openness of the DNS and the Internet as a globally shared and accessible resource. The guidelines include market interventions to promote and sustain a competitive environment in the DNS market to ensure that all top-level domains are accepted properly. The recommendations take into consideration the focused scope of the ICANN mission as a technical coordinator of the DNS that engages all stakeholders and recognizing policy directives from governments and inter-governmental institutions, rooted in advocating for private sector driven implementation (including business stakeholders, civil society, the technical community, academia, and end users).

The UA EWG guidelines promote a diverse and a multilingual Internet, encourage participation from linguistic communities to participate and express their identity in their native languages on the DNS, and consider implementation time-requirements and roadmap. The guidelines should enhance accessibility of the Internet for different linguistic communities and underdeveloped regions. However, the recommendations recognize that full accessibility and inclusion require continued progress, and particular support for IDNs in accessibility tools, such as screen readers, have not been explicitly taken into consideration and would require further work.

The workings of the UA EWG in producing the recommendations are documented, archived, and published to ensure appropriate transparency on deliberations and processes.