Universal Acceptance of Domain Names and Email Addresses

A Key to Digital Inclusion

Sarmad Hussain
Senior Director IDN and UA Programs
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We Live in a Multilingual World!

English is third in terms of native speakers around the world, with much of the world communicating in other languages.

Languages by number of native speakers

<table>
<thead>
<tr>
<th>Language</th>
<th>Native Speakers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mandarin</td>
<td>1300 million</td>
</tr>
<tr>
<td>Spanish</td>
<td>475 million</td>
</tr>
<tr>
<td>English</td>
<td>373 million</td>
</tr>
<tr>
<td>Arabic</td>
<td>362 million</td>
</tr>
<tr>
<td>Hindi</td>
<td>344 million</td>
</tr>
<tr>
<td>Bengali</td>
<td>234 million</td>
</tr>
<tr>
<td>Portuguese</td>
<td>232 million</td>
</tr>
<tr>
<td>Russian</td>
<td>154 million</td>
</tr>
<tr>
<td>Japanese</td>
<td>125 million</td>
</tr>
</tbody>
</table>

Digital Inclusion, an Opportunity

- Two-thirds of world population, approximately 5.4 billion people, is online today. The remaining one-thirds, another 2.7 billion people, of the world population, still have to come online. (ITU Sept. 2023)

- Most of those coming online in the future are from Africa and Asia.

- Many of the people already online, and most of those who will be coming online in the future, communicate in their own language using their own writing system.

- This allows for a significant business and social opportunity for multilingual domain names globally.
Enabling the Internationalized Domain Names

- Internet Engineering Task Force (IETF) developed a protocol for domain names in local languages, called Internationalized Domain Names (IDNs) in 2003 and revised in 2010 (called IDNA2008).

- ICANN community developed IDN implementation guidelines in 2003.

- In addition the ICANN community developed policies to allow for new top-level domains (TLDs) to be introduced, including IDN TLDs.

- There are now more than 1,200 active TLDs available providing greater consumer choice representing cultures, brands, geographies, communities, special interests, and more (e.g., ไทย, london, .sport).

- Of these, there are 151 IDN TLDs, covering 37 languages using 23 scripts.
  - 90 IDN gTLDs have been delegated.
  - 61 IDN ccTLDs have been delegated (out of 62 evaluated).
IDN Country Code Top-Level Domains

ccTLDs: 62 for 43*

* Successfully evaluated IDN ccTLDs for total countries and territories (as of May 2020)
90 IDN gTLDs are delegated.
Examples of IDNs

1. համընդհանուր-ընկալում-թեստ

2. ଯୁଦ୍ଧିତାତି-ଶିକ୍ଷାବହୁ-ଦଙ୍କ

3. ჯიხოტიკი-თაყჰითი-ჰეზობ-მოქმედ.

4.  đa국어도메인이용환경테스트.한국

5.  സാർവ%തിക-സി Ки,"ആ-അസിലെസ്.ഒക്കെ

6.  تجربة-القبول-الشامل.موريتانيا

Armenian
Oriya
Georgian
Korean
Malayalam
Arabic
Examples of Internationalized Email

1. Էլփոստ-թեստ@համընդհանուր-ընկալում-թեստ.հայ  
   Armenian

2. 电子邮件测试@普遍适用测试.我爱你  
   Chinese

3. ईमेल-परीक्षण@सार्वभौमिक-स्वीकृति-परीक्षण.संगठन  
   Devanagari

4. تجربة-بريد-الكتروني@تجربة-القبول-الشامل.موريتانيا  
   Arabic

5. ηλεκτρονικό-μήνυμα-δοκιμή@καθολική-αποδοχή-δοκιμή.ευ  
   Greek

6. மின்கைப்பட்சநிலை-தேர்தல்@பிராது-சுற்று-தேர்தல்.சிங்கம்புர்  
   Tamil
However, many people around the world are currently excluded from experiencing the full benefits of the Internet simply because they’re unable to use a domain name or email address of choice in their language and script.

For example, a valid email is rejected by a form in a website (and also incorrectly displayed from left to right instead of RTL):
Categories Affected and UA Readiness

- **Domain Names:**
  - Newer top-level domain names: example.sky
  - Longer top-level domain names: example.engineering
  - Internationalized Domain Names (IDN): คน.ไทย

- **Internationalized email addresses (EAI):**
  - ASCII@ASCII (new and long TLD) ekrem@misal.istanbul
  - ASCII@IDN marc@société.org
  - Unicode@ASCII 测试@example.com
  - Unicode@IDN 電子郵件測試@普遍適用測試.組織.澳門
  - Unicode@IDN; right to left scripts ای-میل@مثال.موقع
Current EAI Support in Websites

EAI Acceptance Rates in Form Fields on 2000 Websites

- RTL@RTL.RTL: Right-to-left scripts; e.g., Arabic
- Unicode@idn.idn: e.g., Chinese
- Unicode@ascii.ascii
- ascii@ascii.idn
- ascii@idn.ascii
- ascii@ascii.newlong
- ascii@ascii.newshort

Source: UASG039 at https://uasg.tech, published in 2022;
Current EAI Support Across Email Servers

Source: [https://ithi.research.icann.org/graph-eai.html](https://ithi.research.icann.org/graph-eai.html)
Role of Academia

- Upgrade university websites and email systems to support Internationalized Domain Names and Internationalized Email Addresses.
- Update IT curricula to include teaching and learning of software internationalization related concepts and UA.
- Train faculty and students to adopt UA practices in software development.
- Create awareness of UA issues and solutions in the local technical community.
Internationalization, a Business Opportunity

- Businesses that are UA-ready will be best positioned to reach growing global audiences and maximize revenue potential from the current Internet population, as well as the next billions of online users.

- As more Internet users come online from around the world, there will be increased demand for businesses that can support domain names and email addresses in a language and script of their choice.

- Businesses that support customers in this way will have a first-mover advantage and the potential to capture new increasing revenue streams.

- A strong understanding of Universal Acceptance (UA) is the new competitive differentiator every developer and business should have in their skill set.
Government’s Role in Universal Acceptance

- Being UA-ready can assist governments and policymakers in reaching their citizens.

- Evaluate the possibility of including UA requirements in government procurements.

- Reach out to government departments involved in e-government services for citizens and ask them to incorporate UA practices to provide digital inclusivity.

- Measure the progress on Universal Acceptance using indicators, e.g.:
  - IDN registrations under IDN ccTLDs.
  - UA support in popular websites locally.
  - EAI support in email servers listed under ccTLDs.
Some Relevant Materials

- See [https://uasg.tech](https://uasg.tech) for a complete list of reports.
  - Universal Acceptance Quick Guide: UASG005
  - Introduction to Universal Acceptance: UASG007
  - Quick Guide to EAI: UASG014
  - EAI – A Technical Overview: UASG012
  - Universal Acceptance Readiness Framework: UASG026
  - Considerations for Naming Internationalized Email Mailboxes: UASG028
  - Evaluation of EAI Support in Email Software and Services: UASG030A
  - UA of Content Management Systems (CMS) Phase 1: UASG032
  - UA Readiness of Social Media Platforms: UASG035
  - UA-Readiness of Some Programming Language Libraries and Frameworks: UASG037
Get Involved!

- To get involved, email info@uasg.tech or UAProgram@icann.org
- Access IDN and UA related documents, presentations and training materials at: https://icann.org/idn and https://icann.org/ua.
- Access all UASG general awareness and technical documents as well as sign up to participate at: https://uasg.tech.
Engage with ICANN

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