UNIVERSAL ACCEPTANCE: A MULTILINGUAL INTERNET FOR EVERYONE

WEBSITE EVALUATION IN EL SALVADOR FOR THE UNIVERSAL ACCEPTANCE OF EMAIL ADDRESSES

JULY 2024

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INTRODUCTION

Universal Acceptance is the concept that ensures that all domain names and email addresses work in all applications. However, is it so? In our study of 1,250 websites in El Salvador, we have discovered that not all domain names or email addresses are universally accepted on all platforms.

Universal Acceptance (UA) is essential for a truly inclusive Internet, where people can interact in their local languages. It is also critical to realizing the potential of new generic top-level domains (gTLDs), fostering competition, consumer choice, and innovation in the domain name industry. This allows users to choose from a greater variety of identities when selecting their domain name. A UA-ready online system can accept all email addresses.

The Center for Public Opinion Studies (CEOP) of the Paracentral Multidisciplinary Faculty of the University of El Salvador and the Vice Chair of Universal Acceptance Communication (UASG), have carried out this study to evaluate the acceptance capacity of various email addresses in El Salvador websites. The websites were categorized into Government, Education, Tourism, Health, Companies and Business, Professional Services and Others.

The results of our study reveal that there is still much to do to achieve UA on Salvadoran websites. Longer top-level domains have lower acceptance than shorter ones, and introducing non-English characters into domain names significantly reduces the acceptance rate. Additionally, including non-English characters in email box names further decreases this rate.

This work seeks to raise awareness and promote the adoption of UA in El Salvador, ensuring that everyone can benefit from a truly inclusive and accessible Internet.

METHODOLOGY

Research Focus

This research was carried out from a quantitative approach, using directories and shopping center pages, which served as a reference to search for the different categories considered within the study. Stratified probability sampling was used to select study websites, ensuring adequate representation of the various areas of IP addresses assigned to El Salvador.

Sample Selection

The research team selected a sample of 1,250 websites for the study. This selection was made based on the IP addresses that were granted to El Salvador by LACNIC (Latin American and Caribbean Network Information Centre). According to LACNIC data, El Salvador has more than 65,536 IP addresses assigned. A population of 65,536 IP addresses was considered for an appropriate evaluation.

Sample size calculation

An instrument was administered to a representative sample of 1,250 websites. The total population of IP addresses assigned to El Salvador by LACNIC is more than 65,536. The sample was calculated with a confidence level of 95% and a margin of error of 2.75%. This calculation was carried out with the population sampling formula, where N=65,536 is the size of the population or universe, Z=1.96 corresponds to the 95% confidence level, p=50% is the probability that the studied event will occur (success), q=50% is the probability that the studied event does not occur (1−p), and E=2.75% is the maximum accepted margin of error.

Substituting these values into the formula:

METHODOLOGY

$$n = \frac{65536 \cdot 1.96^2 \cdot 0.5 \cdot 0.5}{0.0275^2 \cdot (65536-1) + 1.96^2 \cdot 0.5 \cdot 0.5}$$

$$n = \frac{65536 \cdot 3.8416 \cdot 0.25}{0.00075625 \cdot 65535 + 3.8416 \cdot 0.25}$$

$$n = \frac{62929.2544}{50.50586875}$$

$$n \approx 1245.76$$

Therefore, it was determined that a sample of approximately 1,246 websites would be appropriate for this study. For greater precision and to ensure representativeness, 1,250 websites were selected.

Verification, Categorization and Identification of Website forms

After selecting the 1,250 websites, it was verified that all of them were active and accessible. This step was crucial to ensure that the selected sample was valid and useful for the analysis.

Subsequently, the websites were categorized and the theme of each page was determined. The following table shows the distribution of websites by category:

CATEGORIES	TOTAL LINKS
GOVERNMENTAL	94
EDUCATIONAL	91
TURISM	56
HEALTHCARE	36
MARKETING AND BUSINESSES	605
PROFESSIONAL SERVICES	188
COMMUNICATION	43
OTHER	137
TOTAL:	1250

METHODOLOGY

Out of the 1,250 websites, 833 had registration or contact forms. These forms were evaluated to determine if they accepted email addresses with non-Latin characters.

Website Form Evaluation

Across the 833 websites that had contact forms, seven email addresses with non-Latin characters were tested to see if they accepted them. The email addresses used were:

- info1@ua-test.link
- info2@ua-test.technology
- info3@普遍接受-测试.top
- info4@ua-test.世界
- 测试1@ua-test.link
- 测试5@普遍接受-测试.世界
- دون@رسيل.السعودية

Every time an email was accepted by a website, it was noted in an online Excel file to keep an accurate record of the results. You can access the file using the following link: https://1drv.ms/x/s!AszYDpKov07wbayZc8sGGj7vbv0?e=OhbCD8

Error Log

While performing the testing, some websites provided a “cannot be found,” error message whilst attempting to do a registration process with a test email address. These specific cases were documented and are presented in the Annexes section.

METHODOLOGY

Data Analysis

The data collected was processed and analyzed using Microsoft Excel. Frequency and percentage analyses were performed for each of the variables studied, graphs and tables were generated so that it clearly illustrate the main findings. This detailed analysis allowed us to identify significant patterns and trends in the accessibility and characteristics of websites in El Salvador, providing a solid basis for formulating conclusions.

The methodology followed in this study ensures the reliability and validity of the data obtained, offering a comprehensive and detailed view of the accessibility and characteristics of websites in El Salvador. The use of probability sampling techniques and automated tools guarantees that the results are representative and accurate.

THE EVALUATION

The Center for Public Opinion Studies (CEOP) of the Paracentral Multidisciplinary Faculty of the University of El Salvador and the Vice Chair of Universal Acceptance Communication (UASG) evaluated 1,250 websites in El Salvador, classified in the categories of Government, Education, Tourism, Health, Business and Enterprise, Professional Services and Others.

The objective of this evaluation was to determine whether these sites accept various email address structures, including new generic top-level domains (gTLDs) and non-English characters. To do so, different email addresses were tested on registration and contact forms of the selected sites.

TESTED EMAIL ADDRESSES	
ascii@ascii.newshort	info1@ua-test.link
ascii@ascii.newlong	info2@ua-test.technology
ascii@idn.ascii	info3@普遍接受-测试.top
ascii@ascii.idn	info4@ua-test.世界
Unicode@ascii.ascii	测试1@ua-test.link
Unicode@idn.idn	测试5@普遍接受-测试.世界
Arabic.arabic@arabic	دون@ رسيل.السعودية

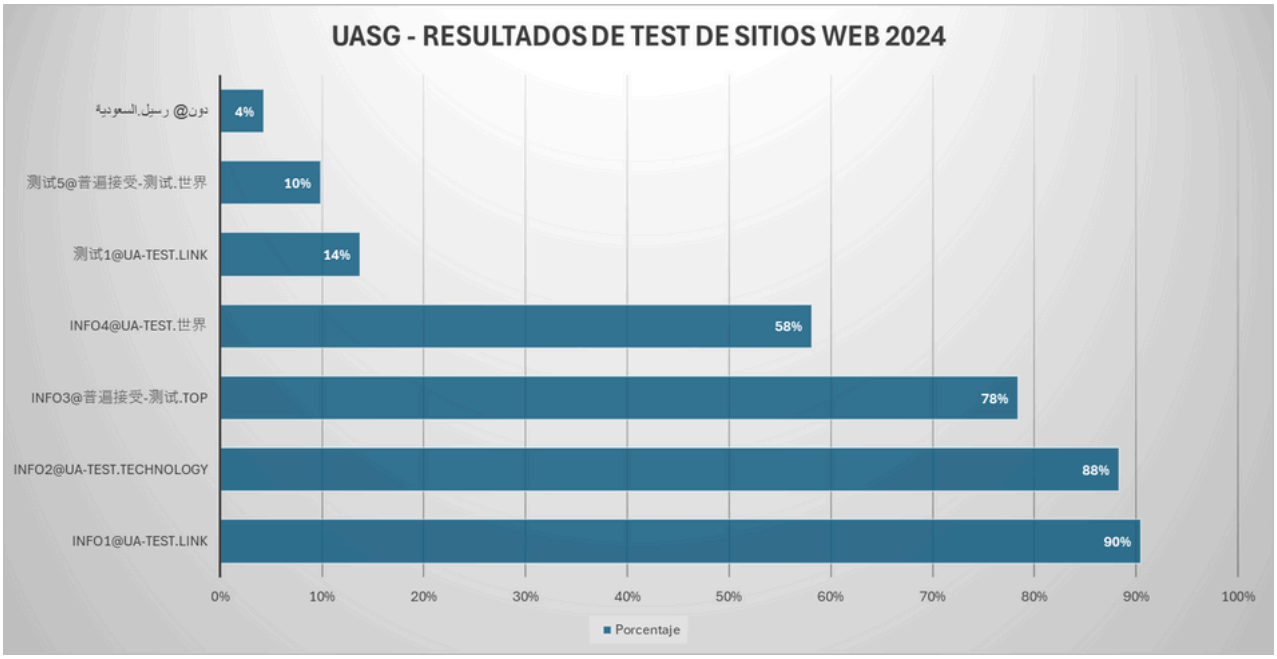
For each website evaluated, a page was found that allowed the registration of an email address and an attempt was made to register each of the evaluation cases.

RESULTS

One thousand two hundred and fifty websites from El Salvador were evaluated. Of these, 883 had email fields that could be tested. Seven different email addresses were tested on each website.

Thirty-eight websites (four percent) accepted all types of emails tested. Eighty-four websites (ten percent) rejected all email addresses. The remaining websites accepted some, but not all, of the emails tested.

tested email addresses		acceptace rate out of 833 websites	
ascii@ascii.newshort	info1@ua-test.link	799	90%
ascii@ascii.newlong	info2@ua-test.technology	780	88%
ascii@idn.ascii	info3@普遍接受-测试.top	692	78%
ascii@ascii.idn	info4@ua-test.世界	513	58%
Unicode@ascii.ascii	测试1@ua-test.link	121	14%
Unicode@idn.idn	测试5@普遍接受-测试.世界	87	10%
Arabic.arabic@arabic	دون@ رسيل.السعودية	38	4%



RESULTS

In addition to evaluating the results in general, it was considered necessary to analyze the level of acceptance of the seven different email addresses on each website in El Salvador according to their category.

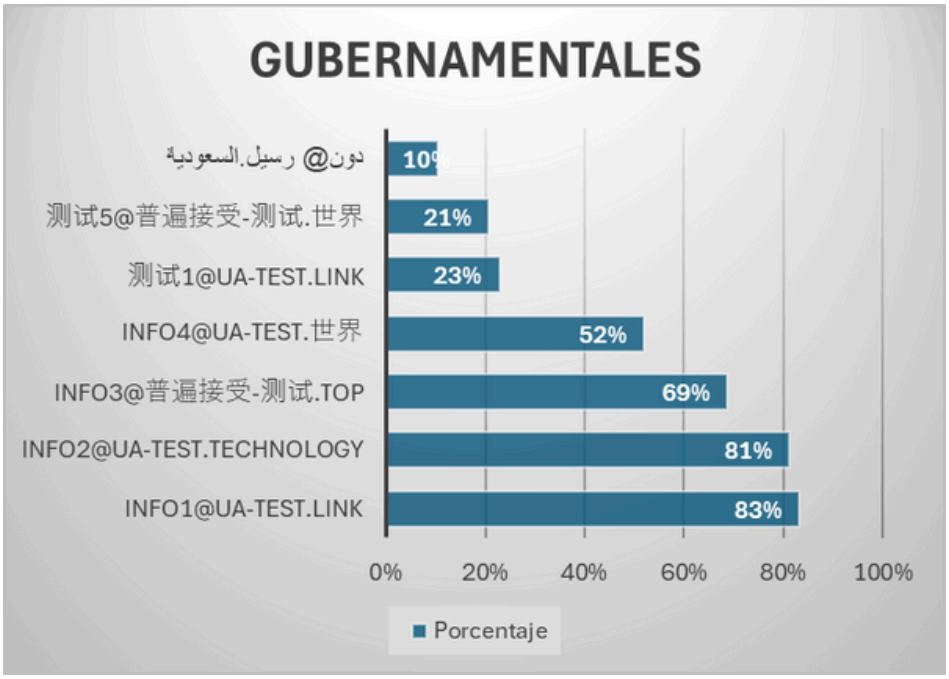
The websites were classified into the following categories: Governmental, Education, Tourism, Healthcare, Marketing and Business, Professional Services and Others. This classification allowed us to identify variations in the acceptance of emails between the different sectors.

The analysis by categories provides a detailed view of the state of Universal Acceptance in El Salvador, highlighting specific areas that require attention and improvement. This information is essential to guide future efforts towards the implementation of systems that support a greater diversity of email addresses, thus promoting a more inclusive and accessible Internet for all.

Of the 1,250 El Salvador websites tested, 48 were classified as Government. The results indicated that 10 percent of these sites accepted all types of email addresses tested, while 17 percent of the sites rejected all of the tested email addresses. The remainder accepted some, but not all, of the emails in our test cases.

tested email addresses		acceptace rate out of 48 websites categorized as Governmental	
ascii@ascii.newshort	info1@ua-test.link	40	83%
ascii@ascii.newlong	info2@ua-test.technology	39	81%
ascii@idn.ascii	info3@普遍接受-测试.top	33	69%
ascii@ascii.idn	info4@ua-test.世界	25	52%
Unicode@ascii.ascii	测试1@ua-test.link	11	23%
Unicode@idn.idn	测试5@普遍接受-测试.世界	10	21%
Arabic.arabic@arabic	دون@ رسيل.السعودية	5	10%

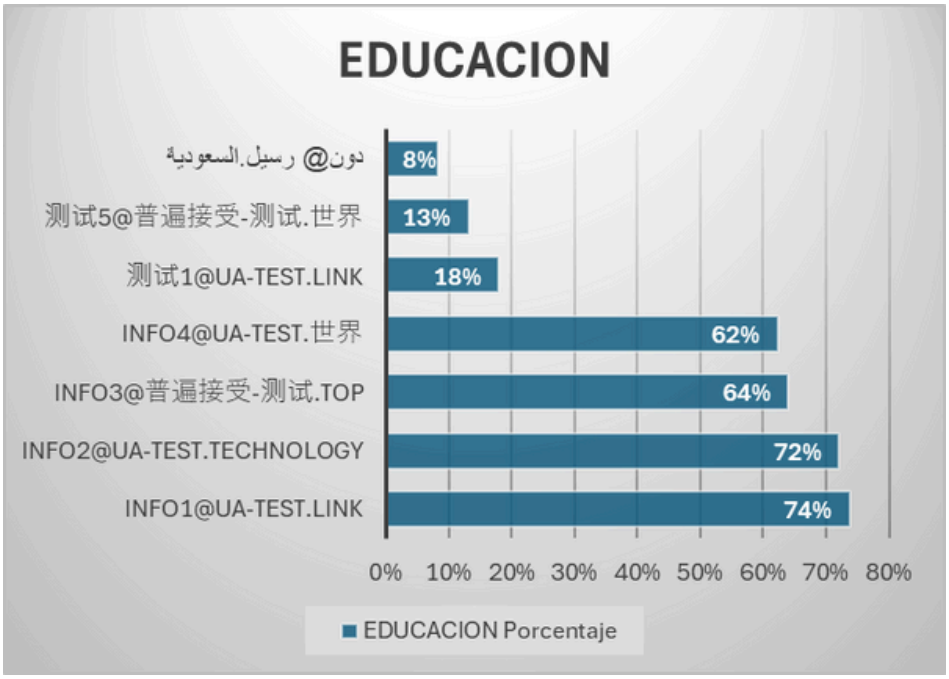
RESULTS



In the Education category, 61 websites were evaluated. Of these, 8 percent accepted all test email addresses, while 26 percent rejected all test email addresses. The remainder accepted some, but not all, of the emails in our test cases.

tested email addresses		acceptace rate out of 61 websites categorized as Education	
ascii@ascii.newshort	info1@ua-test.link	45	74%
ascii@ascii.newlong	info2@ua-test.technology	44	72%
ascii@idn.ascii	info3@普遍接受-测试.top	39	64%
ascii@ascii.idn	info4@ua-test.世界	38	62%
Unicode@ascii.ascii	测试1@ua-test.link	11	18%
Unicode@idn.idn	测试5@普遍接受-测试.世界	8	13%
Arabic.arabic@arabic	دون@ رسيل.السعودية	5	8%

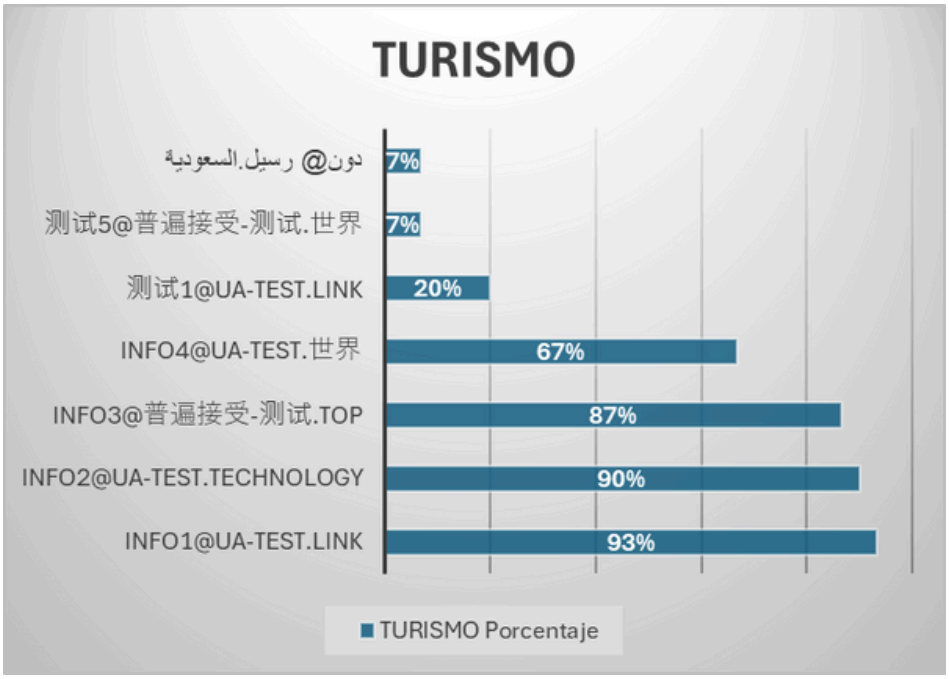
RESULTS



For the Tourism category, 30 websites were evaluated. The results indicated that 7 percent of these sites accepted all types of test emails, and another 7 percent rejected all test email addresses. The remainder accepted some, but not all, of the emails in our test cases.

tested email addresses		acceptace rate out of 30 websites categorized as Tourism	
ascii@ascii.newshort	info1@ua-test.link	28	93%
ascii@ascii.newlong	info2@ua-test.technology	27	90%
ascii@idn.ascii	info3@普遍接受-测试.top	26	87%
ascii@ascii.idn	info4@ua-test.世界	20	67%
Unicode@ascii.ascii	测试1@ua-test.link	6	20%
Unicode@idn.idn	测试5@普遍接受-测试.世界	2	7%
Arabic.arabic@arabic	دون@ رسيل.السعودية	2	7%

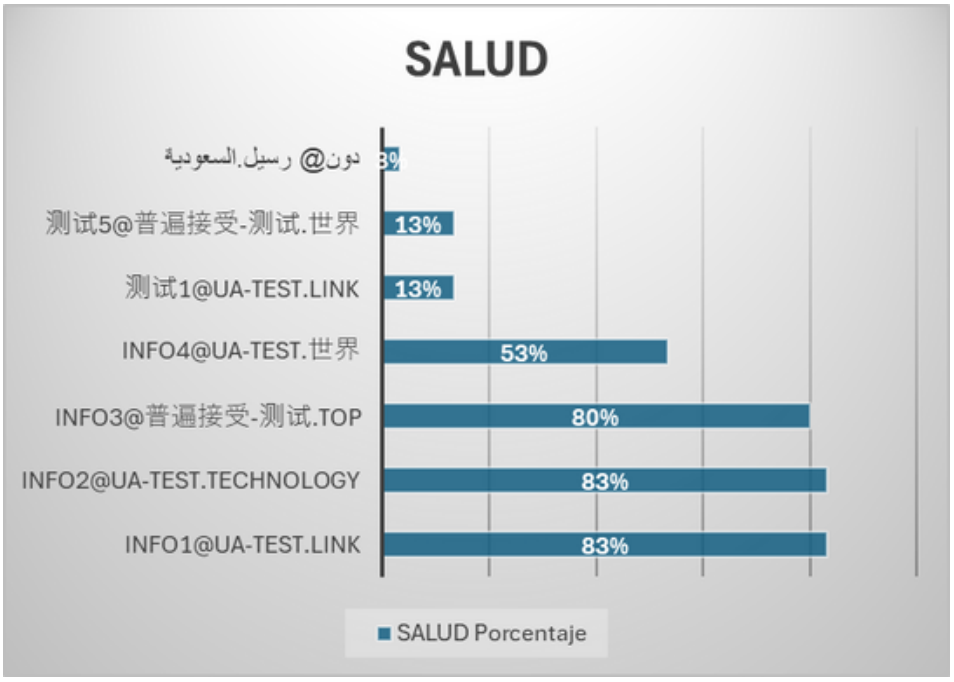
RESULTS



In Healthcare, 30 websites were evaluated. It was found that 3 percent of these sites accepted all test email addresses, while 17 percent rejected all test email addresses. The remainder accepted some, but not all, of the emails in our test cases.

tested email addresses		acceptace rate out of 30 websites categorized as Healthcare	
ascii@ascii.newshort	info1@ua-test.link	25	83%
ascii@ascii.newlong	info2@ua-test.technology	25	83%
ascii@idn.ascii	info3@普遍接受-测试.top	24	80%
ascii@ascii.idn	info4@ua-test.世界	16	53%
Unicode@ascii.ascii	测试1@ua-test.link	4	13%
Unicode@idn.idn	测试5@普遍接受-测试.世界	4	13%
Arabic.arabic@arabic	دون@ رسيل.السعودية	1	3%

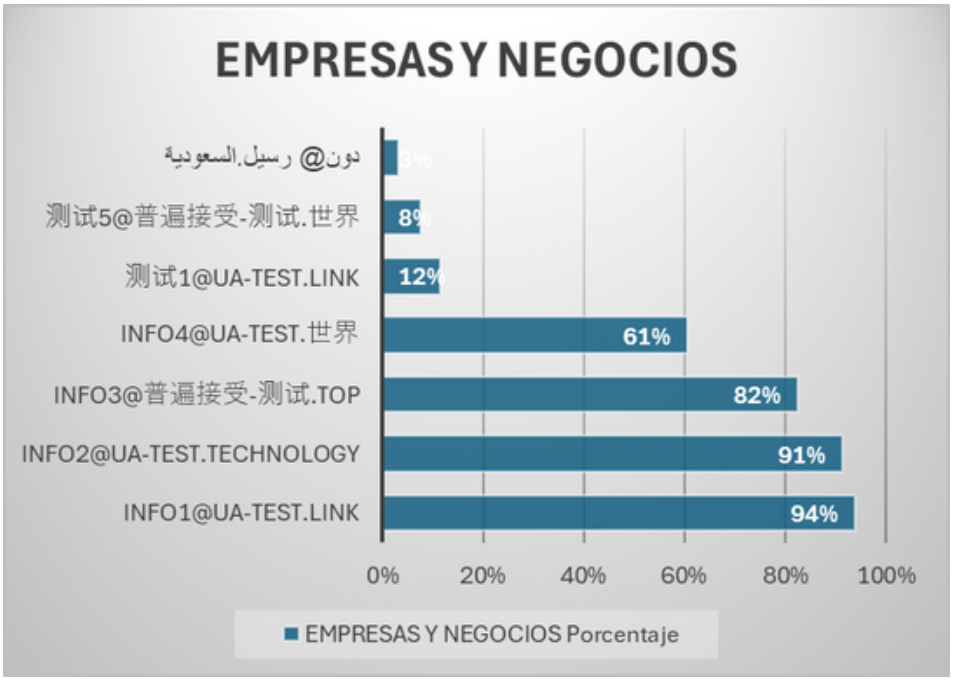
RESULTS



451 websites were evaluated in the Business and Enterprise category. Of these, 3 percent accepted all test email addresses, while 6 percent rejected all test email addresses. The remainder accepted some, but not all, of the emails in our test cases.

tested email addresses		acceptace rate out of 451 websites categorized as Marketing and Business	
ascii@ascii.newshort	info1@ua-test.link	423	94%
ascii@ascii.newlong	info2@ua-test.technology	412	91%
ascii@idn.ascii	info3@普遍接受-测试.top	372	82%
ascii@ascii.idn	info4@ua-test.世界	273	61%
Unicode@ascii.ascii	测试1@ua-test.link	52	12%
Unicode@idn.idn	测试5@普遍接受-测试.世界	34	8%
Arabic.arabic@arabic	دون@ رسيل.السعودية	15	3%

RESULTS



In the Professional Services category, 151 websites were evaluated. The results showed that 5 percent of these sites accepted all test email addresses, while 9 percent rejected all test email addresses. The remainder accepted some, but not all, of the emails in our test cases.

tested email addresses		acceptace rate out of 151 websites categorized as Professional Services	
ascii@ascii.newshort	info1@ua-test.link	137	91%
ascii@ascii.newlong	info2@ua-test.technology	134	89%
ascii@idn.ascii	info3@普遍接受-测试.top	113	75%
ascii@ascii.idn	info4@ua-test.世界	75	50%
Unicode@ascii.ascii	测试1@ua-test.link	18	12%
Unicode@idn.idn	测试5@普遍接受-测试.世界	13	9%
Arabic.arabic@arabic	دون@ رسيل.السعودية	7	5%

RESULTS

For the Communications category, 30 websites were evaluated. It was found that 3 percent of these sites accepted all test email addresses, and another 3 percent rejected all test email addresses. The remainder accepted some, but not all, of the emails in our test cases.

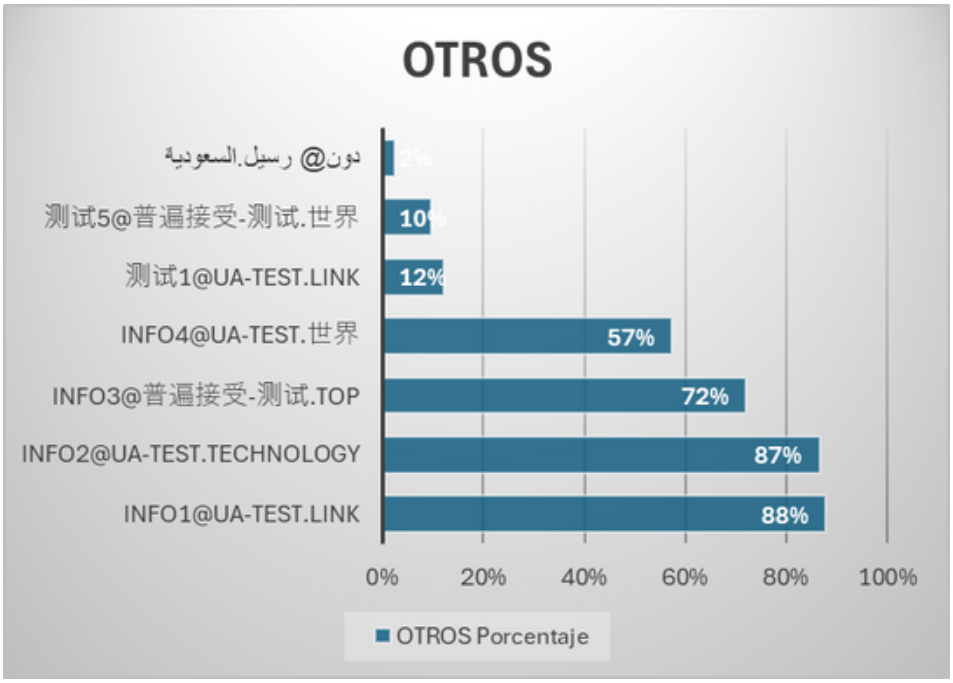
tested email addresses		acceptace rate out of 30 websites categorized as Communication	
ascii@ascii.newshort	info1@ua-test.link	29	97%
ascii@ascii.newlong	info2@ua-test.technology	28	93%
ascii@idn.ascii	info3@普遍接受-测试.top	26	87%
ascii@ascii.idn	info4@ua-test.世界	19	63%
Unicode@ascii.ascii	测试1@ua-test.link	9	30%
Unicode@idn.idn	测试5@普遍接受-测试.世界	8	27%
Arabic.arabic@arabic	دون@ رسيل.السعودية	1	3%

RESULTS

In the "Other" category, 82 websites were evaluated. The results indicated that 2 percent of these sites accepted all test email addresses, while 12 percent rejected all test email addresses. The remainder accepted some, but not all, of the emails in our test cases.

tested email addresses		acceptace rate out of 82 websites categorized as Other	
ascii@ascii.newshort	info1@ua-test.link	72	88%
ascii@ascii.newlong	info2@ua-test.technology	71	87%
ascii@idn.ascii	info3@普遍接受-测试.top	59	72%
ascii@ascii.idn	info4@ua-test.世界	47	57%
Unicode@ascii.ascii	测试1@ua-test.link	10	12%
Unicode@idn.idn	测试5@普遍接受-测试.世界	8	10%
Arabic.arabic@arabic	دون@ رسيل.السعودية	2	2%

RESULTS



It is evident that the email address ascii@ascii.ascii had the highest acceptance rate among the websites evaluated. In contrast, the address Arabic.arabic@arabic recorded the lowest acceptance rate. This discrepancy highlights the variability in validation methods employed by websites, indicating that addresses with simple ASCII characters are generally more accepted. On the other hand, addresses with non-Latin characters, such as those used in the address Arabic.arabic@arabic, encounter greater obstacles and restrictions, suggesting a need to improve validation systems to support a wider range of email addresses.

CONCLUSIONS

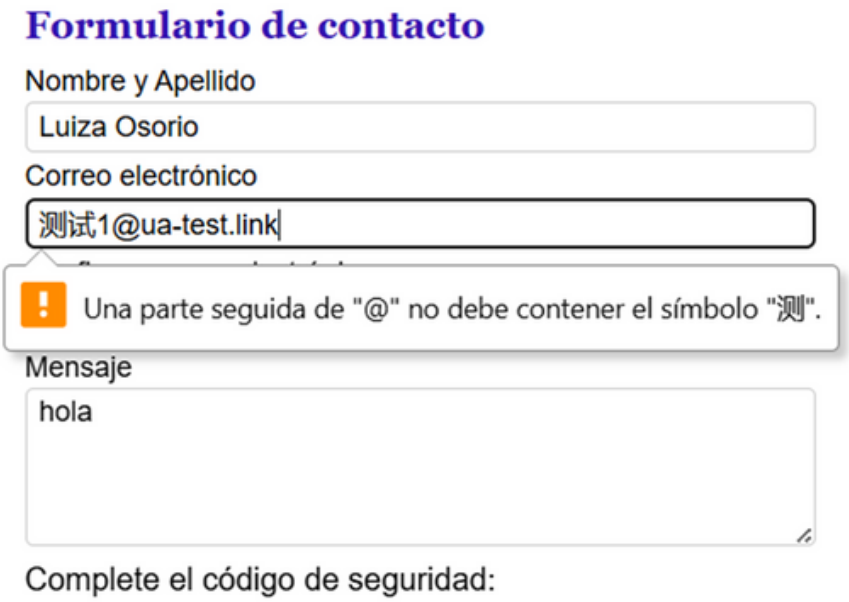
The results show that much work remains to be done to make El Salvador's websites UA-compliant.

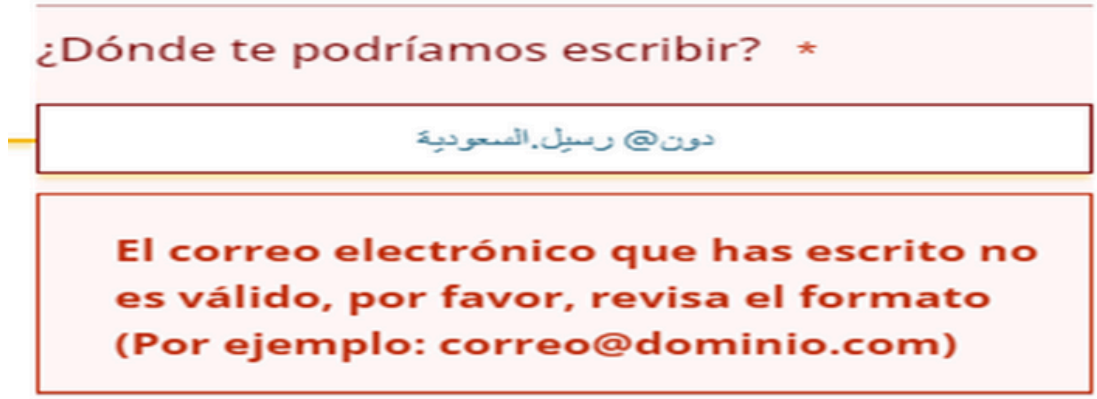
The study showed that most of the El Salvador's websites evaluated show inconsistencies in the acceptance of email addresses, with significant variations depending on the categories. The address ascii@ascii.ascii had the highest acceptance rate, while arabic.arabic@arabic had the lowest.

Further studies are needed to better understand the reasons why emails are not accepted, so it would be important to fund such studies that include verification of source codes in the validation process on forms.

ANNEXES

Examples of errors





ANNEXES


REGISTRARSE
Nombre de usuario *
laura mendoza
Dirección de correo electrónico *
El texto seguido del signo "@" no debe incluir el símbolo "د".
Fuerte
REGISTRARSE


Si estás listo para iniciar tu estrategia digital, completa el formulario.
Falló el envío del formulario. Revisa la siguiente información: Email.
Nombre completo
FERNANDO MANUEL HENRIQUEZ BENITO
Email
Email no es válido. Las direcciones de correo electrónico deben seguir el formato usuario@dominio.com.
Teléfono
El Salvador
Empresa
EL SALVADOR
Servicio a cotizar
Cotizar solución digital