

EAI Acceptance Rates of the 1,000 Top Global and 1,000 Country-Specific Websites in 2025

28 March 2025



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About EVARIS

EVARIS Systems – An Evolutionary Artificial Intelligence Systems LLP is based in India, with a passion to craft ICT solutions for masses, working in the area of Artificial intelligence and Natural language processing and allied areas with a team having rich experiences in the field of ICT Solutions including Quality assurances and more specifically Internationalized Domain names and email addresses.

The EVARIS SYSTEMS LLP Team members have vast experience in the field of Indian language computing, Natural Language Processing including LTR, RTL scripts / languages and instrumental in spearheading and formulation of Internationalized Domain Names policy, implementation in close coordination with concerned ministry of Government for Indian languages. The activities also include working on variant generation, homographic for identifying confusingly similar characters, reserve list and finally implementing in Registry by way of API's.



Executive Summary

The UASG039 report "EAI Acceptance Rates of the Top 2,000 Global Websites in 2022" was a follow-up to a similar test done in 2020. It was part of a broader initiative to further the community's understanding of the bottlenecks and key issues surrounding widespread compatibility of all domain names currently available.

The UASG, through ICANN's Global Support Center team, has conducted EAI acceptance evaluations for both global and country-specific websites over the years, using various categories of email addresses. Below is a summary of the evaluations conducted from 2017 to 2022, with the most recent evaluation carried out in 2025. The findings from each evaluation have been published in reports detailing EAI acceptance rates.

- Year 2017, UASG017 - Evaluation of 1,000+ Global websites for Acceptance of a Variety of Email
- Year 2019, UASG025 - Global Evaluation of Websites for Acceptance of E-mail Addresses in 2019
- Year 2020, UASG027 - Country-based Evaluation of Websites for Acceptance of Email Addresses in 2020
- Year 2022, UASG039 - EAI Acceptance Rates of the Top 2,000 Global Websites in 2022

The purpose of this report [UASG053] is to ascertain the current email addresses acceptance rates of the previously tested websites in UASG039 and compare the results. A total of 2,010 websites were taken from the UASG039 website list and then segregated as 1,000 global and 1,000 country-specific websites.

Email IDs Used for evaluation:

Mix of ASCII and Unicode addresses (e.g., ascii@ascii.ascii, ascii@ascii.newlong, ascii@ascii.newshort, Bengali@Bengali.Bengali (country's native script) and unicode@idn.idn)

Data Collection Tools:

Browser-based field testing, screenshots, Google Form entries, HTML input type identification, and CAPTCHA tracking

A quick test was done to check

- Website working
- Form having email field for testing purpose
- Presence of Captcha in case of form submission
- Re-evaluating the previous test email URL, recording the new URL if the previous URL is removed / not available.
- Recording of the URL of the form having email field

Few of the websites from the UASG039 website list were not functional. Some of them also changed the methodology of user registrations /subscriptions to mobile and /or social media-based registrations instead of email. Hence, from the UASG039 website database, 1000 global websites and 702 country-specific websites, supplemented with 298 top global country-specific ranking websites totaling to 1000 were taken. The country-specific websites were segregated on the basis of country-specific TLDs, country name in the domain name.



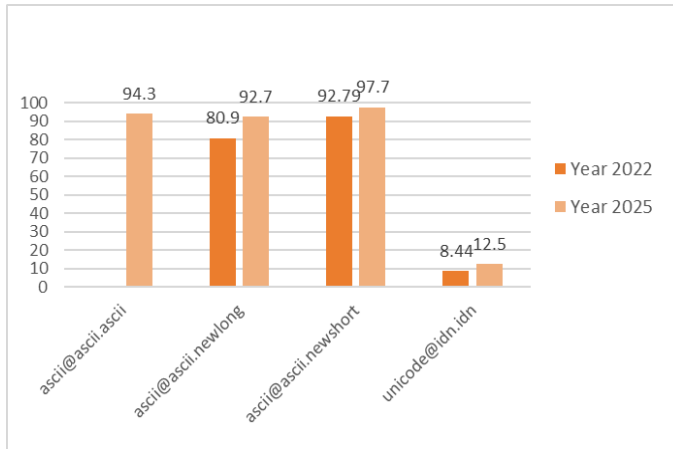
The supplemented 298 top global ranking country-specific websites were taken from <https://www.domcop.com/top-10-million-websites>, since Alexa suspended its top global ranking service around May 2022.

Different evaluation studies conducted from 2019 to 2022 and now in 2025 have used varying categories of email IDs for email acceptance testing. However, for comparison purposes, in certain charts we have included `chinese@chinese.chinese`, `arabic@arabic.arabic`, `bengali@bengali.bengali`, and country-specific email IDs under the `unicode@idn.idn` category



Overview of Key Outcomes

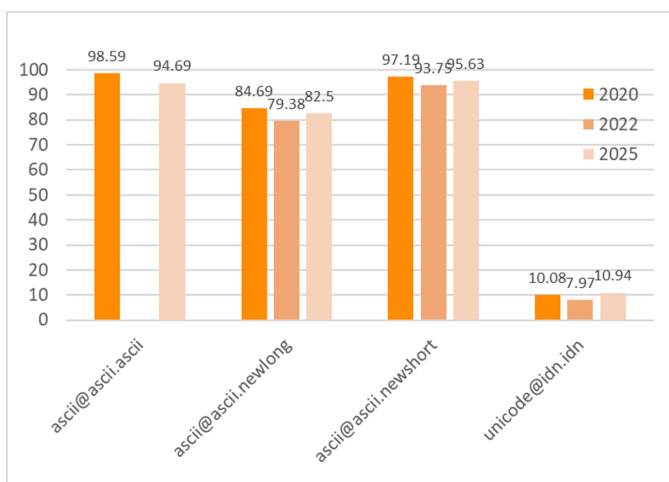
Global website 2022 and 2025 email acceptance rates:



- All categories show improvement in 2025.
- The highest growth is seen in `ascii@ascii.newlong`, which jumped nearly 12%.
- While acceptance of `unicode@idn.idn` remains modest at 12.5% in 2025, it shows meaningful progress compared to 2022, signaling a positive trend toward broader EAI adoption.

- Ideally, `ascii@ascii.ascii` (`test@ua-test19.com`) should have a 100% acceptance rate across websites, which is not the case, since
 - Many systems flag `ua-test19.com` as a test/disposable domain (similar to Mailinator or Temp-Mail).
 - Some websites whitelist only popular providers (Gmail, Yahoo, etc.).
 - Domain-specific blocks (e.g., `ua-test19.com` being labeled as a test domain).
 - Many websites block "test@" usernames.
- EAI adoption globally is still overwhelmingly skewed in favor of ASCII-based addresses

Country-specific website email acceptance rates between 2020, 2022 and 2025 (common websites):



Across the years 2020, 2022, and 2025, acceptance rates for both `ascii@ascii.newlong` and `ascii@ascii.newshort` exhibited some variation.

For `ascii@ascii.newlong`, rates were 84.69%, 79.38%, and 82.50%, a range of about 5 percentage points. For `ascii@ascii.newshort`, rates were 97.19%, 93.70%, and 95.63%, a range of about 3.5 percentage points.

In both cases, there was a noticeable dip in 2022 followed by an increase in 2025, suggesting that a common factor may have influenced results in 2022.



- However, `ascii@ascii.ascii` showed a decline, since
 - Many websites flag `ua-test19.com` as a test/disposable domain (similar to Mailinator or Temp-Mail).
 - Some websites whitelist only popular providers (Gmail, Yahoo, etc.).
 - Domain-specific blocks (e.g., `ua-test19.com` being labeled as a test domain).
 - Many websites block "test@" usernames.
 - Also, the acceptance rate for `Unicode@idn.idn` showed marginal positive growth

For more details: See "[Key Observations from Website Retesting](#)":

ASCII Emails: Global and country-specific sites both continue to strongly support ASCII formats, though global websites show a stronger upward trend in new gTLDs.

Unicode Emails (EAI): While global websites show some growth in accepting Unicode email addresses, country-specific sites show stagnation or even slight regression.

Adoption Lag: There's a persistent gap between ASCII and Unicode email ID support—highlighting ongoing technical or policy barriers to true EAI adoption.

Technical Observations

EAI-readiness is still lacking in the majority of websites, since the heavy use of `type="email"` inherently excludes non-ASCII email addresses. Only those using `type="text"` (29.25%) or default inputs (2.5%) can potentially support EAI, provided they implement custom validation logic.

Creating Website List for Testing

Segregating UASG039, 2010 Websites into Global and Country-Specific Categories

The UASG039, 2010 dataset included websites from year 2019 (761 websites) and year 2020 (869 websites), supplemented by Alexa's top global ranking websites (380). The 761 websites from 2019 were categorized as global, while the 869 websites from 2020 were classified as country-specific.

A preliminary test was conducted to:

- Verify website accessibility
- Check if the site had a form with an email field for testing
- Determine the presence of CAPTCHA during form submission
- Re-evaluate previously tested email URLs, recording new ones if the originals were removed or unavailable
- Document the URLs of forms containing email fields

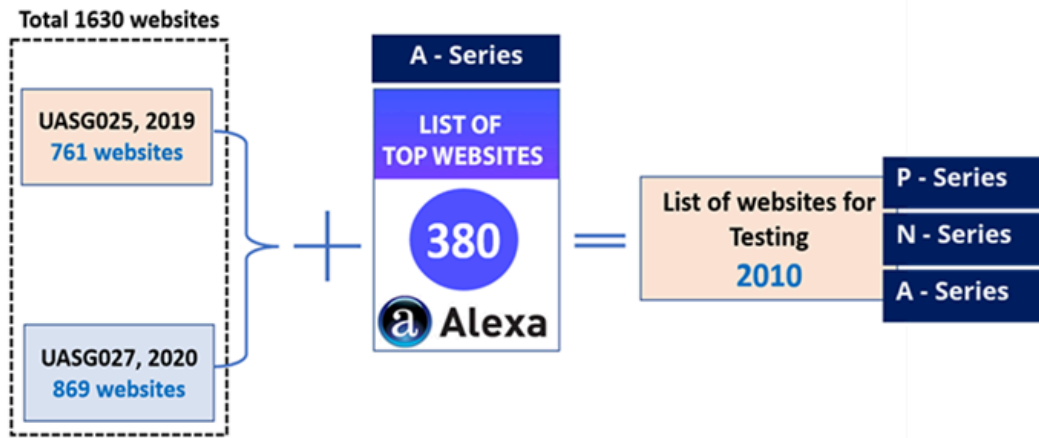
During this testing round, 652 out of 761 global websites were found to be testable, while 640 out of 869 country-specific websites met the test criteria.

Additionally, the previous 380 Alexa top-ranking websites were reviewed and further supplemented with top-ranking websites listed as of December 2024. This resulted in a total of 1,000 global and 1,000 country-specific websites for evaluation. To compensate for the shortfall of 298 country-specific websites, additional sites were sourced from <https://www.domcop.com/top-10-million-websites> (since Alexa has suspended its top global

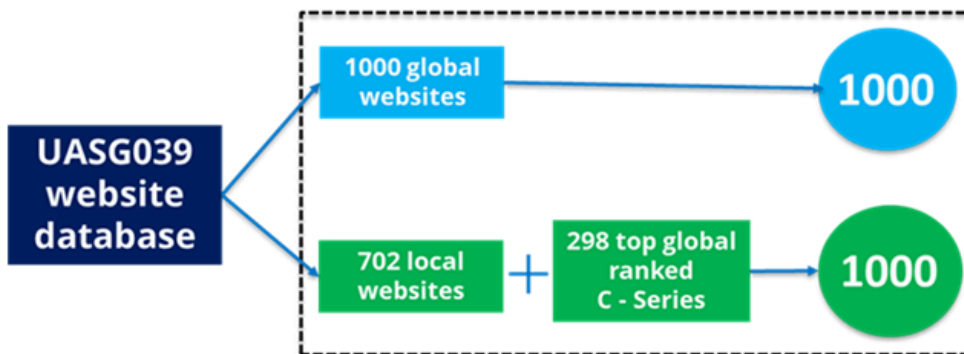


ranking service around May 2022), deduplicated against the existing dataset, and functionally tested to ensure a total of 1,000 country-specific websites.

UASG039 website database



Current website database



- P - Series:** Websites from the UASG025 study
- N - Series:** Websites from the UASG027 study
- A - Series:** Alexa top ranking websites supplemented in the study of UASG039
- C - Series:** Top ranking websites supplemented in the current study (UASG053)

- **Global Websites:** These are the highest-ranking websites worldwide, based on metrics from Alexa and Open PageRank.
- **Local/Country-Specific Websites:** These are the top-ranking websites within individual countries.



Testing Methodology for UA Assessment

After rechecking the websites of UASG039 for functioning and identification of URL for email test field, separate list of 1,000 global and 1,000 country-specific websites (50 websites each of 20 countries) were given for testing.

Testing team was advised to:

- Verify the URL where the email test field is located. If the field is missing, identify its new location and document the updated URL.
- For each website and email category, capture a screenshot of the test email's acceptance or rejection. Use a green bounding box to highlight successful cases and a red bounding box for failures.
- Each screenshot is named using the format: Website ID, Email Category ID, F/S (Fail/Success) and saved as a .jpg file. As an example, A0021-C1-S.jpg, A0021 website ID, C1 – category of email, S – success.
- All test entries were recorded in a shared Google Form, which included an option to upload screenshots for each website.
- HTML input types (such as email or text fields) and the presence or absence of CAPTCHA were also identified and documented.
- Each evaluator recorded these details in an Excel file via Google Form, ensuring all data, including links to various email categories per website, was easily accessible for reference.

This structured approach ensures accurate validation & streamlined data collection for Universal Acceptance testing.

Email Categories Used for Testing

	Script	email ID	Categories
Category-1	Latin	test@ua-test19.com	ascii@ascii.ascii
Category-2	Latin	email-test@universal-acceptance-test.international	ascii@ascii.long
Category-3	Latin	email-test@universal-acceptance-test.icu	ascii@ascii.newshort
Category-4	Bengali	ই-মেইল-পরীক্ষা@সর্বজনীন-স্বীকৃতির-পরীক্ষা.ভারত	unicode@idn.idn

Category-5 Country-Specific Emails Used for Testing

(To simplify testing across Latin-based countries, a single, generic email address was used:

email-épreuve@épreuve-acceptation-universelle.vermögensberatung

This allowed for a consistent test, but it has a limitation: the email contains the character *é*, which is not found in all Latin scripts, such as German, Turkish. Therefore, while the results indicate general support for Latin characters, the results may not capture potential issues with national character sets.)

Sr.No	Country	Script	Category-5 (Unicode@idn.idn)
1	Argentina	Latin	email-épreuve@épreuve-acceptation-universelle.vermögensberatung
2	Bahrain	Arabic	تجربة البريد الإلكتروني @ تجربة القبول - الشامل موريتانيا
3	Benin	Latin	email-épreuve@épreuve-acceptation-universelle.vermögensberatung
4	Brazil	Latin	email-épreuve@épreuve-acceptation-universelle.vermögensberatung



5	China	Simplified Chinese	电子邮件测试@普遍适用测试.我爱你
6	Egypt	Arabic	تجربة-القبول-الشامل.موريتانيا
7	Germany	Latin	email-épreuve@épreuve-acceptation-universelle.vermögensberatung
8	Ghana	Latin	email-épreuve@épreuve-acceptation-universelle.vermögensberatung
9	India	Devanagari	ईमेल-परीक्षण@सार्वभौमिक-स्वीकृति-परीक्षण.संगठन
10	Israel	Hebrew	דואר-אקספטאציע-אונניברסל.קורא
11	Japan	Katakana	メールテスト@ユニバーサルアクセプタンス.クラウド
12	Kenya	Latin	email-épreuve@épreuve-acceptation-universelle.vermögensberatung
13	Korea	Hangul	이메일테스트@다국어도메인이용환경테스트.한국
14	Kuwait	Arabic	تجربة-القبول-الشامل.موريتانيا
15	Mexico	Latin	email-épreuve@épreuve-acceptation-universelle.vermögensberatung
16	Nigeria	Latin	email-épreuve@épreuve-acceptation-universelle.vermögensberatung
17	Russian	Cyrillic	почта-тест@универсальное-принятие-тест.москва
18	Sweden	Latin	email-épreuve@épreuve-acceptation-universelle.vermögensberatung
19	Thailand	Thai	อีเมลทดสอบ@ยูเอทีเอส.ไทย
20	Turkey	Latin	email-épreuve@épreuve-acceptation-universelle.vermögensberatung

Email ID Categories Used for EAI Acceptance Test Over the Past and Current Year

	Email Category	9 August 2019 (UASG025)	21 April 2020 (UASG027) country-specific email IDs	January 2022 (UASG039)	Jan. 2025 (UASG053)
1	ascii@ascii.ascii	NA	test@ua-test19.com	NA	test@ua-test19.com
2	ascii@ascii.newshort	test@test.exp	test@ua-test19.bet	web-test@universal-acceptance-test.icu	email-test@universal-acceptance-test.icu
3	ascii@ascii.newlong	test@test.example	test@ua-test19.technology	web-test@universal-acceptance-test.international	email-test@universal-acceptance-test.international
4	ascii@idn.ascii	test@普遍接受-测试.org	test@普遍适用.com	web-test@universal-acceptance-test.idn	NA
5	ascii@ascii.idn	NA	NA	web-test@universal-acceptance-test.idn	NA
6	Unicode@A-label.A-label	NA	NA	वेब-परीक्षण@xn----lnfb8fe3cvkui0de0bcg5hxagsg7d5lwail.xn--i1b6b1a6a2e	NA
7	Unicode@ascii.ascii	测试1@test.org	广场@ua-test19.com	NA	NA
8a	Unicode@idn.idn	测试5@普遍接受-测试.世界	测试@普遍适用.公司	电子邮件测试@普遍适用测试.我爱你	ই-মেইল-পারীক্ষা@সর্বজনীন-স্বীকৃতির-পারীক্ষা.ভারত
8b	Unicode@idn.idn Country-specific email IDs	NA	as seen on this column	NA	See "Category 5 Table" above.
9	arabic@arabic.arabic (RTL)	دون@رسيل.السعودية	عنوان@بو-اي-اختبار.شبكة	تجربة-الويب@تجربة-القبول-الشامل.موريتانيا	NA

- In the 2019 report (UASG025), six email categories were used. In the 2020 report (UASG027), seven email categories were used.
- In the 2022 report (UASG039), seven email categories were used for EAI acceptance testing.
- In this report, four email categories were used for top global websites, while five email categories were used for country-specific websites.
- Hence five email categories were chosen to compare EAI acceptance rates between the 2020, 2022 report and this 2025 report.



Key Observations from Website Re-testing

Challenges in Accessing Email Fields

- Sector Restrictions: Banking, telecom, e-commerce, and government sites often require a valid mobile number & OTP before granting access to the email field.
- Mandatory ID Fields: Some sites required CPF (Brazil), CNPJ (Brazil), SSN (U.S.), etc. Temporary IDs were generated via "The one generator-<https://theonegenerator.com>"

Testing Difficulties & Adaptations

- No Success/Failure Response: Some websites redirected to the homepage instead of displaying an email validation message.
- Internationalised email Behavior: Unlike standard emails, Internationalised email triggered clear "Valid" / "Invalid" messages. Testing order was adjusted (C4 → C1 for global, C5 → C1 for country-specific).
- Multi-Field Forms: Many forms required personal details; testing focused only on email validation while completing minimum required fields.

Technical & Security Challenges

- **User Tracking & Validation Triggers:**
 - Some websites tracked user activity, preventing multiple registrations even after clearing browser history.
 - Websites displayed error messages at different stages (cursor movement, input, or submission). Some required progressive input testing.
- **Additional Restrictions:**
 - Some websites required credit card details, passport numbers, or sensitive data, preventing full testing of C1 & C2 email categories.
 - Inactive Submission Buttons: Some forms disabled the submit button until all required fields were completed, complicating validation tests.

Retesting highlighted varied restrictions, inconsistent validation feedback, and evolving security measures, requiring adaptive testing approaches for accurate assessment.

Email Field Validation Methods

- Websites use varied validation techniques.
- JavaScript-based validation (cursor movement, input, submission).
- ASCII-based validation ([a-z]@[a-z].[a-z]), even with input type "TEXT".
- HTML "required" attribute (ensures input but only for ASCII emails).

HTML Input Types & Browser Behavior

- 68.25% of websites use the input type="email" (relies on browser-level validation; supports only ASCII addresses).
- 29.25% use input type="text" (requires custom validation logic).
- 2.5% rely on the default input type (text) when unspecified.
- Current Limitation: Browsers do not support Unicode in the local part of the address (before the @ symbol), limiting compatibility with Email Address Internationalization (EAI).
- Standardization Efforts: Need to engage with WHATWG & W3C to improve HTML5 validation for internationalized emails.



Website Login & Registration Trends

- Some sites use popup login/registration forms, making URL tracking difficult.
- Growing shift to mobile + OTP authentication, restricting email-based signups.
- Some websites completely removed email fields, making email validation impossible.

Testing Challenges & Additional Findings

- **Challenges in Testing:**
 - Language Barriers: Google Translate helped, but Google Lens failed to translate placeholders.
 - Dynamic Redirections: Websites changed URLs, making email fields harder to locate.
 - Country-Specific Requirements: Banking & universities required CPF/CPR IDs, solved using "The one Generator - <https://theonegenerator.com/>"
- **Access Restrictions & Security Measures:**
 - Region-locked websites & IT policy blocks limited access.
 - Copy-paste & right-click disabled, complicating data entry.
- **Additional Findings:**
 - Email fields tested across login, registration, subscriptions, contact, feedback, careers, complaints, and newsletters.
 - Many "Contact Us" pages only listed email addresses instead of forms.
 - Some websites validated emails only after submission, not during input.
 - Domain-restricted email input (e.g., allowing only @gmail.com, .cz, @rambler.ru).

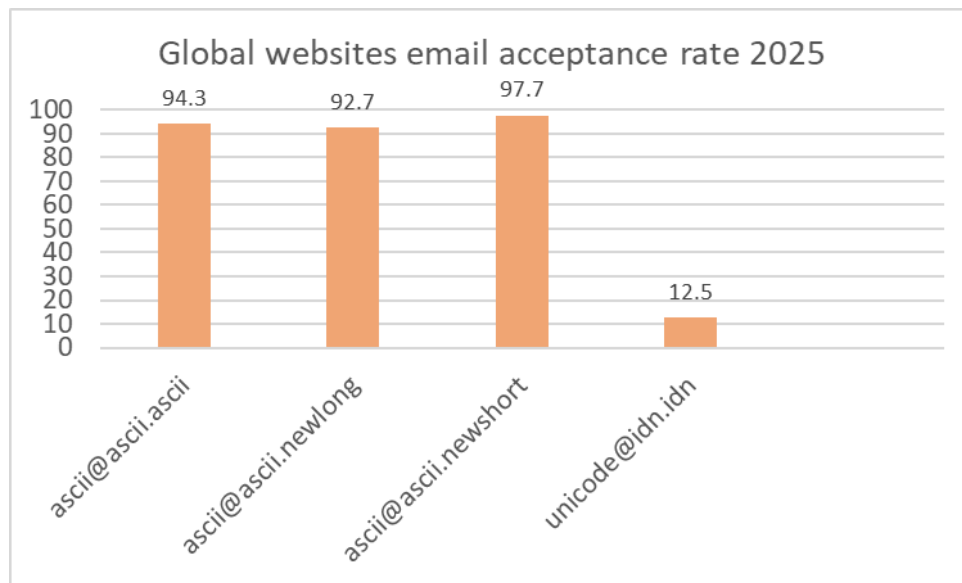
These findings highlight the diverse email validation methods, thereby increasing reliance on mobile authentication, and technical challenges associated with internationalized email support, emphasizing the need for standardization efforts in web form validation.



Results of Re-Testing

Different evaluation studies conducted from 2019 to 2022 and now in 2025 have used varying categories of email IDs for email acceptance testing. A direct comparison seems difficult because the test email IDs as well as websites are different. In certain cases, for comparison purposes, included chinese@chinese.chinese, arabic@arabic.arabic, bengali@bengali.bengali, and country-specific email IDs under the unicode@idn.idn category. It is likely that Chinese, Arabic, Bengali, and country-specific websites impose stricter constraints on email acceptance, primarily supporting specific scripts rather than accommodating all scripts and languages.

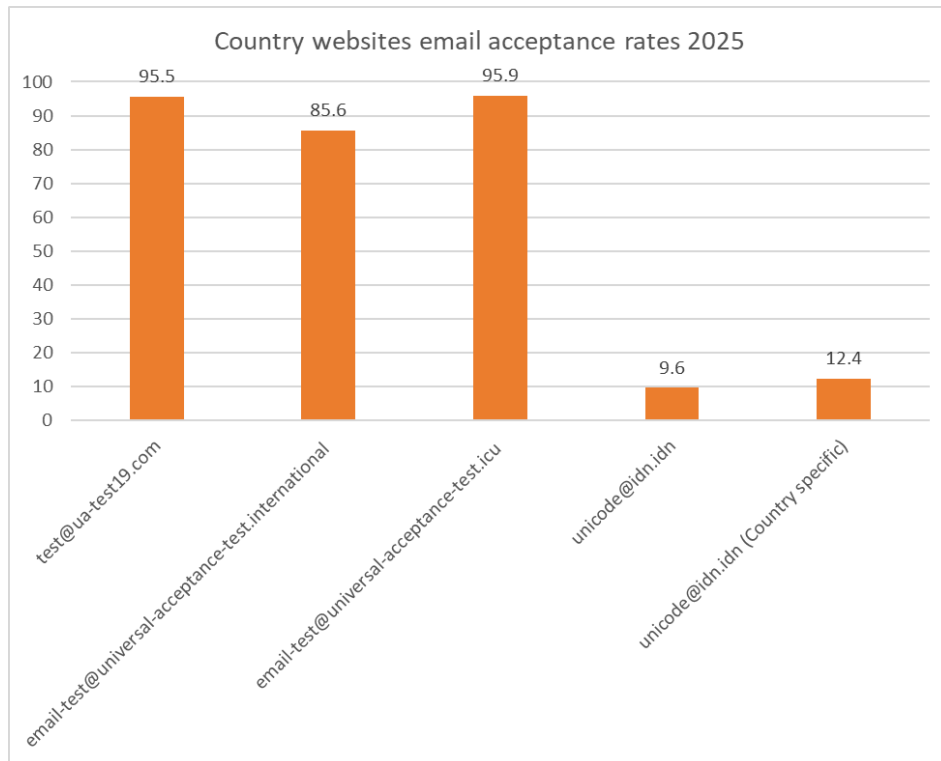
Global Website Email Acceptance Rate – 2025



Email ID	Acceptance rate
test@ua-test19.com	94.3%
email-test@universal-acceptance-test.international	92.7%
email-test@universal-acceptance-test.icu	97.7%
ই-মেইল-পরীক্ষা@সর্বজনীন-স্বীকৃতির-পরীক্ষা.ভারত	12.5 %



Country-Specific Website Email Acceptance Rate – 2025



Email ID	Country
test@ua-test19.com	95.50%
email-test@universal-acceptance-test.international	85.60%
email-test@universal-acceptance-test.icu	95.90%
ই-মেইল-পরীক্ষা@সর্বজনীন-স্বীকৃতির-পরীক্ষা.ভারত	9.60%
Unicode@idn.idn (Country-specific)	12.40%

test@ua-test19.com Fails 100% Acceptance Across Sites:

Ideally, test@ua-test19.com should have a 100% acceptance rate across websites. However, this is not the case. Below are the key findings and examples of error messages encountered when entering this email ID into website forms

1. Many systems flag ua-test19.com as a test/disposable domain (similar to Mailinator or Temp-Mail).
2. Some websites whitelist only popular providers (Gmail, Yahoo, etc.).
3. Domain-specific blocks (e.g., ua-test19.com being labeled as a test domain).
4. Many websites block "test@" usernames.

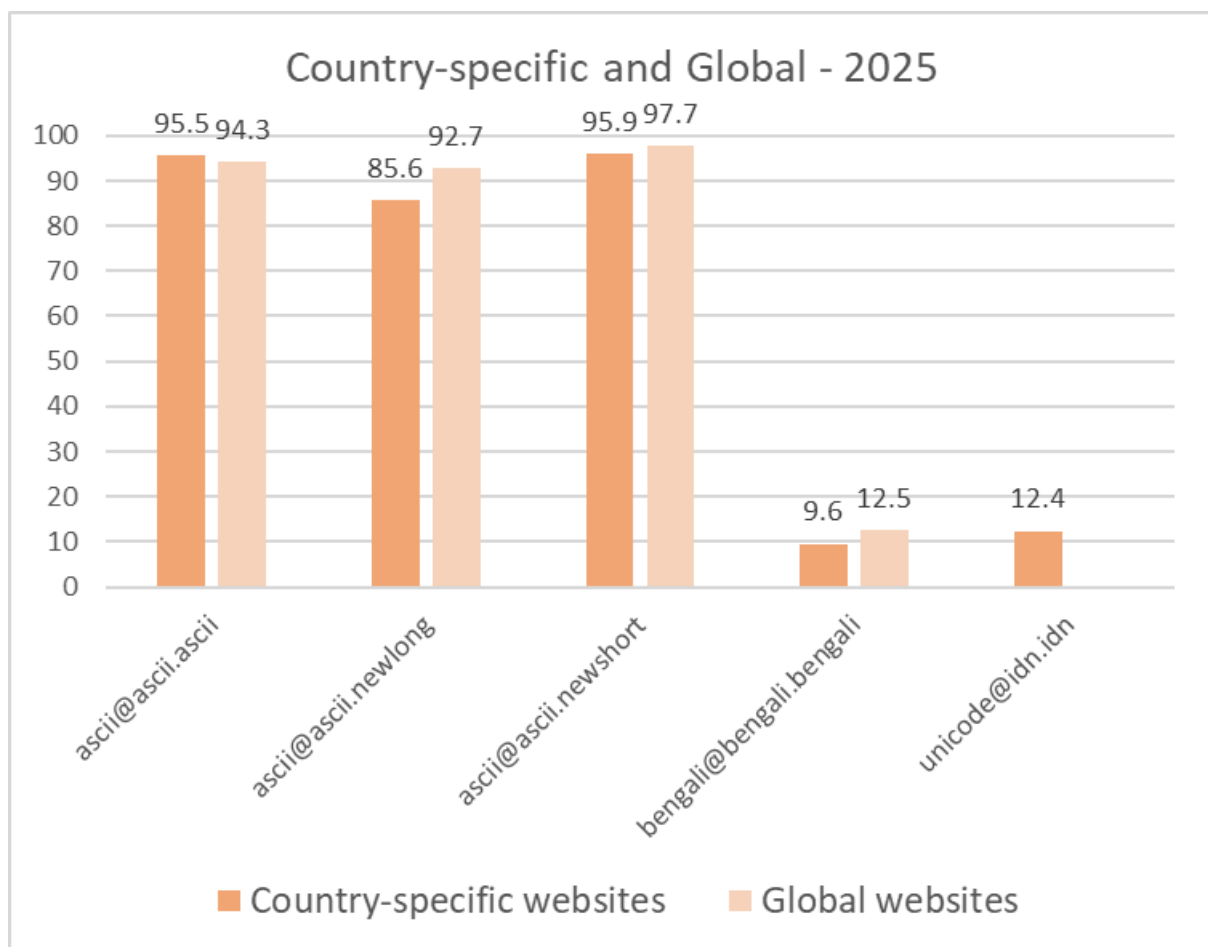
Following are the error messages that were displayed:

- The mailbox name can only contain Latin letters, numbers, underscores"_" hyphens"-", and periods



- Please enter half-width alphanumeric characters
- That email address seems invalid('ua-test19.com' doesn't look like a mail server)
- We do not allow temporary email addresses. Please try again with a different email address
- We do not allow temporary email addresses. Please try another email address
- Hm, that doesn't look like a real domain. Check your spelling then try again
- We can't send emails. Try with your email address
- Our policy does not allow shared email addresses

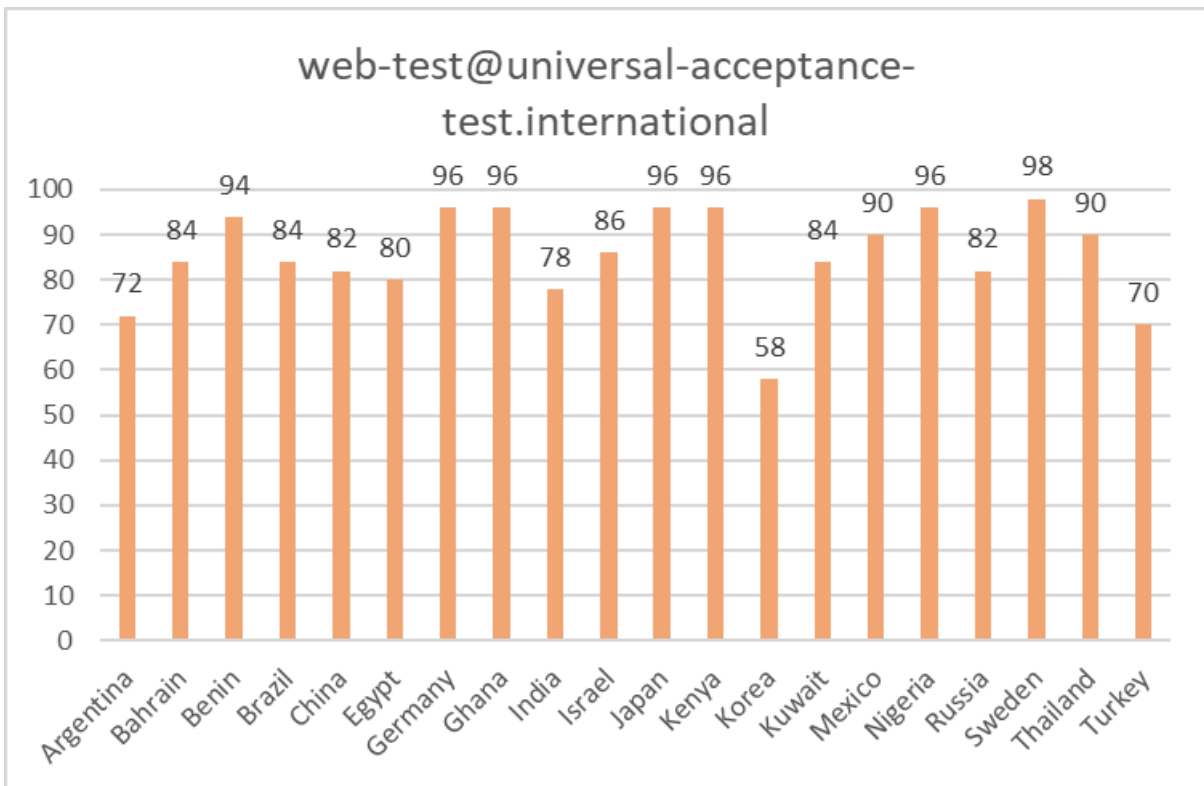
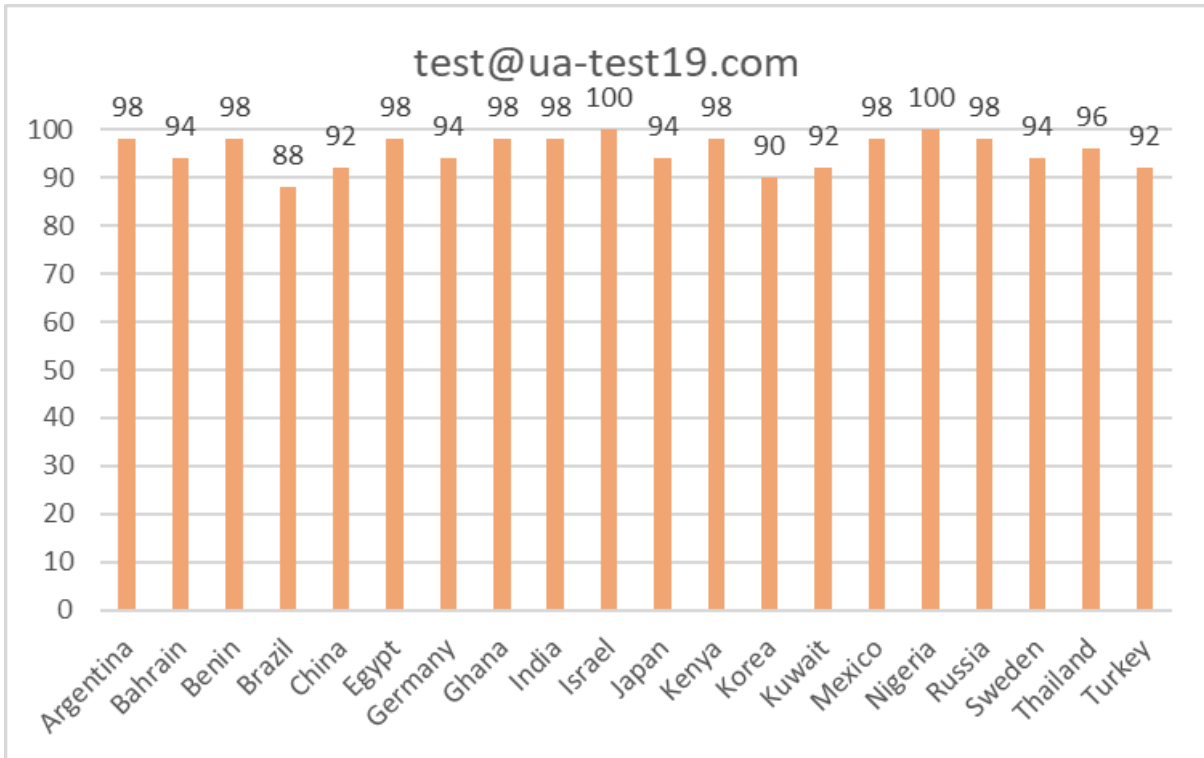
Global and Country Website Acceptance Rates – 2020 and 2025

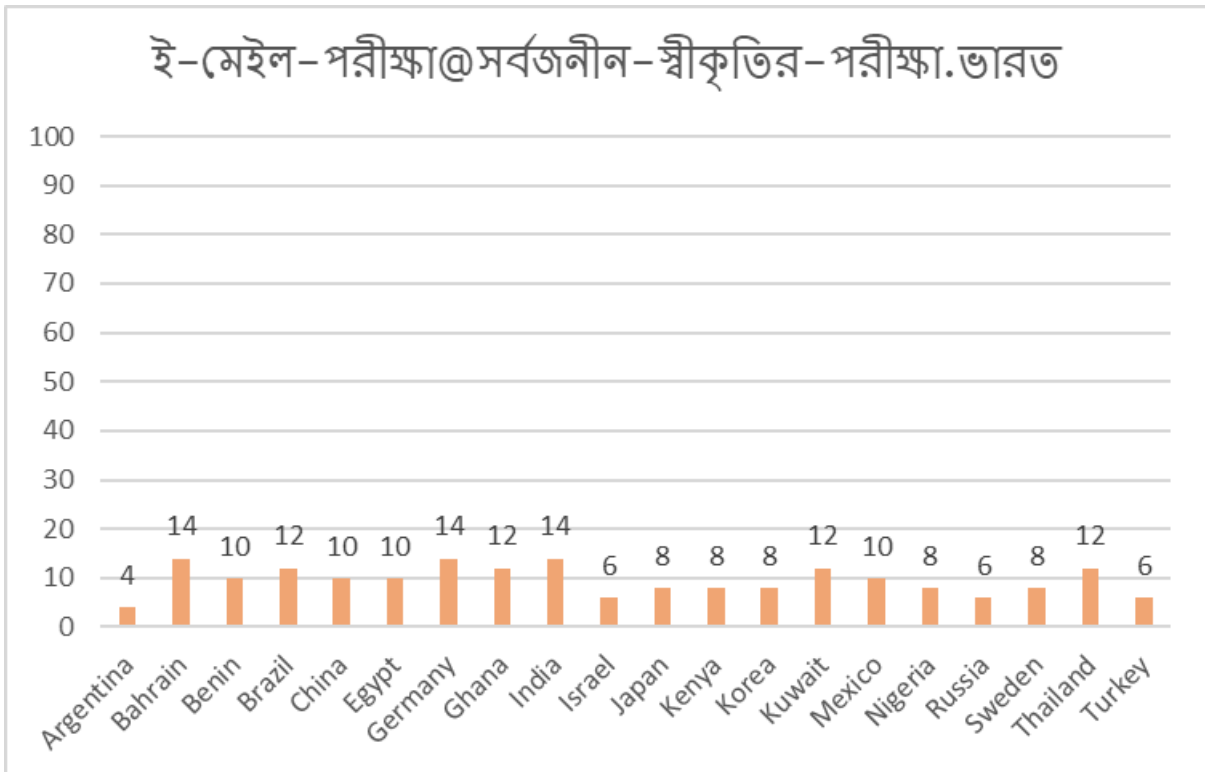
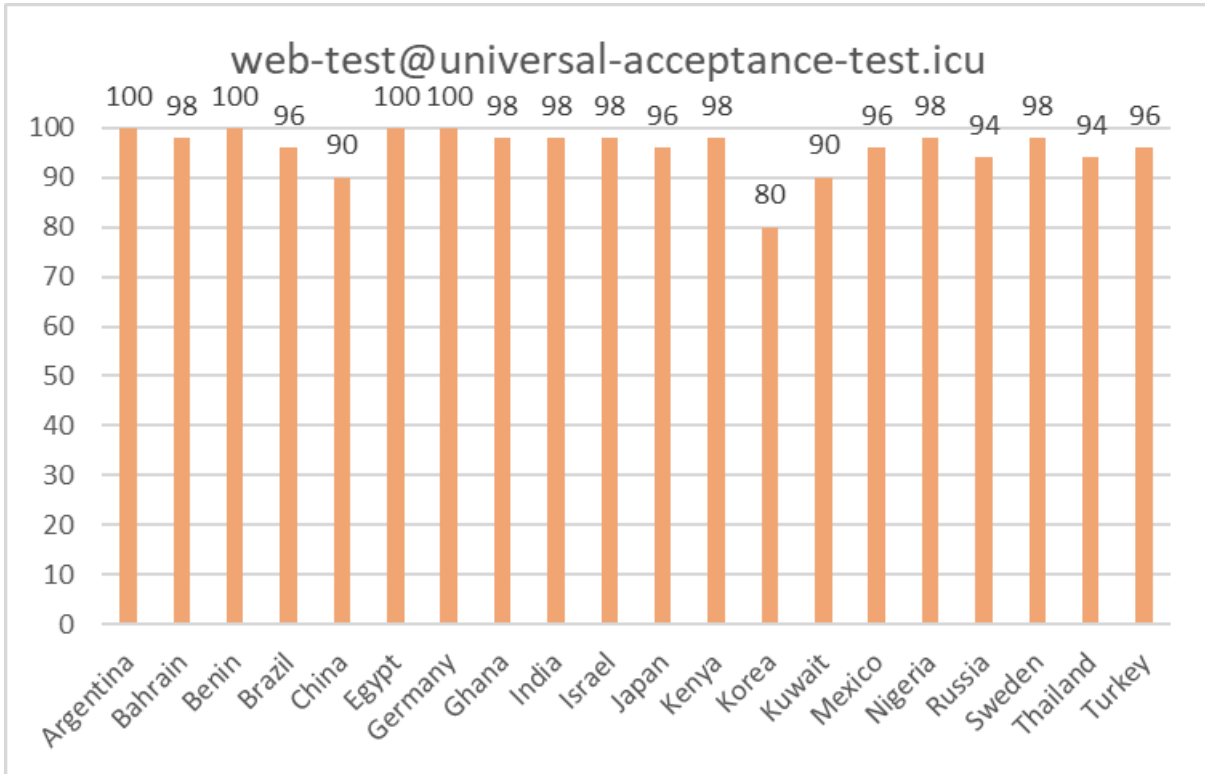


- Acceptance of traditional ASCII emails remains high but has declined slightly since 2020.
- Very little change in ascii@ascii.newlong and unicode@idn.idn, indicating stagnation in support.
- Unicode email IDs are still largely unsupported, showing virtually no progress over five years.



Country-wise Email Acceptance Rate for Different Categories of Email – 2025

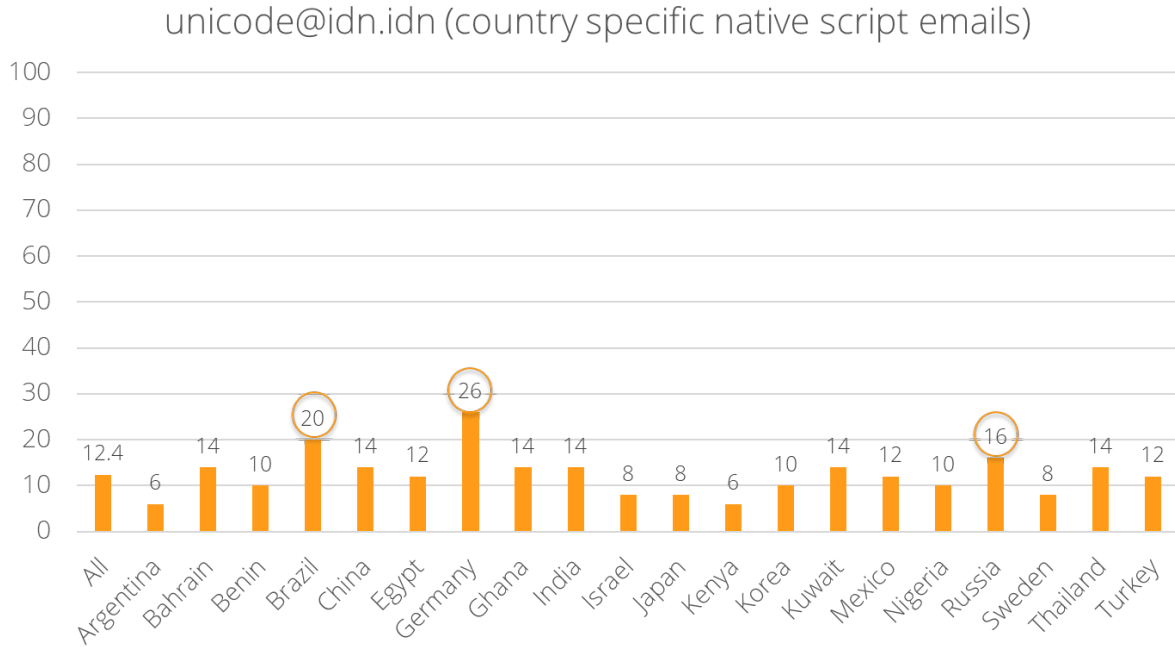




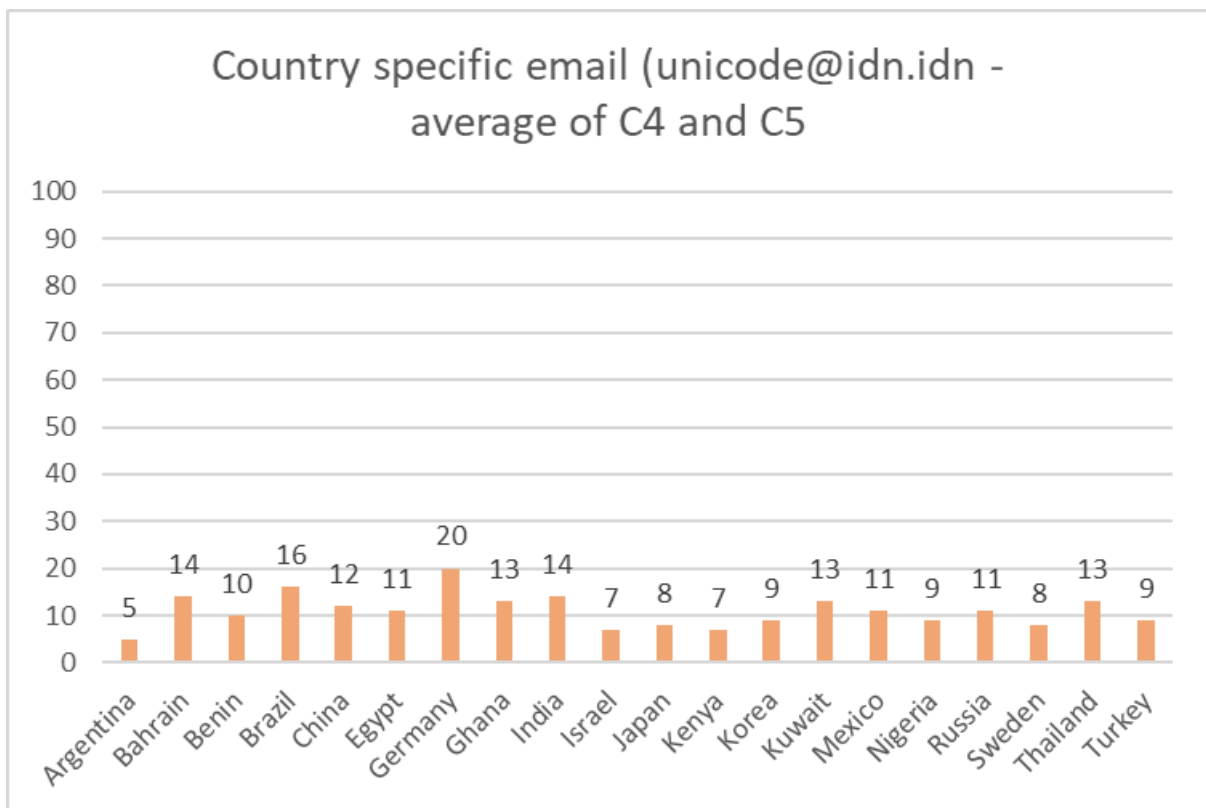
Bahrain, Germany, and India show relatively higher acceptance rates, while Brazil, Ghana, Kuwait, and Thailand follow with slightly lower rates.



Acceptance Rates of Each Country's Native Script Email IDs (Category 5, e.g., unicode@idn.idn) Within Country-Specific Websites for 2025



Germany and Brazil ranked highest in their respective native script email IDs, followed by Russia.

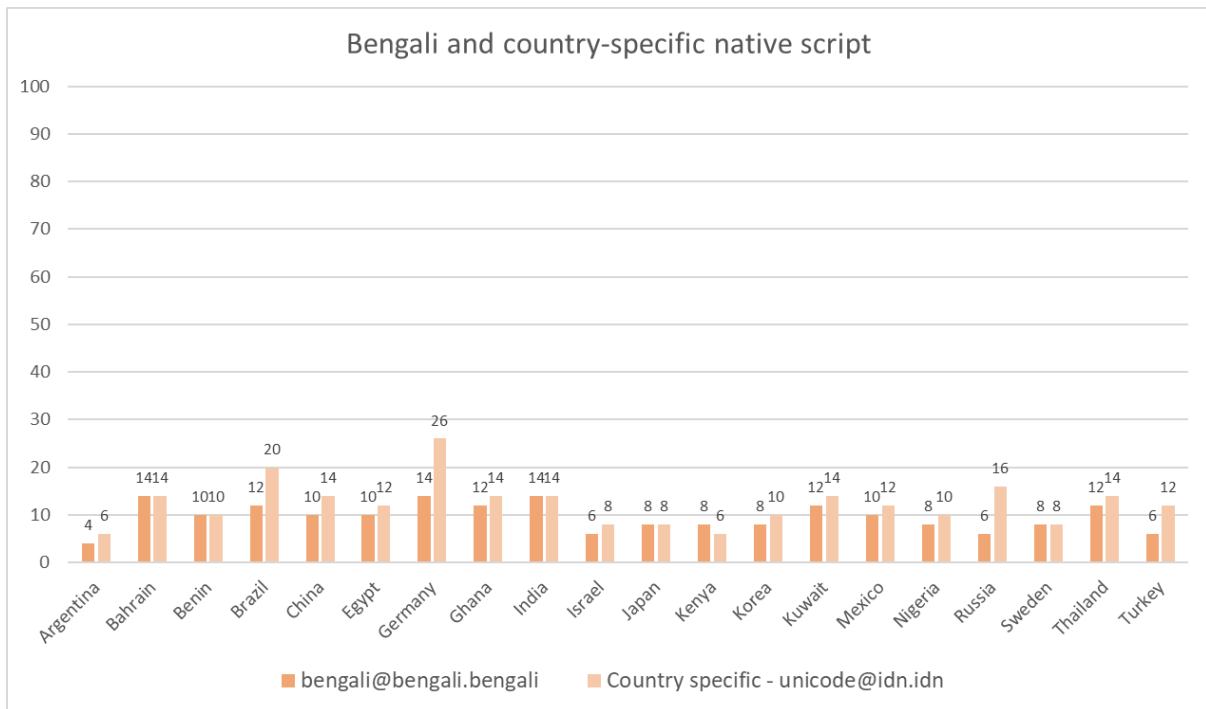




Average acceptance rates for Bengali@Bengali.Bengali and country-specific native script email addresses.

Germany and Brazil ranked highest in their respective native script email IDs, followed by Russia.

Comparative Figures of Bengali Script and Country-Specific Native Script Email IDs

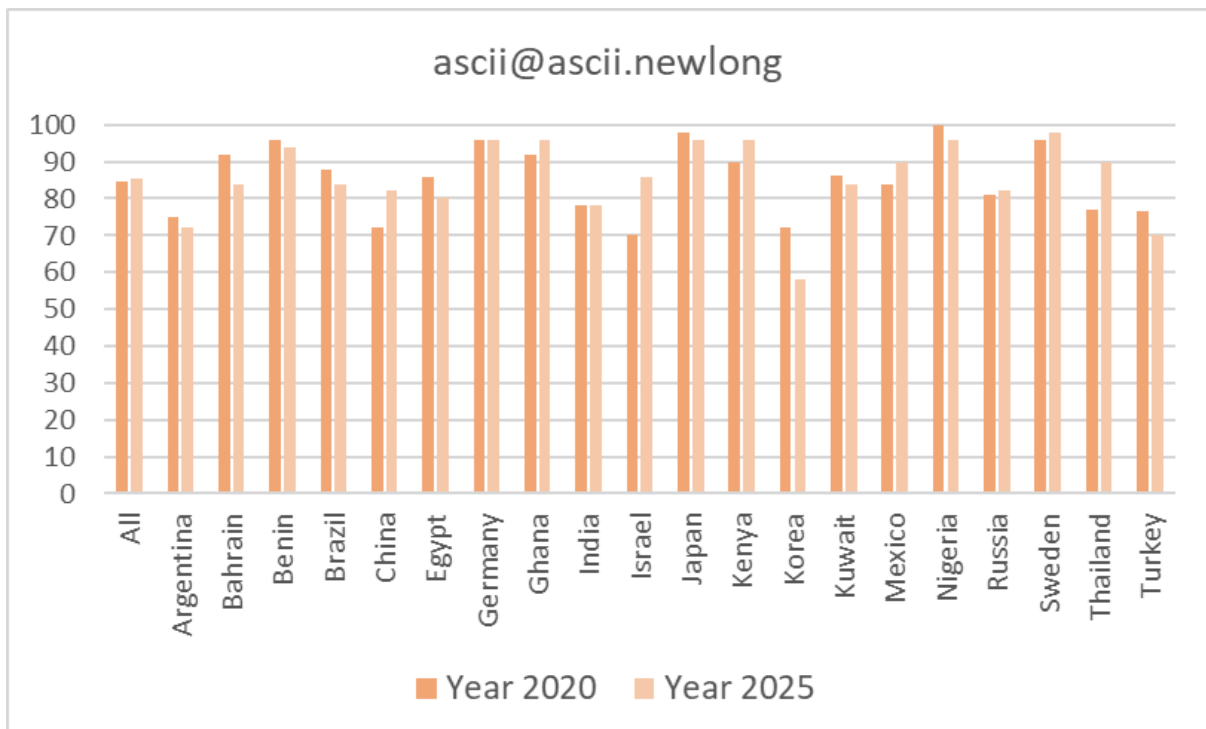
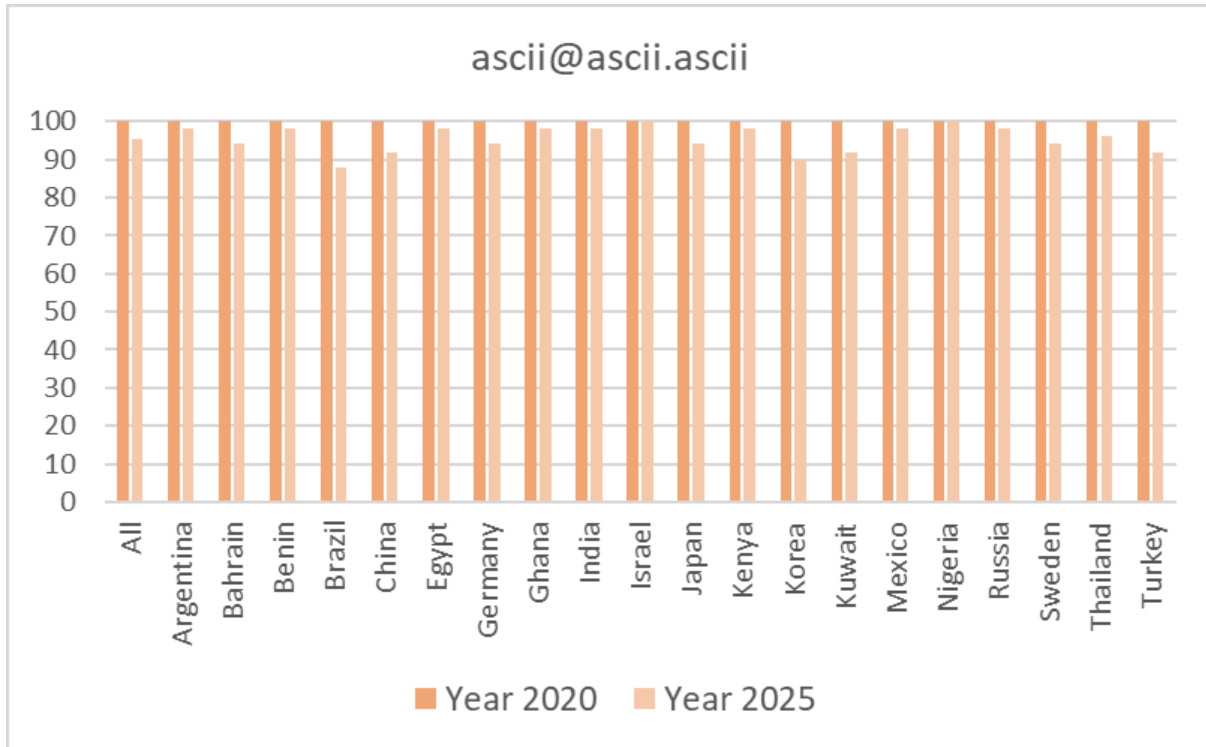


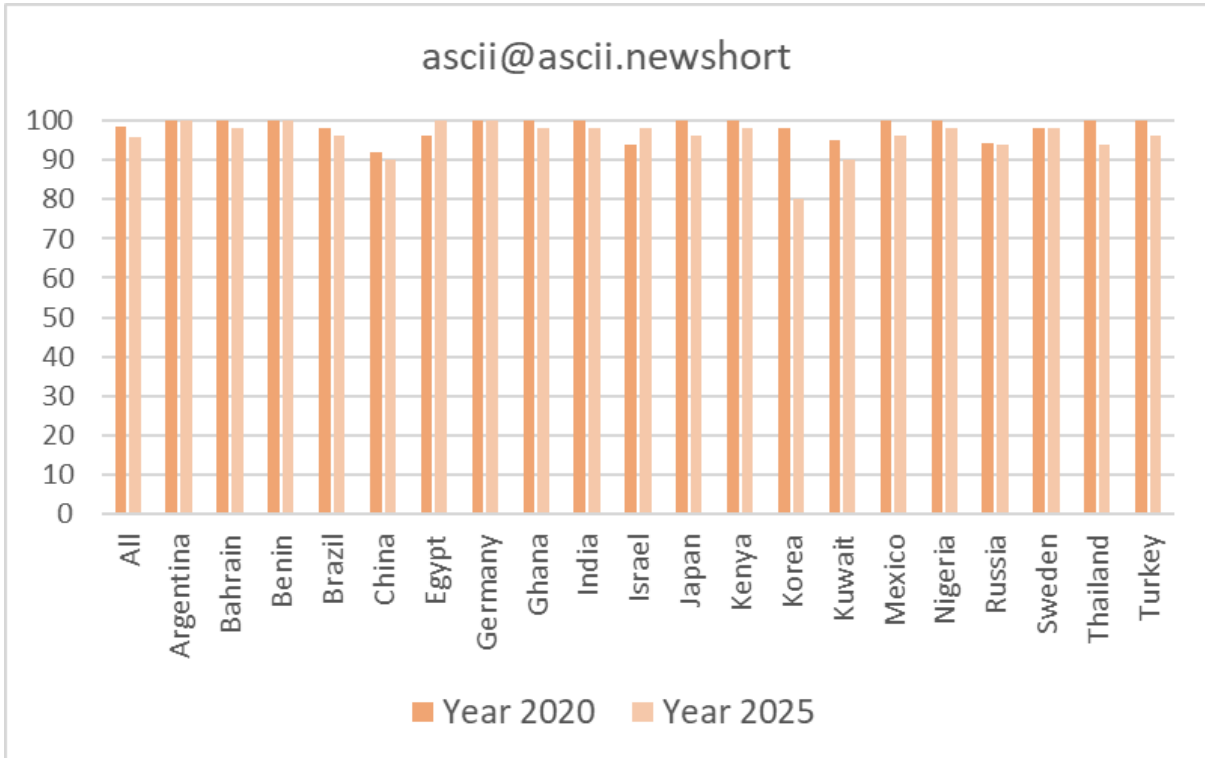
Shows acceptance rates of script-specific email IDs—specifically `bengali@bengali.bengali` (Category 4)—against each country's native script email IDs (Category 5, e.g., `unicode@idn.idn`) within country-specific websites for 2025. The goal is to assess how well these websites support a particular script (Bengali) compared to their general support for native script-based email IDs.

Germany, Brazil lead in native script email acceptance; however, it also performed satisfactorily with email IDs in non-native scripts (in this case, Bengali). A similar trend was observed in China, Russia and Turkey.

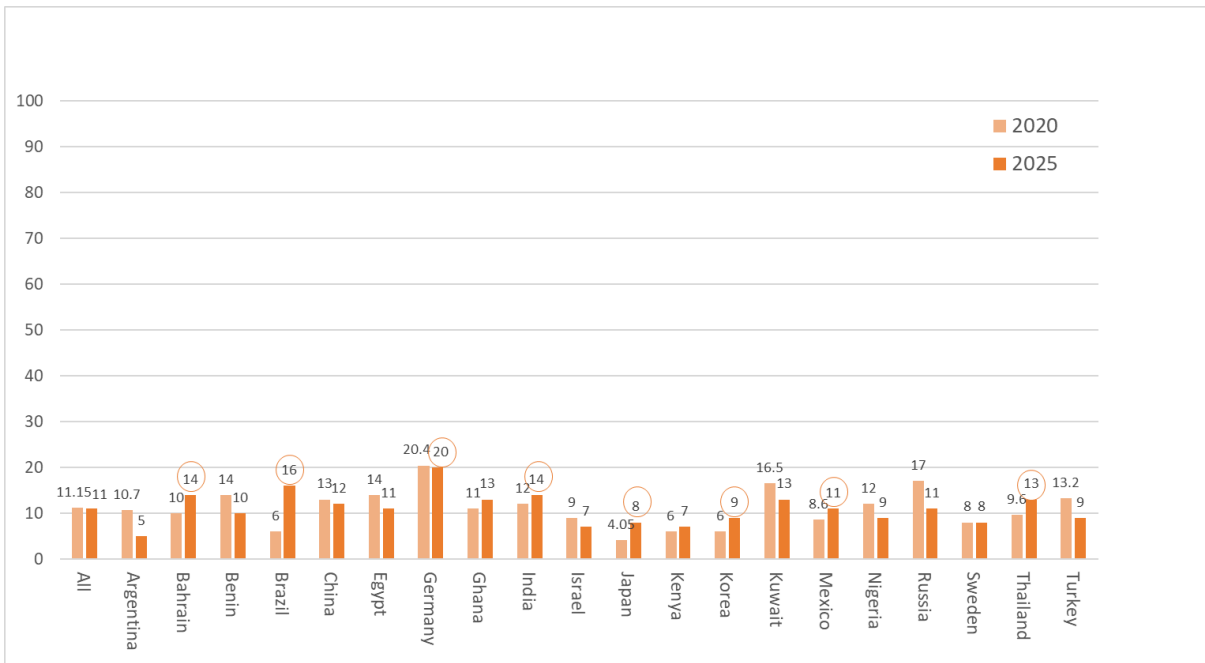


Country-Specific Acceptance Rate Trends (2020-2025)





Comparison of Average unicode@idn.idn Acceptance Rates for 2020 and 2025



Comparison of average acceptance rates: Chinese@Chinese.Chinese and Arabic@Arabic.Arabic in 2020 vs. Bengali@Bengali.Bengali and native script email IDs (unicode@idn.idn) in 2025.

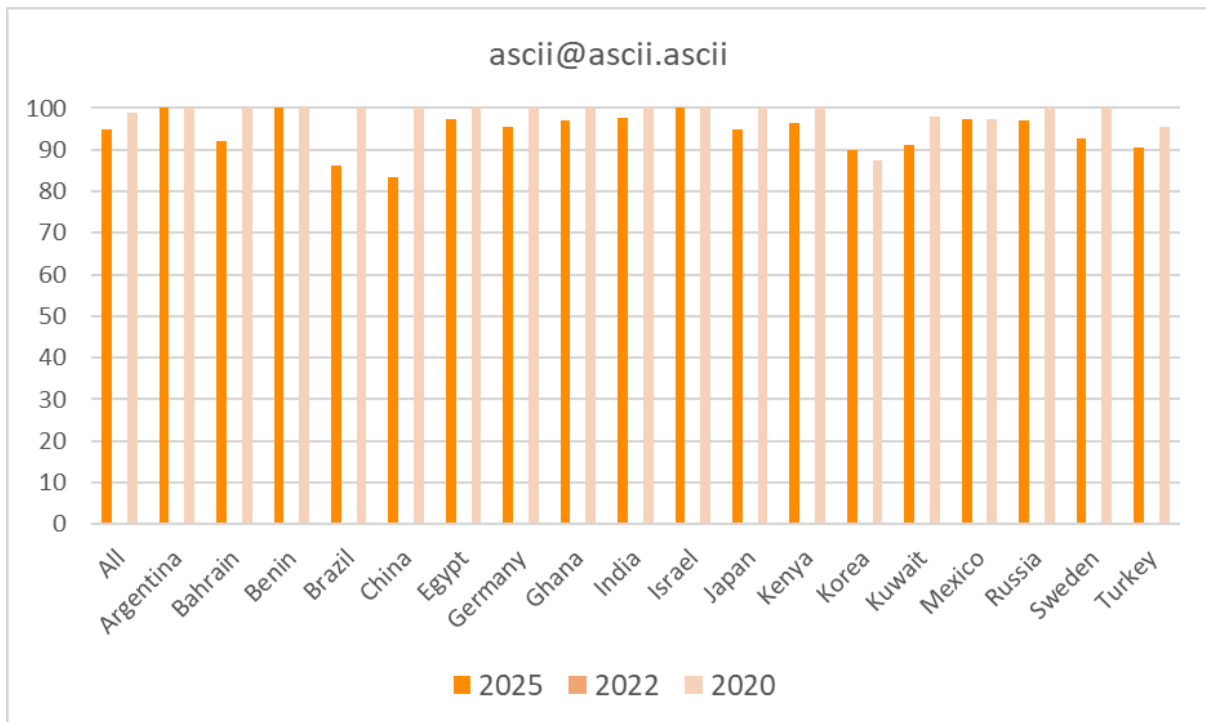


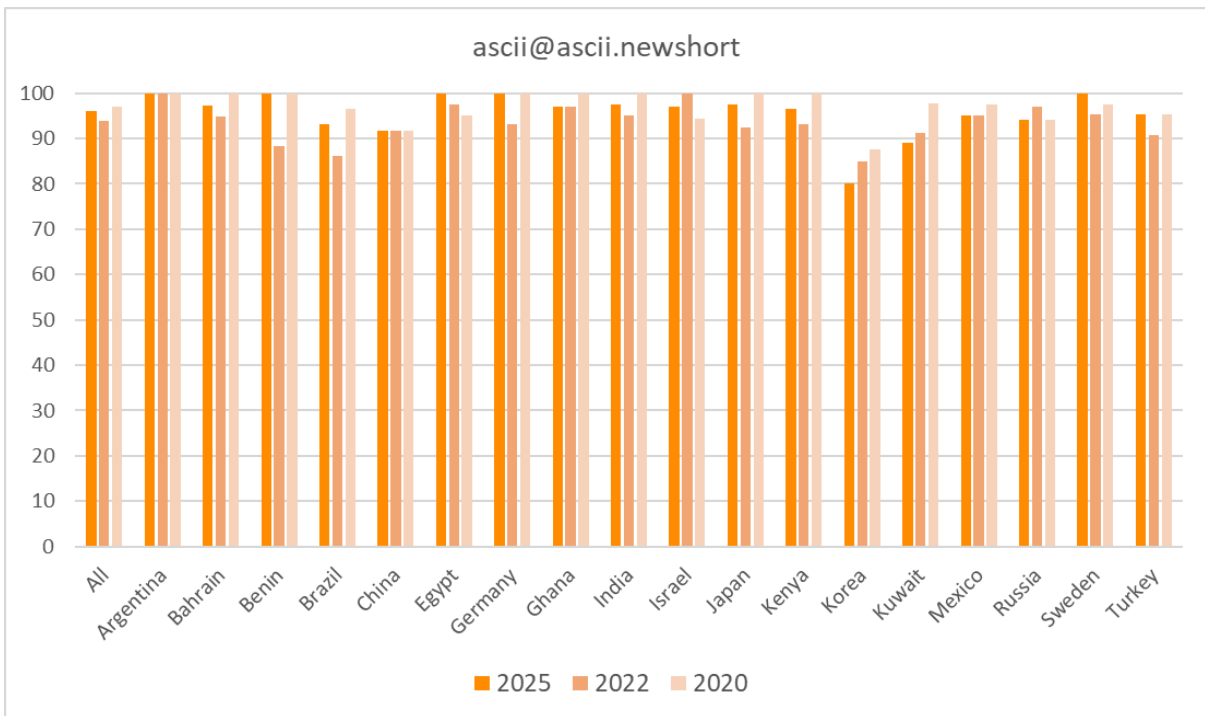
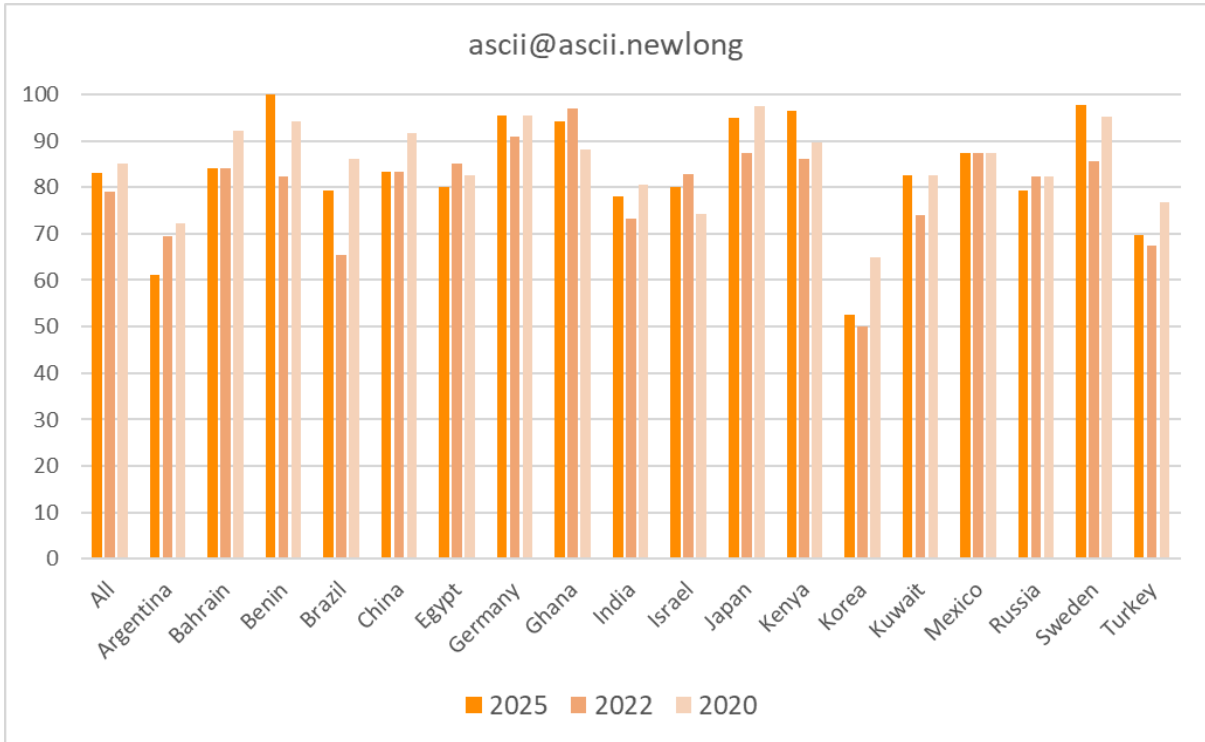
Examining the unicode@idn.idn acceptance rates between 2020 and 2025, some countries experienced growth, while others remained relatively unchanged:

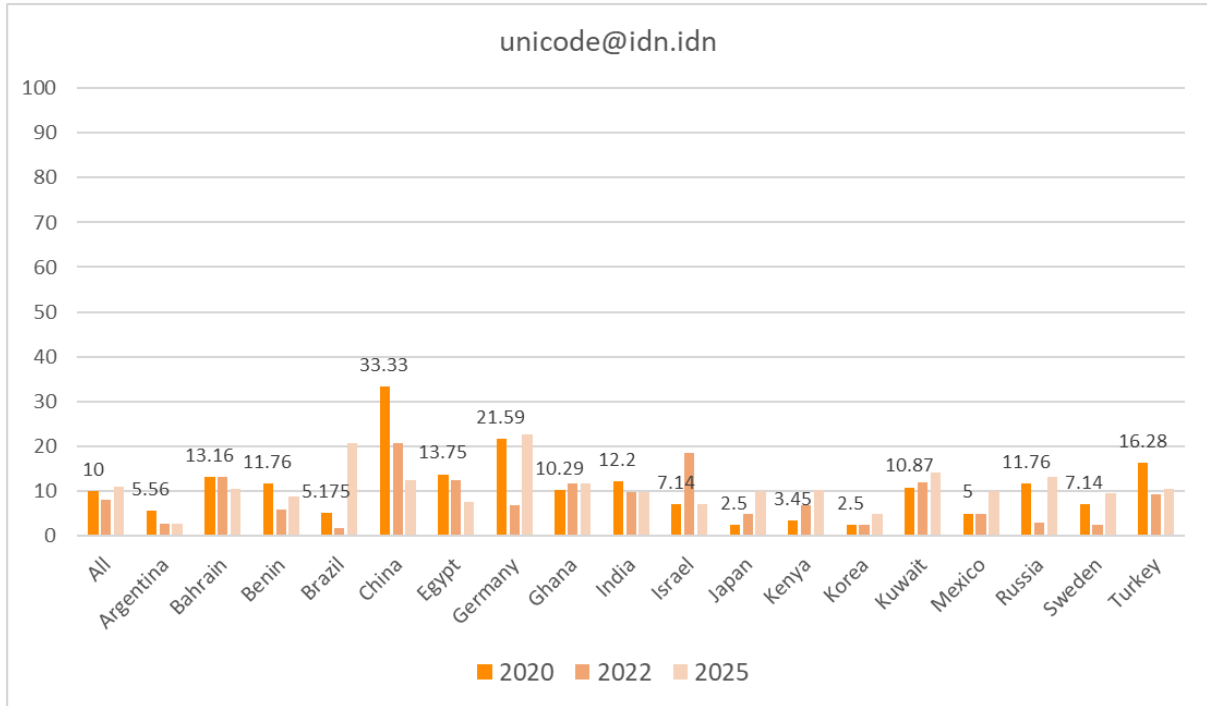
- Sweden showed no significant change
- Bahrain saw an increase from 10% to 14%
- Brazil witnessed a notable rise from 6% to 16%
- Germany remained stable, shifting slightly from 20.4% to 20%
- Ghana improved from 11% to 13%
- India showed a minor increase from 12% to 14%
- Japan doubled its acceptance rate, rising from 4% to 8%
- Mexico recorded moderate growth, climbing from 8.6% to 11%
- Thailand also saw an increase, with rates moving from 9.6% to 13%

Overall, while some countries experienced substantial improvements, others remained steady in their acceptance rates.

Email Acceptance (Country-Specific) – 2020, 2022, and 2025



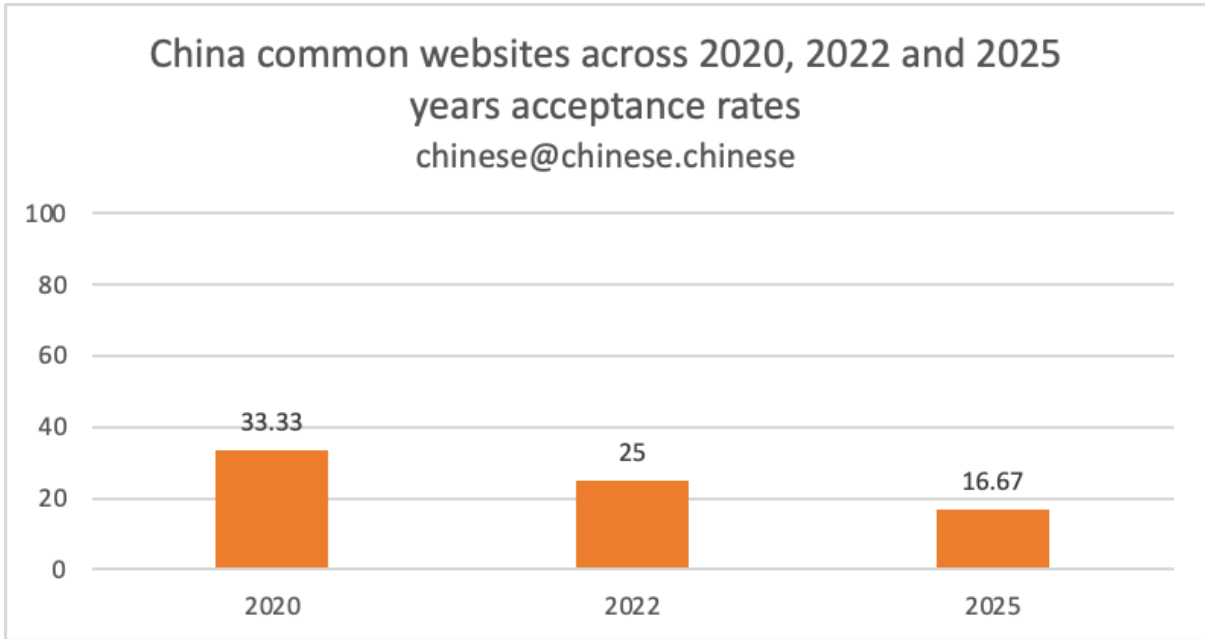




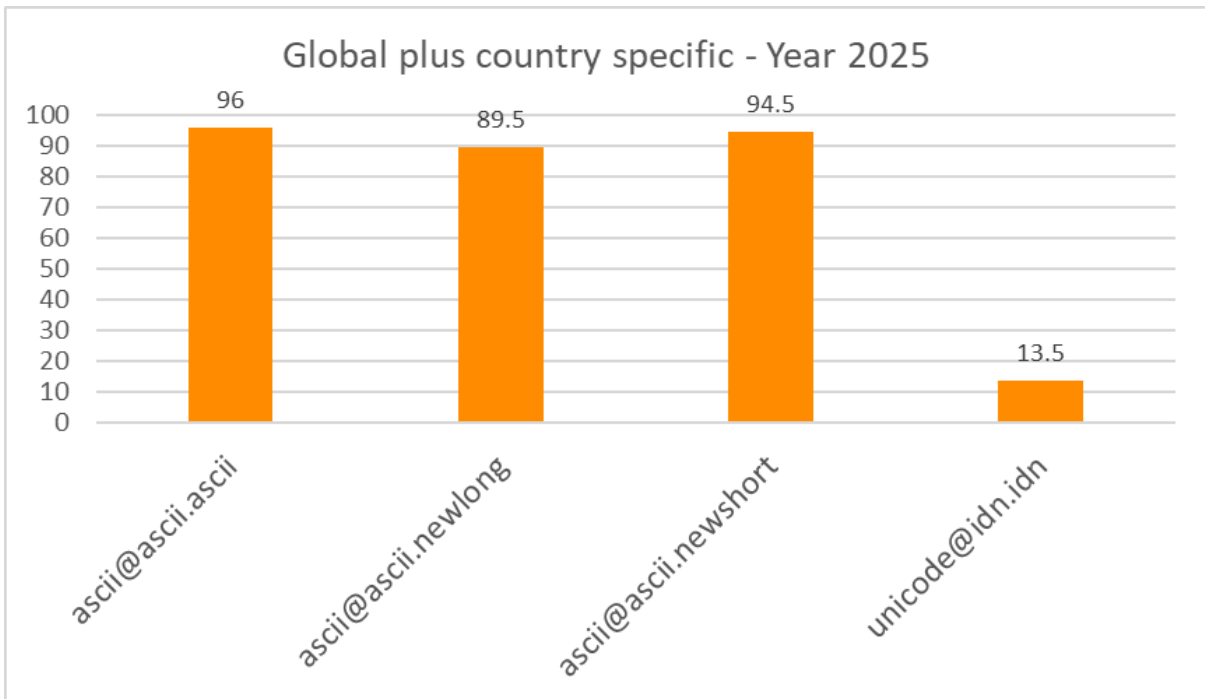
The chart above illustrates the email acceptance rates for “common” country-specific websites appearing in the years 2020, 2022, and 2025. For comparison, the unicode@idn.idn is the average of various script and country-specific email addresses of the category unicode@idn.idn.

For example, a total of 640 country specific websites were found to be common across the years 2020, 2022 and 2025. Out of 640, there were 12 Chinese websites common across the years 2020, 2022 and 2025. Out of 12 Chinese websites in the year 2020, 4 websites accepted unicode@idn.idn email category. Hence, China’s acceptance rate for the year 2020 is 33.33%.

China	Chinese@chinese.chinese	Unicode@idn.idn	Average
Year 2020	33.33%	33.33% (Arabic@arabic.arabic)	33.33%
Year 2022	25.00%	16.67% (Arabic@arabic.arabic)	20.84%
Year 2025	16.67%	8.33% (Bengali@bengali.bengali)	12.50%

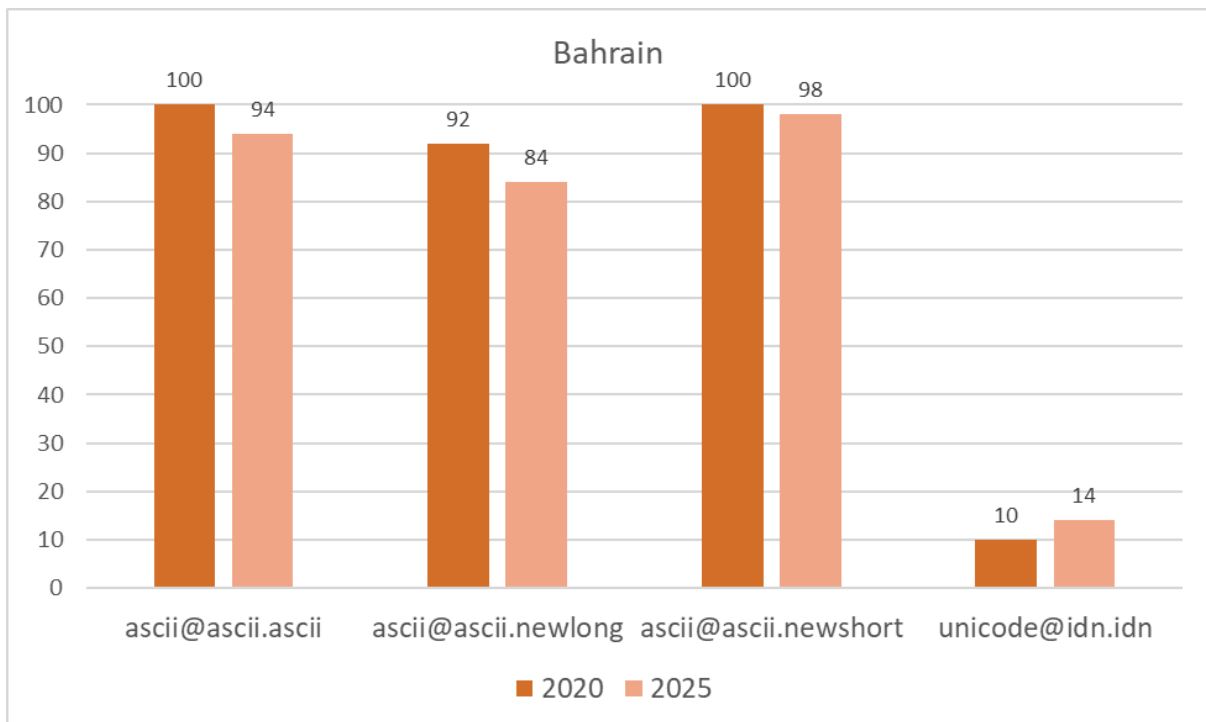
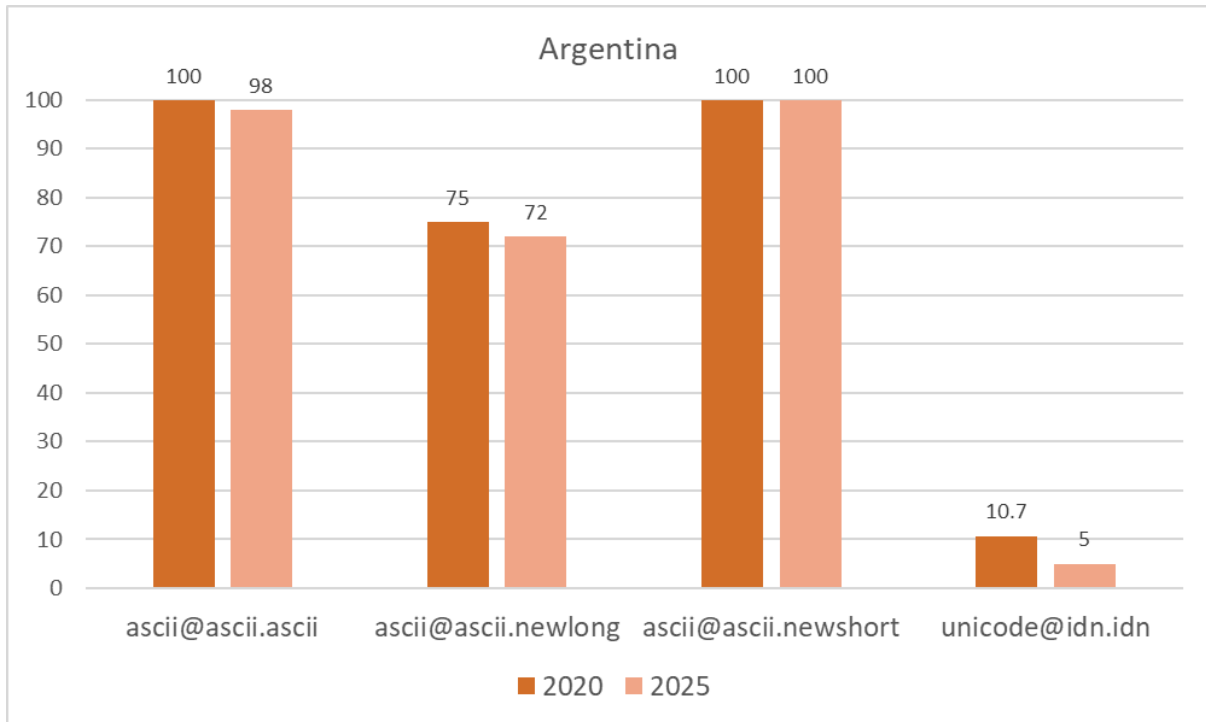


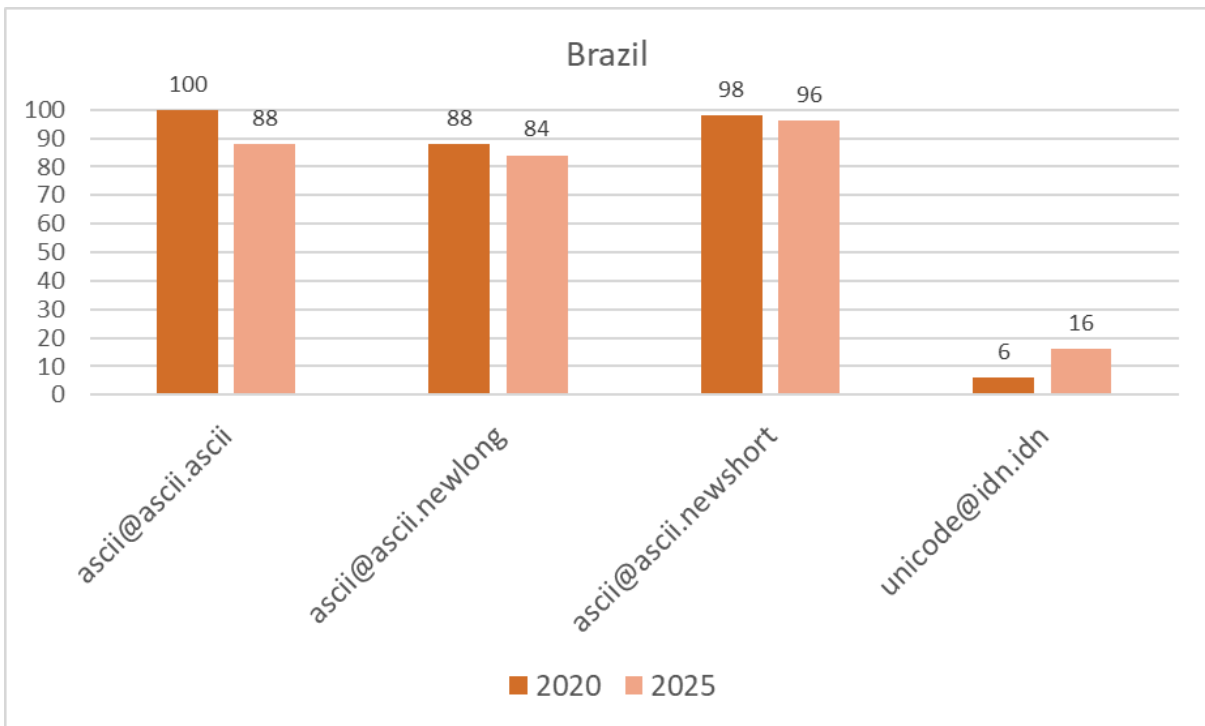
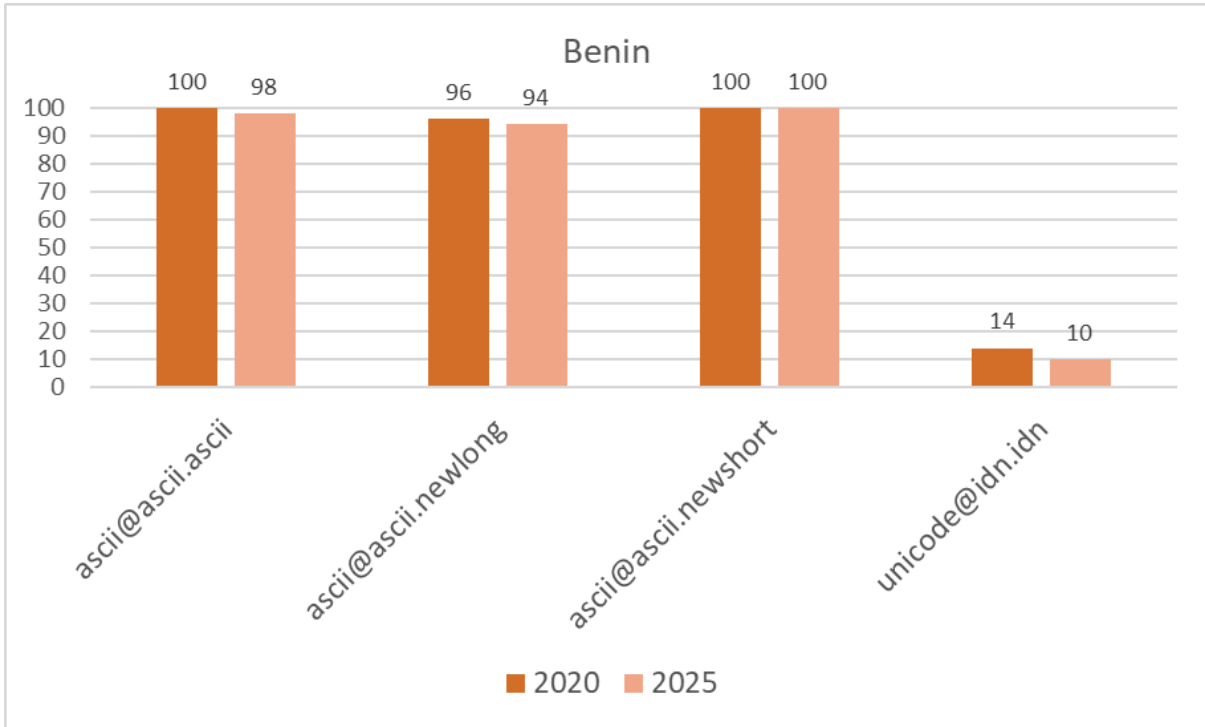
Email Acceptance (Global Plus Country-Specific) – 2025

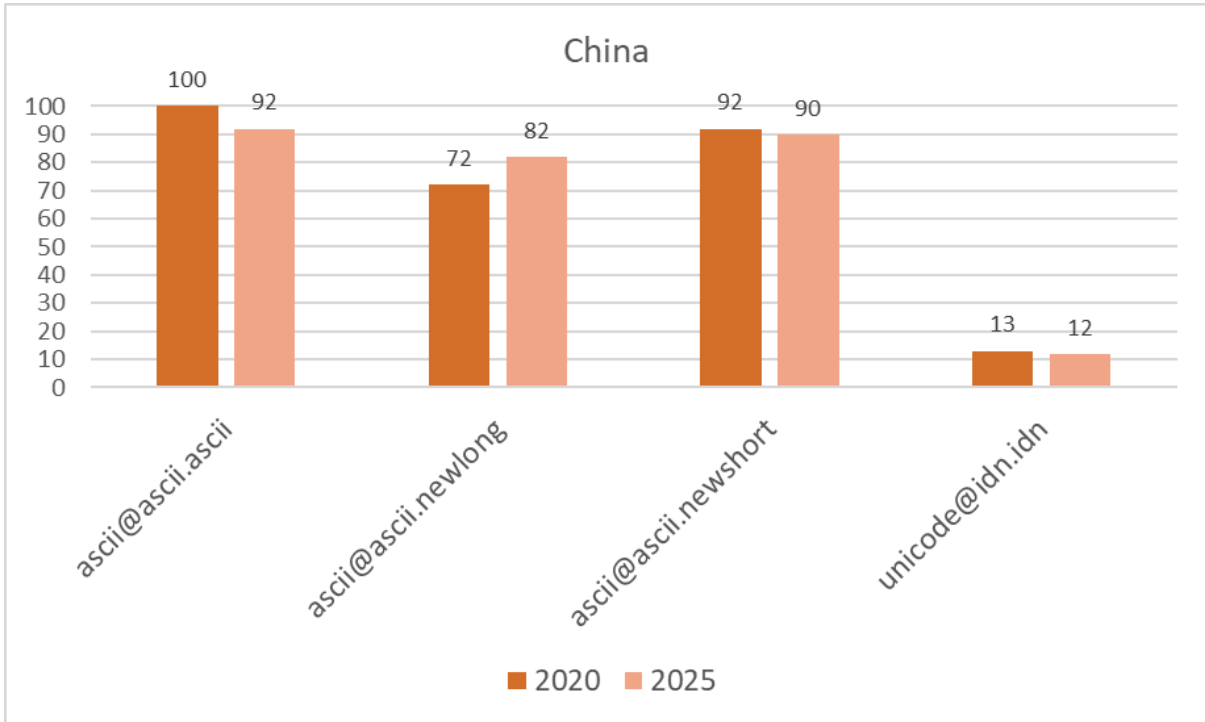




Country-Specific Email Acceptance Rates – 2020 and 2025

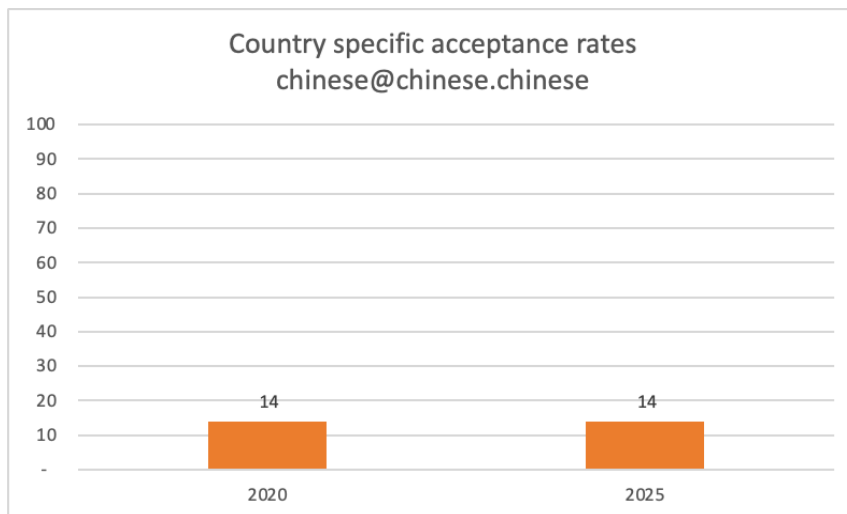


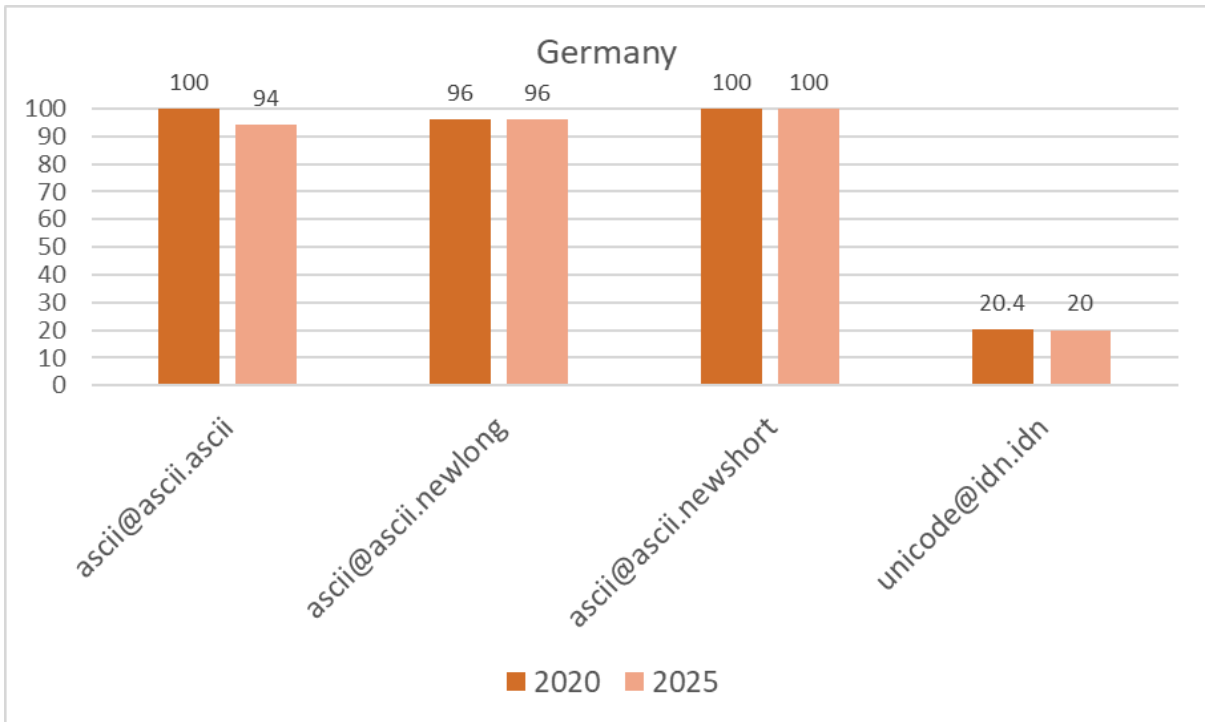
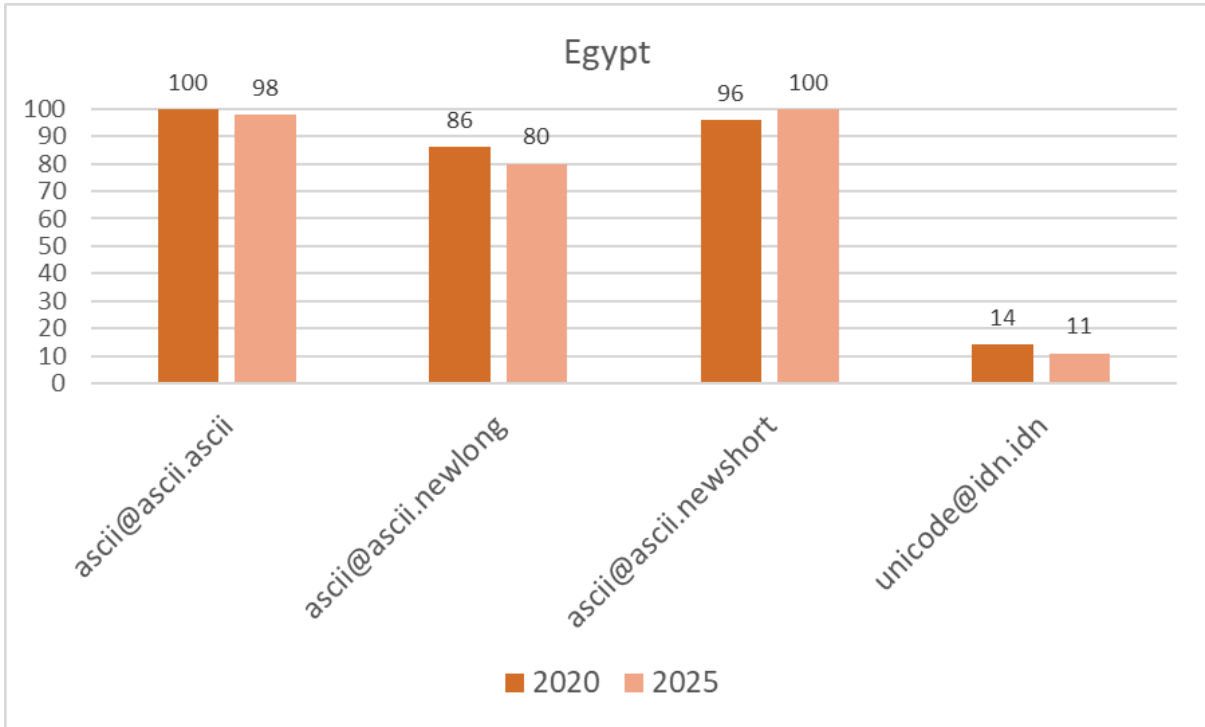


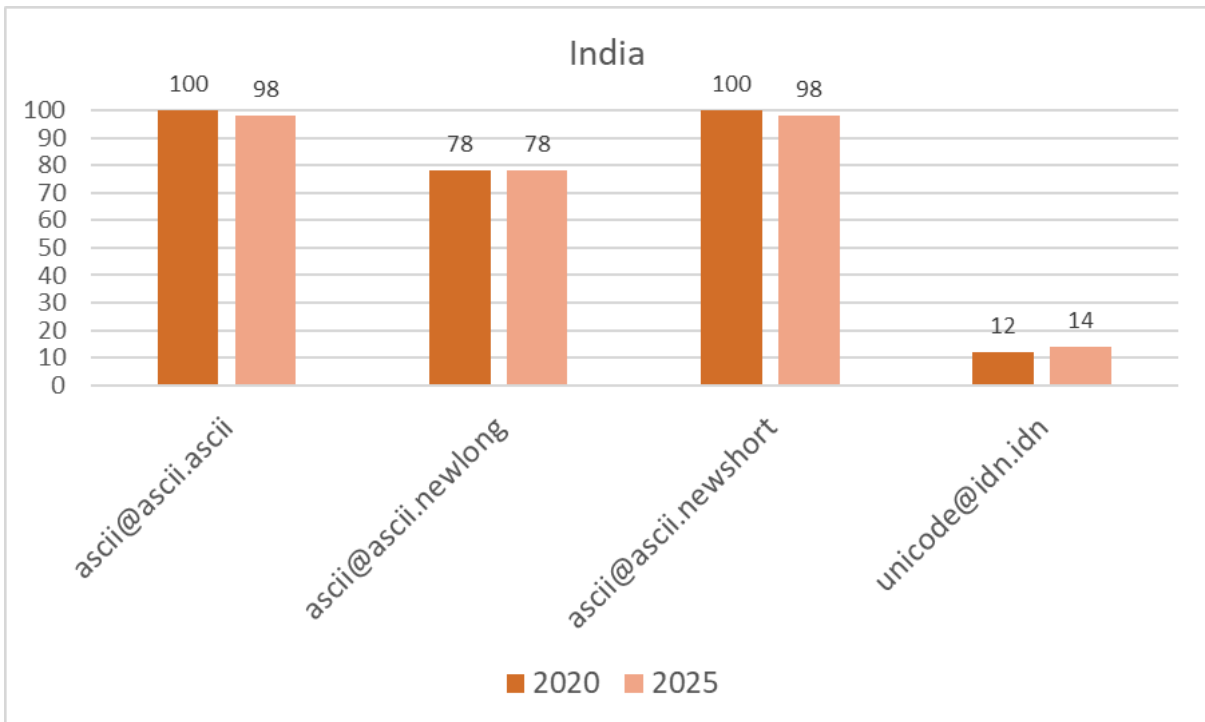
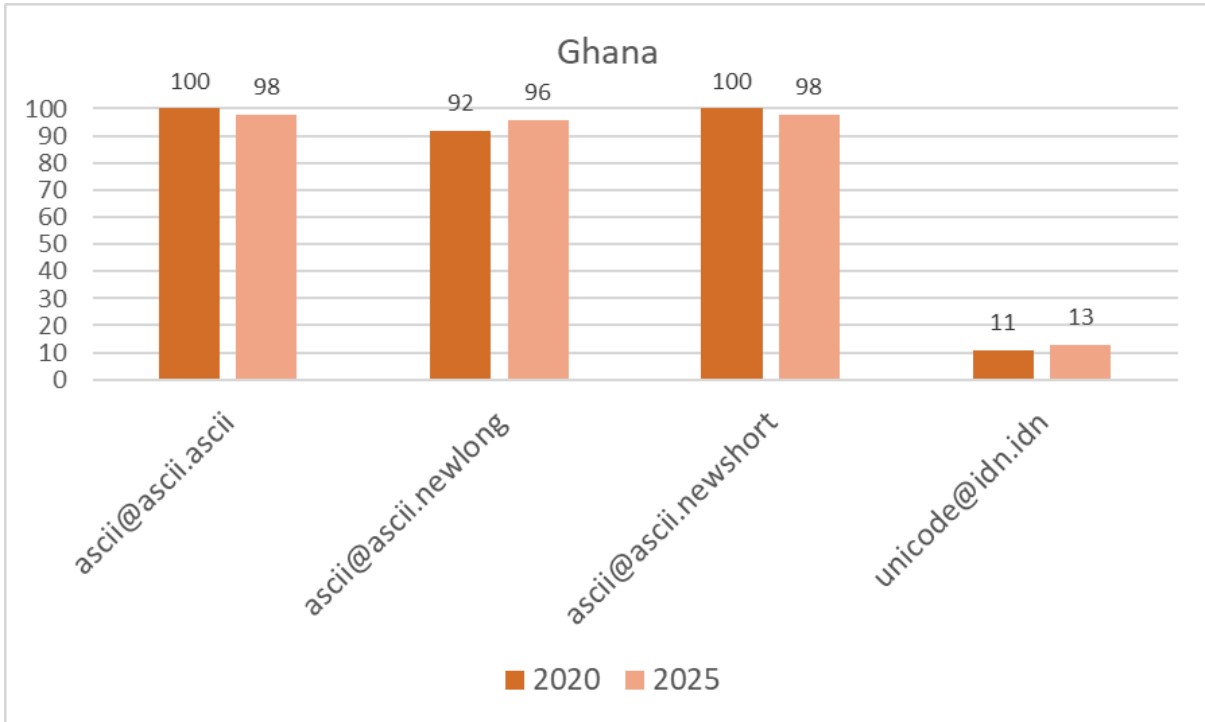


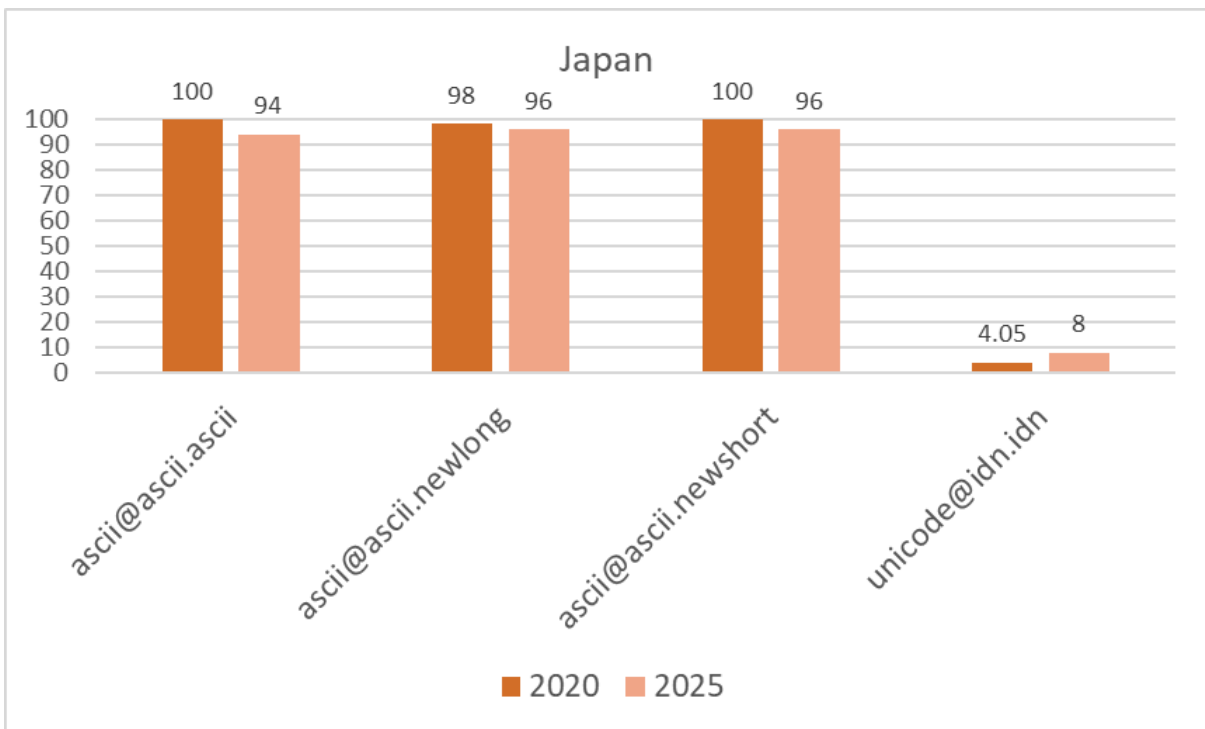
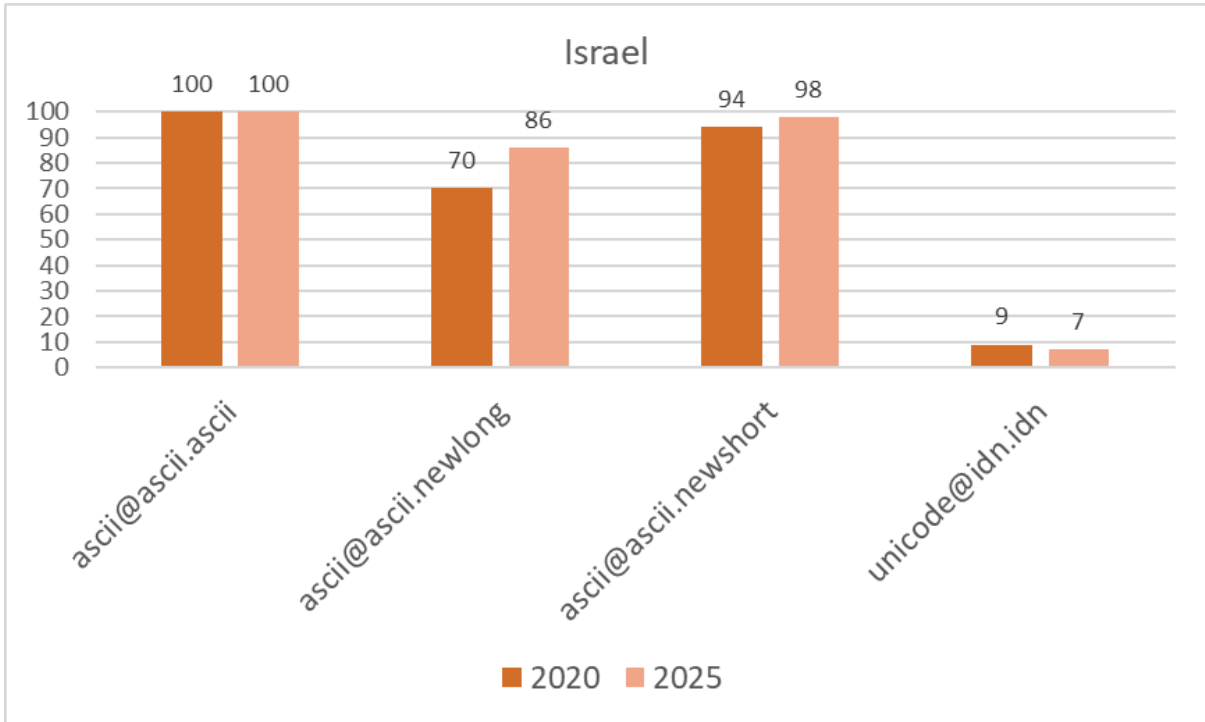
unicode@idn.idn category in the above chart shows the average of chinese@chinese.chinese and bengali@bengali.bengali acceptance rates in 2025, and it shows the average of arabic@arabic.arabic and chinese@chinese.chinese acceptance rates in 2020.

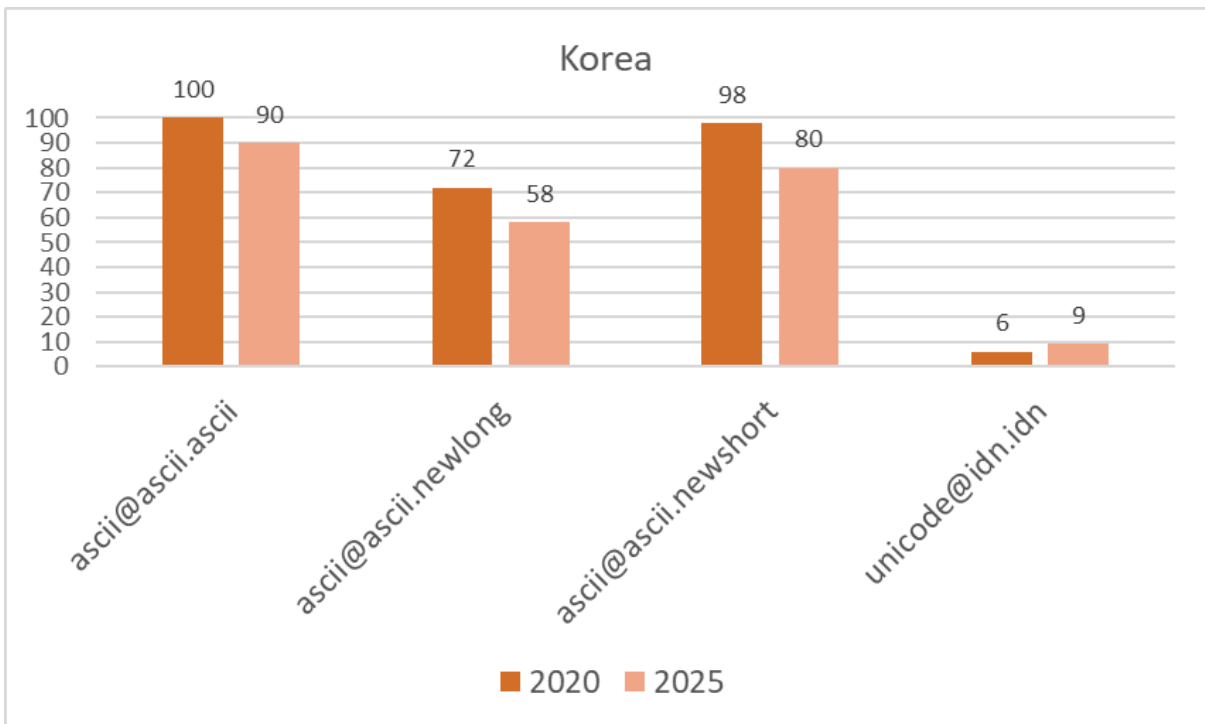
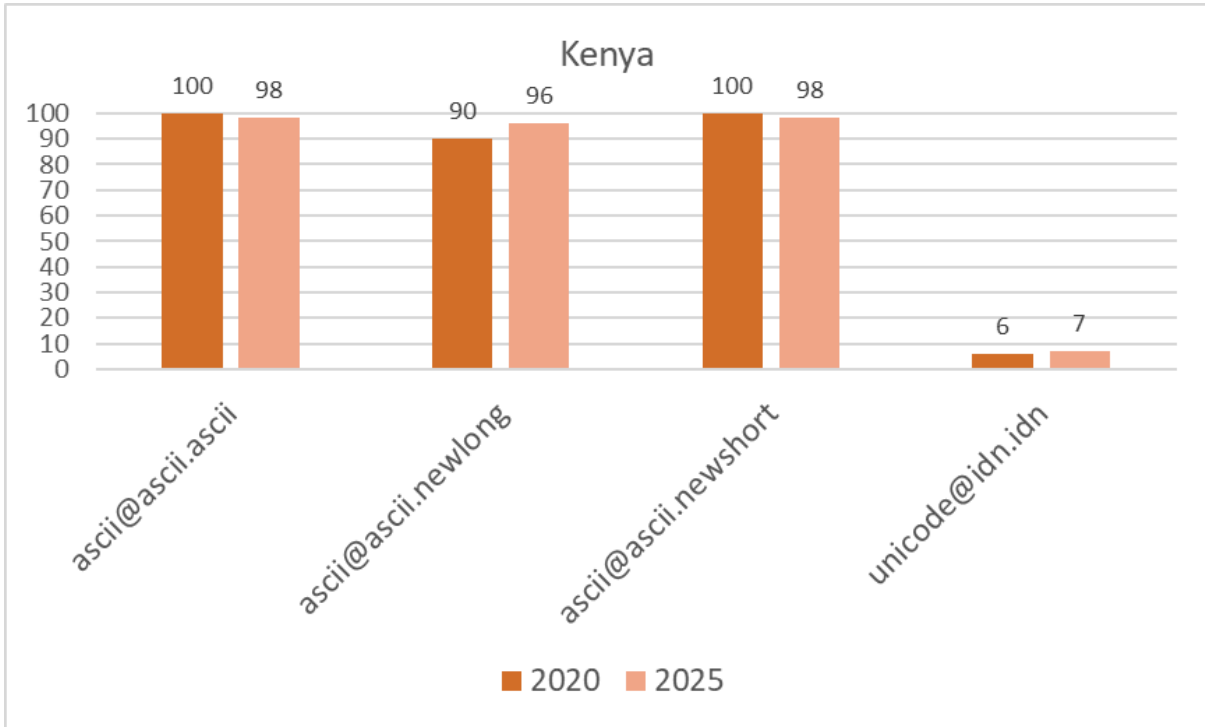
Year	2020	2025
chinese@chinese.chinese acceptance rate%	14	14
Number of Chinese websites	50	50

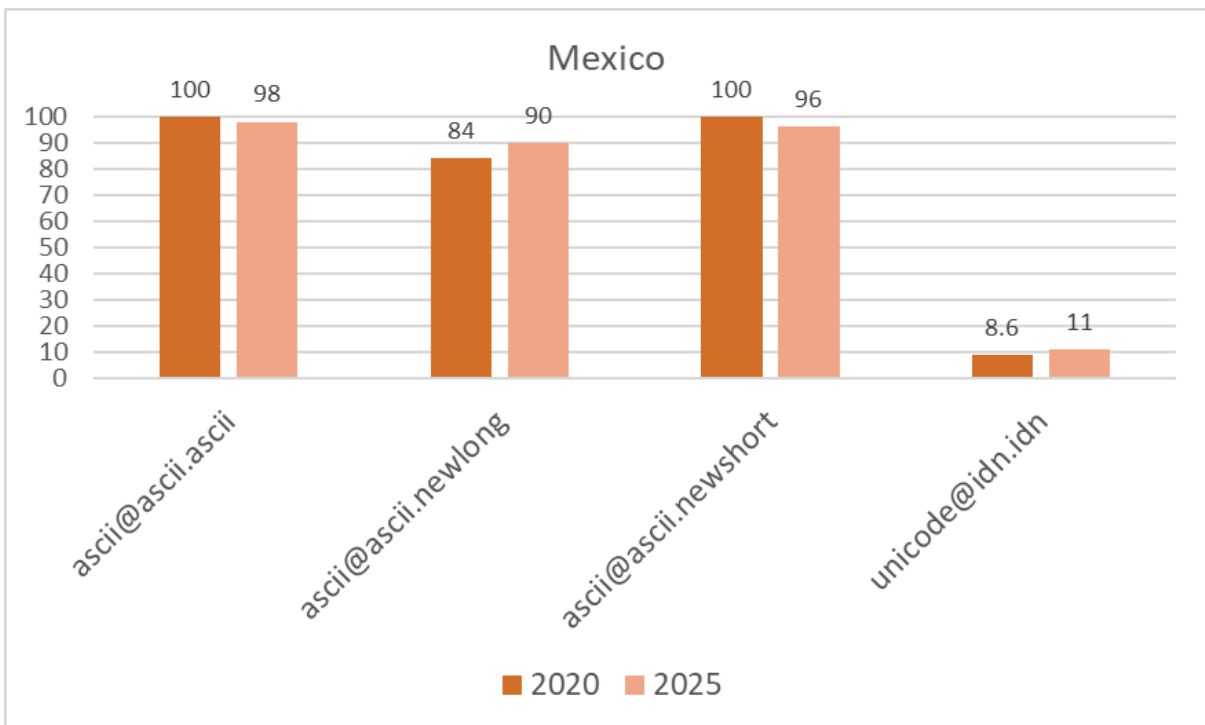


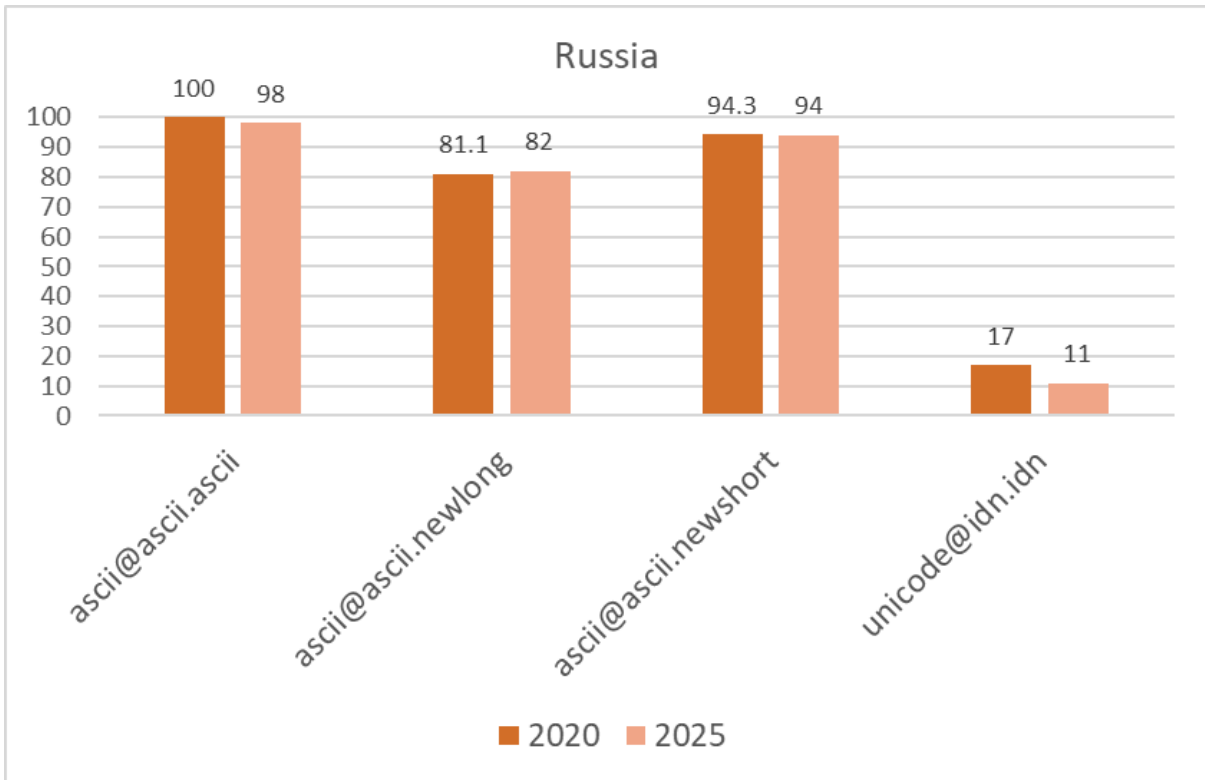
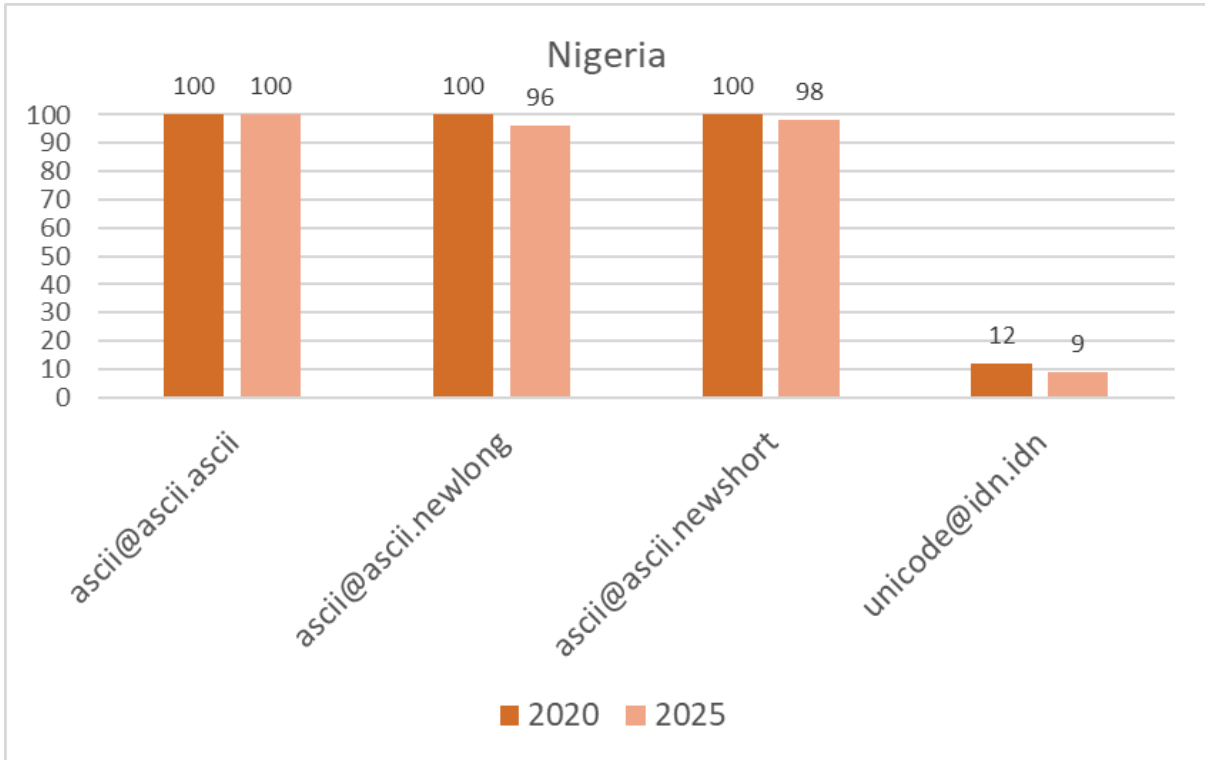


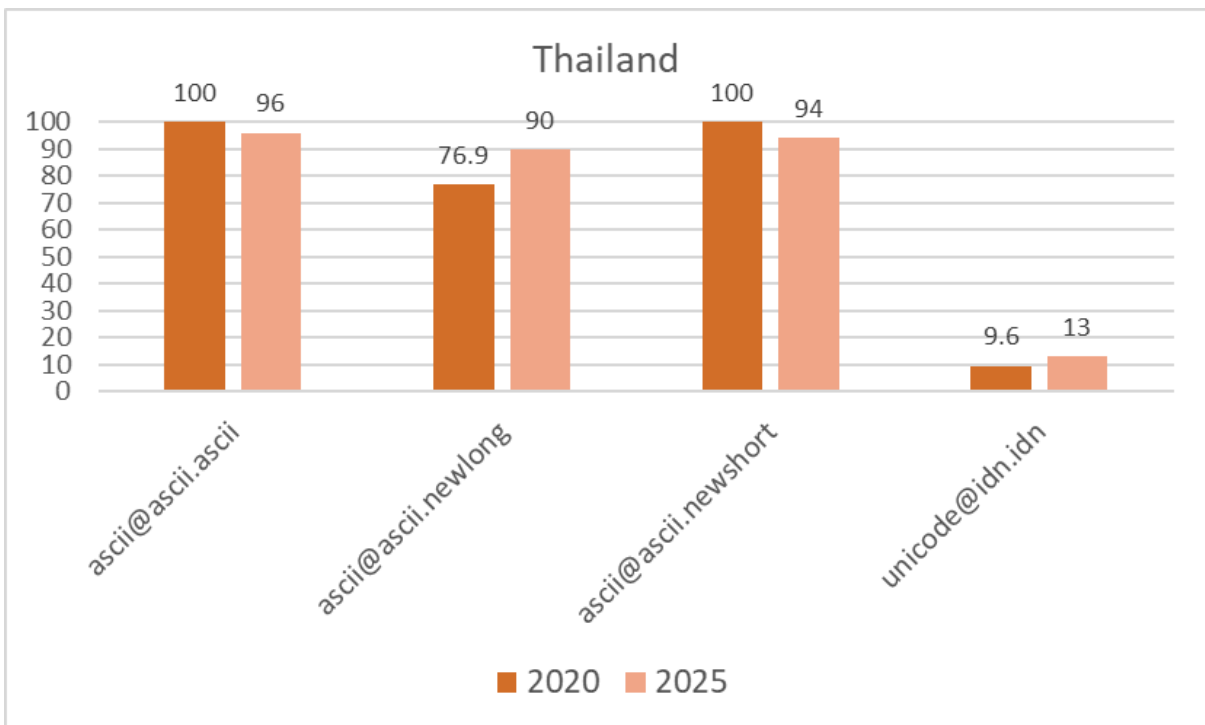
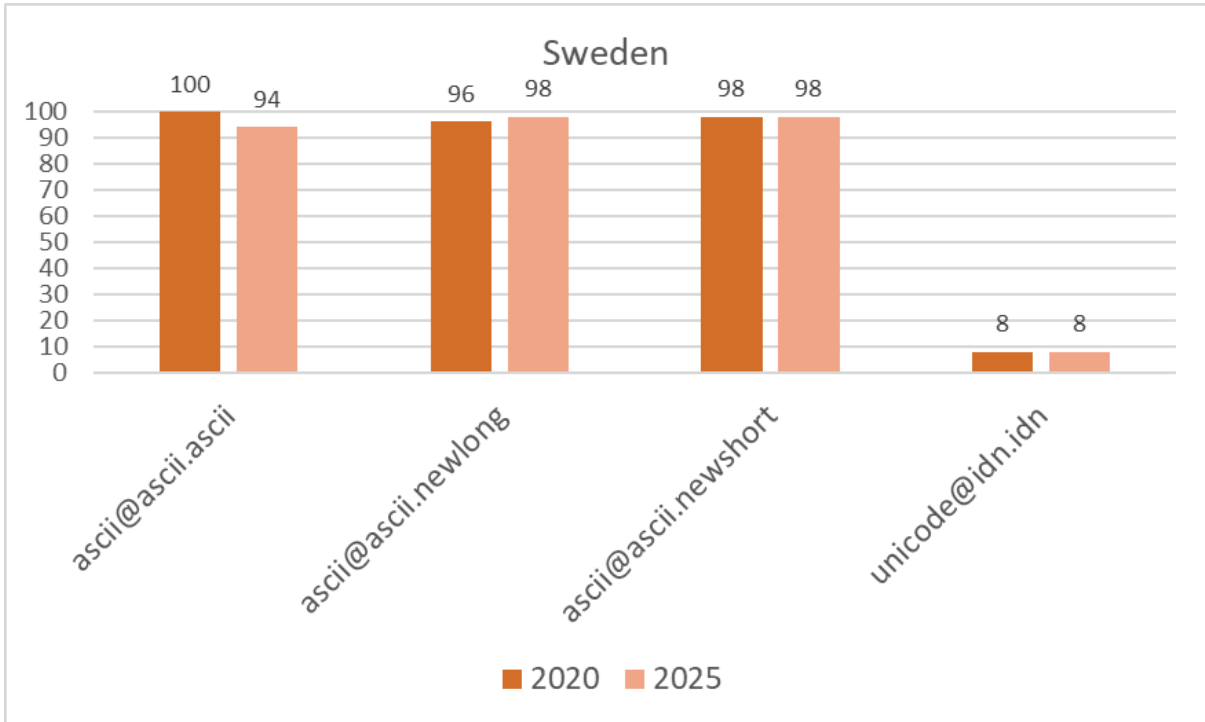


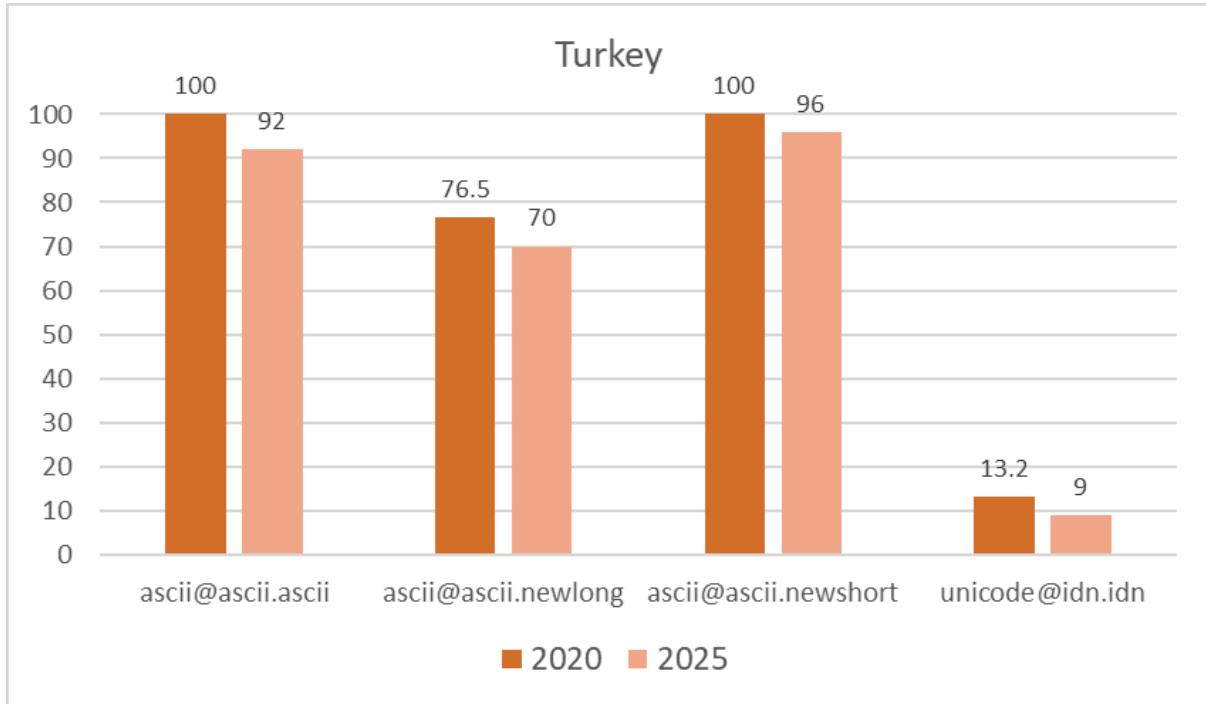












Common Websites Across the Years 2019, 2020, 2022, and 2025

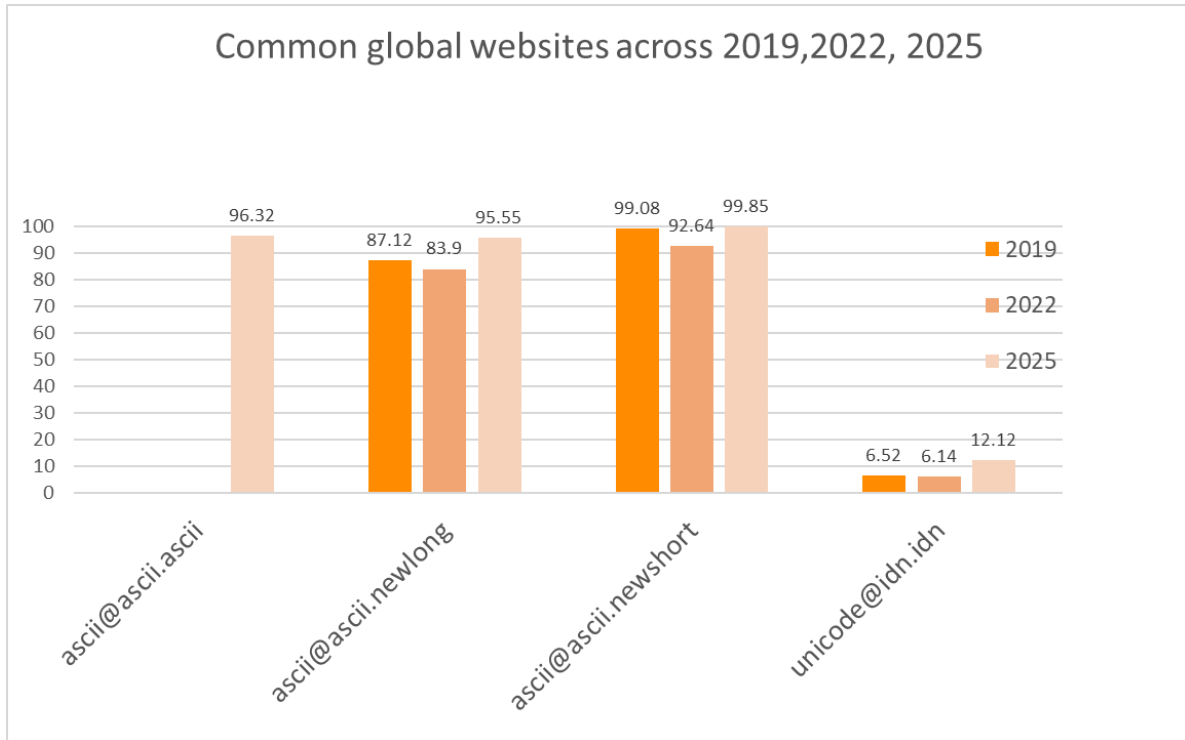
- Different email IDs and varying selections of websites were used for evaluations conducted in 2019, 2020, 2022, and 2025, both in terms of quantity and category.
 - 2019: The study focused on the top 1,000 global websites.
 - 2020: The study focused on 50 websites from each of 20 countries, totaling 1,000.
 - 2022: Data from 2019 and 2020 were combined, duplicates removed, and high-ranking Alexa websites added, resulting in a total of 2,000 websites.
 - 2025: The 2,000 websites were categorized into two groups—1,000 global and 1,000 country-specific (50 from each of 20 countries). The list was reviewed and updated to replace non-functional or untestable sites.
- Over time, many websites became inactive or altered their mechanisms for subscription, contact, and feedback—shifting toward login and communication via social media credentials.
- Despite these changes, 652 global websites consistently appeared in the evaluations of 2019, 2022, and 2025. Similarly, 640 country-specific websites were retained across the studies in 2020, 2022, and 2025.
- Analyzing email acceptance across these consistently evaluated websites provides a robust basis for analyzing trends and long-term changes in adoption.

	Year 2019	Year 2020	Year 2022	Year 2025
UASG report	UASG025	UASG027	UASG039	UASG053
Global (P-series)	652	-	652	652
Country (N-series)	-	640	640	640



Common Global Website Acceptance Rates In 2019, 2022, 2025

652 common websites:

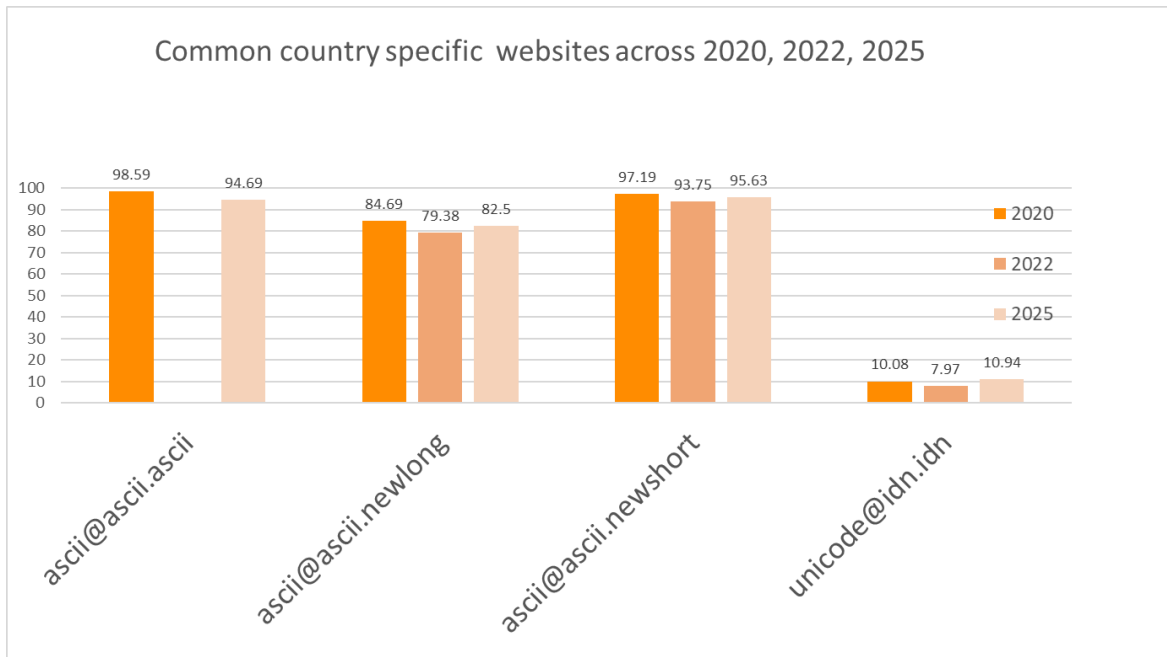


From 2019 to 2025, the acceptance rates for both `ascii@ascii.newlong` and `ascii@ascii.newshort` email IDs showed significant improvement. Similarly, the acceptance rate for `Unicode@idn.idn` nearly doubled over the same period. This indicates a positive trend in EAI (Email Address Internationalization) acceptance over the years.



Country-Specific Email Acceptance Rates Between 2020, 2022, and 2025 (Common Websites)

640 common websites:



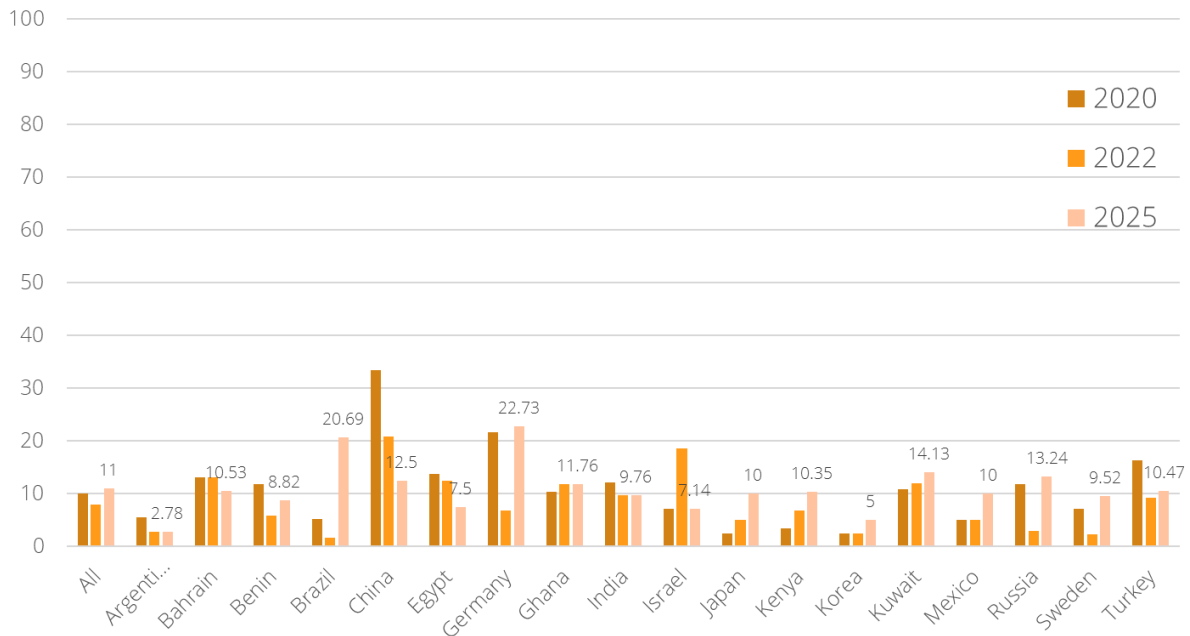
For country-specific websites, the acceptance rates for `ascii@ascii.newlong` and `ascii@ascii.newshort` remained stable from 2020 to 2025. However, `ascii@ascii.ascii` showed a decline, since

- Many websites flag `ua-test19.com` as a test/disposable domain (similar to Mailinator or Temp-Mail).
- Some websites whitelist only popular providers (Gmail, Yahoo, etc.).
- Domain-specific blocks (e.g., `ua-test19.com` being labeled as a test domain).
- Many websites block "`test@`" usernames to prevent abuse.

Also, the acceptance rate for `Unicode@idn.idn` showed marginal positive growth.



Country-wide Email Acceptance Rates In 2020, 2022, 2025 (Common Websites)

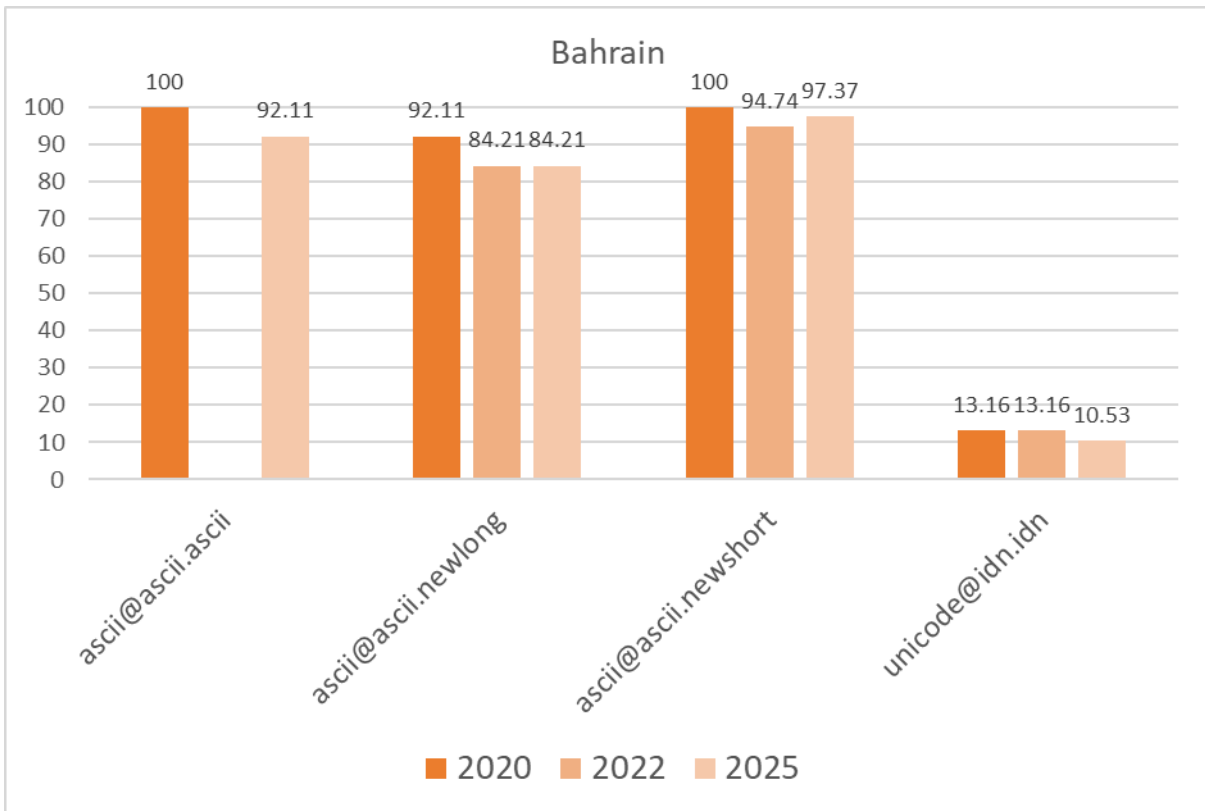
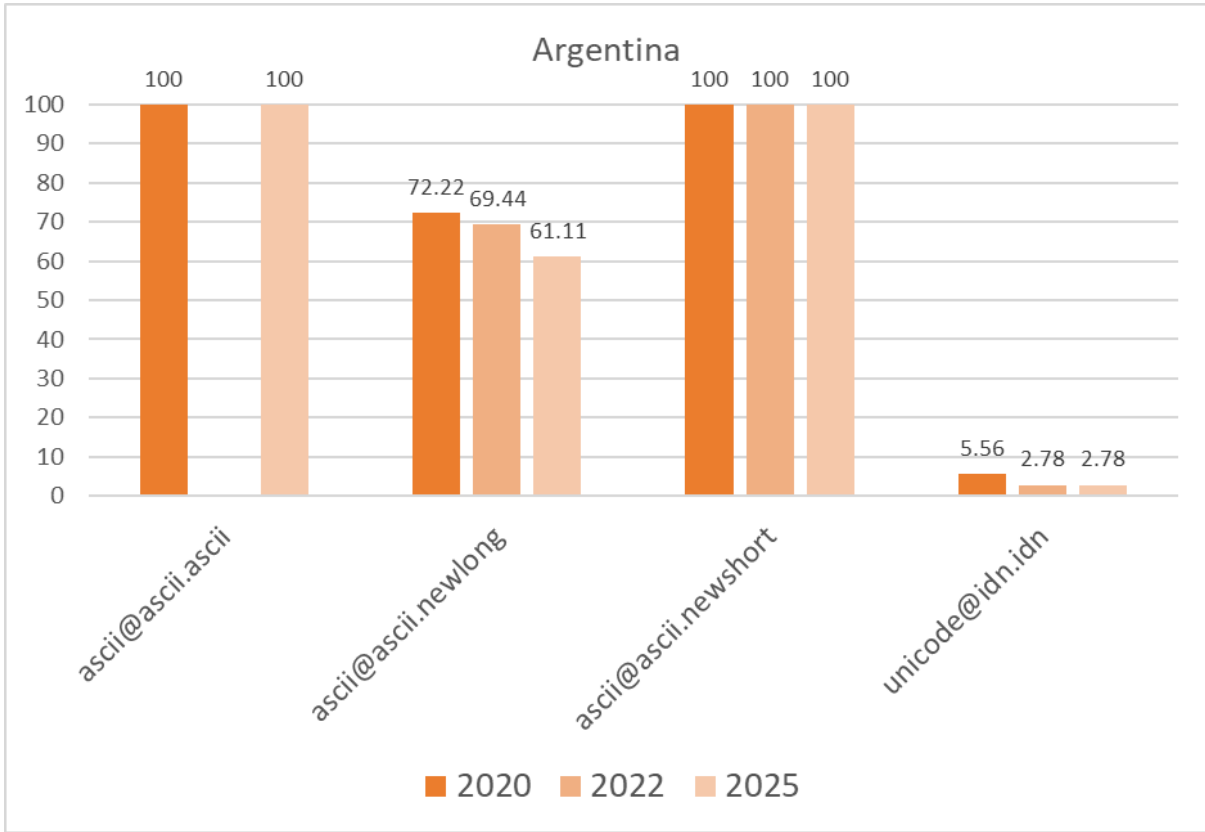


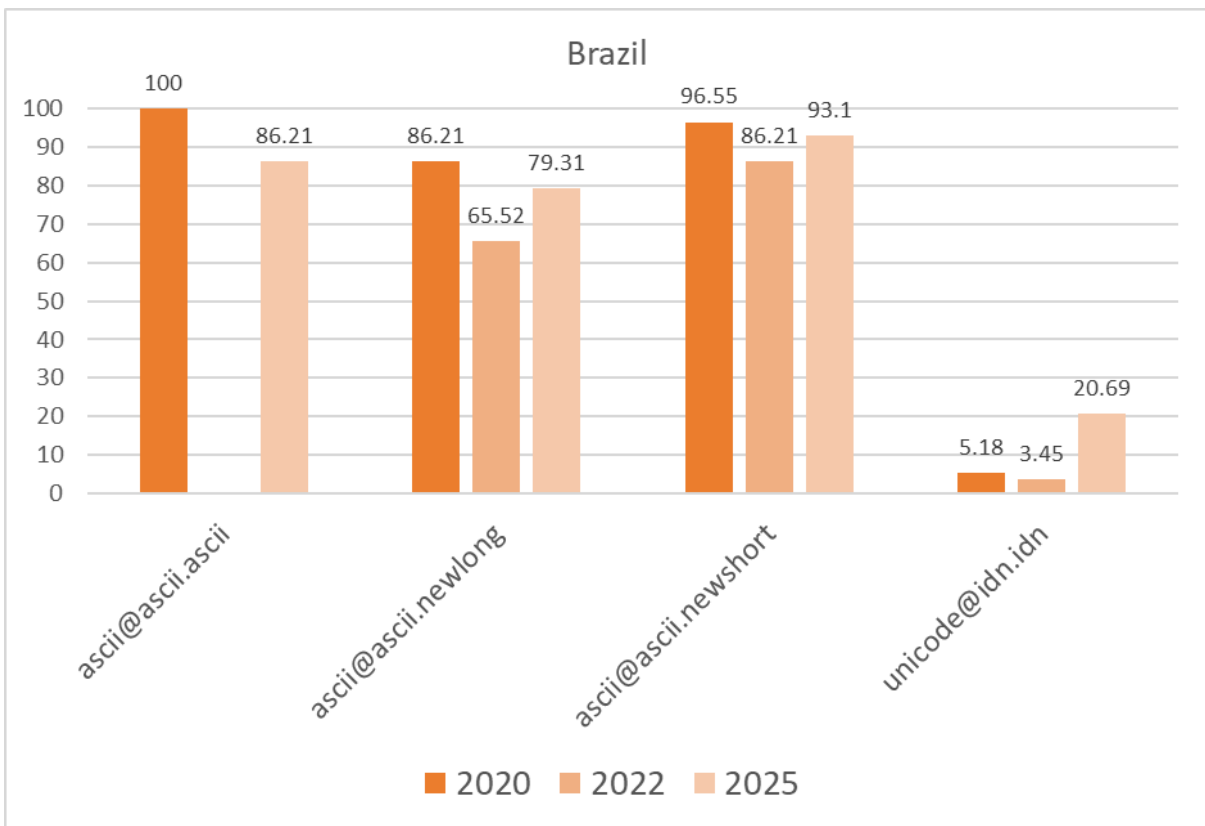
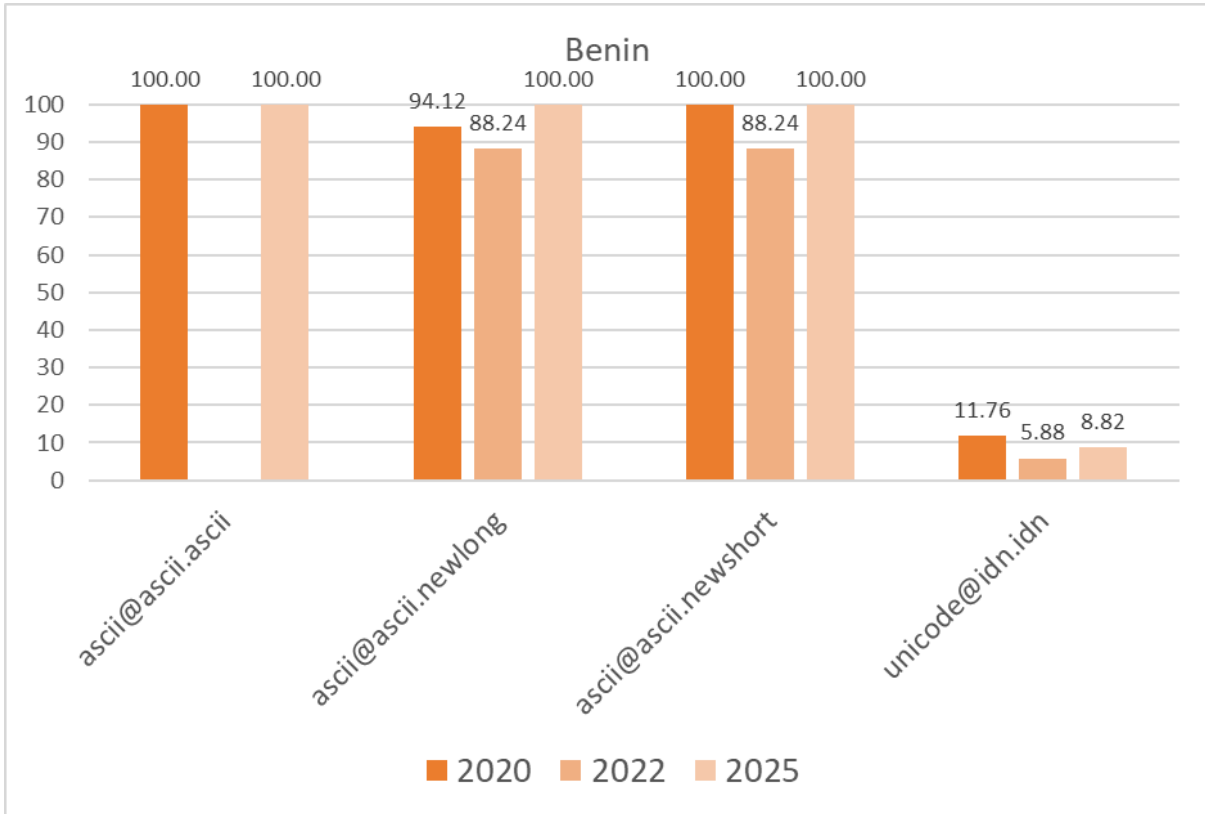
The chart above illustrates the email acceptance rates for common websites appearing in 2020, 2022, and 2025. For comparison, the `unicode@idn.idn` is the average of various script and country-specific email addresses of the category `unicode@idn.idn`.

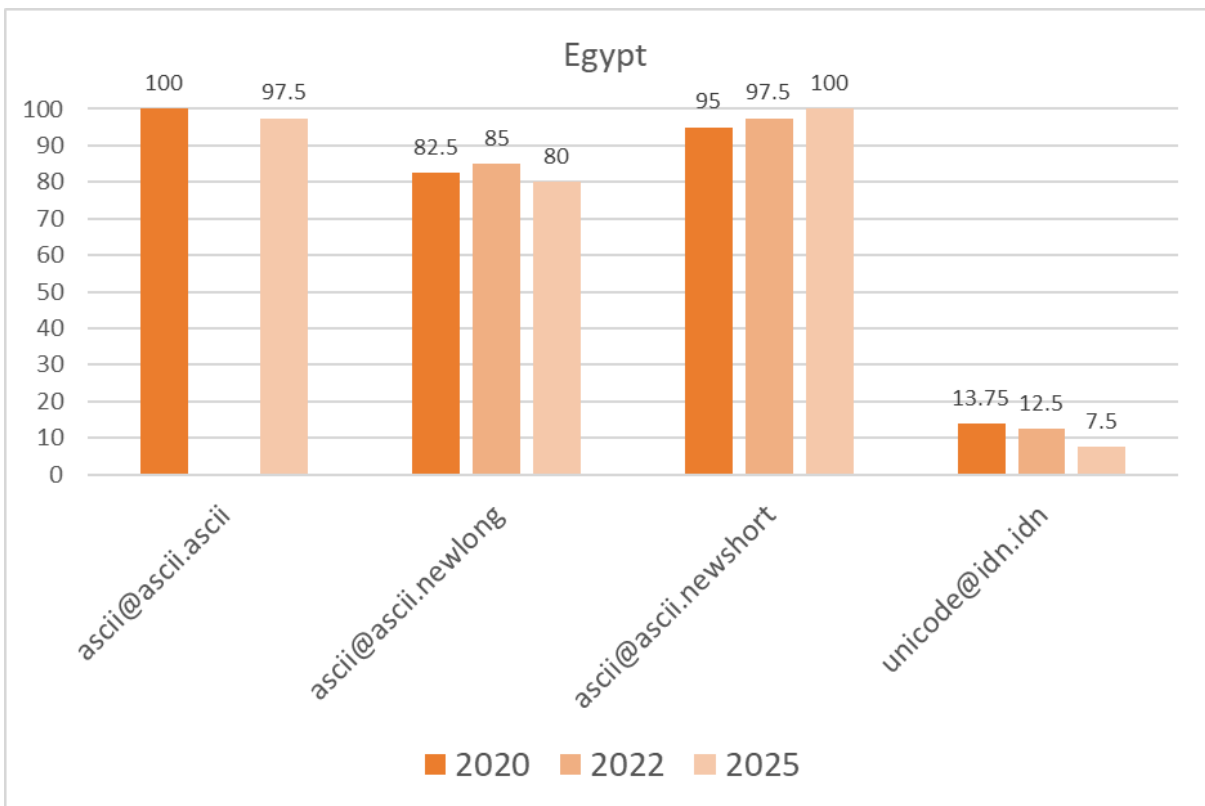
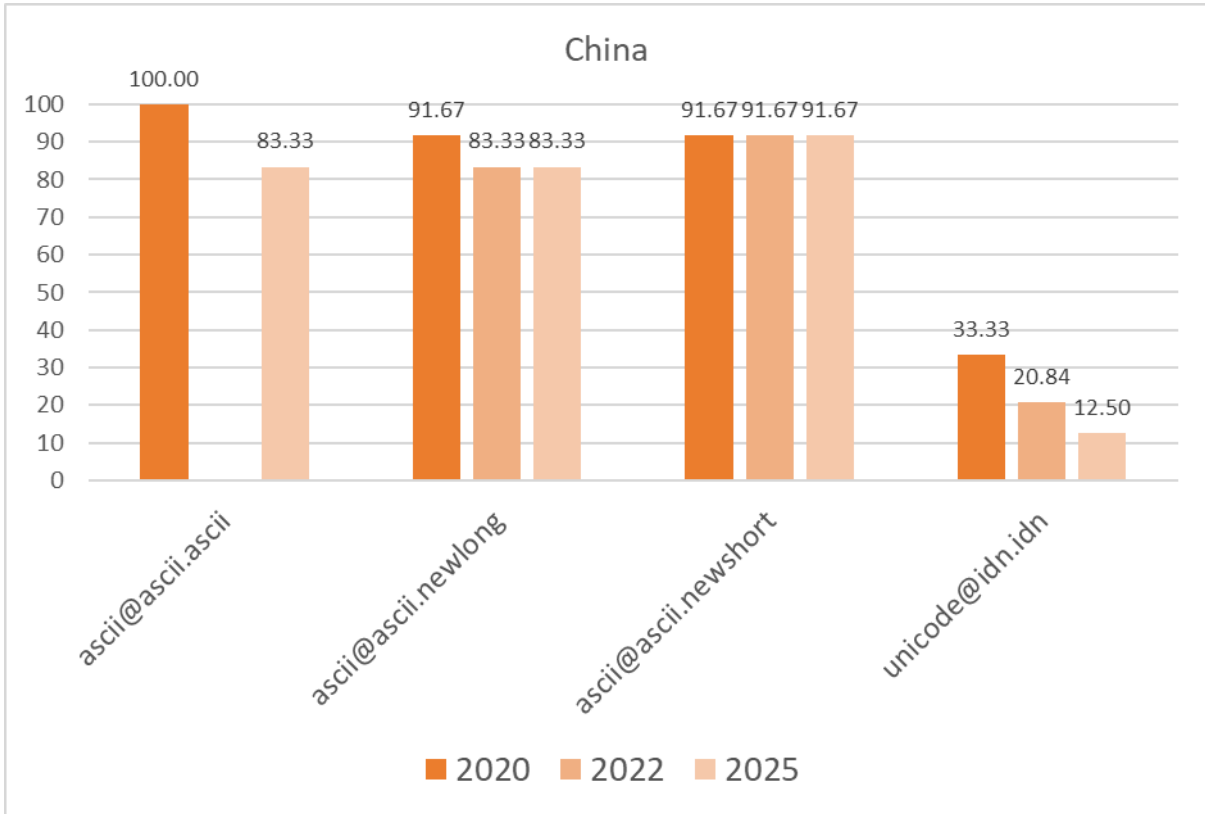
Common websites, when analyzed across 2020, 2022, and 2025, exhibited varying EAI acceptance rates:

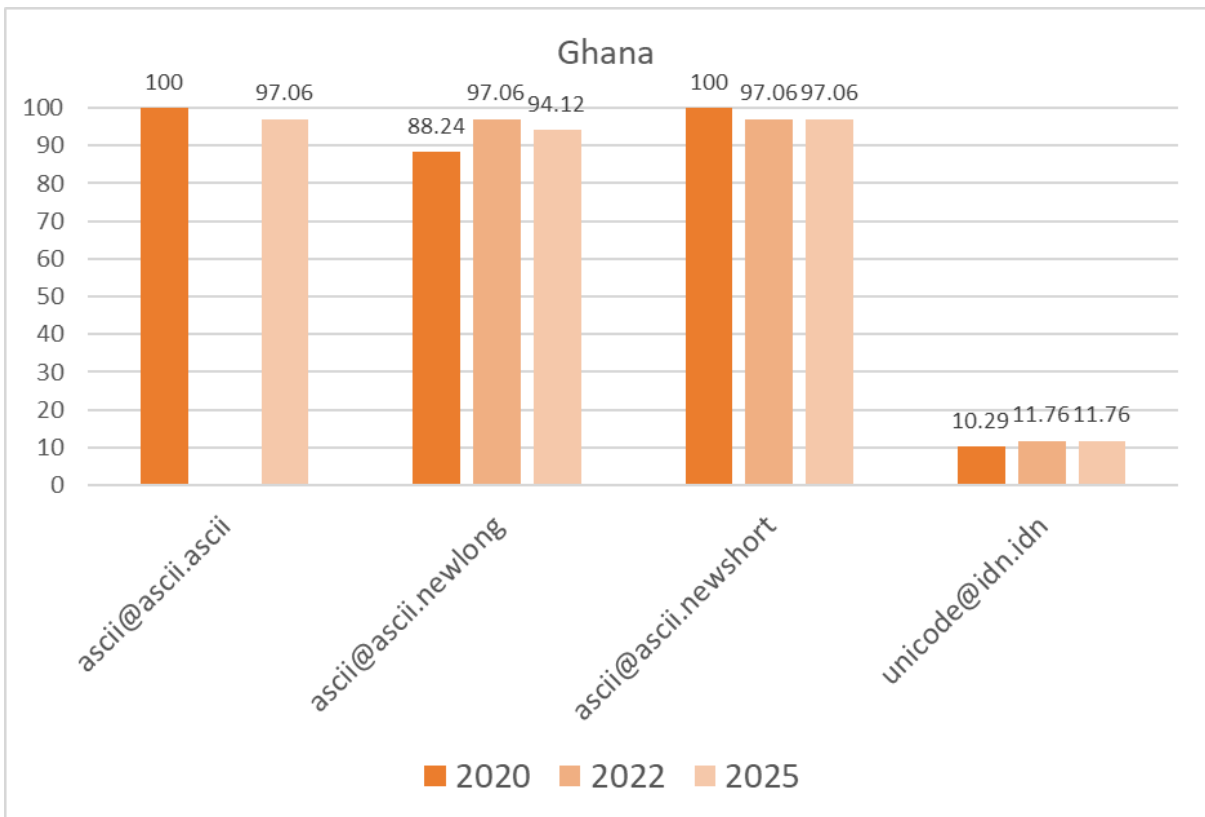
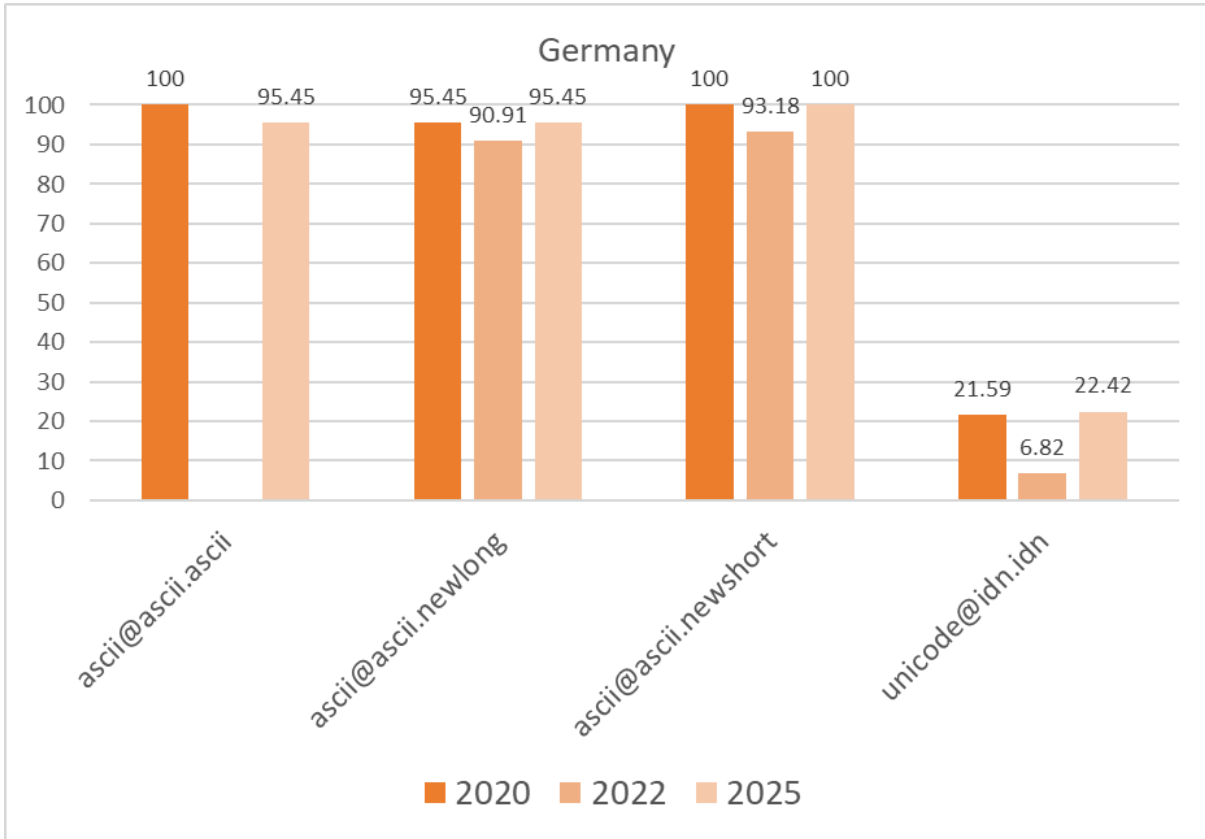
- Brazil saw a significant surge, increasing from 5.18% to 20.69%
- Russia experienced moderate growth, rising from 11.76% to 13.24%
- Germany remained fairly stable, with a slight increase from 21.59% to 22.73%
 - The drop in 2022, observed in many countries, was mainly attributed to email-related factors
- Kenya showed a strong improvement, increasing from 3.45% to 10.35%
- Kuwait followed a similar trend, rising from 10.87% to 14.13%
- Japan experienced a sharp increase, jumping from 2.5% to 10%
- India saw a decline, dropping from 12.2% in 2020 to 9.76% in 2022, remaining unchanged in 2025
- China faced a significant drop, decreasing from 33.33% in 2020 to 20.84% in 2022, and further to 12.50% in 2025. This decline is primarily due to reduced support for scripts other than Chinese.

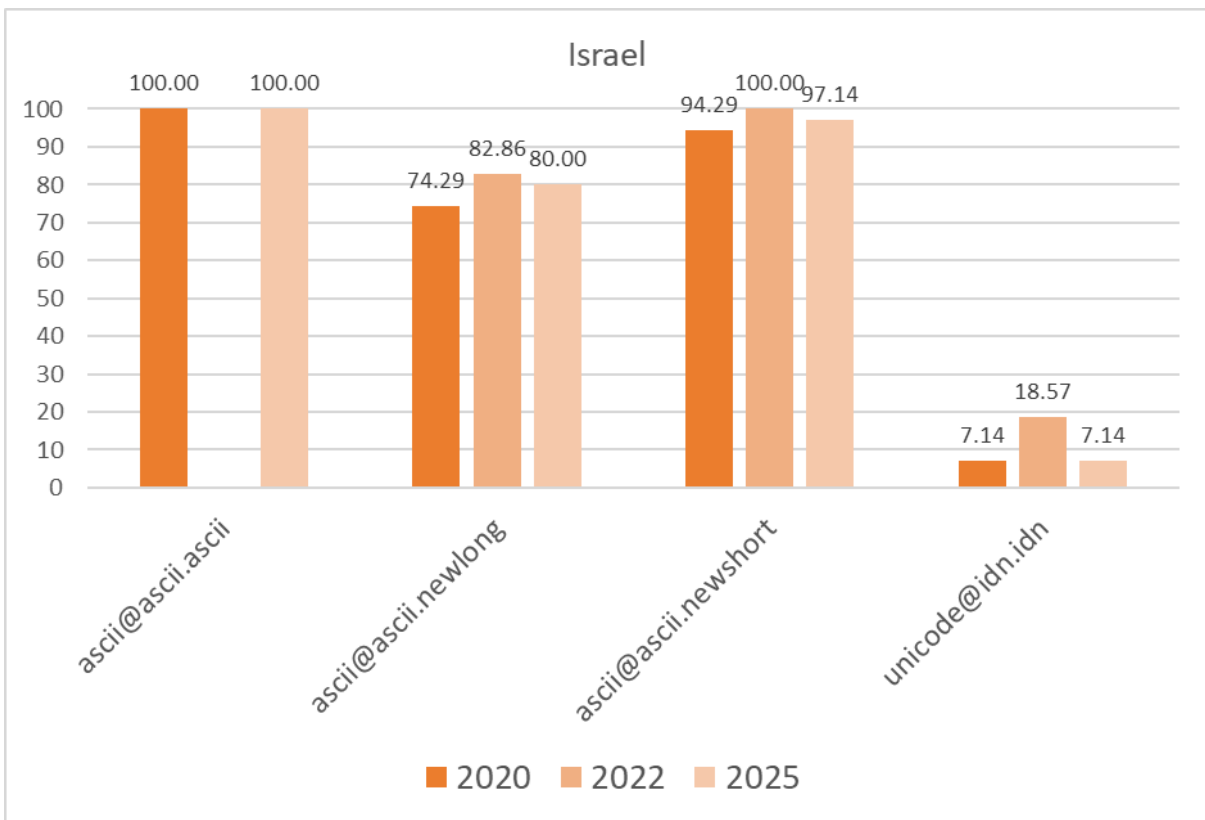
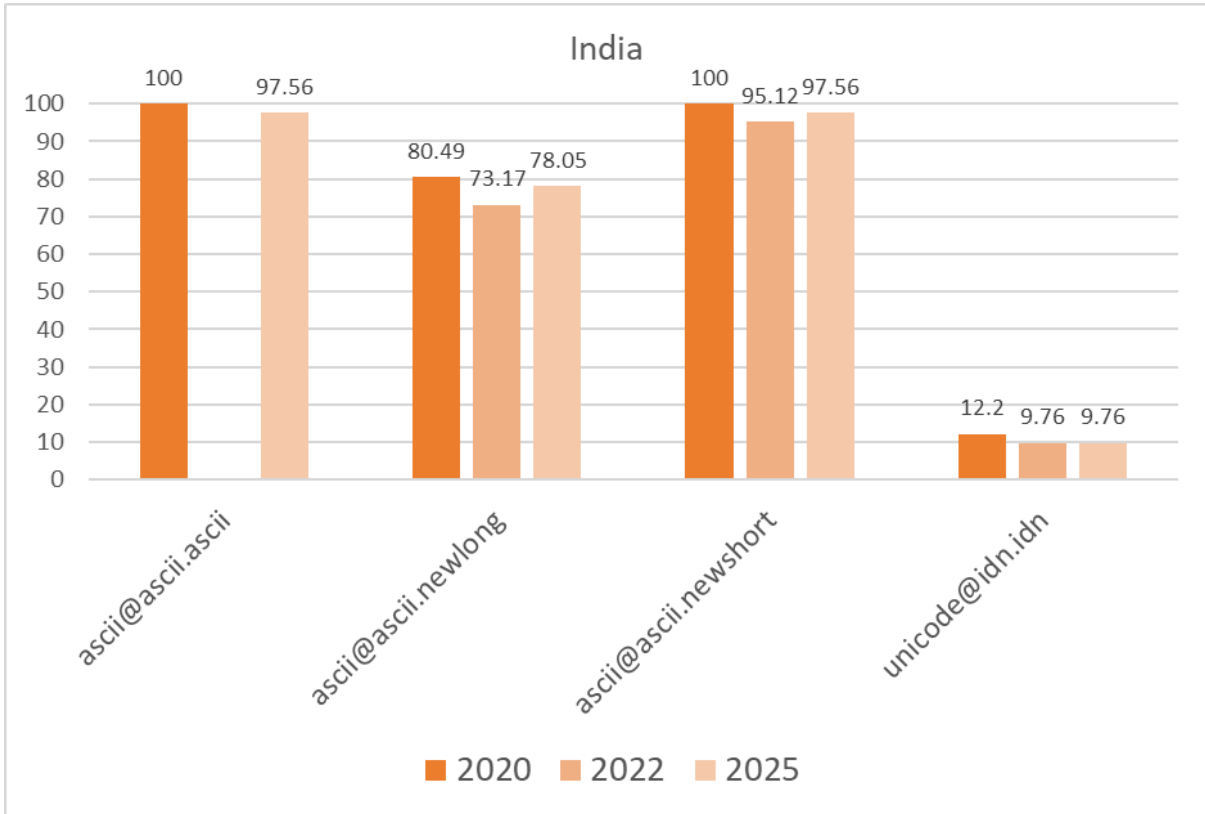
These variations illustrate the dynamic nature of EAI adoption across different regions and time periods.

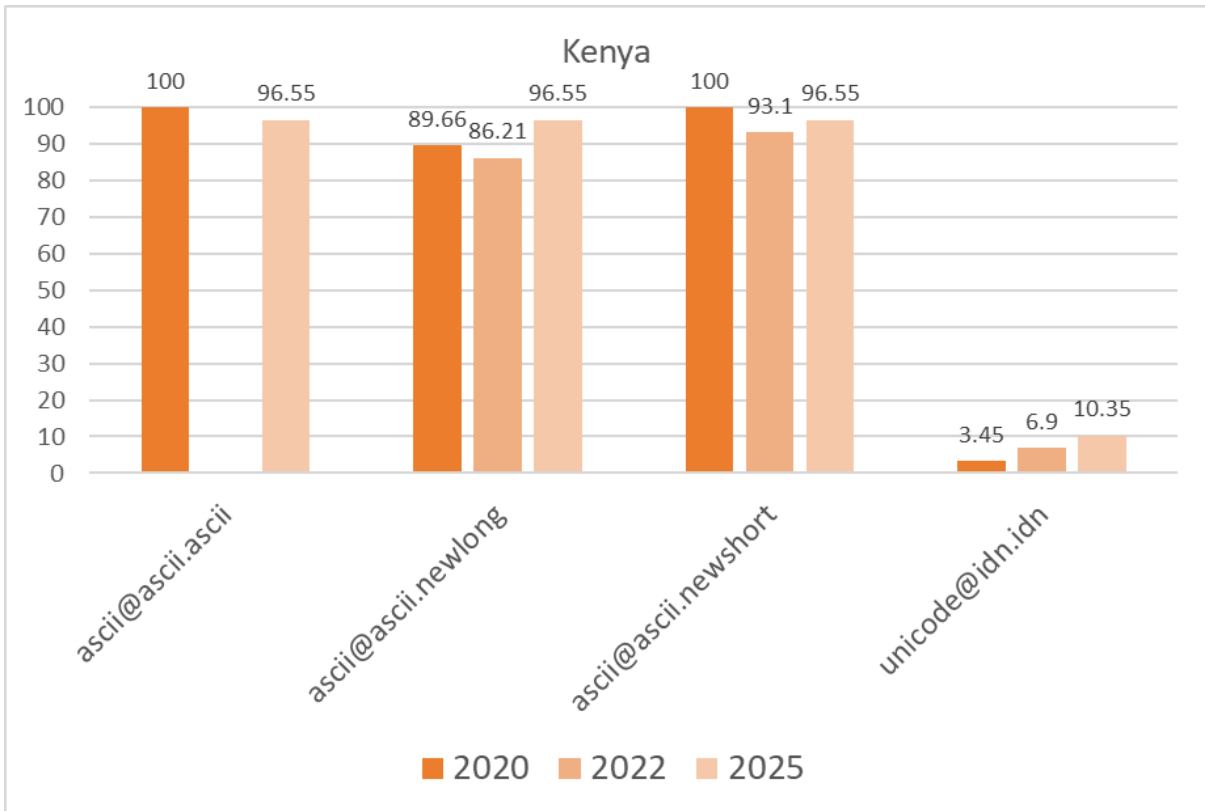
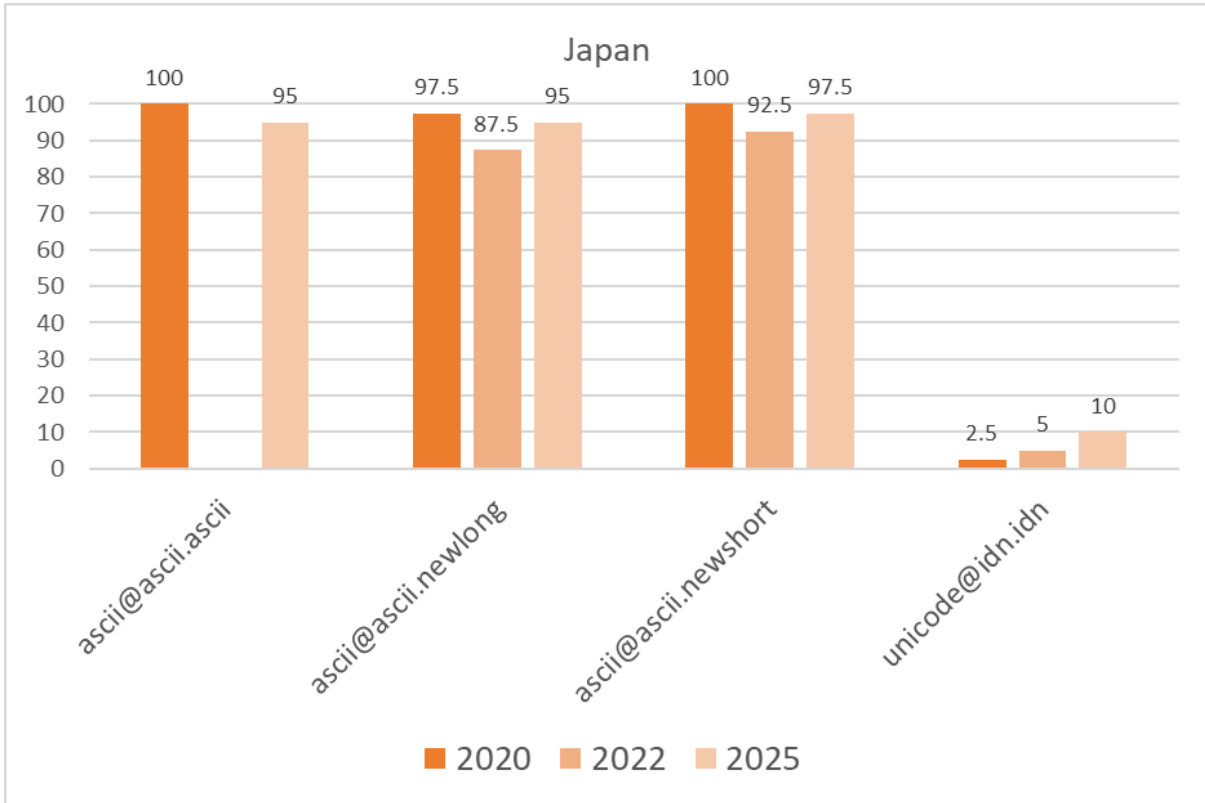


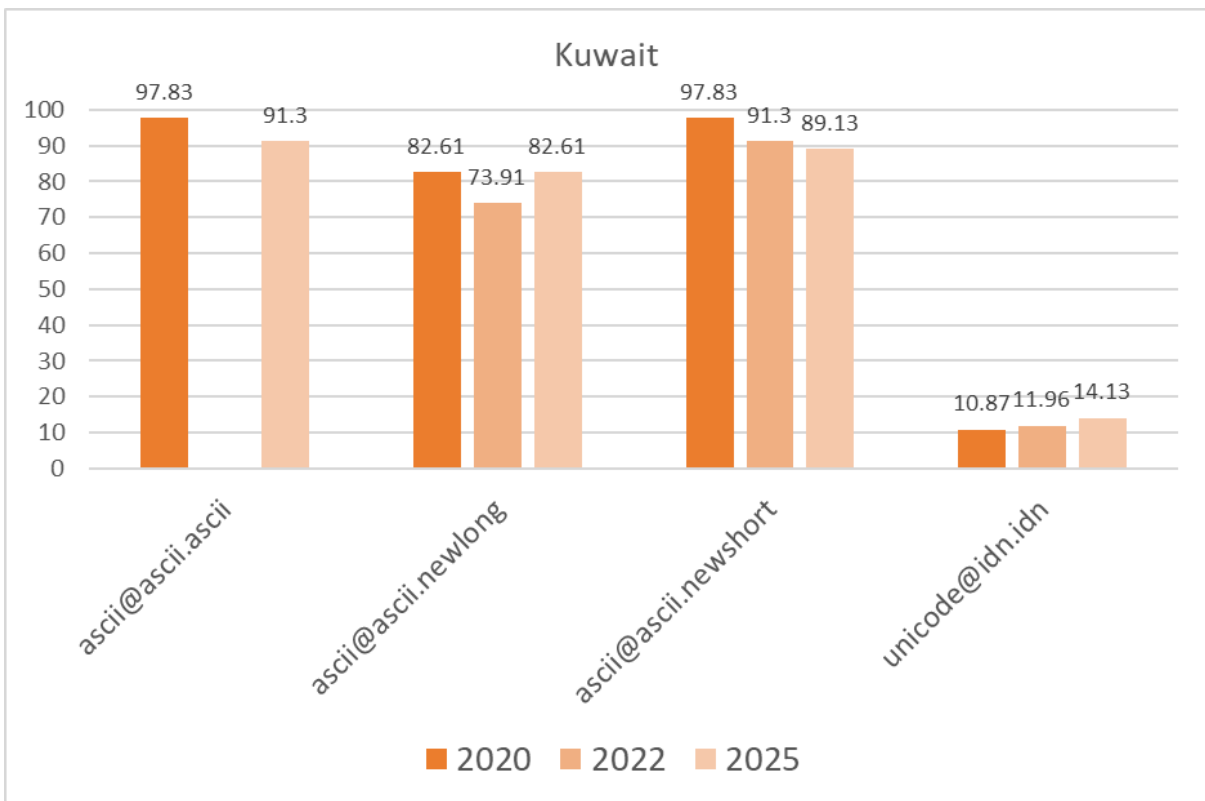
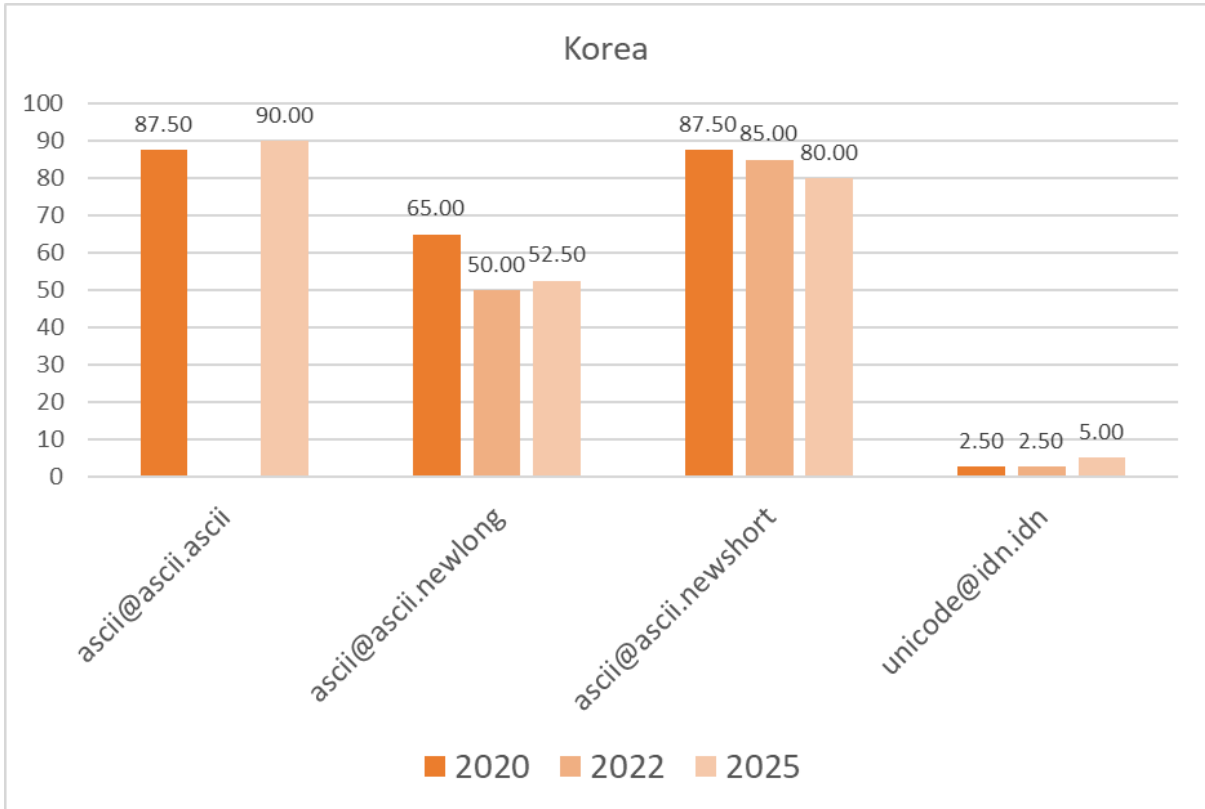


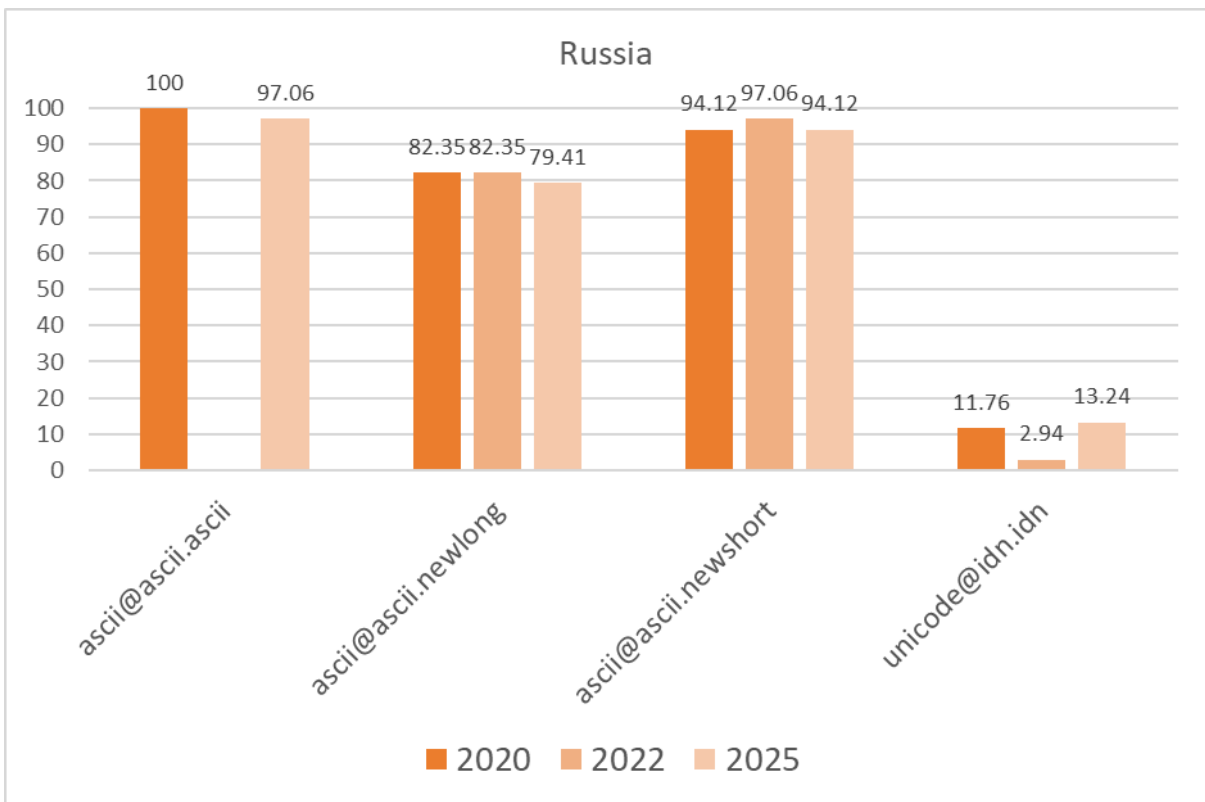
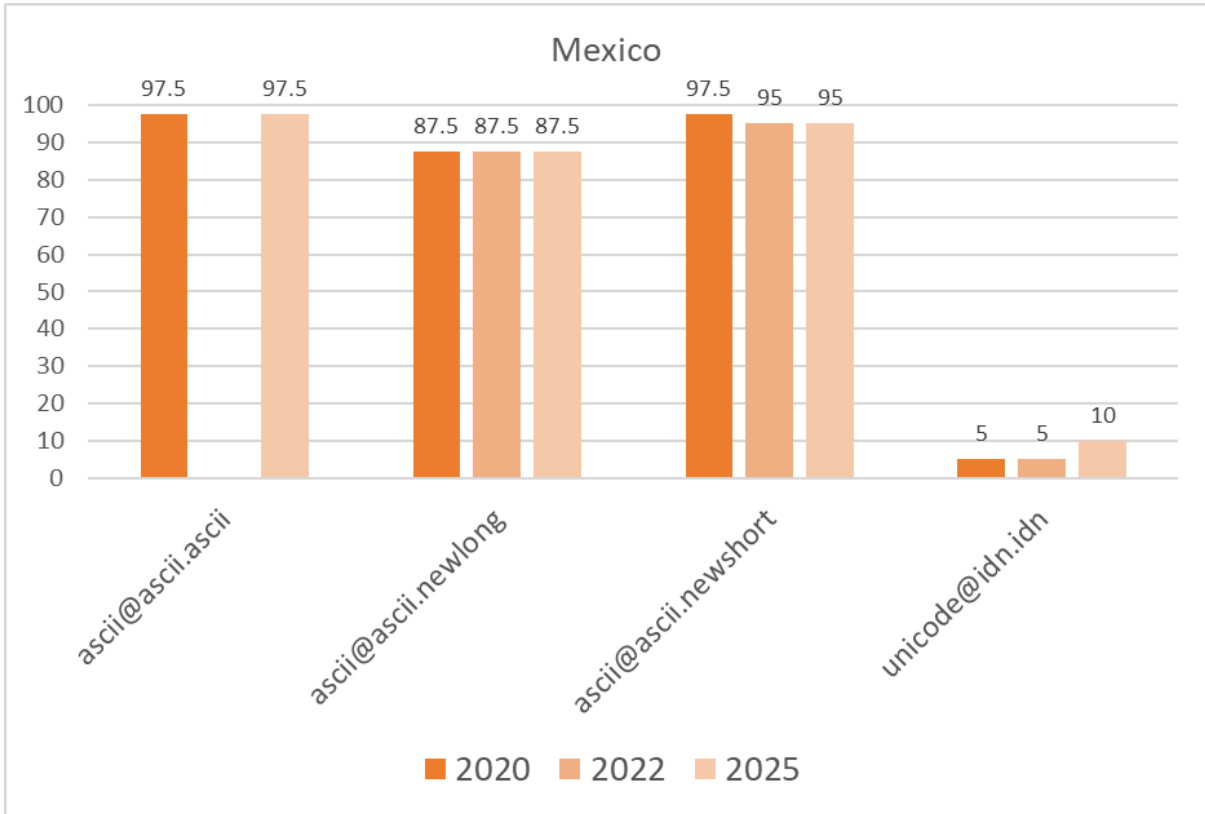


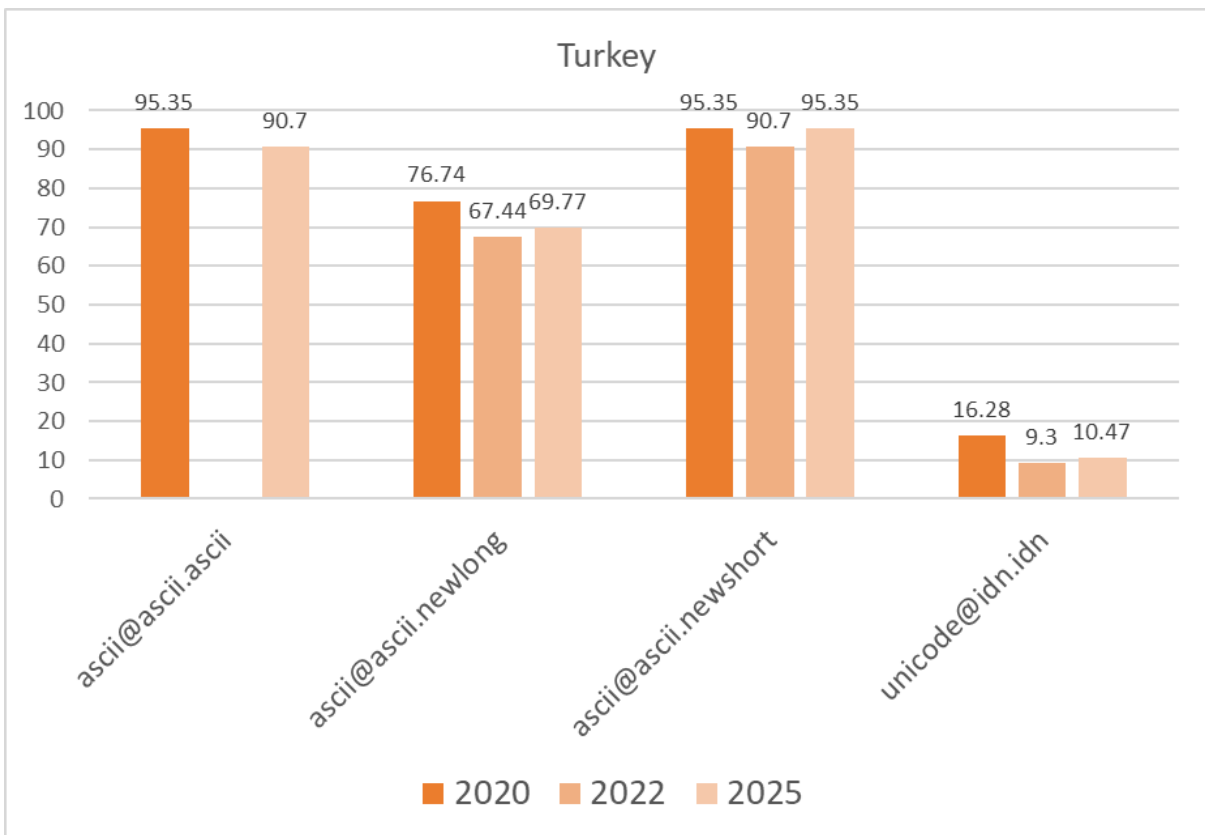
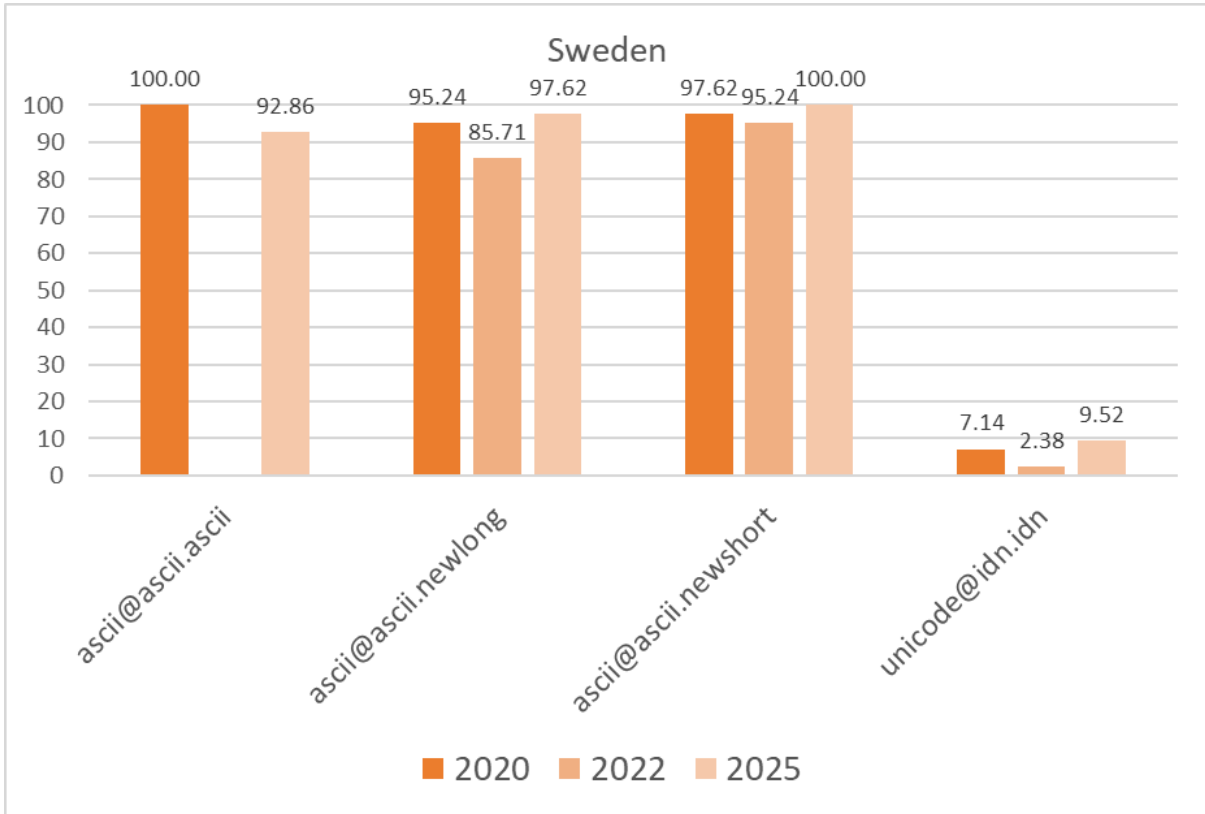






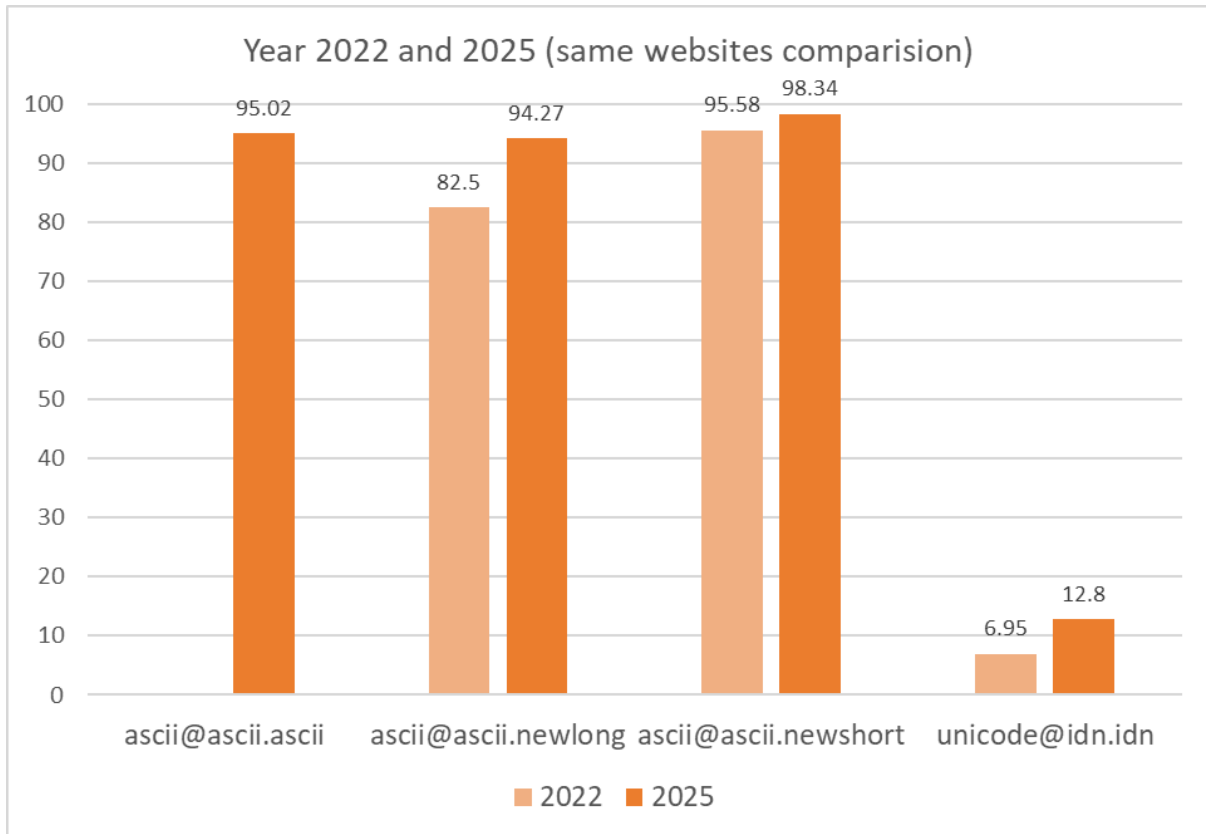








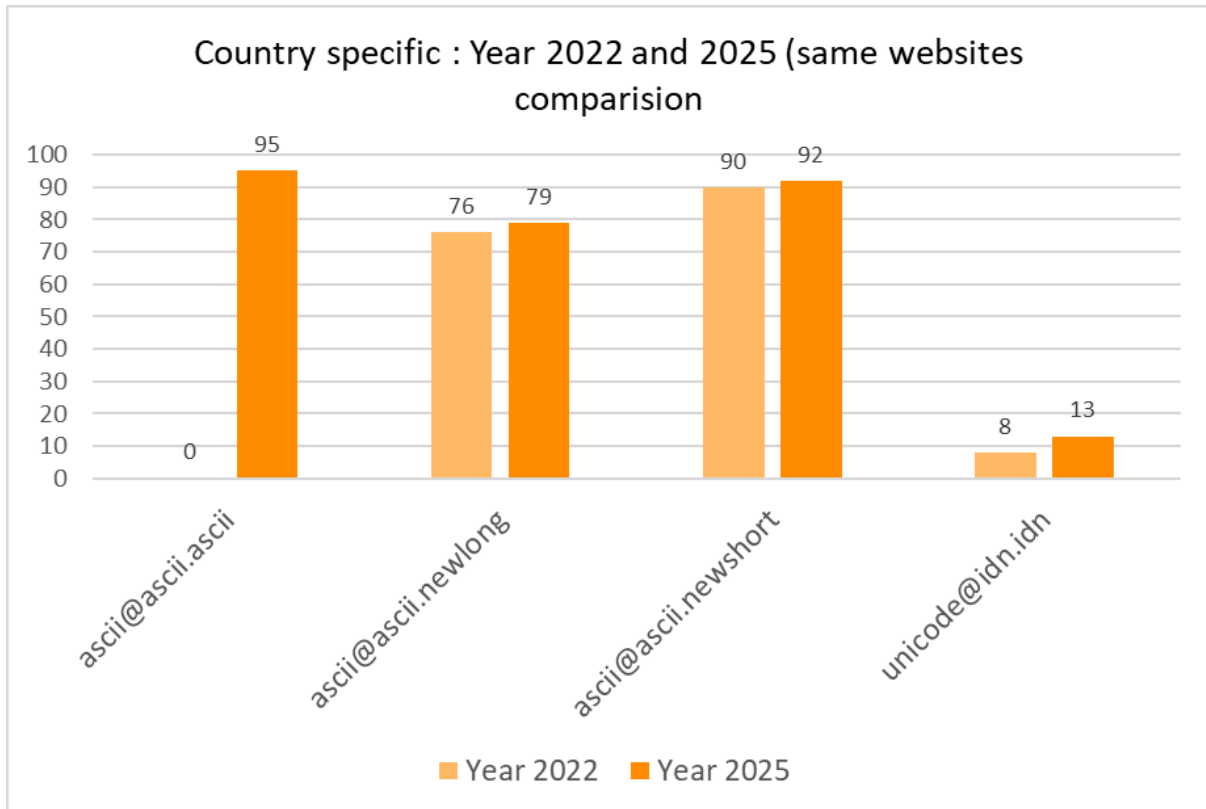
Overall Global Websites Email Acceptance



Total: 663 same websites comparison



Overall Country-Specific Email Acceptance – 2022 and 2025

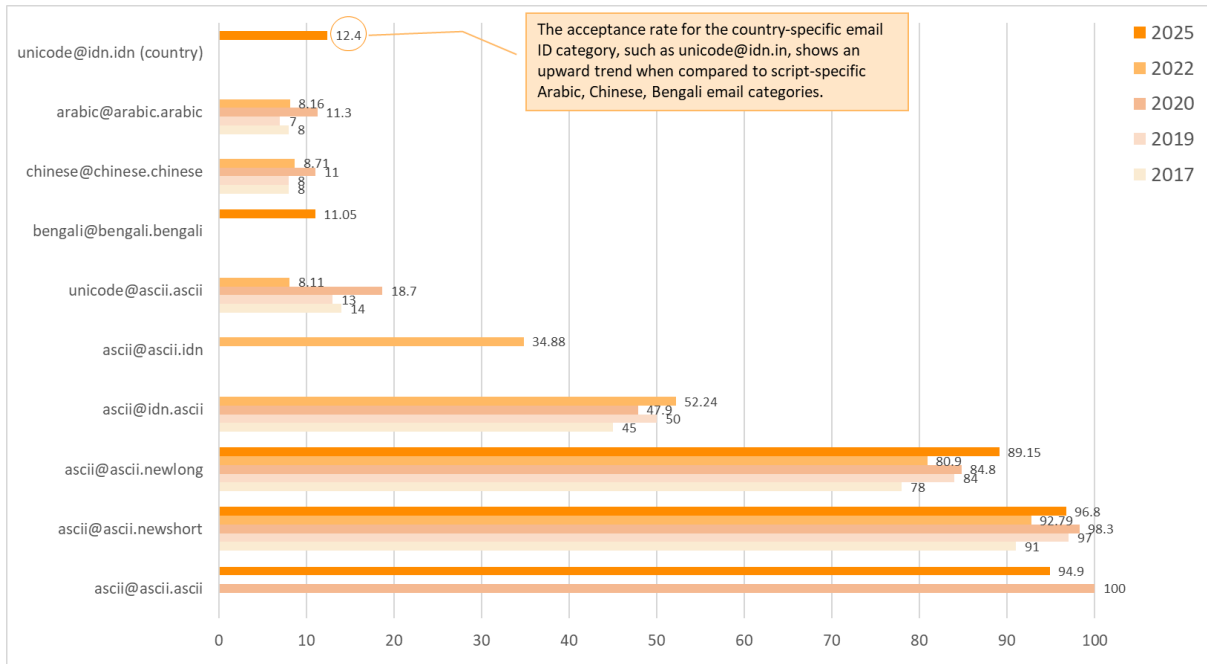


Total: 641 same websites comparison

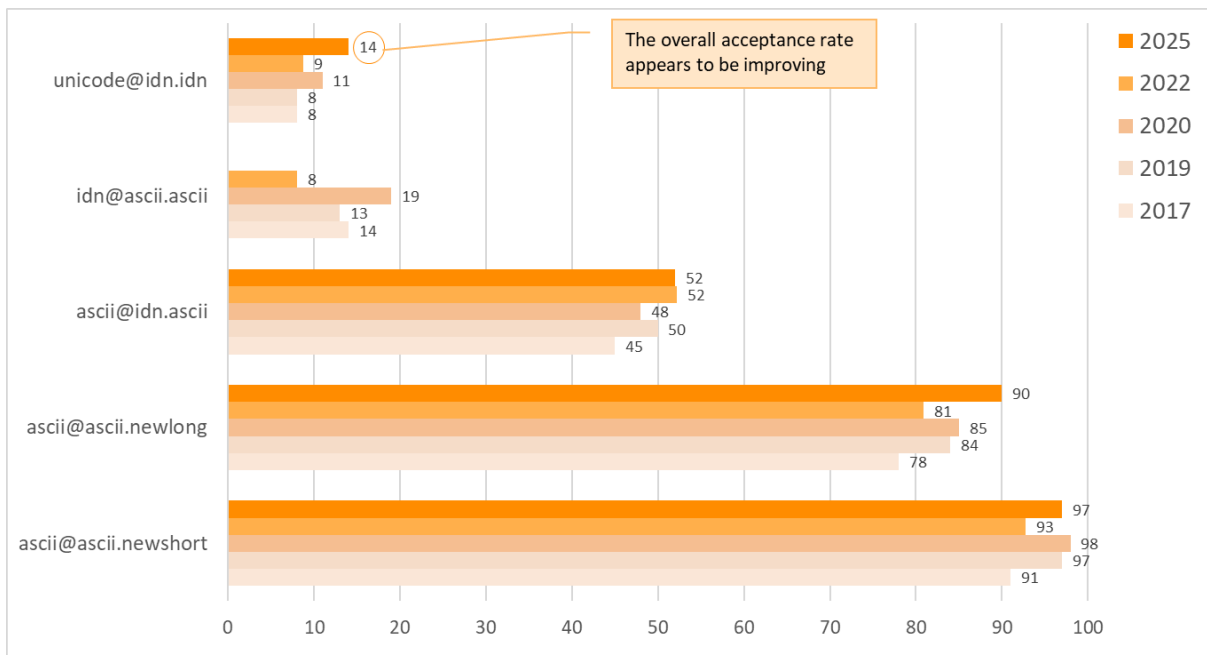


EAI Acceptance Comparative Year 2017 to Year 2025

The chart below presents the acceptance rates of different email categories from 2017 to 2025. Script-specific email categories and country-specific email categories are shown separately, as the email IDs used for testing varied throughout the period. Notably, the acceptance rate for the country-specific email ID category, such as unicode@idn.in, shows an upward trend when compared to script-specific (unicode@idn.idn) categories.



The above chart presents a script-specific comparison for the category unicode@idn.idn. However, to determine the overall acceptance rate for unicode@idn.idn, the following chart consolidates the script-specific categories into a single unicode@idn.idn group.





For comparison purposes, included chinese@chinese.chinese, arabic@arabic.arabic, bengali@bengali.bengali, and country-specific email IDs under the unicode@idn.idn category

Findings

The acceptance rate of ascii@ascii.newlong is noticeably higher on global websites compared to country-specific websites. While global websites exhibit a 98% acceptance rate, country-specific websites show a lower 86% acceptance rate. This decline is largely due to the enforcement of a three-character limit on ASCII TLD validation, suggesting that older regex patterns are still in use.

Similarly, ascii@ascii.newshort has a lower acceptance rate on country-specific websites than on global websites. Upon further investigation, it was found that some country-specific websites restrict the use of numerals in the domain part, contributing to this lower acceptance. Conversely, unicode@idn.idn tends to have higher acceptance rates on country-specific websites than on their global counterparts.

Observations

- A different URL path was used for email field testing when the previous path did not provide access
- Some websites were non-working or unresponsive and were removed from re-testing
- Certain forms with email fields underwent changes, affecting testability
- Some websites restricted the maximum character length for email input fields
- A few websites whitelisted specific TLDs, allowing only emails from approved domains.
- Social networking-based sign-on (social login) has become a trend, also mobile number-based validation seems to be an increasing trend for online services related to e-commerce, education, banking, and government. Additionally, email is being used to verify the authenticity of the user

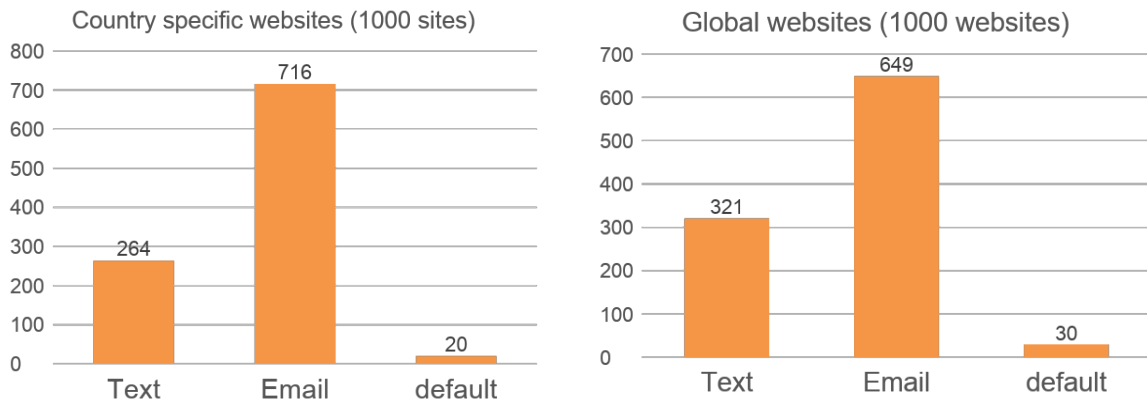


HTML Input Type

While inspecting the email field in various forms of the websites, it was observed that the email field had the following values for HTML <input> element "Type" attribute:

- 68.25% websites used value as "email"
- 29.25% websites used value as "text"
- 2.5% websites used default (i.e., "text")

Overall: 68.25% - type email, 29.25 – type text, 2.5% - default (text)

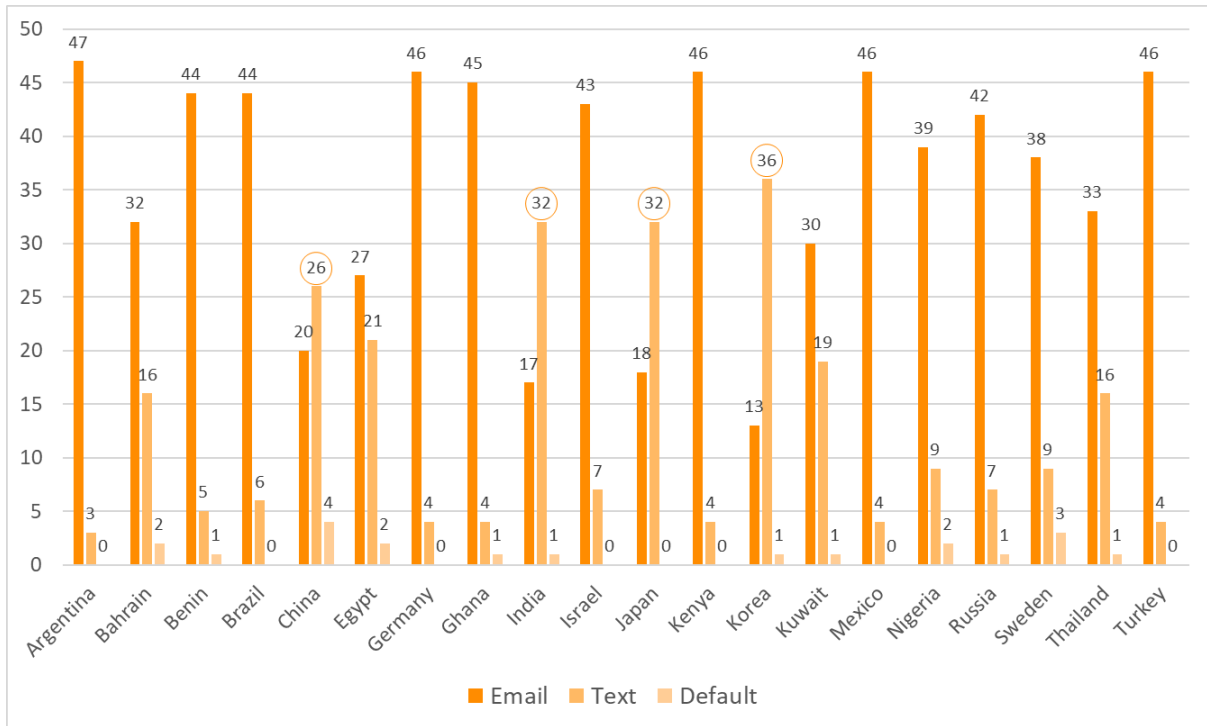


- The fact that 68.25% of websites use type="email" shows a preference for built-in HTML validation, which enforces basic ASCII email rules. However, this excludes EAI support, as type="email" fails on UTF-8 mailbox part
- The 29.25% using type="text" are allowing more diverse inputs—including EAI addresses. This flexibility requires custom validation, and failure to do so may lead to errors or vulnerabilities.
- 2.5% rely on default input type (text), possibly unintentionally: These sites may not be explicitly managing input types at all, which can be seen as an oversight or outdated practice.
- EAI-readiness is still lacking in the majority of websites, since the heavy use of type="email" inherently excludes non-ASCII email addresses. Only those using type="text" (29.25%) or default inputs (2.5%) can potentially support EAI, provided they implement custom validation logic.



Use of Country-wide HTML Input Type – 2025

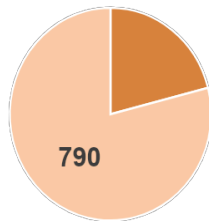
20 countries with 50 sites each



Use of Captcha for Human Authentication

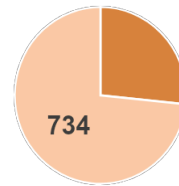
CAPTCHA Use: Frequently encountered, complicating automation and testing

1000 Global websites



■ Captcha ■ No captcha

1000 Country specific websites



■ Captcha ■ No captcha



Suggested Follow-Up: Website UA Evaluation in Future Studies

Websites use "email" or "text" input types for email collection. While "email" restricts certain characters (e.g., UTF-8 in the mailbox), "text" accepts all input and requires proper email validation. Testing with both valid and invalid formats—especially for "text" inputs—helps determine whether EAI rules are effectively implemented or not.

Conduct additional testing on websites that use the "text" input type and accept addresses in the format unicode@idn.idn. Evaluate both valid and invalid email inputs. For invalid email addresses, test against the following criteria:

- Length restrictions (local or domain part)
- Mixed script usage (e.g., combining Latin and Cyrillic)
- Use of special characters (e.g., !, %, etc.)
- Improper structure (e.g., leading/trailing dots, multiple @ symbols)
- Unicode normalization issues and other format inconsistencies
- And others...

Technical Testing Approach

- Analyze email field character limits (especially A-label domains)
- Identify front-end and back-end tech stack to determine required IDNA libraries for EAI compliance
- Examine input types and validation mechanisms in tested websites
- Test EAI support (sending and receiving internationalized emails)

Strategic Focus Areas

- **Government Websites**
 - Assess citizen-centric portals (ministries, IT departments, agencies)
 - Engage UA ambassadors, national IT departments, and industry reps
 - Government adoption can drive private-sector compliance
- **Academic Institutions**
 - Universities and educational platforms serve diverse international users
 - Promoting UA compliance in academia accelerates awareness and adoption

By focusing on government and academic sectors, these efforts will set a precedent for industry-wide Universal Acceptance (UA) adoption.



Conclusions

Overall EAI Acceptance Trends

- Positive trend observed in the acceptance of Unicode email IDs across most regions
- ASCII email formats showed high acceptance globally (up to 98%), but slightly lower in local websites (due to regex or format constraints)

Country-Level Insights

- Strongest Improvements: Brazil, Bahrain, Germany, Japan, and Thailand
- Consistent Leaders: Germany, Brazil (across both native and non-native scripts)
- Challenges Noted: China and India showed stagnation or decline in Unicode acceptance due to stricter script support or outdated validation mechanisms

Technical Observations

- HTML Input Types:
 - 68.25% use input type="email" (restricts Unicode)
 - 29.25% use input type="text" (more flexible, but inconsistent validation)
- CAPTCHA Use: Frequently encountered, complicating automation and testing
- Validation Logic: Many sites continue to use legacy ASCII-only patterns

Testing Challenges

- Access Barriers: OTP/mobile requirements, form gating, login walls
- Dynamic Forms: JavaScript-based validations, popup interfaces
- Inconsistent Feedback: Lack of clear "success/failure" messages for invalid inputs

Recommendations

1. Targeted Engagement: Focus on government and academic portals to set EAI adoption benchmarks
2. Standards Advocacy: Work with WHATWG/W3C to enhance support for EAI in HTML5 and modern browsers
3. Negative Test Case Inclusion: Include edge cases (e.g., script mixing, homoglyphs) in future test rounds
4. Retesting Strategy: Maintain and update common website lists for trend validation and longitudinal consistency

The 2025 EAI testing shows encouraging progress in the global landscape, especially in key regions. However, technical, structural, and procedural barriers still hinder full Universal Acceptance. Continued collaboration, standardization, and outreach are vital to achieving broader EAI compliance.



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