IPS ✕ Institute for Policy Studies
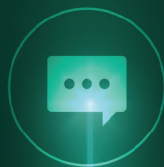and Media Development

UNDP

GOVERNANCE AND PARTICIPATION

A Series of Policy Discussions Papers

FIRST REVIEW OF ACCESSIBILTY AND USER-FRIENDLINESS OF 63 PROVINCIAL E-SERVICE PORTALS IN 2023

August 2023

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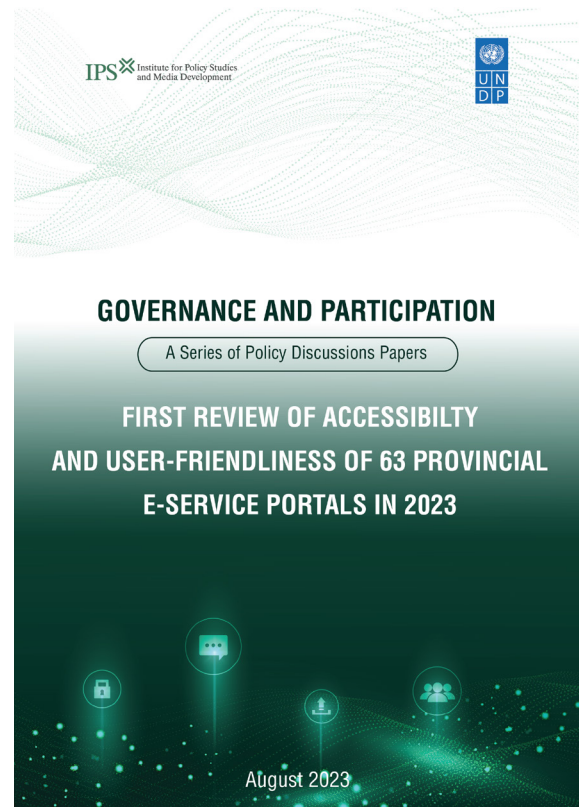*[Unofficial translation]*

August 2023

The series of Governance and Participation Policy Discussion Papers is commissioned by the Governance and Participation Team at UNDP Viet Nam.

The series aims to analyse trends in Viet Nam regarding the implementation processes and options in specific public administration reform areas. To confront the social, economic, political and environmental challenges facing Viet Nam, policymakers need to adopt evidence-based decision-making. These policy papers aim to contribute to current policy debate by providing discussion inputs on policy reforms – thereby helping to improve Viet Nam's development efforts.

Three principles guide the production of the policy discussion papers: (i) evidence-based research, (ii) academic rigour and independence of analysis, and (iii) social legitimacy and a participatory process. This involves a substantive research approach with a rigorous and systematic identification of policy options on key public administration reform and anti-corruption issues.

Disclaimer: The views expressed in this policy research paper do not necessarily reflect the official position of the United Nations Development Programme (UNDP). The statistical figures provided only reflect the situation at the time of assessment (before 1st June 2023). Any change or additional updates to the provincial e-service portals since 1st June 2023 have not been recorded in this report.

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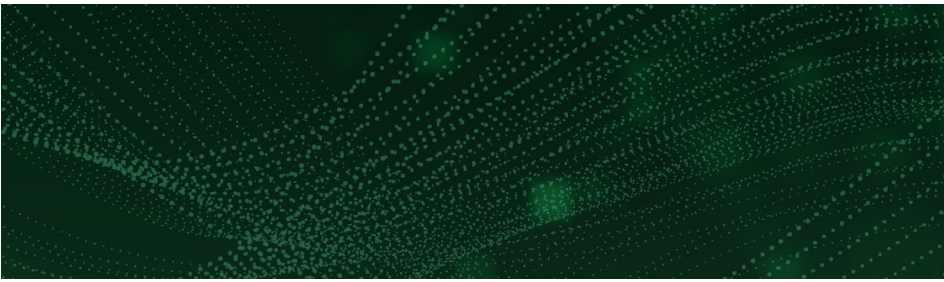Tong Khanh Linh

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List of Abbreviations and Acronyms

EGS	E-Government Services
ESP	E-Service Portal
FAQ	Frequently Asked Question
HCMC	Ho Chi Minh City
IPS	Institute for Policy Studies and Media Development
ICT	Information and Communication Technology
PWD	People with Disabilities
PAPI	Viet Nam Provincial Governance and Public Administration Performance Index
UNDP	United Nations Development Programme
WAVE	Web Content Accessibility Guidelines

ACKNOWLEDGEMENTS

EXECUTIVE SUMMARY

Viet Nam's National Digital Transformation Program aims to improve the quality of e-government services (EGS) for the period 2025-2030. Some of the ambitious goals are to provide 100 percent of eligible administrative procedures as end-to-end EGS, accessible through various channels, including mobile devices; to design and redesign 100 percent of EGS to optimize user experience, seamless identification and authentication with pre-filled data; and to ensure at least 90 percent of citizens and businesses are satisfied with the resolution of administrative procedures, among others. However, statistics show that the usage rate of EGS by citizens is low, reaching only 18 percent in the first 7 months of 2022[i]. Additionally, survey data from the Provincial Governance and Public Administration Performance Index (PAPI) reveal that only 3.05 percent of respondents reported having created user profiles on the National E-service portal (ESP), and over 1 percent had used the National ESP for submitting administrative procedures.

In such a context, the report **"First Review of Accessibility and User Friendliness of 63 Provincial E-Service Portals in 2023"**

was conducted to assess the user friendliness of ESPs from the perspective of user experience. The report also aims to propose solutions to make the EGS system more user-friendly, smart, and convenient. The evaluation is based on three groups of criteria:

1. Information retrieval and search functionality in terms of availability, effectiveness, and ease of use;

2. Online administrative procedure execution in terms of intelligence and convenience for users; and

3. User-friendliness of the ESP interfaces.

This evaluation was done by two user groups: the general user group and disadvantaged user group (specifically, ethnic minorities and PWD). Moreover, to verify key findings against real-life experiences of users who have directly used the services, the evaluation team also analysed 200 user feedback and recommendations regarding EGS posted on the National ESP from November 28, 2022, to April 11, 2023.

Following are the main findings and recommendations from the 2023 review.

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[i] According to the report of the National Digital Transformation Committee on August 8, 2022.

CURRENT SITUATION REGARDING THE USER-FRIENDLINESS OF PROVINCIAL ESPS

The review results show that there are still some challenges in implementing end-to-end EGS, and the interfaces of provincial ESPs do not fully adopt a user-centric approach. Here are the five key issues:

First, the features for implementing end-to-end ESPs are not yet adequate. The test results for processing the "Issuance of Judicial Record Certificate" service reveal that many provincial ESPs do not allow users to complete this service fully online. There are 26 ESPs that require users to submit original documents for verification if they submit scanned or online copies. Moreover, 24 ESPs do not allow online delivery of the Certificate, instead requiring users to choose to receive the result by mail or in person at the receiving agency. It is noteworthy that 17 ESPs require users to make online payments before submitting their documents. This situation creates the drawback that if the documents are invalid, the receiving agency must take an extra step of refunding the fee to the user. These existing issues indicate the risk of misunderstanding that end-to-end ESPs have been provided when they are only partially online (Level 3 according to the previous classification).

Second, the process of conducting administrative procedures on the electronic platform has not been optimized for users.

Firstly, there are still challenges in using the information search feature. There are 36 provincial ESPs that do not display a search tool on the homepage, requiring users to spend extra time searching within subpages. The effectiveness of the search tool is also not optimized, as there are 25 provincial ESPs that do not produce results if the search keywords contain spelling errors. Four ESPs (Cao Bang, Tuyen Quang, Lai Chau, Yen Bai) require users to log in to their accounts before conducting a search, and four provincial ESPs (Son La, Quang Ninh, Bac Giang, Phu Yen) require users to enter the executing unit's name before allowing a search. As for the function of submitting online application, the provincial ESP for "Issuance of Judicial Record Certificate" has not been user-friendly for applicants. The classification of application cases is currently designed based on the direct needs of the document processors, which creates difficulties for applicants as they must understand the procedures and the corresponding classification themselves. Moreover, no provincial ESP provides complete specific instructions for users to independently complete their application. Some provincial ESPs (e.g., An Giang, Ninh Binh, Quang Ngai) require users to enter personal information multiple times (information of the applicant, information of the document submitter, additional information, electronic declaration information) unnecessarily. It is

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II The public service of providing Judicial Records Certificate is available to two groups of individuals: Vietnamese citizens and foreign residents in Viet Nam.

issuing a Judicial Record Certificate has only been transferred from its original paper form to electronic form, without flexible technical improvements to facilitate user convenience in the digital environment.

Third, there remain challenges in connecting data, user accounts, and interfaces between the central and local ESP systems. As of May 30, 2023, only ESP of Thai Nguyen displayed a feature that allows updating personal profiles from the national population database. Meanwhile, the ESPs of Hai Phong, Ninh Binh, Thua Thien-Hue, Da Nang, and Bac Lieu do not yet allow automatic login from the National ESP or VNeID account. For the service experience of "Issuing criminal record certificates for Vietnamese citizens and foreigners residing in Viet Nam," the ESPs of Soc Trang and Ca Mau confuse users because the provincial ESPs announce "Note: Submit applications through the National Public Service Portal," but when accessed through the National ESP, it redirects to the Justice Department's ESP of these two provinces.

Fourth, all 63 provincial ESPs are considered difficult to access for users who are visually impaired individuals and ethnic minorities. None of the provincial ESPs ensure all six basic accessibility criteria for a Level A website according to the Web Content Accessibility Guidelines (WCAG) 2.0 for users who rely on screen

Regarding ethnic minority users, the current situation that 62 provincial ESPs do not provide voice search functionality, and the search tools of 25 provincial ESPs do not yield results if the spelling of the search keywords is incorrect causes difficulties. Considering the characteristics of this user group, which includes those people that are not proficient in reading or writing Vietnamese, enabling information search through voice and approximate phrases is extremely necessary.

Fifth, the commitment to protecting personal data and ensuring information security has not been given adequate attention. Among the 63 provincial ESPs, only three ESPs of Thua Thien-Hue, Da Nang, and Gia Lai[III] have privacy policies, like the review results in 2022[IV] In terms of meeting information security standards from the perspective of popular web browsers[V] only 10 ESPs meet at least seven out of 11 basic safety criteria.

Limitations in technology, human resources, and processes derived from user feedback and recommendations

The in-depth analysis of 200 user feedback and recommendations on the National ESP confirms the findings from the evaluation of the 63 provincial ESPs. User feedback also shows that the implementation of ESP is facing many limitations in all three aspects: technology, human resources, and processes.

[III] Only English version is available on the ESP of Gia Lai province.

[IV] For detailed assessment on the protection of personal data, please visit: https://papi.org.vn/danh-gia-viec-bao-ve-du-lieu-ca-nhan-tren-cac-nen-tang-tuong-tac-voi-nguoi-dan-cua-chinh-quyen-dia-phuong-nam-2022/

[V] Assessed by using the following tools: https://observatory.mozilla.org/

- Technical issues include faulty ESPs, lack of online submission guidelines, no online application submission option, inability to update profiles online, inability to make online payments, inability to submit additional documents online, outdated data, system failure to update application status promptly, and rejected digital signatures.

- Human-related shortcomings include officials returning applications with insufficient reasons, failure to explain or guide citizens when applications are incorrect, officials not answering hotline calls promptly to address citizen queries, officials lacking clarity about the processes, inappropriate attitudes from officials, and officials creating unnecessary difficulties for citizens to ask for bribes.

- Process and procedural limitations include delays in the application acceptance process, requests for online applicants to provide additional documents in person, and unclear processes for online submission, acceptance, return, and rejection of applications.

RECOMMENDATIONS

Recommendations for enhancing the user-friendly and easy-to-use interface of the ESPs

1. Usability of search and information retrieval tools: Ensure the synchronization of advanced search tools in three aspects: (1) easily accessible and displayed on the homepage; (2) optimized for keyword search and providing suggestions for closest search results; and (3) incorporating voice search functionality.

2. Availability and usability of user support tools: Standardize the interface and content requirements for three user support tools: (1) User manuals; (2) Frequently Asked Questions (FAQs); and, (3) Interactive features with virtual assistants.

For user manuals, important principles to consider include: (i) Prioritizing the use of visual images and short, intuitive videos; (ii) Using user-friendly language, avoiding abbreviations, foreign languages, and technical terms; and (iii) Clearly classifying user manuals based on the EGS process and the target audience (officials or citizens/businesses).

3. Availability of contact information: Ensure that each locality provides all three types of contact information, including (1) hotlines for administrative procedure support, (2) technical support hotlines, and (3) contact information for the one-stop department in all relevant offices. The display location of contact information should be easily accessible for users.

4. Transparency in providing information on the effectiveness of EGS delivery: In addition to overall statistics on the number of timely and delayed applications, the following additional information should be publicly disclosed: (i) Number of days delayed; (ii) Names of departments or agencies with pending applications; (iii) Reasons for delays; (iv) Content of the applications; and (v) Content of additional document requirements. These indicators allow citizens and management authorities

at all levels to monitor and supervise the process while putting pressure on officials/agencies to complete their work on time.

5. Intelligence level of ESPs: First, enhance data connectivity between the National ESP and provincial ESPs. Second, redesign the electronic document component. Electronic forms should provide direct guidance at each data entry field and allow users to save/update the form. Error reporting features should also be improved to enable users to identify and correct errors promptly. Third, review and improve features facilitating online application submission, payment, and receipt of application results.

6. Creating conditions for citizens to evaluate their satisfaction level: Standardize tools for citizens to evaluate their satisfaction level, divided into two levels: periodic and regular evaluations. For regular evaluations, in real-time, the goal is to measure citizen satisfaction. The evaluation form should meet two criteria: (i) Accessibility - ideally, it should be available immediately after completing the application process; (ii) Simplicity (maximum five questions) that can be quickly completed (within 45 seconds), preferably using a star rating evaluation method. For periodic evaluations, the goal is to assess users' in-depth experiences to identify areas that need improvement. Therefore, the questions can be more detailed, including both quantitative and qualitative questions, and should focus on specific services or service groups that require improvement.

7. E-service interface's user-friendliness level on mobile phones: The management unit of the ESPs needs to use tools to evaluate the user-friendliness level of the interface on mobile phones and make appropriate adjustments. Additionally, it is necessary to enhance the capacity of the technical team of the Departments of Information and Communications in reviewing the usability of ESPs on smartphones.

8. Accessibility level for people with disabilities: The management unit of the ESPs needs to regularly (monthly or quarterly) use automatic scanning tools (WAVE Web Accessibility Evaluation Tools and Accessibility Insights) to review, detect, and improve the accessibility for people with disabilities using screen readers, as well as other user groups with similar needs. Depending on the resources of each province or city, it may be possible to invite groups of people with disabilities to participate in evaluating the user experience of the ESPs, thereby making appropriate adjustments.

9. Commitment to safeguard personal data and information security: It is necessary to ensure measures to protect personal data and information security on the interfaces of the ESPs. The ESPs need to ensure standard terms of use, privacy policies, and mechanisms for user consent. Regarding information security, regular reviews and assessments should be conducted to avoid basic technical errors that may lead to personal information breach.

[VI] See: https://wave.webaim.org/ for more information.
[VII] See: https://accessibilityinsights.io/ for more information.

Recommendations to improve policies on promoting EGS development

1. It is necessary to focus on quality rather than quantity by prioritizing the improvement of the online provision process for 25 essential e-services. In the case of introducing new policies (such as transitioning from classifying e-services into levels 1, 2, 3, 4 to end-to-end-online/ partial-online classifications), pilot deployments should be conducted in representative provinces and cities (e.g., Hanoi and HCMC, which are densely populated and have the highest number of migrants in the country; Ha Giang and Quang Binh, which have many communities in remote and underdeveloped areas with difficult ICT infrastructure) before nationwide implementation. During the testing or trial operation of ESP services, there should be policies to ensure user participation for receiving feedback from

2. It is necessary to ensure accessibility for vulnerable groups to achieve "leave no one behind" digital transformation. Some measures include: (1) Mandating criteria for accessibility (web content accessibility WCAG and similar international standards) for ICT products and services in public procurement activities, where accessibility standards are mandatory contract terms; (2) Initiating policies for developing accessibility assessment services to create right conditions and encourage the participation of disabled and elderly users in assessment

activities; and (3) Promulgating policy that facilitates public-private partnerships between local governments and domestic and international technology companies to developing language support tools such as video clips in ethnic languages and screen readers for automatic reading interface screens for ethnic minority languages and individuals with visual impairments.

3. It is vital to establish regulations on technical standards for connecting and interoperating the e-service delivery systems. In the context of continuous updates and changes in e-government and digital government in the next 5-10 years, this standardization will provide a solid foundation for adaptation in case of changes in contractors or the need for product updates or supplements, reducing the costs of transition and updates. Moreover, regulating the connection standards of e-government and digital government systems at various levels aims to create opportunities for technology startups and small- and medium-sized service providers to contribute to the e-government and digital government ecosystem, thereby promoting the development of Viet Nam's technology market.

RESEARCH METHODOLOGY

Evaluate the user exeprience when performing e-government services (EGS) on 63 provincial e-services portals (ESP)

EVALUATION OBJECTIVES

Evaluate the user exeprience when performing e-government services (EGS) on 63 provincial e-services portals (ESP)

EVALUATION SUBJECTS

63 Provincial ESPs' interfaces

2 User support features in:

- Searching and retrieving administrative procedures
- Performing administrative procedures

Spratley Islands (Vietnam)

Paracel Islands (Vietnam)

200 User feedback and recommendations posted on the National ESP

In-depth analysis and comparision of:

- Feedback and recommendations posted by users
- Responses from government agencies

◄ 09 CRITERIA

Group 1 Evaluation of administrative procedures search and information retrieval tools

1 Ease of use of search and information retrieval tools

| Administrative procedures | Records result |

2 Availability and ease of use of user support tools

| User manuals | Frequently asked questions | Virtual assistant |

3 Availability of contact information

| ESP' phone number and email address | Contact point of single-window unit |

4 Transparency of information

| Status of the settlement of administrative procedures, | User experience evaluation results |

Group 2 Evaluation of the online administrative procedures implementation functionality

5 Intelligence of EGS

| Interconnection between the National ESP and provincial ESP in terms of interface, accounts, and data; | Level of automatic support provided by the ESP to enable users to independently create electronic administrative records | Level of completeness of features for providing end-to-end EGS |

6 Level of allowing citizens to assess their satisfaction level

| Evaluation through VnForm | In-depth survey of the administrative procedures settlement process; | Evaluation of citizens' satisfaction level |

Group 3 Evaluation of the user-friendliness of the interfaces of ESP

7 User-friendliness of the mobile interface

| Page loading speed on mobile interfaces, | Page compatibility with mobile interfaces |

8 Accessibility for people with disabilities (WCAG 2.0 standards)

9 Commitment to personal data protection and information security

| Publication of privacy policies by ESPs | Compliance with modern Internet standards | Ensuring information security from the perspective of common web browsers |

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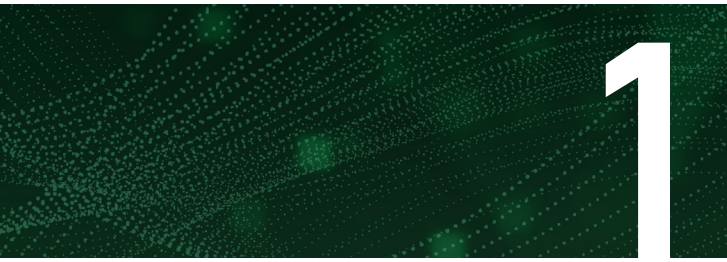
INTRODUCTION

1.1. Review Background

Providing high-quality e-government services (EGS) to serve society is the top priority goal of Viet Nam's National Digital Transformation Program by 2025 with a vision towards 2030;[1] and the Strategy for the development of e-Government towards digital Government for 2021 - 2025 period with orientations towards 2030[2]. This is simultaneously the objective of building and developing e-Government, Digital Government in the comprehensive program of administrative reform for the period 2021-2030.[3]

These programs and strategies all embrace the perspective of adopting a user-centric approach and using citizens' satisfaction as the evaluation measure. Some of the ambitious goals set by the Government (by 2025) are to provide 100 percent of eligible administrative procedures as end-to-end EGS, accessible through various channels, including mobile devices; to design and redesign 100 percent of EGS to optimize user experience, seamless identification, and authentication with pre-filled data; to ensure 100 percent of citizens and businesses use seamless identificated and authenticated EGS that are integrated across all levels of government systems, from central to local authorities; and to ensure at least 90 percent of citizens and businesses are satisfied with the resolution of administrative procedures.

From 2021 to the present, the legal framework for promoting the implementation of EGS has been increasingly perfected, specifically in the following aspects: implementing the single-window and inter-agency single-window mechanism in the settlement of administrative procedures;[4] regulations on electronic identification and authentication;[5] regulations on the management, operation,

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[1] See: https://thuvienphapluat.vn/van-ban/Cong-nghe-thong-tin/Quyet-dinh-749-QD-TTg-2020-phe-duyet-Chuong-trinh-Chuyen-doi-so-quoc-gia-444136.aspx. for more information.

[2] See: https://thuvienphapluat.vn/van-ban/Cong-nghe-thong-tin/Quyet-dinh-942-QD-TTg-2021-Chien-luoc-phat-trien-Chinh-phu-dien-tu-huong-toi-Chinh-phu-so-477851.aspx. for more information.

[3] See https://thuvienphapluat.vn/van-ban/Bo-may-hanh-chinh/Nghi-quyet-76-NQ-CP-2021-Chuong-trinh-tong-the-cai-cach-hanh-chinh-nha-nuoc-2021-2030-481235.aspx. for more information.

[4] Decree No. 107/2021/ND-CP dated December 6, 2021, amending and supplementing the Decree No. 61/2018/ND-CP dated April 23, 2018 of the Government on the implementation of the single-window and inter-agency single-window mechanism in the settlement of administrative procedures; Decree No. 104/2022/ND-CP dated December 21, 2022, amending and supplementing a number of articles of Decrees relating to the submission and presentation of household registration books and temporary residence books when carrying out administrative procedures or providing public services; Decision No. 468/QD-TTg dated March 27, 2021, approving Scheme for renovation of single-window system and inter-agency single-window system in the settlement of administrative procedures.

[5] Decree No. 59/2022/ND-CP dated September 5, 2022, regulating electronic identification and authentication; Decision No. 06/QD-TTg dated January 6, 2022, approving the Scheme on developing the applications of the population database, the personal identification and eKYC for the national digital transformation for the 2021-2025 period with a vision towards 2030; Directive No. 05/CT-TTg dated February 23, 2023, on strengthening the implementation of Project on development of national population database, electronic identification and authentication for national digital transformation in 2022-2025 period, with vision to 2030 in ministries, branches and localities in 2023 and following years.

and exploitation of e-services portals (ESP);[6] evaluating the quality of services for citizens and businesses in administrative procedures and public services;[7] and removing bottlenecks for the development of e-Government.[8] The current priority task is to promote the implementation of eligible administrative procedures to level 4 and integrate them into the National Public Service Portal.

However, statistics show that the usage rate of EGS by citizens is low.[9] According to the report of the National Digital Transformation Committee,[10] the percentage of citizens using online public services accounted for 1.78% in 2020, 9.51% in 2021, reaching only 18 percent in the first 7 months of 2021. Additionally, survey data from the Provincial Governance and Public Administration Performance Index (PAPI) for the years 2021 and 2022[11] reveal that only 3.05 percent of respondents reported having created user profiles on the National ESP, and over 1 percent had used the ESP for submitting administrative procedures. If the improvement rate of these indicators remains low, it will be difficult for the country to achieve the national digital transformation goals by 2025.

Therefore, conducting research and figuring out the reasons to propose comprehensive solutions to increase the citizens' usage rate of ESP is of the utmost.

1.2. Review Objectives

The objectives of the review are as follows:
First, to understand the current status of satisfying the minimum features of provincial ESP as well as user experiences, including vulnerable groups such as people with disabilities (PWD) and ethnic minorities when using these portals.

Second, to propose policy recommendations aimed at:

- Improve user experience on provincial ESP and guide the development of smart EGS;

- Ensure access and benefits from EGS for vulnerable groups and implement the principle of inclusivity in the digital transformation process;

- Address issues related to overlapping functions between local and national applications.

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[6] Decree No. 42/2022/ND-CP dated June 24, 2022, on prescribing provision of online information and online public services by regulatory bodies; Decision No. 31/2021/QD-TTg dated October 11, 2021, promulgating the Regulation on management, operation and exploitation of the National Public Service Portal; Circular No. 22/2019/TT-BTTTT dated December 31, 2019 regulating the functional criteria and technical features of the Public Service Portal and the electronic single-window system at the Ministry and provincial levels.

[7] Decision No. 766/QD-TTg dated June 23, 2022, Approving the set of indicators in reference to the direction, administration and assessment of the quality of services provided to citizens and enterprises in the performance of administrative procedures and public services in real time in the electronic environment; Circular No. 22/2019/TT-BTTTT dated December 31, 2019 regulating the functional criteria and technical features of the Public Service Portal and the electronic single-window system at the Ministry and provincial levels.

[8] Directive No. 02/CT-TTG dated April 26, 2022, on the development of e-government towards digital government and promotion of national digital transformation; Circular No. 01/2023/TT-VPCP, in which providing guidelines on the criteria for end-to-end EGS.

[9] See: https://vtv.vn/xa-hoi/vi-sao-nguoi-dan-chua-man-ma-su-dung-dich-vu-cong-truc-tuyen-20220821062744991.html. for more information

[10] At the online meeting held on August 8, 2022.

[11] View the PAPI (Public Administration Performance Index) reports for 2021 and 2022 here https://papi.org.vn/bao-cao/.

1.3. Review Methodology

Firstly, a review and evaluation of the interfaces of 63 ESP of 63 provinces and cities was conducted based on 09 criteria,[12] as detailed in Table 1 below.

Table 1: Content of 09 evaluation criteria

Criteria	Content	Composition criteria
Group 1: Evaluation of administrative procedures search and information retrieval tools in terms of availability, effectiveness, and user-friendliness		
Criterion 1	Ease of use of search and information retrieval tools	Evaluation of 02 user support features for retrieving: 1) administrative procedures; 2) records result
Criterion 2	Availability and ease of use of user support tools	Evaluation of 03 user support features for performing EGS: 1) user manuals, 2) frequently asked questions, and 3) virtual assistant
Criterion 3	Availability of contact information	Evaluation of the publication of contact information such as phone numbers and email addresses of relevant agencies involved in providing EGS
Criterion 4	Transparency of information	Evaluation of ESP performance in the publication of: 1) status of the settlement of administrative procedures; 2) user experience evaluation results
Group 2: Evaluation of the online administrative procedures implementation functionality in terms of intelligence and user convenience		
Criterion 5	Intelligence of EGS. Experience of the service 'Issuance of Criminal Record Certificates for Vietnamese citizens and foreign residents in Vietnam'	Evaluation of 03 aspects: 1) interconnection between the National ESP and provincial ESP in terms of interface, accounts, and data; 2) level of automatic support provided by the ESP to enable users to independently create electronic administrative records without assistance from local public officers[13]; 3) level of completeness of features for providing end-to-end EGS.[14]
Criterion 6	Level of allowing citizens to assess their satisfaction level	Reviewing the methods ESPs allow citizens to evaluate their satisfaction level

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[12] These criteria were selected based on a curated combination of the E-government Benchmark of European Union (EU) member countries and other research on user experience from different nations (see References section).

[13] Those features include document filtering, automatic form filling, instructions on how to fill out information, notifications for incomplete information, allowing temporary saving, updating, and canceling of applications, and enabling users to provide online satisfaction ratings immediately after using the service.

[14] Specifically, these criteria encompass the following functionalities: i) online application submission, ii) online access to application results, iii) online payment capability.

Group 3: Evaluation of the user-friendliness of the interfaces of ESP		
Criterion 7	User-friendliness of the mobile interface	Evaluation of 02 important aspects: 1) page loading speed on mobile interfaces and 2) page compatibility with mobile interfaces.
Criterion 8	Accessibility for people with disabilities	This criterion is assessed based on 06 selected accessibility criteria from WCAG 2.0 standards, in correlation with Circular 32/2017/TT-BTTTT to ensure the minimum accessibility level of Level A electronic information pages[15] for ESP. Specifically includes SC 1.1.1, SC 1.3.1, SC 2.1.1, SC 2.4.4, SC 2.4.6, SC 3.3.2.
Criterion 9	Commitment to personal data protection and information security[16]	Evaluation of 03 aspects: 1) publication of privacy policies by ESPs; 2) compliance with modern Internet standards; 3) ensuring information security from the perspective of common web browsers.

During the data collection process, for criteria without reported data, the research team utilized data from the National Digital Transformation Index (DTI) to create simulated data that has relative characteristics.[17]

Secondly, an user experience analysis was conducted. To ensure an objective evaluation that faithfully reflects the users' perspectives, the research team analyzed 200 feedback and recommendations related to EGS experience, which were publicly available on the National Public Service Portal. These feedback and recommendations were collected within the timeframe from November 28, 2022, to April 11, 2023. To ensure the accuracy of the findings, the research team thoroughly analyzed both the user-submitted feedback and the responses from government agencies, rather than solely relying on the issues raised by users to draw conclusions.

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[15] The Web Content Accessibility Guidelines (WCAG) 2.0 introduced the concept of three "levels" of compliance known as Level A (single A), Level AA (double A), and Level AAA (triple A). Typically, an organization will strive for their web content to meet one of these levels, with Level A being the basic accessibility level and Level AAA being the highest. Level A: If a web page's content does not meet all the requirements for Level A, then some or all those requirements will not provide full accessibility for a particular user group. Level AA: If the web content meets Level A but not Level AA, then some or all the content will be difficult to access for some users. Level AAA: Meeting all the requirements for Level AAA means that the content is more easily accessible, considering current web technology and end-user tools.

[16] Similarly, for criterion number 8, criterion number 9 focuses on evaluating basic web browsing safety standards without delving into system security criteria such as the ability to withstand DOS attacks, traceability, portal scanning, software vulnerability exploitation, etc.

[17] See Appendix: Table 1 for further details.

1.4. Evaluation Values and Limitations

Currently, there is no public evaluation from the perspective of user experience regarding the provision of EGS. The existing current index systems only cover general surveys on user satisfaction levels, without delving deeper into evaluating the user experience with ESP, including their conveniences, difficulties, and areas for improvement. The evaluation methods used by these index systems are not comprehensive or synchronized. Specifically, the current Digital Transformation Index (DTI) only provides some criteria for evaluating the effective implementation of EGS, such as the issuance of policies to encourage citizens and businesses to use EGS, the proportion of end-to-end EGS, the proportion of EGS generating online records, the proportion of citizens using EGS, and criteria related to digital government activities. As for criterion 6.14 on the satisfaction level of citizens and businesses when using EGS, although there are guidelines for evaluation in Official Dispatch No.4946/BTTTT-CĐSQG,[18] the unified method for assessing satisfaction levels is still not clear. Similarly, the index system for guiding, managing, and evaluating the quality of service provided to citizens and businesses in the implementation of administrative procedures[19] and real-time public services on electronic platforms offers numerous detailed indicators for measuring the effectiveness of online public service delivery. However, the group of indicators related to satisfaction levels is relatively rudimentary and lacking substance[20] as it stipulates that "if there are no feedback or recommendations for agencies or units, the satisfaction rate is 100%".[21]

Overall, in Vietnam, the issue of user experience effectiveness on ESP remains unresolved. The results of this evaluation contribute to addressing the aforementioned gaps.

The limitation of this evaluation is that it only focuses on reviewing the interfaces of 63 provincial ESPs. Regarding criterion 5, evaluating the experience of end-to-end EGS, the research group only tested logging in and submitting online applications for a single service, which is Issuance of Criminal Record Certificate for Vietnamese citizens and foreigners residing in Vietnam.[22] The research group attempts to compensate for this limitation by conducting an in-depth analysis of 200 public feedback and recommendations regarding the EGS' experience, which are publicly available on the National ESP. In the process of analyzing the feedback, the research group did not come to a standstill at the content of citizens' feedback but delved deep into analyzing the responses from government agencies to identify the actual issues. However, this is still a limitation that needs to be addressed through further research.

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[18] According to Official Dispatch No.4946/BTTTT-CDSQG, the level of satisfaction of citizens and businesses when using online public services is calculated using the formula: Total number of citizens participating in the satisfaction assessment (denoted as "a"); Number of citizens satisfied with using online public services (denoted as "b"); Total number of businesses participating in the satisfaction assessment (denoted as "c"); Number of businesses satisfied with using online public services (denoted as "d"); The ratio is calculated as (b+d)/(a+c). However, this formula does not specify how citizens evaluate their satisfaction.

[19] See: https://thuvienphapluat.vn/van-ban/Bo-may-hanh-chinh/Quyet-dinh-766-QD-TTg-2022-Bo-chi-so-danh-gia-chat-luong-phuc-vu-thu-tuc-hanh-chinh-dien-tu-518821.aspx?anchor=dieu3. for more information

[20] The absence of feedback or recommendations does not imply that citizens are 100% satisfied. It could be due to citizens' unfamiliarity with providing evaluations in the digital environment or the lack of this feature in the interaction channel.

[21] See Section II.5: Data Processing of Decision No. 766/QD-TTg for more information.

[22] Hereinafter referred to as Issuance of Judicial Records Certificate service.

2 EVALUATION FINDINGS

2.1. General Findings

The interfaces of provincial ESP do not fully adopt a user-centric approach

The evaluation results for the 09 criteria indicate that the interfaces of the provincial ESP do not fully adopt a user-centric approach, reflecting in three aspects:

Firstly the interfaces of the provincial ESPs are not user-friendly for both regular users and visually impaired users who require screen reader support.

- The usability of search and information retrieval tools is not ensured. Although all 63 ESPs of provinces and cities have provided advanced search features for retrieving administrative procedures, only 27 of them display the search tool on the homepage for users to easily find and use. The remaining 36 ESPs do not display the search tool on the homepage; instead, it is located on subpages, requiring users to invest additional effort to locate it. The search effectiveness is not optimized, as 25 ESPs do not yield results if the search keywords are not spelled correctly. Some ESPs require the input of executing units or user login before allowing search. Particularly, only the ESP of Thua Thien-Hue province allows voice search. However, meeting the demand for voice search is highly necessary based on the actual needs of the population. Statistics[23] show that 22.3% of Vietnamese users utilize voice assistant tools (such as Siri and Google Assistant) to search for information on a weekly basis. Additionally, this situation will pose difficulties for ethnic minority groups, which account for 14.7%[24] of Vietnam's total population; because in the context that these groups are not proficient in reading/writing standard Vietnamese, allowing search by voice and approximate phrases is of the utmost importance.

- The mobile interface of the provincial ESP does not meet the national target. On one hand, the page loading performance of the provincial ESP on desktop interfaces is consistently higher than that on mobile interfaces, according to the collected data in this evaluation. On the other hand, 9 out of the total 63 provincial ESPs have not ensured proper functionality on mobile devices, exhibiting common errors such as small font size, closely spaced elements, content exceeding the screen, and lack of mobile-responsive website design.

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[23] See: https://datareportal.com/reports/digital-2022-vietnam. for more information

[24] According to the results of the Population and Housing Census conducted on April 1, 2019, the population of Vietnam reached 96.2 million people, with the Kinh ethnic group accounting for 85.3% and 53 ethnic minority groups accounting for 14.7%.

With the current lack of mobile-friendly interfaces, the delivery of EGS cannot keep up with the trend, as 97.6% of Vietnamese citizens own smartphones and 94.6% of Vietnamese users access the Internet through mobile devices.[25] Additionally, one of the fundamental goals of the digital government development by 2025, which is to provide EGS at Level 4 through various access channels, including mobile devices, has not been ensured.

- Furthermore, despite the policy direction of "leaving no one behind" in the digital transformation process, in reality, all 63 ESPs are considered difficult to access for visually impaired individuals who require screen reader support. None of the provincial ESPs ensure all 6[26] basic accessibility criteria for a Level A website according to the Web Content Accessibility Guidelines (WCAG) 2.0. The actual user experience of visually impaired users relying on screen readers shows that the majority (47 ESPs) only achieve below-average scores (2.5/5) in terms of accessibility.

- The test results for processing the "Issuance of Judicial Record Certificate" service reveal that, 56 ESPs has recorded the delivery of this service as an end-to-end one while they are only partially online (Level 3 according to the previous classification)[27]. Notably, the interfaces of the ESP have not been optimized for users in the role of document submitters. Evidently, the classification of cases is based on the direct needs of the document processors, requiring the document submitters to independently understand the procedures and classify accordingly. Moreover, during the online form filling process, the systems on the ESPs frequently require users to redundantly enter personal information 3 to 4 times unnecessarily, and there is a lack of specific instructions for users to independently complete their electronic profiles. In general, the end-to-end delivery of the "Issuance of Judicial Record Certificate" service only stops at the level of document digitization (i.e., transforming paper-based documents such as the declaration form for requesting a Judicial Record Certificate into electronic format), without reaching the level of input data digitization (i.e., optimizing the use of digital data to simplify the process of electronic profile submission by users).

The second issue is the lack of user-centered and professional interfaces, which poses difficulties for users when accessing the services. One of the key findings of this evaluation is the lack of synchronization in terms of interface design and understanding and classification of ESPs, causing users to encounter many difficulties in searching for information and using the services. This

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[25] This number is significantly higher than the statistics reported by We Are Social, which show that only 64% of the Vietnamese population owns a laptop and 72.2% access the internet through a computer.
See: https://datareportal.com/reports/digital-2022-vietnam. for more information

[26] These are also the mandatory requirements for ESPs, as specified in Circular No. 26/2020/TT-BTTTT, to ensure accessibility standards for people with disabilities, and Circular No. 32/2017/TT-BTTTT on prescribing the provision of EGS and assurance of convenient access to websites or portals of state agencies. Please refer to the detailed evaluation results for Criterion 6.

[27] Payment and records results return process have not been implemented on the online platform. However, according to Circular No. 01/2023/TT-VPCP, one of the criteria for an end-to-end EGS (Article 13.1.g) is to have the administrative procedure's results provided electronically. Therefore, there is no reason the return of the records results cannot be carried out online immediately on the ESPs.

finding reaffirms the research results of IPS since 2018.[28] Compared to the review results in 2018,[29] the ESPs have addressed some basic synchronization issues (e.g., domain names, Portal structures, information components), but the lack of synchronization identified in this research is more complex.

- The level of synchronization of the ESPs regarding higher technical standards (user support features, advanced search functionality, user satisfaction assessment, public disclosure of administrative procedure records results, contact methods) has not been ensured. For example, although 62 out of the total 63 ESPs have user guide sections, the naming of these sections is inconsistent and some names confuse users, such as "Other Services," "Others," "System," abbreviated as "HDSD," (User Manuals) or using non-standard Vietnamese phrases like "Kiosk." In addition, there are technical errors such as inaccessible documents, broken links, or videos without sound.

- The lack of consistency in the level of implementation of EGS is evident in three aspects. Firstly, the distinction between administrative procedures and EGS is not unified: sometimes EGS are combined with administrative procedures under "Procedure Categories," and sometimes the content of EGS is separated. Secondly, the classification in the information search field based on the level of EGS provision has not been updated: 9 out of 63 ESPs still adhere to the old classification (Level 1, 2, 3, 4). Although 44 ESPs[30] have advanced search features based on partial/end-to-end EGS, following the new regulation in Decree No. 42/2022/NĐ-CP, 6 out of the 44 ESPs[31] still maintain both Level 1 and Level 2 classifications. Thirdly, the calculation of the number of end-to-end EGS announced varies greatly: as an example, according to the announcement on the ESP, Ha Giang province has provided up to 29,013 end-to-end EGSs, while Hoa Binh province has 1,014, and Quang Ninh province has only 63.[32]

- The review shows that the number of end-to-end EGS provided in different communes within the same district or different districts within the same province varies. It is worth noting that these are not necessarily specific services unique to each locality but common services such as issuing copies of household registration books, establishing independent preschool classes, supporting burial expenses for social welfare beneficiaries.

The third issue is the lack of attention to the commitment to protecting personal data and ensuring information security. Out of the 63 ESPs, only 3 ESPs of Thua Thien-Hue, Da Nang, and Gia Lai[33] province have privacy policies, which remain the same as the review conducted in 2022.[34] In

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[28] See: https://ips.org.vn/thu-vien/danh-gia-va-xep-hang-phat-trien-chinh-phu-dien-tu-viet-nam-2017-ct209.html. for more information

[29] See: https://ips.org.vn/thu-vien/danh-gia-va-xep-hang-phat-trien-chinh-phu-dien-tu-viet-nam-2017-ct209.html. for more information

[30] 10 ESPs that do not allow search by level classification include Bac Kan, Yen Bai, Nam Dinh, Ha Tinh, Quang Binh, Thua Thien-Hue, Phu Yen, Ninh Thuan, Soc Trang, and Ca Mau.

[31] Son La, Lang Son, Phu Tho, Vinh Phuc, Tra Vinh, Kien Giang.

[32] These statistics are recorded up until April 27, 2023.

[33] Gia Lai province only has an English version available.

[34] See: https://papi.org.vn/danh-gia-viec-bao-ve-du-lieu-ca-nhan-tren-cac-nen-tang-tuong-tac-voi-nguoi-dan-cua-chinh-quyen-

terms of compliance with modern Internet standards[35] 22 ESPs do not meet 50% of the requirements. In terms of information security compliance from the perspective of common web browsers,[36] only 10 ESPs meet 7 out of 11 basic security criteria.

The implementation of EGS exhibits limitations in technology, human resources, and processes

The analysis of 200 in-depth feedback and recommendations from users reveals that the implementation of EGS exhibits deficiencies in all three aspects: technology, human resources, and process

- Technical issues include malfunctioning of the ESP, preventing submission of documents; lack of online submission guidelines and platforms; inability to update submissions online; absence of online payment options; inability to submit additional documents online; outdated data; delayed status updates of applications; and failure to approve digital signatures.

- Common human resources shortcomings include officials returning applications with insufficient justifications; lack of explanation or guidance when applications are rejected; untimely assistance and support from officials; failure to respond promptly to user queries through hotlines; officials lacking clear understanding of the procedures; improper attitudes and uncooperative behaviour towards citizens.

- Procedural and administrative deficiencies include slow processing of application procedures; complex and unclear online submission procedures; requiring applicants to supplement documents in person despite submitting online; unclear processes for acceptance, return, and rejection of applications.

It is worth noting that these three groups of issues often appear simultaneously in much user feedback. For example, users may express their concerns about the lack of information on how to submit documents online for a specific procedure. However, this issue is not merely a technical problem related to the absence of instructional materials or an "online submission" button. The actual problem lies in the fact[37] that the mentioned service is only available on the National ESP, not on the provincial ones. Furthermore, the officials responsible for guiding users are not sufficiently familiar with the process to provide accurate instructions.

The incomplete regulations at the central pose difficulties in the implementation at local-level.

A comparison of the review results of 63 provincial ESPs with the analysis of 200 user feedback indicates that the incomplete policy and legal framework at the central level have caused challenges in the implementation of local-level EGS, as reflected in the user experience on the ESP.

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[35] It includes IPv6, DNSSEC, HTTPS, Security options, and RPKI. Assessed by the following tools: https://www.internet.nl/
[36] Assessed by using the following tools: https://observatory.mozilla.org/.
[37] Regarding the unemployment insurance service, please refer to Section 2.2 for detailed analysis and feedback from citizens.

One typical example is the incomplete regulation on the level of ESP provision. On June 24, 2022, Decree No. 42/2022/ND-CP was issued, replacing the classification of EGS provision into Levels 1, 2, 3, and 4 with a partial/end-to-end approach to align with global trends. Subsequently, Document No. 4946/BTTTT-CDSQG was issued on October 4, 2022, to provide guidance. This document required provincial-level People's Committees to review local administrative procedures to determine and announce the list of partial/end-to-end EGS on their ESP, with a deadline of October 18, 2022, which is 14 days later. However, as of April 5, 2023, the detailed guidelines for classifying EGS as partial/end-to-end were only introduced in Circular No. 01/2023/TT-VPCP issued by the Government Office. Furthermore, the transition from the level-based classification to partial/end-to-end was only incorporated into Decree No. 42/2022/ND-CP and Circular No. 01/2023/TT-VPCP, without being adjusted in other relevant documents. The incomplete guidance at the central level, combined with the urgent implementation requirement (14 days) of Decree No. 42/2022/ND-CP, has resulted in an incomplete and unsynchronized implementation nationwide. According to the review results as of April 7, 2023, 9[38] provincial ESPs still maintain the level-based classification (1, 2, 3, 4), while 6 ESPs have implemented the "partial" and "end-to-end" classification but have retained the level-based classification of 1 and 2.

Another issue is the implementation of digital signatures. Despite the government's priority of promoting the use of EGS, only 9 ESPs have published instructions on using digital signatures. Additionally, the display of digital signatures on the current interface of the ESP requires the use of services from private providers. This poses a barrier to the promotion of EGS usage as citizens need to go through an additional step of registering for digital signature services. Meanwhile, the national population database and the implementation of high-level biometric authentication technology, which could serve as a substitute for "digital signatures," are still incomplete.[40]

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[38] Ha Noi, Cao Bang, Thai Nguyen, Hai Duong, Da Nang, Khanh Hoa, Gia Lai, Ben Tre, Bac Lieu.

[39] The data is as of March 30, 2023.

[40] There are three types of security: 1) The Knowledge Factor (account and password); 2) The Possession Factor (phone, card); 3) The Inherence Factor (fingerprint, facial recognition, voice). The third type, "The Inherence Factor," is considered to have the highest level of security.

2.2. Evaluation results based on 09 user-friendly criteria

Following is the detailed analysis according to the 09 criteria.

Group 1: Evaluation of the functionality of searching and retrieving information about administrative procedures

All four features that support searching and retrieving information about administrative procedures on the provincial ESPs have achieved a certain level of availability and partial functionality. However, the display interface of these features still contains various technical errors and lacks synchronization. Additionally, the language used to name subpages, categories, or explain administrative procedures is sometimes not purely Vietnamese and not user-friendly.

Criterion 1: Ease of use of search and information retrieval tools

This criterion evaluates the usability of two search and information retrieval tools on the ESPs:
1) Administrative procedure retrieval tool, and 2) Records result retrieval tool. As searching and retrieving information about administrative procedures is one of the most fundamental features of the ESP, the usability of these tools is comprehensively evaluated based on five aspects: i) Display on the homepage, ii) Availability of advanced search capability, iii) Successful generation of search results for advanced search, iv) Provision of approximate search suggestions instead of strict spelling or exact EGS name matching[41], and v) Voice search capability. For the records result retrieval tool, the evaluation is limited to recording the number of available search methods.

The review results indicate that the ESPs only ensure the availability of search tools and the advanced search feature, but they have not fully guaranteed user-friendly usability in terms of display location and optimization of keyword search functionality. Specifically, all 63 provincial ESPs provide administrative procedure search tools and ensure the advanced search feature. However, only 27[42] provincial ESPs prioritize user convenience by displaying the search tool on the homepage.[43] The remaining 36 provincial ESPs do not directly display the search tool on the homepage but rather on subpages such as administrative procedures[44], online public services[45], public services[46], procedure sets[47], or online document submission.[48]

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[41] In this study, the evaluation stopped at the most basic level: When searching for "ly lich tu phap" (unaccented Vietnamese phrase), the search results also display "lý lịch tư pháp" (accented Vietnamese phrase).

[42] Ha Noi, Cao Bang, Tuyen Quang, Lao Cai, Lai Chau, Yen Bai, Thai Nguyen, Bac Giang, Vinh Phuc, Bac Ninh, Hai Phong, Thanh Hoa, Ha Tinh, Thua Thien-Hue, Da Nang, Quang Nam, Quang Ngai, Kon Tum, Tay Ninh, Binh Duong, HCMC, An Giang, Kien Giang, Hau Giang, Soc Trang, Bac Lieu, Ca Mau.

[43] Among these 27 ESPs, the provincial ESPs of Lao Cai, Thanh Hoa, and Ha Tinh have search tools displayed on their homepage but are not functional. The provincial ESP of Lao Cai requires using the advanced search of Administrative Procedures to make it functional. The provincial ESP of Thanh Hoa requires using the advanced search to get search results. The provincial ESP of Ha Tinh requires using the EGS section to get search results.

[44] Ha Giang, Hoa Binh, Hai Duong, Nam Dinh, Ninh Binh, Quang Binh, Binh Dinh, Khanh Hoa, Dong Thap.

[45] Bac Kan, Dien Bien, Quang Tri, Ninh Thuan, Binh Thuan, Lam Dong, Ba Ria-Vung Tau, Vinh Long.

[46] Son La, Quang Ninh, Gia Lai, Binh Phuoc, Can Tho.

[47] Lang Son, Phu Tho, Hung Yen, Thai Binh, Ha Nam, Nghe An, Dak Lak, Dak Nong, Long An, Tien Giang, Ben Tre, Tra Vinh.

[48] Phu Yen, Dong Nai.

Regarding the optimization of keyword search effectiveness, 25 provincial ESPs do not generate search results if the search query contains misspelled words.[49] Some ESPs present difficulties for users, such as the Bac Kan provincial ESP lacking a general advanced search feature but separating the search for administrative procedures by individual units and only allowing keyword search within that unit. Additionally, some ESPs require users to log in with a user account (Cao Bang, Tuyen Quang, Lai Chau, and Yen Bai) or enter the executing unit (Son La, Quang Ninh, Bac Giang, and Phu Yen) before performing a search.

From evaluating the search tool, it can be observed that there is a lack of synchronization in the implementation of EGS, reflected in two aspects: 1) The placement of the search feature, and 2) The classification of partial or end-to-end EGS, in terms of both names and quantity.

Firstly, the advanced search feature of the administrative procedure search tool is placed in different subpages by various provinces and cities. There are differences in how subpages are divided and named.[50] Sometimes, EGS are consolidated with administrative procedures under "Procedure Sets" or "Administrative Procedures," while other times, the content of EGS is separated. This situation confuses users as they may not know which category to access for information, especially when search results vary between categories.

Secondly, the lack of synchronization is also evident in the classification of search fields according to the level of EGS provision. The criterion used by the research team to preliminarily evaluate the degree of implementation of partial and end-to-end[51] in the "degree" search field of the advanced search feature. As of April 7, 2023, statistical data shows that 44 ESPs have implemented the advanced search feature with "partial" and "end-to-end" classification, 9[52] ESPs still maintain classification levels of EGS as 1, 2, 3, 4, and 10[53] ESPs do not have a classification field based on levels.

The confusion in classifying EGS as partial/end-to-end process is also evident in the way ESPs name the classification fields. Many ESPs[54] still retain classification levels of 1 and 2, despite implementing the partial/end-to-end classification. This situation indicates that there are difficulties in the practical implementation of classifying EGS as partial/end-to-end.

The lack of synchronization in classifying EGS can also be observed through the variation in the number of end-to-end EGSs provided by different provinces and cities. For example, while Ha Giang

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[49] This evaluation is at the most basic level when typing unaccented Vietnamese phrases.

[50] See Appendix: Table 2 for further details.

[51] As stipulated in Decree No. 42/2022/ND-CP issued by the Ministry of Information and Communications on June 24, 2022.

[52] Ha Noi, Cao Bang, Thai Nguyen, Hai Duong, Da Nang, Khanh Hoa, Gia Lai, Ben Tre, and Bac Lieu.

[53] Yen Bai, Nam Dinh, Ha Tinh, Quang Binh, Thua Thien-Hue, Phu Yen, Ninh Thuan, Soc Trang, Ca Mau, and Bac Kan.

[54] See Appendix: Table 3 for further details.

Province reports 29,013 end-to-end EGSs, Hoa Binh Province reports only 1,014, and Quang Ninh Province reports 63.[55] This situation retionalizes serious research and appropriate synchronization measures.

After recognizing the lack of synchronization in the number of end-to-end EGS on provincial ESPs, the evaluation team conducted a more detailed review on the ESP of HCMC to confirm the discrepancies in the implementation of EGS according to levels. The results showed discrepancies in the number of end-to-end EGSs at the district-level and commune/ward/town-level. It is noteworthy that these discrepancies do not originate from locally specific EGSs but from a group of EGSs, such as the procedure for recognizing "Cultural Families," financial support for funeral expenses for social protection beneficiaries, commendation certificates from the local government for outstanding achievements, establishment of independent preschool groups and classes, and merging, dividing, or reorganizing preschool groups and independent classes (See Box 1 for more details).

Box 1: An example of a lack of synchronization in the statistics and classification of end-to-end EGS

Upon reviewing the data on the ESP of HCMC, it is found that the number of end-to-end EGSs in District 4 is 35, and in District 5 is 40. Out of these, 35 end-to-end EGSs are the same. District 5 has an additional 5 end-to-end EGSs. A similar observation is made when reviewing the number of end-to-end EGSs in the communes of Cu Chi District, HCMC. Out of the communes, 15 of them provide 3 end-to-end EGSs, which are the same across all communes. The communes that provide more than 3 end-to-end EGSs services include:

1. An Nhon Tay Commune People's Committee: additional 1 end-to-end EGS (Issuance of Copy of Ward/Commune/Town Civil Status Excerpt).

2. Phuoc Vinh An Commune People's Committee: additional 4 end-to-end EGSs (Procedure for recognizing "Cultural Families," Financial support for funeral expenses for social protection beneficiaries, Commendation certificates from Commune People's Committee for outstanding achievements, Establishment of independent preschool groups and classes, Merge, divide, or reorganize preschool groups and independent classes).

3. Phuoc Hiep Commune People's Committee: additional 12 end-to-end EGSs.

4. Tan Phu Trung and An Thanh Tay Commune People's Committee: additional 13 end-to-end EGSs.

Regarding the records result retrieval feature, all 63 provincial ESPs allow online search. Among them, 30 ESPs provide an additional method for searching such as through text messages (SMS), Zalo,[56] switchboards,[57] or virtual assistant[58]).

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[55] See Appendix: Figure 1 for further details

[56] 5 provinces provide the feature of result retrieval via Zalo: Thai Nguyen, Hai Phong, Quang Tri, Da Nang, Can Tho.

[57] 1 province provides the feature of result retrieval via hotline: Quang Nam.

[58] The ESP of Hau Giang province has the feature of AI-based image result retrieval.

## Criterion 2: Availability and ease of use of user support tools

This criterion consists of three sub-criteria: 1) user manuals, 2) frequently asked questions (FAQs), and 3) communication feature with virtual assistant.

The review results show that the majority of provinces and cities have ensured the availability of user manuals. Specifically, 62 provincial ESPs have publicly provided user mannuals, except for the ESP of Yen Bai province. However, the ESP of Gia Lai, Dak Lak, and Ca Mau provinces have a "Support" section, but when users click on it, the user manuals does not appear. Additionally, there is a lack of synchronization in the naming and search location of the user guide documentation section.[59] From the user's perspective, names like "Other services," "Others," and "System" do not directly imply "user manuals," which can cause confusion and difficulty for users.

It is worth noting that the use of the abbreviation "HDSD" (User Manuals) by Dong Thap province and the use of non-standard and unfamiliar terms (e.g., "Kiosk," see Figure 1 for further details) by some ESPs to name subpages with unclear functional content. While these may seem like minor details, they reflect a lack of thoroughness and professionalism in interacting with citizens in the digital environment.

Figure 1: Example of using abbreviations and non-standard phrases
on the ESP of Dong Thap Province
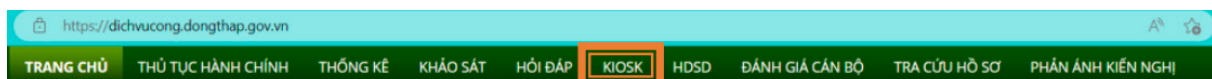
Furthermore, although user manuals is relatively available, the quality and usefulness of these documents have not received adequate attention. The lack of attention to the quality of user mannuals is reflected in three aspects. Firstly, 17 ESPs directly use user mannuals provided by technical service providers (specifically VNPT) instead of adjusting and updating the documentation to suit the local interface.[60] Secondly, in terms of user-friendly formats, only 24 ESPs provide user guide documentation in text, image, and video formats. The remaining 20 ESPs only provide text and image formats, while 16 ESPs only provide short films. It is worth noting that some instructional short films have been removed without replacement links (on the ESPs of Ninh Thuan, Nam Dinh, and Dien Bien), and some short films lack sound and do not display equivalent text content (on the ESPs of Kon Tum, Ba Ria-Vung Tau, Can Tho, Soc Trang, and Bac Lieu), making it difficult for visually impaired individuals to access the information. Thirdly, the lack of synchronization and caution is also evident in the shared user mannuals for citizens and officials without clear distinction (on the ESP

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[59] See Appendix: Table 4 for further details.

[60] This status can be partly explained by the fact that many provinces are currently using services provided by VNPT. 43 ESPs have user mannuals self-prepared by the provinces.

of Hai Duong see Figure 2 for further details). If we consider the principle that the ESP is an interface for officials to communicate with citizens, the inclusion of internal user mannuals for officials is not appropriate. If there is a desire to store user manuals for both officials and citizens under the same category, there should be a clear separation of target users to facilitate searching and avoid confusion in usage.

Figure 2: Example of user guide documentation storage format in Hai Duong Province[61]

3	CB: Tiếp nhận hồ sơ cấp phiếu Lý lịch tư pháp	8 tiep nhan ho so cap phieu lltp_1637719058.docx	Hướng dẫn tra cứu
4	CB: Tiếp nhận hồ sơ Đăng ký Khai sinh - Hộ tịch	7 tiep nhan ho so DK Khai sinh ho tich_1637719005.docx	Hướng dẫn tra cứu
5	Tra cứu hồ sơ cấp, đổi giấy phép lái xe	3 tra cuu giay phep lai xe_1637718470.docx	Hướng dẫn tra cứu
6	Tra cứu hồ sơ cấp, đổi giấy giấy phép kinh doanh vận tải, Biển hiệu, Phù hiệu	2 tra cuu giay phep kinh doanh van tai_1637718457.docx	Hướng dẫn tra cứu

Regarding the level of update of user manuals, some provinces have implemented good practices. For example, Ha Giang province has publicly released guidelines for personal data exploitation, and Binh Dinh province has published guidelines for using VNeID. The level of update of user mannuals is important in demonstrating the awareness of local authorities in regularly reviewing and ensuring that the documentation keeps up with new regulations from the Government, especially in the current context of transition and improvement of the legal framework.

It is worth noting that instructions for implementing digital signatures have not been provided on many ESPs.[62] Citizens need to know which digital signature tools are approved by the state agencies (and which tools are not accepted) to avoid improper usage when performing EGS. Only 9[63] ESPs have guidelines for implementing digital signatures.[64] Among them, ESP of Tay Ninh province is a good example as it lists 4 accepted digital signature tools[65] and ESP of Binh Duong province integrates questions about digital signature services in the virtual assistant section (see Figure 3 for further details).

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[61] See: https://dichvucong.haiduong.gov.vn/dichvucong/congdan/huongdancongdan. for more information

[62] In addition, the technical infrastructure for digital signatures is not well-developed, making installation and usage difficult.

[63] Ha Giang, Bac Kan, Son La, Hoa Binh, Hung Yen, Tay Ninh, Binh Duong, Can Tho, and Bac Lieu provide guidelines for digital signatures, but some of them do not display the content when clicked on.

[64] According to the statistical data as of March 30, 2023. The figures may have changed at the time the report being published.

[65] The four digital signature tools mentioned are: 1) VGCA Sign Service; 2) USB Token Bit4ID; 3) Device Driver - TokenManager; 4) vSignPDF digital signature software. See: https://dichvucong.tayninh.gov.vn/cong-cu-ky-so. for more information

Figure 3: Example of user guide documentation storage format in Hai Duong Province
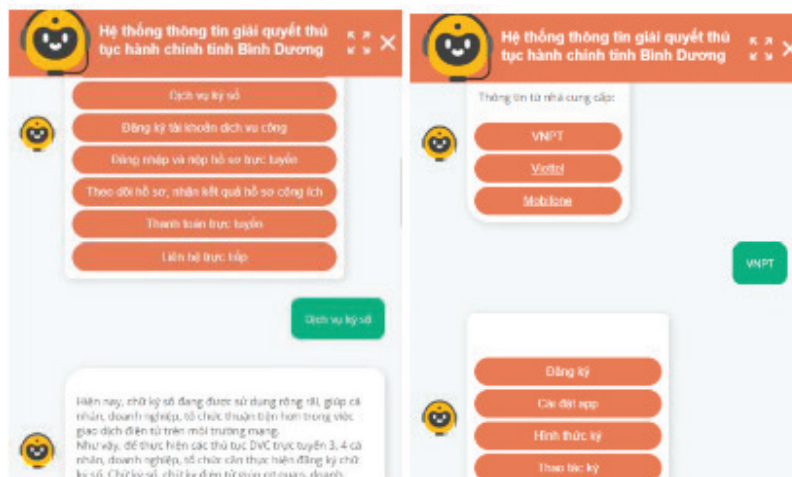
After selecting "Digital Signature Service" as the topic of interest, the virtual assistant will share the legal significance and benefits of using digital signatures, as well as provide information from three recognized service providers: VNPT, Viettel, and Mobifone. Once the user selects a service provider, they will receive guidance on the following steps: Registration, App Installation, Signature Methods, Signing Procedures, Pricing, and Promotion Policies.

In contrast to the availability of instructional materials, the Frequently Asked Questions (FAQs) section and the application of virtual assistants have not been extensively developed on provincial ESPs. Only 11[66] ESPs have an FAQ section, with many cases linking to the National ESP FAQ page. Only two ESPs of Gia Lai and Can Tho, have comprehensive self-compiled question-answer sets (see Box 2 for further details).

Box 2: Examples of good practice in providing FAQs[67]

On the ESP of Gia Lai province, the Frequently Asked Questions (FAQs) section is divided into local and central levels, providing comprehensive question-answer sets in a meticulously compiled PDF document containing 547 questions covering various public services. Similarly, Can Tho has published a "Handbook of Frequently Asked Questions/Answers on Administrative Procedure Resolution" with over 350 questions and answers related to various fields.

However, considering the large number of questions and the length of the document (264 pages for Gia Lai province and 138 pages for Can Tho city), it is necessary to consider technical implementation that allows for easy search and retrieval, like the National ESP. Providing the FAQs in a PDF format is convenient for downloading and using on computers but relatively inconvenient for smartphone users, limiting the accessibility for citizens.

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[66] As of March 30, 2023: Lang Son, Bac Ninh, Thua Thien-Hue, Gia Lai, Lam Dong, Tay Ninh, Dong Thap, Can Tho, Hau Giang, Soc Trang, and Bac Kan.

[67] Link: https://dichvucong.gialai.gov.vn/cau-hoi-thuong-gap-dia-phuong.

According to the review results, 15 ESPs have developed or are experimenting with chatbot features. In terms of appearance, the chatbot feature of Hai Phong and An Giang is displayed faintly, while Vinh Phuc and Quang Ninh's chatbots overshadow other information.[68] In terms of operational effectiveness, the chatbot feature of Vinh Phuc, Da Nang, and Khanh Hoa has a long response time (1 day), indicating that they have not met the goal of serving citizens quickly and conveniently 24/7. The chatbots of Lang Son and Lai Chau provincial e-government portals are notable examples as they integrate voice responses to citizens. The chatbots of Hoa Binh and Tay Ninh provincial e-government portals operate effectively.[69]

Criterion 3: Availability of contact information

This criterion contains two sub-criteria: 3.1) Contact information of ESP (hotline and email); 3.2) Contact information of one-stop shops throughout the province. This criterion reflects the readiness and responsiveness of government agencies and officials in providing EGS to citizens. Especially in the context of citizens being new to conducting online administrative procedures, having easy access to contact information and receiving support from officials is crucial.

Although this is a fundamental criterion that does not require complex technical implementation, there are still few ESPs that perform well in this aspect. For criterion 3.1, 54 provincial ESPs provide a phone number/hotline/call center, and 42 ESPs provide a contact email address. However, there are still 9[70] ESPs that do not provide a phone number/hotline/call center, and 21[71] ESPs do not provide a contact email address. As of February 30, 2023, 5 ESPs (Tuyen Quang, Ha Nam, Ninh Binh, Lam Dong, and Bac Lieu) have not provided any contact method. In addition to phone numbers and emails, 7[72] ESPs also provide other contact methods such as through Zalo and Facebook applications. Some ESPs have good practices in providing separate contact information for supporting administrative procedures and technical issues, including Bac Ninh, Lao Cai, Quang Binh, Binh Thuan, and Soc Trang.[73]

Although 49 ESPs have agreed to display contact information at the bottom of the page, there are still exceptions where 5[74] ESPs share this information at the top or in the body of the page. In terms of display interface, there are some basic errors as shown in in Figures 4, 5, và 6 below.

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[68] See Appendix: Figure 2 for further details.

[69] See Appendix: Figure 3 for further details.

[70] Ha Giang, Tuyen Quang, Thai Nguyen, Ha Nam, Ninh Binh, Lam Dong, Ben Tre, An Giang, Bac Lieu.

[71] Ha Noi, Cao Bang, Tuyen Quang, Thai Nguyen, Lang Son, Phu Tho, Bac Ninh, Hai Duong, Hai Phong, Ha Nam, Ninh Binh, Nghe An, Thua Thien-Hue, Da Nang, Lam Dong, Binh Duong, Dong Nai, Long An, Ben Tre, Kien Giang, Bac Lieu.

[72] Thai Nguyen, Thanh Hoa, Quang Tri, Khanh Hoa, Gia Lai, Ba Ria-Vung Tau, Can Tho.

[73] The ESP of Bac Ninh province provides 2 hotline numbers, a phone number to support administrative procedures (0889.190.555) and a technical support hotline (0222.387.5353). Similarly, the ESP of Lao Cai province provides contact phone numbers for state management agencies: 02143.3828598 - 02143.906888, technical management agencies: 02143.828666. The ESP of Quang Binh province provides software support contact number: 0232 3856696 and feedback and comments on administrative procedures: 0232 3825025. The ESP of Binh Thuan province provides software support contact phone number: 0232 3856696 and feedback, suggestions for administrative procedures: 0232 3825025. The ESP of Soc Trang province has a hotline to support and guide administrative procedures: 02993 879 789, a technical support hotline: 02993 626 800.

[74] Ha Noi, Phu Tho, Bac Ninh, Hai Phong, Long An.

Figure 4: Illustration of Chatbot error on the ESPs of Quang Ninh and An Giang province

Figure 5: Illustration of the content margin error on the ESP of Tay Ninh province

Figure 6: Illustration of the error displayed on the ESP of Hai Phong[75]

For criterion 3.2, contact information of agencies is provided by 33 ESPs, while 30 ESPs have not provided this information. Among the 33 ESPs that provide contact information, 9[76] cases provide incomplete information for some departments, while 24[77] ESPs provide complete contact information for all departments of the one-stop shops.

Criterion 4: Transparency of information on the effectiveness of EGS provision

This criterion consists of two sub-criteria:

4.1) Degree of transparency in the status of administrative procedure settlement; 4.2) Degree of transparency in user experience evaluation results.

Criterion 4.1 assesses whether ESPs publicly disclose the status of administrative procedure settlement. On one hand, 61 ESPs have met this criterion, except for Vinh Phuc province (see Figure 7 for further details) and Da Nang, which are still in the process of developing and testing this

Figure 7: Statistics on the status of records settlement in Vinh Phuc province

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[75] Display an error on the ESP of Hai Phong city's homepage, where the text "Quick Support Phone Number: 082.507.7988" is colored in light green. The wallpaper changes frequently, and there are some wallpapers that do not highlight the contact information properly.

[76] Ha Giang, Dien Bien, Bac Giang, Vinh Phuc, Hai Phong, Thai Binh, Quang Tri, Tay Ninh, Binh Duong.

[77] Cao Bang, Tuyen Quang, Lao Cai, Lai Chau, Son La, Lang Son, Phu Tho, Hung Yen, Nam Dinh, Thanh Hoa, Nghe An, Quang Binh, Thua Thien-Hue, Quang Ngai, Binh Dinh, Dak Lak, Dak Nong, Lam Dong, Long An, Tien Giang, Ben Tre, Tra Vinh, An Giang, Hau Giang.

On the other hand, the methods of disclosing data on the 61 ESPs are not consistent. 14[79] ESPs have implemented good practices, providing clear statistics for each unit, including complete and accurate lists of on-time and delayed cases. In cases of delay, these ESPs publicly disclose detailed information such as document codes, names, and the dates of the delays for each case. Ensuring such detailed data transparency is a useful tool for citizens to monitor and supervise, while also reminding officials/agencies with delayed processing to promptly complete their tasks on time.

For example, Figure 8 illustrates a case from Cao Bang province where the Department of Natural Resources and Environment has the highest number of delayed cases (102 documents). The system also allows citizens to observe the number of days delayed (in this case, the highest displayed number is 158 days). From the perspective of citizens, it would be even more helpful if ESPs publicly disclosed the reasons for the delays, allowing citizens to be mentally and time-prepared if they intend to carry out similar procedures. However, this is already a very good practice in terms of transparency.

Figure 8: Disclose of slow records settlement of Cao Bang province
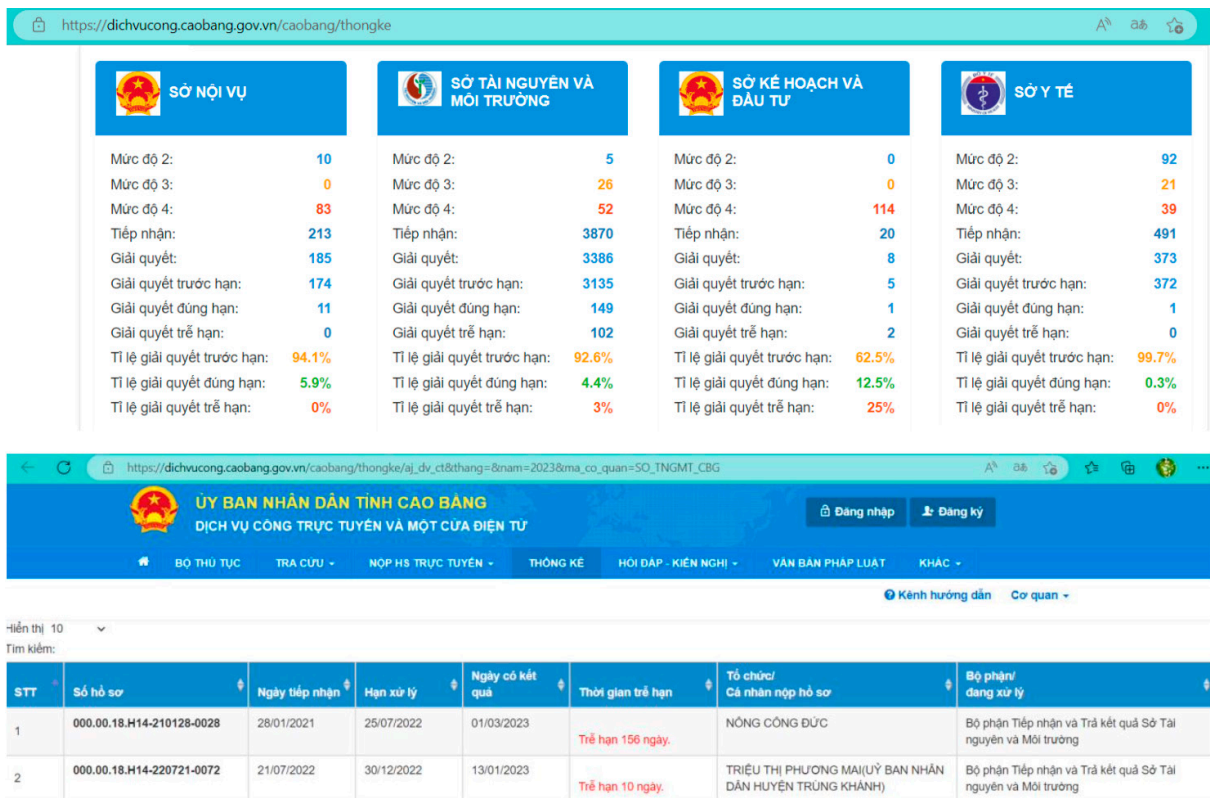
Regarding the aspect of disclosing the reasons for delays, the ESP of Nam Dinh[80] cprovince has performed well in sharing

(i) the content of the records and (ii) the content of the required supplements. In Nam Dinh province, the Department of Natural

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[79] Cao Bang, Tuyen Quang, Lao Cai, Lai Chau, Yen Bai, Lang Son, Phu Tho, Hai Duong, Hai Phong, Thai Binh, Ha Nam, Dak Nong, Tien Giang, Ben Tre.

[80] See: https://dichvucong.namdinh.gov.vn/portaldvc/KenhTin/thong-ke.aspx#. for more information

-sources and Environment continues to have the highest number of delayed cases. Specifically, according to automatically updated data as of April 10, 2023, there were 3 overdue cases, 551 cases awaiting supplements, 2,590 pending cases, and 2,522 cases returned/withdrawn (see Figure 9 for further details).

Figure 9: Good practice on disclosing the reason for the delay of the ESP of Nam Dinh province

Despite some good practices, there are still cases where the public disclosure of administrative procedure settlement results is not emphasized. For example, the statistical data of Bac Ninh province only provides very basic public information on the number of received and resolved files. Although administrative procedure resolution statistics are available, Lam Dong province only provides fixed-point statistics (currently halted at 2022) without real-time data tracking.

Group 2: Evaluation of online administrative procedure implementation functionality

The evaluation results indicate that there are still many shortcomings in the functionality of conducting online administrative procedures. Firstly, many provincial ESPs do not ensure the ability to submit files, make online payments, and receive results online, even though the service being reviewed (Issuance of Judicial Record Certificates) is recognized as an end-to-end one. Secondly, the connectivity and integration of data, accounts, and interfaces between the central and local government's online administrative service systems are not yet complete. Thirdly, no ESP provides comprehensive specific guidance at each stage of the online administrative procedure, making it difficult for users to independently complete their files. Fourthly, the feature allowing users to evaluate satisfaction levels is not synchronized and user-friendly

Criterion 5: Level of intelligence of EGS

This criterion assesses the level of intelligence of EGS based on three sub-criteria: 1) The level of connectivity between the National ESP and provincial ESP in terms of interfaces, accounts, and data; 2) The level of automatic support provided by the ESP enable users to independently create electronic administrative records without

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[81] Those features include document filtering, automatic form filling, instructions on how to fill out information, notifications for incomplete information, allowing temporary saving, updating, and canceling of applications, and enabling users to provide online satisfaction ratings immediately after using the service.

assistance from local public officers[81]; and 3) The level of completion of features for providing end-to-end EGSs.[82]

The service "Issuance of Judicial Record Certificates for Vietnamese citizens and foreign residents in Vietnam" was selected for comprehensive evaluation across 63 provincial ESPs for the following reasons:

- Firstly, this is one of the 25 essential EGSs that must be digitized for administrative procedure settlement at the single-window agency since July 1, 2022.[83]

- Secondly, this service is mostly provided as an end-to-end EGS by many provinces and cities.[84] Therefore, evaluating this service allows for assessing user experience throughout the entire process of an end-to-end service, thereby providing appropriate recommendations for improving user experience in end-to-end EGS.

- Thirdly, this is a rare EGS that is received and implemented by the Department of Justice at the local level. It has been integrated with direct links to all 63 ESPs on the National ESP, although it has not been fully integrated into the National ESP like the 3 online procedures for marriage registration, birth registration, and death registration. Therefore, selecting this service will contribute to evaluating the level of

of connectivity between the National ESP and provincial ESPs in terms of interface, account registration/login, and data integration.

The user experience evaluation shows that many ESPs do not meet the three criteria set forth. The specific details are as follows.

Firstly, the connectivity between the National ESP and provincial ESPs does not ensure connectivity in terms of interface, account, and data.

- Interface connectivity: There is no notification or redirection from the National ESP to the provincial ESP of all 63 provinces, causing confusion for users. While users are interacting with the interface of the National ESP to search for the "Cấp phiếu lý lịch tư pháp" (Issuance of Judicial Record Certificates) service, they are suddenly redirected to a completely different interface of the provincial ESPs. Additionally, the National ESP does not provide accurate links to the ESP of 9 provinces/cities,[85] including 7 provinces/cities whose links lead to outdated interfaces of the Ministry of Justice's ESP.[86] The ESPs of Soc Trang and Ca Mau provinces are particularly confusing for users because their provincial ESP display a notification stating "Note: Submit documents

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[82] Specifically, these criteria encompass the following functionalities: i) online application submission, ii) online access to application results, iii) online payment capability.

[83] See: https://thuvienphapluat.vn/van-ban/Dau-tu/Nghi-quyet-50-NQ-CP-2022- phien-hop-Chinh-phu-thuong-ky-thang-3-510000.aspx. for more information

[84] According to the statistics as of June 2nd, 2023, there are 51 ESPs that have provided procedures for Issuance of Judicial Record Certificates to Vietnamese citizens and foreigners residing in Vietnam in the form of an end-to-end EGS. 5 ESPs (Khanh Hoa, Gia Lai, Binh Phuoc, Tay Ninh, Bac Lieu) are providing this service at "Level 4" as per the previous classification method. Additionally, 5 ESPs (Bac Ninh, Nam Dinh, Ninh Binh, HCMC, Tien Giang) have provided this procedure in the form of partial EGS. However, the ESP of Hoa Binh cannot be accessed, and the ESP of Thua Thien-Hue has not clarified the extent of their EGS provision.

[85] Ha Noi, Lao Cai, Bac Giang, Gia Lai, Binh Duong, Ba Ria-Vung Tau, Soc Trang, Bac Lieu, Ca Mau.

[86] Tại đường link: https://lltptructuyen.moj.gov.vn/home.

but when accessed through the National ESP, they lead to the ESP of the Department of Justice of these two provinces.[87]

- Account connectivity: 56 provincial ESPs allow automatic login without the need for OTP verification after successful login on the National ESP. This automatic login feature allows users, after authenticating themselves once on the National ESP, to automatically log in to 56 ESPs simultaneously,[88] across multiple interfaces (Google Chrome, Microsoft Edge, Safari, Incognito), and on multiple devices (HP laptops, Dell laptops, and iPhone). The remaining 5 ESPs (Hai Phong, Ninh Binh, Thua Thien-Hue, Da Nang, and Bac Lieu) do not allow automatic login because they have not completed the account connectivity phase with the National ESP.

- Data connectivity: Only 2 ESPs of Thai Nguyen and Can Tho have fully updated and accurate account information for all identity fields provided on the National ESP. The ESP of Thai Nguyen province[89] is the only portal that displays a feature allowing the updating of personal records from the national population database. 10 ESPs[90] do not automatically update any

personal information (except for name) despite having account connectivity and automatic login through the National ESP. 43 ESPs[91] only partially update account information, with missing or inaccurate fields such as gender,[92] phone number, and permanent address.

Secondly, most provincial ESPs have not ensured the level of automatic support for users to independently create electronic administrative records without the assistance of local public officers.

- Level of support in filtering records: 31 ESPs[93] allow users to classify records before starting to fill out electronic records based on specific criteria. However, the classification methods are rudimentary, mostly relying on basic criteria such as residency history (within the province or multiple residences), the need to verify criminal records, eligibility for free services, age (14 years and above or below 14 years), authorized or unauthorized submission of records, and the number of days for processing the records. The rudimentary and inconsistent classification methods indicate that the classification of cases is only based on the subjective needs of the receiving and processing units, while the

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[87] Link connected to Ca Mau Department of Justice: http://sotp.dvctt.camau.gov.vn/dang-ky-ho-so?thutuc=54850&vnconnect=1&ss_state=YjgwZmZkMTctNzE1ZS0zMzdkLWI2MjgtMjAxMTJhZGM0MjNl&state=R3lReqP/zcG9zdY6Gdc6cMuK9lS-9Gk6O2tTsuFDMxCHw26O56A8Q7/4q0lxrkPQr/GF/zVU08jRQbFtE4eDbYPQQsRDeUGOtzTs7x+kUaxppq47Z7RGzig==.

Link connected to Soc Trang Department of Justice: https://motcuasotuphap.soctrang.gov.vn/dang-ky-ho-so?thutuc=39704&vn-connect=1&ss_state=ODBkZjBhODYtNGJkZS0zYjJiLWFhNzEtN2E5YmVlZjcwMmM1&state=R3lReqP/zcG9zdY6Gdc6cMuK-9lS9Gk6O2tTsuFDMxCHw26O56A8Q79VjNKxK9MP/9A1GRKwMDt0M7fuA2uBpwk8CjwNv88iaewIsfxEZWhS+reqXqu8XLA==.

[88] Except for 56 ESPs that allow automatic login from the National ESP account, there are 5 ESPs that do not allow automatic login and 2 ESPs that cannot be accessed (Hoa Binh and Gia Lai).

[89] See Appendix: Figure 4 for further details.

[90] Bac Kan, Quang Ninh, Nam Dinh, Ha Tinh, Phu Yen, Binh Thuan, Dong Nai, Ba Ria-Vung Tau, Vinh Long, Soc Trang.

[91] The ESP of Bac Ninh is currently in the process of data integration with the National ESP and is not displaying, and the ESP of Hai Phong city cannot be logged into.

[92] Gender is usually automatically set as Male, and it is not updated even if the account holder's gender is Female.

[93] See Appendix: Table 5 for further details.

applicants must independently understand the services and choose the appropriate category.

- Level of automatic data filling to eliminate the need for users to re-enter information: Only 5 ESPs (Thua Thien Hue, Da Nang, Binh Thuan, Dong Nai, and Can Tho) ensure automatic and complete updating of user information. The remaining 45 ESPs only partially update certain fields[94] and 10 ESPs[95] do not automatically fill in any information (except for the "Full Name" field). As of June 2, 2023, 34 ESPs require users to fill in the same personal information fields[96] at least 3 times[97] during the process of submitting electronic records for the "Cấp phiếu lý lịch tư pháp" (Issuance of Judicial Record Certificate) service. Additionally, there are two types of personal information (1) information about parents, spouse (name, date of birth, workplace, position) and (2) residency history (with information about time, place of residence/temporary residence, occupation, and workplace since the age of 14) that are not clearly indicated as mandatory fields, but they appear in the majority of electronic forms and are not automatically updated.

- Instructions on how to fill in information: The instructions usually only cover the fields of date and gender. However, the consistency of the date field in terms of interface and date selection methods is lacking, and in many cases, the language is still in English. The field for address information usually lacks guidance on how to accurately fill in the accepted standard of permanent or temporary residence

- Notifying incomplete information: Only 25 ESPs[98] have the feature of simultaneous error notification, indicating the specific fields that need to be supplemented. However, there are still 4 ESPs of Bac Giang, Quang Nam, Ninh Thuan, and Kon Tum that display notifications without specifying the fields that need to be supplemented, and 11 ESPs[99] that do not provide this notification feature. This makes it difficult for users to identify incomplete records, leading to time and resource waste as they must wait for feedback from the receiving units to know what needs to be added.

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[94] This situation is because these ESPs allow automatic login through the National ESP account, but due to the level of data connection and updating between the provincial ESP and the National ESP not being satisfactory, as reflected in the detailed analysis above, the automatic filling of information of the applicant, which is supposed to be automatically updated from the account information, is also incomplete.

[95] Bac Kan, Quang Ninh, Phu Tho, Bac Ninh, Nam Dinh, Ha Tinh, Phu Yen, Ba Ria-Vung Tau, Ben Tre, Vinh Long.

[96] Include name, date of birth, gender, ethnicity, country, permanent/temporary residence address, type of identification document, document number, document issue date.

[97] The first time is the personal information of the applicant, the second time is the personal information of the document owner or additional information requested, and the third time is to fill out the online declaration or attach a Word file for document components.

[98] Ha Noi, Cao Bang, Bac Kan, Tuyen Quang, Lao Cai, Lai Chau, Son La, Yen Bai, Thai Nguyen, Lang Son, Phu Tho, Vinh Phuc, Hung Yen, Ha Nam, Ninh Binh, Da Nang, Binh Dinh, Khanh Hoa, Long An, Ben Tre, Dong Thap, Can Tho, Hau Giang, Bac Lieu, Ca Mau.

[99] Hai Duong, Thai Binh, Thanh Hoa, Nghe An, Quang Binh, Quang Tri, Quang Ngai, Tay Ninh, Binh Duong, Tien Giang, An Giang.

- Allowing users to save, update, and cancel records: The ESPs only meet this criterion at an average level. There are 20 ESPs[100] that do not provide the feature to save records temporarily, allowing users to return for editing and updating[101] when they cannot complete all components of the record in a single access. There are 39 ESPs that have provided the feature to cancel records, facilitating users in withdrawing records in case of discovering errors, incomplete records, or no longer needing to proceed with the records. However, there are still[102] ESPs that do not provide this feature.

- Allowing users to evaluate satisfaction immediately after using the service: Currently, 32 ESPs do not provide this feature[103] Among the 26 ESPs that allow users to evaluate satisfaction immediately after using the service, there are cases where the feature is not fully implemented (e.g., ESPs of Dak Lak, Lam Dong, Long An, and An Giang), cases where the feature is displayed on the interface but cannot be used for evaluation (e.g., ESP of Binh Thuan)

and cases where the interface language is mixed with English (e.g., ESP of Lai Chau). Good practices include the ESP of Hanoi, which allows visual evaluation through facial emoticon icons, convenient for users in association and selection, and the ESP of Binh Duong, which allows visual evaluation on a 5-star rating. Overall, this feature on the provincial ESPs lacks synchronization in evaluation methods and is not user-friendly in terms of visual interface.

Thirdly, the features for EGSs to be end-to-end are not guaranteed, indicating that most of the ESPs only provide EGS at Level 3[104] but not end-to-end[105].

- Option to submit records online: Although 56 ESPs have recognized the "Cấp phiếu lý lịch tư pháp" (Issuance of Judicial Record Certificate) service as an end-to-end EGS, many ESPs still require individuals to (1) come directly to the relevant agency to submit records (e.g., An Giang), or (2) submit paper records by allowing only the option to send documents via postal service or submit them directly to the receiving and processing department (e.g., Hung Yen, Ha Nam, Tien Giang),

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[100] Ha Giang, Bac Kan, Son La, Thai Nguyen, Bac Giang, Nam Dinh, Thanh Hoa, Ha Tinh, Quang Binh, Thua Thien-Hue, Da Nang, Quang Nam, Quang Ngai, Binh Dinh, Kon Tum, Binh Phuoc, HCMC, Kien Giang, Can Tho, Bac Lieu. The ESPs of Hai Phong and Gia Lai cannot be registered for an account to experience, and the ESP of Hoa Binh cannot be accessed, as of June 2, 2023. The remaining 40 ESPs have ensured this functionality.

[101] This assessment only recognizes the provision of the feature to edit and update documents if all fields can be accessed for editing. Cases where only the component files can be updated are not considered as ensuring this functionality.

[102] Ha Noi, Ha Giang, Bac Kan, Son La, Quang Ninh, Nam Dinh, Thanh Hoa, Ha Tinh, Thua Thien-Hue, Da Nang, Ninh Thuan, Binh Thuan, Binh Phuoc, Tay Ninh, Vinh Long, Dong Thap, Soc Trang, Bac Lieu, Ca Mau. It is unclear whether two ESPs of Hai Duong and Nghe An provide this feature because the records cannot be completed. Additionally, the ESPs of Gia Lai, Hoa Binh, and Hai Phong cannot be accessed and serviced at the time of evaluation. Concerning the evaluation of the Issuance of Judicial Record Certificates experience, out of the 63 ESPs, these 3 ESPs cannot be accessed, so the data applies to 60 ESPs.

[103] There are 3 ESPs of Hai Phong, Gia Lai, and Hoa Binh that cannot be evaluated as explained above. Additionally, it is unclear whether the ESPs of Hai Duong and Nghe An provide this feature because the records cannot be completed until the final step.

[104] According to the previous classification, the payment and records result return steps are still performed directly at the receiving agency.

[105] According to the definition of Decree No. 42/2022/ND-CP and Circular No. 01/2023/TT-VPCP.

or (3) present the original documents for verification when submitting scanned or online copies.[106]

- Receiving results online: Only 17[107] ESPs allow users to choose to receive records online. Meanwhile, 24[108] ESPs do not allow online records return and only provide options for users to receive records via postal service or in-person at the relevant agency. 19[109] ESPs are unclear whether they allow online records return or not, as they only inquire about the preference for records return via postal service.

- Online payment: 27[110] ESPs have ensured this feature for users. It is worth noting that among the 27 ESPs that allow online payment, 17[111] ESPs require users to complete the payment before submitting the records. However, ideally, the receiving and processing units should verify the validity of the record set before charging

the fee. This practice leads to the drawback that if the records are invalid, the receiving department must refund the fee to the user, resulting in a waste of resources and time.

Therefore, the evaluation of user experience for the "Cấp phiếu lý lịch tư pháp cho công dân Việt Nam, người nước ngoài đang cư trú tại Việt Nam" (Issuance of Judicial Record Certificates for Vietnamese citizens and foreigners residing in Vietnam) service shows that although 56 ESPs have recognized the provision of this service as an end-to-end service, the actual implementation mostly stops at partial online provision (usually at Level 3 according to the old classification: submitting records through the ESP).[112] Notably, the interfaces of the ESPs are not user-friendly for applicants (citizens, businesses) as they still have to independently understand the procedures and classify them based on their own understanding. Additionally, during the of

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[106] 26 ESPs, including Cao Bang, Bac Kan, Tuyen Quang, Lao Cai, Dien Bien, Lai Chau, Son La, Yen Bai, Thai Nguyen, Lang Son, Vinh Phuc, Hai Duong, Hung Yen, Ha Nam, Quang Binh, Quang Nam, Binh Dinh, Binh Thuan, Kon Tum, Dak Lak, Lam Dong, Binh Duong, Dong Nai, Ba Ria-Vung Tau, Long An, Vinh Long, have this requirement in the attached document component. The original text stated on these Portals is: "A copy of the identification card or citizen identification card or passport of the person issued with the Criminal Records Certificate (In case of submitting a copy, the original must be presented for comparison. If there is no original for comparison, a certified copy according to the provisions of the law shall be submitted).

[107] Ha Giang, Tuyen Quang, Lao Cai, Yen Bai, Phu Tho, Vinh Phuc, Ha Nam, Ninh Binh, Quang Binh, Quang Tri, Khanh Hoa, Dak Lak, Lam Dong, Binh Duong, Tien Giang, Tra Vinh, Kien Giang. Phu Tho province practices this the best, as the ESP of this province clearly states, "send results online via the electronic information system." Some provinces (such as Ha Giang, Yen Bai, Ha Nam) allow sending results via email, which is still recognized as allowing online result return.

[108] Cao Bang, Dien Bien, Lai Chau, Son La, Thai Nguyen, Lang Son, Bac Ninh, Hai Duong, Hung Yen, Thai Binh, Nghe An, Quang Nam, Quang Ngai, Binh Dinh, Kon Tum, Dak Nong, Binh Phuoc, HCMC, Long An, Ben Tre, Vinh Long, An Giang, Can Tho, Hau Giang.

[109] Ha Noi, Bac Kan, Quang Ninh, Bac Giang, Nam Dinh, Thanh Hoa, Ha Tinh, Thua Thien-Hue, Da Nang, Phu Yen, Ninh Thuan, Binh Thuan, Tay Ninh, Dong Nai, Ba Ria-Vung Tau, Dong Thap, Soc Trang, Bac Lieu, Ca Mau.

[110] Ha Noi, Cao Bang, Tuyen Quang, Lao Cai, Lai Chau, Yen Bai, Quang Ninh, Phu Tho, Hai Duong, Hung Yen, Ha Nam, Nghe An, Quang Tri, Da Nang, Quang Nam, Quang Ngai, Kon Tum, Lam Dong, Tay Ninh, Binh Duong, Long An, Tien Giang, Tra Vinh, An Giang, Kien Giang, Soc Trang, Bac Lieu.

[111] Cao Bang, Tuyen Quang, Lao Cai, Lai Chau, Yen Bai, Phu Tho, Hai Duong, Hung Yen, Ha Nam, Nghe An, Quang Tri, Lam Dong, Long An, Tien Giang, Tra Vinh, An Giang, Kien Giang.

[112] Because the steps of payment and records return have not been fully allowed to be performed online. However, according to Circular No. 01/2023/TT-VPCP, one of the criteria for end-to-end EGS (Article 13.1.g) is to have electronic records of administrative procedure settlement. Therefore, there is no reason the records return cannot be performed online directly on the ESP.

process of filling and submitting online forms, users still must unnecessarily enter information multiple times. The online form for records lacks specific instructions to enable users to independently complete electronic records. Overall, the Issuance of Judicial Record Certificates service only achieves the digitization of user input documents (i.e., converting from paper to electronic format) but has not reached the level of full digitization (optimizing the use of user-provided online data to simplify the process of electronic record completion).

In this evaluation, two individuals (one male and one female) from ethnic minority groups in Ha Giang province participated. From this, the research team identified the biggest challenge for this user group, which is their limited proficiency in reading and writing in standard Vietnamese. Therefore, ethnic minority individuals would require additional features such as voice search and approximate phrase recognition to facilitate their use, considering they may not be able to type with full accuracy. Additionally, this user group would benefit from a feature that suggests complete Vietnamese words based on AI applications when filling in information on forms, like the assistance feature in Gmail.

Criterion 6: Level of allowing citizens to assess their satisfaction

This criterion includes 3 sub-criteria: 1) Allowing assessment using VNForm evaluation form; 2) Allowing assessment through general administrative procedure surveys; 3) Allowing assessment of satisfaction level.[113] All three criteria evaluate the availability and quality of the questions.

The review results show that all provinces and cities ensure that their ESP provides at least one form for users to assess. ESPs that provide all 3 forms belong to three provinces: Tien Giang, Ben Tre, and Tra Vinh. There are 6 provinces/cities that do not provide any evaluation forms: Vinh Phuc, Hai Phong, Khanh Hoa, Tay Ninh, Vinh Long, and Ca Mau. The number of ESPs providing VNForm is 12,[114] those providing in-depth surveys designed by the provinces are 43,[115] and those providing satisfaction level assessment are 40[116] both personal computers and phones, and HCMC, which has announced all evaluation forms in one section without the need to search through multiple sections on the homepage. Bac Giang province (see Figure 10 for further details) has an evaluation section displayed in a process format, making it convenient for users to track the evaluation process.

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[113] See Appendix: Table 6 for further details.

[114] Ha Noi, Dien Bien, Thai Nguyen, Bac Ninh, Binh Thuan, Dong Nai, Ba Ria-Vung Tau, Tien Giang, Ben Tre, Tra Vinh, An Giang, Can Tho.

[115] Except for Ha Noi, Dien Bien, Yen Bai, Thai Nguyen, Bac Ninh, Hai Phong, Ha Tinh, Thua Thien-Hue, Da Nang, Khanh Hoa, Binh Thuan, Gia Lai, Tay Ninh, Dong Nai, Ba Ria-Vung Tau, Vinh Long, Can Tho, Soc Trang, Bac Lieu, and Ca Mau.

[116] Except for Ha Noi, Bac Kan, Bac Giang, Quang Ninh, Vinh Phuc, Hai Phong, Nam Dinh, Quang Binh, Thanh Hoa, Quang Nam, Hue, Phu Yen, Ninh Thuan, Khanh Hoa, Binh Thuan, Binh Phuoc, Tay Ninh, Dong Nai, Ba Ria-Vung Tau, Vinh Long, An Giang, Hau Giang, Ca Mau.

Figure 10: Good example of displaying the evaluation process on the ESP of Bac Giang
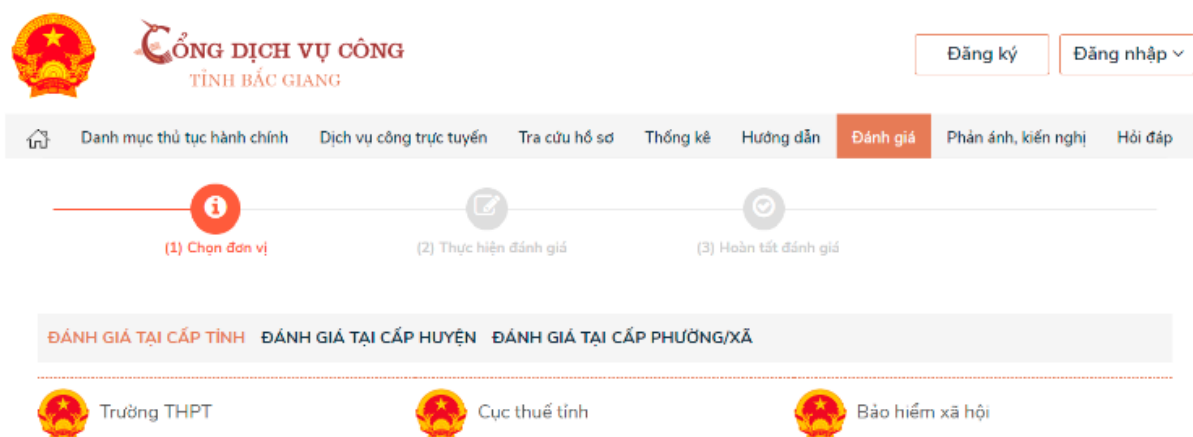
However, there are still some practices that are not satisfactory. Firstly, it is the ease of finding the evaluation section. Hau Giang province does not display the evaluation section on the homepage, but only when clicking on the Kiosk section can users access the Evaluation category. However, there is no clear connection between Kiosk and the evaluation feature. In the case of Binh Duong province, the evaluation section cannot be performed because there is no list of officials and agencies.

One notable point is the lack of synchronization in the form of citizen satisfaction assessment (see Table 2 for further details). For the survey form on the experience of EGS, it is positive that provinces design their own survey questions to suit their specific needs. However, the differences in evaluation methods between provinces will make it difficult to have a consistent comparison across all 63 provinces.

Table 2: Comparison table of consistency in question and quantification methods

Ha Nam and Phu Tho		Son La	
Similar Questions	Quantification Methods	Similar Questions	Quantification Methods
How many times do you have to visit the office before submitting your application? From the time of submitting the application to receiving the result, how many times have you interacted with the administrative procedure-solving agency?	Submitted immediately 01 time 02 times 03 times More than 03 times 01-02 times 03-05 times From 05 times or more	How many times did you have to contact the receiving agency to complete the administrative procedure (including online contact)?	None 01 time More than 01 time

Are you satisfied with the service provided by the officials who receive your application?	Satisfied Dissatisfied	How would you rate the attitude and behaviour of the officials when they guide you in preparing the application, receiving the application, and processing the administrative procedure for you?	Very satisfied Satisfied Dissatisfied Specific opinion
How many government agencies do you have to visit to complete one administrative procedure?	01 place 02 places 03 or more places	How many agencies, units, or organizations do you have to contact to complete the administrative procedure (including online contact)?	No need to contact Contact one agency Contact two or more agencies
What is the reason you must pay additional fees (such as remuneration, brokerage, consulting, assistance, "nurturing" officials, etc.) beyond the regulations when completing the task?	Normal transaction No additional payment required Want to expedite the process Voluntary contribution Prompted by officials	Are you satisfied with the outcome of the administrative procedure (compliance with the law, costs, and additional expenses)?	Very satisfied Satisfied Costs comply with regulations Additional expenses beyond regulations List any additional expenses incurred (if any)

Thus, in general, although availability is guaranteed, the feature allows people to assess the level of satisfaction without a uniform, scientific quantitative method.

Group 3: Evaluation of the Interface of provincial ESPs

The evaluation results show that the interfaces of many provincial ESPs are not user-friendly for both regular users who access through mobile phones and visually impaired individuals who rely on screen reader support browsers. Additionally, the majority (60 out of 63) of ESPs have not publicly committed to protecting user data

and privacy. Furthermore, from a technical perspective, many ESPs do not meet modern internet standards and information security requirements regarding common web browsers.

Criterion 7: User Friendliness of the Mobile Interface

This criterion consists of two sub-criteria: 7.1) Page loading speed[117] and 7.2) User friendliness of the mobile interface. To ensure objectivity in the evaluation and minimize external factors such as device performance or internet connection speed, the research team used two specialized tools: Google

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[117] See Appendix: Table 7 for further details.

PageSpeed Insights for criterion 7.1 and Mobile-Friendly Test for criterion 7.2.[118]

For criterion 7.1, the scoring scale of Google PageSpeed Insights is 100, with three corresponding rating levels based on the scores:
- 90-100 points: The website provides a good user experience in terms of page loading speed.
- 50-89 points: The page loading speed is fair but needs improvement.
- Below 50 points: The page loading speed is poor, resulting in a suboptimal user experience.

Although the research team acknowledges the need for a comparison between the performance of the desktop and mobile interfaces, the evaluation index will focus solely on the mobile interface, as it aligns with the policy direction and the increasing mobile phone usage among the population.

The results of criterion 7.1 review indicate that the page loading performance on the desktop interface is consistently better than that on the mobile interface (see Figure 11 for further details). Specifically, the average page loading performance on the mobile interface is 31.4, corresponding to poor loading speed and resulting in a suboptimal user experience. On the other hand, the average page loading performance on the desktop interface is 56.1, corresponding to fair loading speed.

Figure 11: Comparison of loading speeds of 56 Provincial E-Service Portals when accessing through mobile phones and desktops (on a 0-100 point scale)
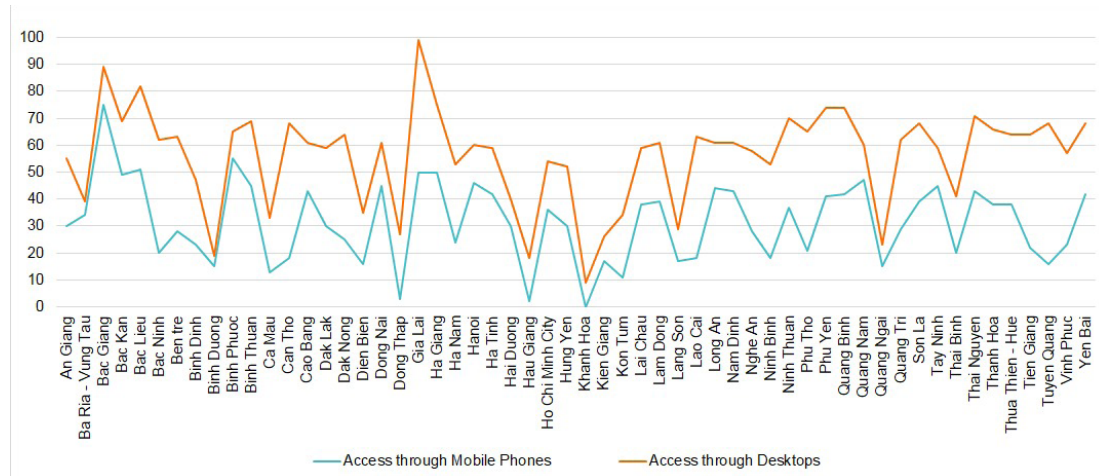
The results of criterion 7.2 review show that 52 provincial ESPs have ensured good performance on mobile devices. Among the remaining 11[119] ESPs, the ESP of Hai Phong and Hoa Binh have not been indexed by Google (Search Indexing). For these two cases where indexing is not available, the research team tentatively notes that they do not perform well on mobile devices. Among the 9 ESPs recognized as having non-mobile-friendly interfaces, the interface errors are listed in Table 3.

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[118] Due to the variable loading speed of the page, even though the group has used automated tools, there is still a situation where each measurement will produce different results. Therefore, there will inevitably be some margin of error. In this report, the data used is the data recorded in the first measurement for all ESPs.

[119] Bac Lieu, Binh Phuoc, Dak Nong, Ha Giang, Hai Phong, Hoa Binh, Phu Tho, Quang Ninh, Quang Tri, Soc Trang, Tien Giang.

Table 3: Interface errors on mobile devices of provincial ESPs

No.	Name of province	Reasons for not being able to use the website on mobile devices
1	Bac Lieu	- Content is wider than the screen - Font size is too small to read - Elements may be too close together to click on - Viewport have not been set
2	Binh Phuoc	- Content is wider than the screen - Font size is too small to read - Elements may be too close together to click on
3	Dak Nong	- Content is wider than the screen - Font size is too small to read - Elements may be too close together to click on
4	Ha Giang	- Elements may be too close together to click on - Content is wider than the screen
5	Phu Tho	- Font size is too small to read - Elements may be too close together to click on - Content is wider than the screen
6	Quang Ninh	- Font size is too small to read - Elements may be too close together to click on
7	Quang Tri	- Elements may be too close together to click on - Viewport have not been set - Font size is too small to read
8	Soc Trang	- Content is wider than the screen
9	Tien Giang	- Elements may be too close together to click on

These indicators highlight the need for investment in improving the performance of ESPs on mobile interfaces, as they are widely used and more convenient for the public.

Criterion 8: Accessibility for People with Disabilities

This criterion evaluates the level of compliance with accessibility standards for ensuring easy access to web content[120] at Level A[121] which represents basic accessibility. To ensure comprehensiveness and objectivity, this evaluation collects and analyzes data from two sources: 1) Automated/semi-automated online auditing tools and 2) Real-world experience of the research assistant team, including individuals with partial or total visual impairments.

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[120] Web Content Accessibility Guidelines – WCAG 2.0.

[121] An important concept introduced by WCAG 2.0 and 2.1 is the three "levels" of compliance called Level A, Level AA, and Level AAA (or single A, double A, triple A, respectively). Typically, an organization will strive for its web content to achieve compliance with one of these levels; Level A being basic accessibility and Level AAA being the highest

Firstly, to ensure the objectivity of the evaluation, the research team utilized a combination of two automated evaluation tools: WAVE[122] and Accessibility Insights[123] during the period from February 15, 2023, to March 30, 2023. When using these online automated/semi-automated auditing tools, the research team selected six sub-criteria as shown in Table 4. These criteria are particularly relevant to individuals with visual impairments who rely on screen reader software to access content on ESPs.[124]

Table 4: Six criteria in the Web Content Accessibility Guidelines (WCAG 2.0) for the evaluation[125]

No.	Criteria	Features
1	SC 1.1.1[126]	Ensure that information is conveyed through non-text content that is accessible by using alternative text with equivalent content.
2	SC 1.3.1[127]	Ensure that information and relationships present in image or audio formats are preserved when the presentation format changes.
3	SC 2.1.1[128]	Ensure that content can be operated through a keyboard interface or an interface compatible with a keyboard (to enable the use of alternative keyboards).
4	SC 2.4.4[129]	Help users understand the purpose of links within the context.
5	SC 2.4.6[130]	Help users understand which information is contained in web pages and how that information is organized.
6	SC 3.3.2[131]	Ensure that the presentation of instructions or labels identifying form controls is clear enough for users to understand which input data is expected.

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[122] WAVE stands for Web Accessibility Evaluation Tool. It is a tool developed for community support purposes by Utah State University. The tool has been in use since 2001 and has been used to evaluate the accessibility standards of millions of web pages worldwide. See https://wave.webaim.org/.

[123] Accessibility Insights is a tool developed by Microsoft. See: https://accessibilityinsights.io/.

[124] The criteria selected in this evaluation focus on ensuring the effectiveness of accessing the keyboard from the screen reader browser. The main beneficiaries are partially or fully visually impaired users who rely entirely on the keyboard and screen reader to access. In addition, these criteria also ensure the basic level of understandability and accessibility of the interface for the general user group when interacting with the ESPs.

[125] Although these criteria are taken from WCAG 2.1, since they are Level A criteria, they are essentially the minimum standards mentioned in WCAG 2.0, which are already regulated in Circular No. 26/2020/TT-BTTTT on the application of standards, assistive technologies for persons with disabilities to access, use products, information services, and communication, and Circular No. 32/2017/TT-BTTTT on prescribing the provision of EGS and assurance of convenient access to websites or portals of state agencies.

[126] Comply with Section c, Clause 1, Article 18 of Circular No.32/2017/TT-BTTTT.

[127] Comply with Section d, Clause 1, Article 18 of Circular No.32/2017/TT-BTTTT.

[128] Clause 2, Article 18 of Circular No. 32/2017/TT-BTTTT.

[129] Comply with Section d, Clause 1, Article 18 of Circular No.32/2017/TT-BTTTT.

[130] Comply with Section d, Clause 1, Article 18 of Circular No.32/2017/TT-BTTTT.

[131] Comply with Section d, Clause 1, Article 18 of Circular No.32/2017/TT-BTTTT.

The evaluation results show that provincial ESPs have not fully met all six criteria of the WCAG 2.0 Web Content Accessibility Guidelines. 24[132] ESPs did not meet any criteria, 29 ESPs met one criterion, and 10[133] ESPs met two criteria. These findings indicate that ensuring accessibility for PWD in accessing online services has not been given sufficient attention.

Secondly, to accurately reflect user experience, a team of three research assistants, including two individuals with total visual impairments and one with partial visual impairment[134] participated in evaluating all 63 ESPs from May 22, 2023, to June 2, 2023. The evaluation process consisted of two rounds, with the second round involving a change in the list of ESPs and cross-checking between the research assistants. The five criteria included in the evaluation were: 1) Presence of CAPTCHA validation errors, 2) Link and button errors, 3) Heading logic errors, 4) Combobox and edit box errors, and 5) Lack of operation or website status notification errors.

The evaluation results reveal that the majority of provincial ESPs still have technical errors that pose difficulties for individuals with visual impairments relying on screen readers for access. [135] ESPs had CAPTCHA validation errors that prevented screen reader access during the login process, and[136] ESPs had CAPTCHA validation errors that prevented screen reader access during the login process, and errors, and 52 ESPs had errors in not notifying the status of operations or the website. The ESP of Thua Thien-Hue province had only one error related to CAPTCHA validation.

Additionally, the evaluation also included a partially quantitative assessment of user experience by visually impaired individuals using the ESP on a scale from 1 (lowest) to 5 (highest).[137] The results showed that 16 ESPs scored above average (2.5/5), while the remaining 47 ESPs scored below average in terms of accessibility.

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[132] Tuyen Quang, Lao Cai, Yen Bai, Thai Nguyen, Quang Ninh, Vinh Phuc, Bac Ninh, Nam Dinh, Ninh Binh, Thanh Hoa, Nghe An, Ha Tinh, Quang Binh, Quang Tri, Da Nang, Phu Yen, Khanh Hoa, Ninh Thuan, Lam Dong, Binh Phuoc, Tay Ninh, Binh Duong, Hau Giang, Bac Lieu.

[133] Dien Bien, Quang Ngai, Binh Dinh, Kon Tum, HCMC, Long An, Tien Giang, Tra Vinh, Kien Giang, Soc Trang.

[134] However, they still rely entirely on screen readers to interact with electronic devices.

[135] Except for Hung Yen, Phu Tho, Ninh Binh, Phu Yen, Khanh Hoa, Ninh Thuan, Binh Thuan, Can Tho.

[136] Ha Noi, Cao Bang, Tuyen Quang, Lao Cai, Lai Chau, Yen Bai, Lang Son, Quang Ninh, Phu Tho, Vinh Phuc, Hai Duong, Hung Yen, Thai Binh, Ha Nam, Ninh Binh, Nghe An, Quang Tri, Quang Nam, Quang Ngai, Binh Dinh, Kon Tum, Dak Lak, Dak Nong, Lam Dong, Tay Ninh, Binh Duong, Dong Nai, HCMC, Long An, Tien Giang, Ben Tre, Tra Vinh, An Giang, Kien Giang, Soc Trang, Bac Lieu, Ca Mau.

[137] This criterion depends on the evaluator's judgment. However, it has been validated through a second verification round, and the recorded score is the average of the two evaluations. This result is for reference purposes.

Criterion 9: Commitment to personal data protection and information security

This criterion consists of three sub-criteria: 8.1) Existence of a privacy policy; 8.2) Level of compliance with modern Internet standards;[138] and 8.3) Level of compliance with information security from the perspective of common web browsers.[139] This report limits the evaluation of information security from the perspective of common web browsers and does not delve into assessing the system's security level (ability to resist DOS attacks, traceability, port scanning, software vulnerability exploitation, etc.).

For criterion 8.1 regarding the commitment to personal data protection, 3 ESPs of Thua Thien-Hue, Da Nang and Gia Lai have publicly available privacy policies, which remain unchanged compared to the 2022 review.[140] In the case of Bac Ninh province, the terms of use include a statement on security commitment:

"*The ESP of Bac Ninh province does not share user information with other agencies without the user's permission, except in the following cases:*
- The information is necessary to process an administrative procedure or public service as requested by the user
- The information is provided when necessary

for the public interest and community health, as regulated by relevant laws."

For criterion 8.2, the research team used the internet.nl tool. This tool checks whether the ESPs comply with modern Internet standards, including: IPv6,[141] NSSEC, HTTPS, Security Options, RPKI.[142] There are 40 ESPs with a compliance rate equal to or greater than 50%, and 22 ESPs with a compliance rate lower than 50%. The lowest compliance rates are found in Bac Kan, Hoa Binh, and Hai Phong provinces, all at 6%.

For criterion 8.3, the research team used the Mozilla Observatory tool. This tool measures the level of compliance with 11 indicators: 1) Content Security Policy; 2) Cookies; 3) Cross-Origin Resource Sharing; 4) Public Key Pinning HTTP; 5) Strict Transport Security HTTP; 6) Redirections; 7) Referrer Policy; 8) Subresource Integrity; 9) Content Options (X-Content-Type-Options); 10) Frame Options (X-Frame-Options); 11) X-XSS Protection. The results indicate that the ESPs do not ensure information security from the perspective of common web browsers.

Specifically, 43 ESPs scored 0/100, with only 3 ESPs in Thanh Hoa (65/100), Phu Yen (65/100), and Vinh Long (55/100) achieving scores scores higher than 50/100. In terms

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[138] Assessed through the following tool: https://www.internet.nl/.

[139] Assessed through the following tool: https://observatory.mozilla.org/.

[140] See: https://papi.org.vn/danh-gia-viec-bao-ve-du-lieu-ca-nhan-tren-cac-nen-tang-tuong-tac-voi-nguoi-dan-cua-chinh-quyen-dia-phuong-nam-2022/. for more information

[141] In Vietnam, Decision No. 749/QD-TTg by the Prime Minister approves the "National Digital Transformation Program by 2025, vision to 2030" which defines the task of fully transitioning the Vietnam Internet network to the new generation Internet Protocol (IPv6) application. In addition, to guide, promote, and support state agencies in implementing legal documents on IPv6 transition, the Ministry of Information and Communications has issued the IPv6 for Gov Program (Decision No. 38/QD-BTTTT on January 14, 2021 by the Minister of Information and Communications) and implemented various training, workshops, consultations, and support activities for IPv6 transition in state agencies. Clause 2, Article 13 of Decree No. 42/2022/ND-CP also clearly stipulates this requirement. Although there are still debates regarding the implementation of IPv6 standards, it is one of the criteria included in the evaluation.

[142] The research team referred to the evaluation method of the e-Government Index of European Union countries, as mentioned in the reference materials of the research methodology section.

of quantity, only 11 basic safety criteria were met, with only 10 ESPs meeting at least 7 criteria. Specifically, the ESPs of Bac Kan, Thanh Hoa, and Phu Yen meet 9 criteria; the ESPs of Bac Ninh, Vinh Long, and Ca Mau meet 8 criteria; and the ESPs of Nam Dinh, Ninh Thuan, Binh Thuan, and Dong Thap meet 7 criteria. The ESPs of Ha Giang, Binh Phuoc, and Tay Ninh, only meet 3 criteria.

2.2. Evaluation results based on citizens' feedback and recommendations analysis

The analysis of 200 feedback and recommendations on citizens' experience with the National ESP provides insights into three categories of deficiencies in the EGS experience: technology, human resources, and process. Out of the 200 opinions, 51 belong to the technical category, addressing issues such as ESP errors preventing document submission, lack of online submission guidance, absence of online document submission options, inability to update documents online, inability to make online payments, failure to submit supplementary documents online, outdated data, delayed status updates, and rejected digital signatures (see Figure 15 for further details). Regarding the human resources, 12 opinions highlighted common shortcomings, including officials returning documents with unsatisfactory justifications, lack of explanations or guidance when documents are incorrect, failure to promptly assist with document reception,

officials not answering hotline calls to provide timely assistance to citizens, officials lacking clear knowledge of procedures, inappropriate attitudes causing difficulties and additional financial burdens for citizens. In terms of procedures, there were 146 opinions related to common issues, such as delays in document reception procedures, unclear and confusing online submission procedures (see Figure 16 for further details), citizens having to submit documents in person despite opting for online submission, lack of clarity in reception, return, and rejection procedures.

The first issue relates to digital signatures. The research team noted citizens' recommendations regarding "Issuance of Judicial Record Certificates for Vietnamese citizens and foreigners residing in Vietnam." The question raised was, "What type of digital signature do I need for the online application to be approved? Can I use a digital signature?" (see Figure 12 for further details).

The response from the Ministry of Justice in Official Dispatch No. 268/BTP-TTLLTPQG dated 1 February 2023 explained that "individuals/organizations can use digital signatures in the Declaration Form, provided that the digital signature meets the security requirements specified in Article 9 of Decree No. 130/2018/ND-CP, which details the implementation of the Law on E-transactions regarding digital signatures and digital signature authentication services." However,

Figure 12: Example of a bottleneck in digital signature implementation

Kiến nghị về việc: Phản ánh kiến nghị về: Cấp Phiếu lý lịch tư pháp cho công dân Việt Nam, người nước ngoài đang cư trú tại Việt Nam

NGUYỄN THỊ TRANG - 09:23 ngày 06/12/2022

Nội dung kiến nghị:
Tôi cần chữ ký như thế nào để bản online có thể được duyệt ạ.
Đặt chữ ký số có được hay không, vì tôi có gửi cả bản cứng sau khi bản online được duyệt mà.

Cơ quan chức năng trả lời:
Ngày 01/02/2023, Bộ Tư Pháp có Văn bản số 268 trả lời Công dân Nguyễn Thị Trang

the regulations according to Article 9 of this decree have two issues: (1) they are too general and technical, making it challenging for citizens to determine how their digital signature will be accepted by state agencies, and (2) according to the requirements, digital signatures need to be provided by a service provider, incurring additional costs. Comparing this with the review results, only 9 ESPs provided guidelines for implementing digital signatures. The existing issue was recorded in the summary report number 2060/BC-TCTTKDA on the implementation results of Project 06, stating that the Ministry of Information and Communications had not emphasized the provision of free digital signatures for citizens to use in administrative procedures. It can be seen that implementing EGS will be a lengthy process that requires continuous improvement, even in minor details such as digital signatures. The key is to ensure that the implementation of digital signatures is simple, convenient, and cost-effective for citizens. Otherwise, after a disappointing experience, users will prefer to conduct the procedures in person to avoid the inconvenience of inquiry and additional costs for digital signature implementation.

Secondly, citizens' opinions indicate the presence of issues in all three categories: technology, human resources, and process. Taking the example of a recommendation regarding the unemployment insurance service in Can Tho City (see Figure 13 for further details), although it was classified as a technical issue, a closer examination of the content reveals the presence of the other two categories. The human aspect in this case involves the personnel at the city's job support center either not knowing how to perform their tasks or failing to provide accurate guidance to citizens, or lacking knowledge of the EGS implementation for unemployment insurance, leading to incorrect instructions. Regarding procedural issues, in response to feedback, Document No. 765/DVVL-TV stated that the Department of Labor, Invalids, and Social Affairs of Can Tho City issued Official Dispatch No. 2567/SLDTBXH-VP on 30 July 2022 regarding the administrative procedure "Resolving unemployment benefits," which would be fully handled through the National ESP[143] However, when users accessed the ESPs, they received instructions to submit documents in-person. This demonstrates the lack of clarity in the procedures for receiving unemployment benefits on the provincial ESPs.

Moreover, this case exemplifies the simultaneous existence of the National ESP and the provincial ESPs, with some EGS only available through the national ESP instead of at the provincial level, causing difficulties and frustration for users and creating challenges for officials responsible. Therefore, in the long run, it is essential to work towards integrating all EGS onto the National ESP to ensure a unified interface and EGS provision consistently.

Figure 13: Case of user feedback showing three coexisting problem groups

BUILDING THE VIETNAM DIGITAL GOVERNMENT BRAND
A CITIZEN-CENTRIC APPROACH

3 Pillars of
Quality E-Government Services

QUALITY E-GOVERNMENT SERVICES

TRUSTWORTHINESS

PROFESSIONALISM

SMARTNESS

- Assurance of users' rights to data
- Commitment to personal data protection
- Assurance of technical safety and security
- Data connectivity
- Synchronization of the interactive interface with users
- Technical integration of e-government service delivery systems
- Limitation of technical errors
- Optimization of procedures for users
- Use of pure Vietnamese straightforward, and non-abbreviated language

3 RECOMMENDATIONS

To fulfill the requirement of adopting user-centric approach, ensuring ease of use, accessibility, and consistency of provincial ESPs, the following recommendations are proposed:

3.1. Improving the EGS provision's interfaces

Prioritize standardizing the interface of provincial ESPs, aiming to make the National ESP a unified "one-stop-shop" for the entire country. The interface standardization of the 63 provincial ESPs should focus on the following 9 basic criteria:

1) Ease of use of search and information retrieval tools: To facilitate user-friendly search and information retrieval, focus on the following 4 factors. First, the search box should be prominently displayed on the homepage. Second, optimize advanced search features, particularly by implementing keyword search capabilities like Google's search engine and providing search suggestions for the nearest results without requiring exact spelling. Keywords should be given priority as the first search field. Third, include voice search functionality to align with the trend of 22.3% of Vietnamese users utilizing voice assistant tools (such as Siri, Google Assistant) to search for information. Fourth, integrate regular EGS and traditional administrative procedures into a single subpage, thereby creating a categorized search field for "e-government services" and "traditional government services," or separate them into two subpages, " e-government services" and "traditional government services," and appropriately arrange the search tools.

2) Availability and usability of user support tools: Standardize the interface and content requirements for three user support tools: (1) User manuals; (2) Frequently Asked Questions (FAQs); and (3) Virtual assistant communication features.

For user manuals, the following principles should be considered: (i) Prioritize the use of visual images and short, intuitive videos; (ii) Use plain language that is user-friendly and avoids abbreviations, foreign language terms, and specialized jargon; (iii) Clearly categorize user manuals based on the procedures of online public services and the target audience (government officials or citizens/businesses).

For FAQs, consider the following principles: (1) Compile comprehensive questions covering EGS in all fields and (2) Include a search function to facilitate question retrieval, simulating the interface of the National ESP, allowing keyword searches and providing options for selecting the closest approximate results instead of requiring exact spelling or precise keywords. User manuals should

be grouped together with FAQs under a standardized section called "User Manuals." Both user manuals and FAQs should be regularly reviewed on a monthly or quarterly basis to ensure their up-to-date compliance with current regulations (e.g., data privacy regulations, digital signatures, etc.) and to minimize unnecessary technical errors, such as videos without sound or broken links, or FAQs that are no longer relevant.

For the virtual assistant communication feature, ensure: (1) Prominent visibility on the homepage for easy interaction; (2) Effective 24/7 operation, providing immediate responses to users on the interactive interface; and (3) Voice support for users

3) Availability of contact information:

Ensure that each locality provides: (1) A hotline for administrative procedure support; (2) A hotline for technical support; and (3) Contact information for the single-window unit of all relevant departments. Additionally, synchronize the positioning of contact information to facilitate user searchability.

4) Transparency of information regarding the effectiveness of EGS delivery: Specify regulations for publicly disclosing the effectiveness of EGS provision. In addition to general statistics on the overall number of correctly delivered and delayed cases, publicly disclose: (i) the number of days delayed; (ii) the names of departments and agencies causing delays; (iii) the reasons for delays; (iv) the content of the cases; (v) the content of required supplementary documents. These indicators allow citizens and management units to monitor and supervise, while also exerting pressure on

officials/agencies to expedite the completion of delayed cases. Additionally, provide quarterly data summaries. When providing information about administrative procedures to citizens, include information about potential delays, the number of days that could be delayed, reasons for potential delays, and common mistakes that can result in document rejection or the need for resubmission. This information should be consolidated and updated for the chatbot application as well as single-window local public officers to ensure thorough consultation for citizens before submitting their documents regarding potential delays and common mistakes to reduce the rate of document rejection or cancellation.

5) Level of intelligence of the ESPs:

Firstly, there is a need to enhance data connectivity between the National ESP and provincial ESPs by (i) regularly reviewing connection links to ensure accurate referencing of links, (ii) conducting checks to ensure personal account data from the National ESP and the national population database are automatically connected to the provincial ESPs accounts, while accurately auto-filling user profile fields. Additionally, research should be conducted to supplement alternative options for OTP authentication, such as using authentication codes through mobile applications like Google Authenticator, Microsoft Authenticator. This is because users abroad do not receive OTP authentication codes sent via text messages on their phones. Secondly, there is a need to simplify the electronic profile components. For essential services on the ESPs, such as

issuing Judicial Record Certificates, it should only require filling in complete information in the electronic declaration form without the need for additional downloading and uploading of attachment files to the profile component. The electronic form should provide direct guidance at each data entry point, allowing users to immediately view the information declaration instructions and enabling users to save and update their profiles. Error notification features also need to be improved so that users can instantly identify errors that need to be corrected. The feature allowing users to rate the satisfaction level with the service should also be synchronized in terms of rating methods and intuitive display interfaces. Thirdly, there is an urgent need to review and improve features to provide a fully online public service, ensuring online processes for all stages of submitting applications, making payments, and receiving application results.

6) Level of facilitating citizen satisfaction evaluation: Allowing citizens to evaluate their satisfaction should be divided into two levels: periodic and regular evaluations. For regular evaluations in real-time, the objective is to measure citizen satisfaction, and the evaluation form should ensure three criteria: i) accessibility - most conveniently right after completing the application process, proceeding to the evaluation before submitting the application; ii) simplicity (maximum of 5 questions), allowing for quick completion (under 45 seconds); iii) easy visualization, preferably using a star-rating evaluation form. For periodic evaluations, the objective is to assess user experiences in-depth to identify areas that need improvement. Therefore, the

questions can be more detailed, including both quantitative and qualitative questions, and should focus on specific services or service groups that need improvement.

Even in the case of periodic surveys, depending on the needs and objectives of each locality, a nationwide guideline is still necessary to standardize basic criteria. Based on these standardized criteria, provinces can add or remove questions. This is a mandatory requirement to ensure scientific accuracy, provide a basis for comparison and comprehensive analysis for all 63 provinces and cities. Evaluation results should be publicly disclosed as open data, ensuring compliance with open data standards, creating opportunities for researchers and journalists to participate in analysis, evaluation, and policy recommendations for improving the ESPs.

Furthermore, all survey forms should be consolidated into a single evaluation category on the homepage. This will make it easier for citizens to access all evaluation forms with just one click, instead of having to search for scattered forms across different sections of the website.

7) User-friendliness of the mobile interface: ESPs management units should regularly use tools to assess the user-friendliness of the mobile interface to make appropriate adjustments, ensuring that submitting applications on the mobile interface is as convenient and easy as on the computer interface. Additionally, there is a need to enhance the technical capabilities of the provincial Department of Information and Communications in reviewing user-friendliness on smartphones.

8) Accessibility for people with disabilities: ESPs management units should regularly (monthly or quarterly) use automated scanning tools (WAVE Web Accessibility Evaluation Tools[144] and Accessibility Insights[145]) and Accessibility Insights) to review, detect, and improve the accessibility for PWD using screen readers, as well as other user groups with similar needs. Depending on the resources available in each province, it is possible to invite user groups with disabilities to participate in evaluating the user experience of the ESPs, allowing for appropriate adjustments.

9) Level of commitment to protecting personal data and information security: It is necessary to ensure measures to protect personal data and ensure information security on the ESPs interfaces. ESPs should ensure minimum terms of use, privacy policies, and mechanisms for user consent. In terms of information security, regular reviews and evaluations should be conducted to prevent basic technical errors.

3.2. Improve policies on promoting EGS development

Firstly, prioritize a quality and efficient approach to delivering EGS rather than focusing solely on the quantity of services provided through the end-to-end process. In the short term, it is important to concentrate efforts on completing the end-to-end delivery of 25 essential EGSs.

Secondly, adopt the user-centric approach throughout the entire process of managing IT projects, including surveying, designing, implementing, and monitoring project

implementation, testing, trial operation, acceptance, and handover. Particularly, during the testing or trial operation phase, policies should be in place to ensure mandatory citizen participation. For any end-to-end EGS, when it is introduced to the full process, a minimum period should be ensured for testing deployment and gathering citizens' feedback, refining the service based on citizen input, before it is officially launched.

Thirdly, to ensure accessibility for vulnerable groups, the following measures can be implemented:

i) Institutionalize policies to safeguard the rights of the disabled community by incorporating mandatory criteria for IT products and services in public procurement activities. Specifically, add criteria based on the Web Content Accessibility Guidelines (WCAG 2.0) to ensure that websites providing online public services meet at least Level A accessibility standards, with a focus on achieving Level AA. Accessibility standards should also be included as mandatory provisions in contracts between government agencies and service providers, like provisions for information security and data protection.

ii) Conduct research on the development of accessibility assessment services. Users with disabilities and older users should be involved in assessment activities, ranging from short consultations to large-scale usability studies. There are two types of involvement for disabled individuals:

- Informal evaluations of specific accessibility issues, which can be simple. For example, individuals with disabilities can use screen

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[144] https://wave.webaim.org/

[145] https://accessibilityinsights.io/

readers to search for and check specific data, while sighted individuals observe their interaction with the website and discuss any related issues.

- The type of assessment conducted will depend on factors such as the project stage, such as initial design exploration, testing specific areas of a prototype, or reviewing the final design. Incorporating informal evaluations throughout the development process is more effective than conducting formal usability testing only at the project's end.

iii) Develop policies to encourage public-private collaboration between local governments and technology companies, both domestic and international, in the development of language support tools for users from ethnic minority groups and those with sensory impairments. Examples include short instructional videos in local languages and screen reading tools for individuals with sensory impairments).

Fourthly, establish regulations for technical interoperability and connectivity among the various ESPs. The goal of this policy is to address technical interoperability issues between portals developed by different providers while creating an environment for innovation and improvement within the national and local ESPs ecosystem. Standardizing and increasing data interoperability through technical connectivity will help reduce investment costs and operational risks. E-government development is a long-term process that requires continuous updates and changes, particularly over the next 5-10 years. This standardization will provide a solid foundation for situations involving changes in contractors or the need for product updates, reducing the costs associated with such transitions. Additionally, regulating the connectivity standards of e-government systems at all levels will allow startups and small-to-medium enterprises to contribute to the e-government and digital government ecosystem. This, in turn, can stimulate the development of Vietnam's technology market. The government agencies can then provide practical topics to promote domestic startups to keep up with the continuous development of technology and propose innovative solutions.

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LEGAL DOCUMENTS

Decrees

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• Decree No. 104/2022/ND-CP dated December 21, 2022, amending and supplementing a number of articles of Decrees relating to the submission and presentation of household registration books and temporary residence books when carrying out administrative procedures or providing public services.

• Decree No. 59/2022/ND-CP dated September 5, 2022, regulating electronic identification and authentication.

• Decree No. 42/2022/ND-CP dated June 24, 2022, on prescribing provision of online information and online public services by regulatory bodies.

• Decree No. 107/2021/ND-CP dated December 6, 2021, amending and supplementing the Decree No. 61/2018/ND-CP dated April 23, 2018 of the Government on the implementation of the single-window and inter-agency single-window mechanism in the settlement of administrative procedures.

• Decree No. 47/2020/ND-CP dated April 9, 2020, on the management, connection, and sharing of digital data of state agencies.

• Decree No. 45/2020/ND-CP dated April 8, 2020, on the implementation of administrative procedures in the electronic environment.

• Decree No. 64/2007/ND-CP dated April 10, 2007, on the application of information technology in the activities of state agencies.

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• Decision No. 766/QD-TTg dated June 23, 2022, approving the set of indicators in reference to the direction, administration and assessment of the quality of services provided to citizens and enterprises in the performance of administrative procedures and public services in real time in the electronic environment.

• Decision No. 06/QD-TTg dated January 6, 2022, approving the Scheme on developing the applications of the population database, the personal identification and eKYC for the national digital transformation for the 2021-2025 period with a vision towards 2030.

• Decision No. 34/2021/QD-TTg dated November 8, 2021, regulating the electronic identification and electronic authentication on the national population database, citizen identification database and national immigration database.

• Decision No. 31/2021/QD-TTg dated October 11, 2021, promulgating the Regulation on management, operation and exploitation of the National Public Service Portal.

• Decision No. 942/QD-TTg dated June15, 2021, on approving strategy for development of e-Government towards

2021, on approving strategy for development of e-Government towards digital Government for 2021 – 2025 with a vision to 2030.

• Decision No. 468/QD-TTg dated March 27, 2021, approving Scheme for renovation of single-window system and inter-agency single-window system in the settlement of administrative procedures.

• Decision No. 749/QD-Ttg dated June 3, 2020, approving the "National Digital Transformation Program by 2025, vision to 2030".

Directives

• Directive No. 05/CT-TTg dated February 23, 2023, on strengthening the implementation of Project on development of national population database, electronic identification and authentication for national digital transformation in 2022-2025 period, with vision to 2030 in ministries, branches and localities in 2023 and following years.

• Directive No. 02/CT-TTg dated April 26, 2022, on the development of e-government towards digital government and promotion of national digital transformation.

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• Circular No. 01/2023/TT-VPCP dated April 5, 2023, on certain contents of and measures for digitizing administrative procedure results and the implementation of

administrative procedures in the electronic environment.

• Circular No. 26/2020/TT-BTTTT dated September 23, 2020, on the application of standards and technologies to support accessibility for persons with disabilities in accessing and using information and communication products and services.

• Circular No. 22/2019/TT-BTTTT dated December 31, 2019, on the functional criteria and technical features of the National Public Service Portal and the electronic single-window system at the ministerial and provincial levels.

• Circular No. 32/2017/TT-BTTTT dated November 15, 2017, on the provision of online public services and ensuring convenient access to electronic information websites, electronic information portals, and online public service portals of state agencies.

Official Dispatch

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• Official Dispatch No. 4946/BTTTT-CDSQG dated October 4, 2022, providing guidance on the implementation of Decree No. 42/2022/ND-CP

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APPENDIX

Table 1: Simulated data for provincial ESPs that cannot be assessed by automated tools

STT	Province	DTI Rating on Digital Infrastructure for Alternative	Page Loading Speed Index
1	Hoa Binh	Hoa Binh: 54 Dong Thap: 55 Gia Lai: 53	Hoa Binh: (50+3)/2=22.5 (5; 5.5) Dong Thap: 3 (10; 7) Gia Lai: 50 (0;4)
2	Hai Phong	Hai Phong: 36 Dong Nai: 37 Dak Lak: 35	Hai Phong: (45+30)/2=37.5 Dong Nai: 45 Dak Lak: 30
3	Da Nang	Da Nang: 3 Thua Thien-Hue: 2 HCMC: 1	Da Nang: (38+36)/2=37 Thua Thien-Hue: 38 HCMC: 36
4	Tien Giang	Tien Giang: 32 Hung Yen: 33 Nghe An: 31	Tien Giang: (30+28)/2=29 Hung Yen: 30 Nghe An: 28
5	Vinh Long	Vinh Long: 47 Thanh Hoa: 48 Quang Binh: 46	Vinh Long: (38+42)/2=40 Thanh Hoa: 38 Quang Binh: 42
6	Soc Trang	Soc Trang: 50 Binh Thuan: 49 Binh Dinh: 51	Soc Trang: (45+23)/2=34 Binh Thuan: 45 Binh Dinh: 23
7	Quang Ninh	Quang Ninh: 9 Hai Duong: 10 Binh Phuoc: 8	Quang Ninh: (30+55)/2=42.5 Hai Duong: 30 Binh Phuoc: 55
8	Ha Noi	Ha Noi: 22 Yen Bai: 21 Hà Nam: 23	Ha Noi: (50+50)/2=50 Yen Bai: 50 Ha Nam: 50
9	Tra Vinh	Tra Vinh: 4 Binh Duong: 5 Da Nang: 3	Tra Vinh: 0; (4+5)/2=4.5 Binh Duong: 0; 4 Da Nang: 0; 5

[146] Ha Giang, Hoa Binh, Vinh Phuc, Hai Duong, Ninh Binh, Thua Thien-Hue, Da Nang, Quang Ngai, Binh Dinh, Phu Yen, Kon Tum, Lam Dong, Tay Ninh, Binh Duong, Dong Thap, Kien Giang, Soc Trang, Bac Lieu, Ca Mau.

[147] Cao Bang, Tuyen Quang, Lao Cai, Yen Bai, Lang Son, Phu Tho, Hung Yen, Thai Binh, Nghe An, Dak Lak, Dak Nong, Long An, Tien Giang, Ben Tre, Tra Vinh, An Giang.

[148] Ha Noi, Bac Kan, Dien Bien, Bac Giang, Bac Ninh, Thanh Hoa, Hà Tinh, Quang Binh, Quang Tri, Quang Nam, Ninh Thuan, Binh Thuan, Tp. Ho Chi Minh.

Table 2: Statistics of category names inconsistency

STT	Category Name	Number of ESPs Used
1	Administrative Procedures	19/63[147]
2	Procedure Set	16/63[147]
3	Online Public Services	13/63[148]
4	Public Services	7/63[149]
5	Online Submission	3/63[150]
6	Administrative Procedure Set	1/63[151]
7	Administrative Procedure Retrieval	2/63[152]
8	Administrative Procedures and EGS	1/63[153]
9	Procedure Retrieval	1/63[154]

Table 3: Statistics of inconsistent classified level names

No.	Category Name	Number of ESPs Used
1	Partial EGSs (Allow Online Submission), End-to-end EGS[155]	1
2	Offline, Partial (Online), End-to-end[156]	1
3	Offline, Partial (Online), End-to-end (Fully Online)[157]	1
4	Partial EGS, End-to-end EGS, In-person submission[158]	1
5	Public Services, Partial, End-to-end[159]	1
6	Public Services, End-to-end, Partial (Online)[160]	1
7	Partial EGS, End-to-end EGS, Administrative Procedure Not Providing EGS[161]	1
8	Partial (In-person Submission), Partial (Online Submission), End-to-end[162]	1
9	Partial (Direct), Partial (Online), Full[163]	3
10	Partial, Partial (Online), End-to-end[164]	1

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[149] Son La, Thai Nguyen, Quang Ninh, Gia Lai, Binh Phuoc, Can Tho, Hau Giang

[150] Dong Nai, Ba Ria-Vung Tau, Vinh Long.

[151] Lai Chau.

[152] Hai Phong, Nam Đinh.

[153] Khanh Hoa.

[154] Ha Nam.

[155] Dien Bien.

[156] Tien Giang.

[157] Long An.

[158] Binh Phuoc.

[159] Hung Yen.

[160] Thai Binh.

[161] Kon Tum.

[162] Ninh Binh.

[163] Dak Lak, Dak Nong, An Giang.

[164] Tuyen Quang.

11	Partial, Partial, End-to-end [165]	1
12	Partial, End-to-end [166]	18
13	Partial, End-to-end, Others [167]	1
14	Level 1, Level 2, Partial EGS, End-to-end EGS [168]	1
15	Level 1, Level 2, End-to-end, Partial [169]	1
16	Level 2 (Original), Partial, Level 2, End-to-end [170]	1
17	Level 2, Partial EGS, End-to-end EGS [172]	1
18	Level 2, Partial, End-to-end	2
19	End-to-end, Partial, Administrative Procedure [173]	1
20	End-to-end Online, Partial Online, Others [174]	1
21	Administrative Procedure, Administrative Procedure, End-to-end EGS, Partial EGS [175]	1

Table 4: Statistics on names of instructional documents inconsistency

No.	Category Name	Number of ESPs Used
1	Guidelines	17/63 [176]
2	Support	15/63
3	Other Services	14/63
4	User Manuals	5/63
5	Assistance	1/63
6	Others	1/63
7	Citizen Support	1/63
8	Application Submission Guidelines	1/63
9	System	1/63
10	Guidelines for EGS performing	1/63
11	Instructional Utilities	1/63
12	Information and Utilities	1/63
13	Introduction - Guidelines	1/63
14	Other Information	1/63
15	HDSD (User Manuals)	1/63

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[165] Ha Giang, Lao Cai, Nghe An.

[166] Hoa Binh, Quang Ninh, Bac Giang, Bac Ninh, Hai Phong, Ha Nam, Thanh Hoa, Quang Nam, Quang Ngai, Binh Thuan, Tay Ninh, Binh Duong, Dong Nai, Ba Ria-Vung Tau, HCMC, Vinh Long, Dong Thap, Can Tho.

[167] Lam Dong, Lai Chau

[168] Vinh Phuc.

[169] Lang Son.

[170] Kien Giang.

[171] Phu Tho.

[172] Son La, Tra Vinh.

[173] Hau Giang.

[174] Binh Dinh.

[175] Quang Tri.

[176] Excluding Yen Bai province, there are 62 provincial ESPs remaining. The total number of names here is 62.

Table 5: Statistics on the classification of cases for pre-screening of 31 provincial ESPs

No.	Province	Number of Cases	Details of Case Classification
1	Cao Bang	2	- 15 working days - individuals issued a Judicial Record Certificate as Vietnamese citizens residing in multiple locations or having a period of residence abroad, foreigners, and cases requiring verification for natural conditions to clear criminal records - 10 working days
2	Lai Chau	2	- 10 working days - 10 working days from receipt of complete and valid documents - 15 working days - cases requiring verification for natural condition to clear criminal records within a maximum of 15 days
3	Son La	2	- Cases with multiple places of residence - Cases requiring Certificate issuance
4	Yen Bai	4	- 10 days - 10 days (with fee) for individuals requested to issue a Judicial Record Certificate as Vietnamese citizens with residence in multiple locations or having a period of residence abroad, cases requiring verification for natural conditions to clear criminal records within a maximum of 15 days - 10 days - 10 days (free) - 15 days - 15 days - 15 days - 15 days (free) for individuals requested to issue a certificate of criminal record as Vietnamese citizens with residence in multiple locations or having a period of residence abroad, foreigners, cases requiring verification for natural conditions to clear criminal records within a maximum of 15 days.
5	Lang Son	4	- 7 working days - 10 working days - 15 working days - 12 working days
6	Phu Tho	2	- 15 working days - cases of Vietnamese citizens with residence in multiple locations, having a period of residence abroad, foreigners, or cases requiring verification for natural conditions to clear criminal records - 9 working days
7	Vinh Phuc	3	- 15 days - cases of clearing criminal records - 15 days - cases of Vietnamese citizens with residence in multiple locations or having a period of residence abroad, foreigners - 10 days - for cases of residence within the province
8	Hai Duong	2	- 10 working days - upon receiving a valid request - 15 working days - for cases of Vietnamese citizens with residence in multiple locations or having a period of residence abroad, foreigners, cases requiring verification for natural conditions to clear criminal records

9	Thai Binh	2	- 9 working days - upon receiving a valid request - 14 working days - cases requiring verification for condition
10	Ninh Binh	2	- 72 working hours - individuals requested to issue a certificate of criminal record as Vietnamese citizens residing only in Ninh Binh province - 112 working hours - cases of Vietnamese citizens with residence in multiple locations or having a period of residence abroad, foreigners, cases requiring verification for natural conditions to clear criminal records
11	Nghe An	2	- 11 working days - cases requiring verification for natural conditions to clear criminal records - 8 working days - regular cases
12	Quang Binh	2	- For cases where Vietnamese citizens do not have residence in multiple locations or a period of residence abroad, cases not requiring verification for natural conditions to clear criminal records - For cases where Vietnamese citizens have residence in multiple locations or a period of residence abroad, cases requiring verification for natural conditions to clear criminal records
13	Quang Tri	2	- 10 days - QT 3232/2020 - 15 days - QT 3232/2020 - individuals requested to issue a Judicial Record Certificate as Vietnamese citizens with residence in multiple locations or having a period of residence abroad, foreigners
14	Da Nang	4	- Individuals with permanent registration and continuous residence in Da Nang - Individuals with permanent registration in Da Nang, having residence in multiple locations or a period of residence abroad, foreigners, cases requiring verification for natural conditions to clear criminal records - Individuals with permanent registration in Da Nang, including students, individuals with contributions to the revolution, martyrs' relatives (including biological parents, spouse, children, biological children, adopted children, individuals who have contributed to raising the disabled) - Individuals with permanent registration in Da Nang, children as defined
15	Quang Nam	2	- Not verified - Verified
16	Quang Ngai	2	- Verification process for criminal records (cases under 14 years old) - integrated criminal record - Verification process for criminal records - integrated criminal record
17	Binh Dinh	2	- 15 days - Form 03 criminal record declaration (without authorization), cases requiring verification - 15 days - Form 04 criminal record declaration (with authorization), cases requiring verification

18	Khanh Hoa	2	- For cases with residence in multiple locations or a period of residence abroad, foreigners, cases requiring verification for natural conditions to clear criminal records - For cases where Vietnamese citizens aged 14 and above reside only in Khanh Hoa province
19	Kon Tum	2	- Department of Justice - 218 - Department of Justice- 218 - electronic criminal record
20	Dak Nong	2	- 120 hours - 80 hours
21	Lam Dong	2	- 15 working days - Vietnamese citizens with residence in multiple locations or a period of residence abroad, foreigners, cases requiring verification for natural conditions to clear criminal records - 10 working days - Vietnamese citizens with residence in multiple locations or a period of residence abroad, foreigners,
22	Binh Phuoc	2	- 15 days - cases with residence in multiple locations - 10 days
23	Long An	2	- 15 days - cases of Vietnamese citizens with residence in multiple locations or having a period of residence abroad, foreigners, cases requiring verification for natural conditions to clear criminal records - 10 days - cases within the province
24	Tien Giang	2	- 15 days - Vietnamese citizens with residence outside the province, foreigners, cases requiring verification for natural conditions to clear criminal records - 10 days - Vietnamese citizens with residence in Tien Giang province
25	Dong Thap	2	- Individuals - within the province - type 1 - Individuals - within the province - type 2 - Individuals - outside the province - type 1 - Individuals - outside the province - type 2 - Authorization - within the province - type 1 - Authorization - within the province - type 2 - Authorization - outside the province - type 1 - Authorization - outside the province - type 2
26	An Giang		
27	Kien Giang	2	- Residence within the province - Residence within the province and temporary residence outside the province
28	Can Tho	2	- Issuance of Criminal Record Certificate for Vietnamese citizens, foreigners residing in Vietnam - Issuance of Criminal Record Certificate for Vietnamese citizens, foreigners residing in Vietnam (verification cases))

29	Hau Giang	8	- Individuals - within the province - Criminal Record Certificate number 1 - Individuals - within the province - Criminal Record Certificate number 2 - Individuals - within the province - Criminal Record Certificate number 1 - Individuals - within the province - Criminal Record Certificate number 2 - Authorization - within the province - Criminal Record Certificate number1 - Authorization - within the province - Criminal Record Certificate number2 - Authorization - outside the province - Criminal Record Certificate numbe1 - Authorization - outside the province - Criminal Record Certificate numbe2
30	Soc Trang	2	- Fee (online payment cases) - 15 days - Case 1 - 15 days - Case submitted automatically from the Ministry of Justice - 15 days
31	Ca Mau	2	- Local verification cases - 8 days - Verification cases at the National Centre for Criminal Record - 13 days

Table 6: Description of found survey methods

Comparison of Survey Methods	Aspect VNForm Survey	Method for General Administrative Procedure Resolution Survey	Satisfaction Level Evaluation Method
Evaluated Subject	This method is used universally for all entities that are agencies or departments providing public administrative services. However, the section for recording the agency's name is not a fixed list but depends on each citizen's response, making it difficult to filter the subjects when compiling the list. Citizens are aware that their evaluations are recorded, but they do not know who is recording their evaluations (whether it is the target agency or not).	This method targets entities such as agencies and officials responsible for handling documents. It is a survey form developed independently by the province, so the surveyed subjects are specific, clear, and limited to that particular province/agency.	The subjects evaluated by this method are officials, agencies, and administrative procedures.
Question form	The long questions in this method focus on the software aspect of digital public administrative services, making it suitable for evaluating comprehensive digital public administrative services that take place entirely in the digital environment.	The questions in this method are diverse in content and quantity, as well as the method of response from citizens (good/very good/not good; rating from 1-5; providing short answers; multiple choice). Some commonly mentioned content includes: - Time cost: How many people and agencies need to be encountered, how many times, whether it is on time or not, etc.	The questions in this method are multiple-choice, with simple quantitative answer options such as satisfied/not satisfied/very satisfied or expressed through star ratings.

		- Monetary cost: Are additional fees charged, etc. - Reception environment for citizens - Attitude of the officials, guidance methods - Access to information about administrative procedures	
Advantages/ Disadvantages	It can be used to evaluate the synchronized experience of digital public administrative services nationwide.	This is a detailed survey form that is suitable for deepening issue detection. However, the main advantage can be a barrier for citizens to provide evaluations if the question-naire is too long.	It is fast, lightweight, and suitable for regular evaluations immediately after users use digital public administrative services. However, this method will not pinpoint specific issues but only assess the overall satisfaction level of users in general.

Table 7: Five sub-indices of page load performance from Google PageSpeed Insights tool

No.	Sub-Index Name	Meaning
1	First contentful paint - FCP	This index measures the time from when the user starts loading the webpage to when the first content appears on the screen. The index is measured in seconds. Factors influencing the FCP index: i) Image size, ii) JavaScript and CSS files, iii) Server interaction, iv) Website design. The recommended FCP time is below 2 seconds.
2	Largest contentful paint	Four factors influence LCP: i) Slow server response time, ii) JavaScript and CSS blocking display, iii) Resource loading time, iv) Client-side rendering. The LCP time should be less than or equal to 2.5 seconds.
3	Total Blocking time	This index helps determine the page's responsiveness by measuring the time from when the page is non-interactive to when it becomes stable and interactive. If a user interacts with the website during a long task, the browser must wait for the task to complete before responding to the user's interaction. Pages should strive to have TBT less than 300 milliseconds.
4	Cumulative Layout Shift	This index measures the stability and unexpected layout changes of the displayed page content. A webpage with a good user experience has a CLS score below 0.1.
5	Speed Index	This indicates how quickly the content of the page is displayed. The target for ideal loading time is below 1,250 milliseconds.

Figure 1: Statistics on the number of end-to-end EGSs provided by Ha Giang and Hoa Binh
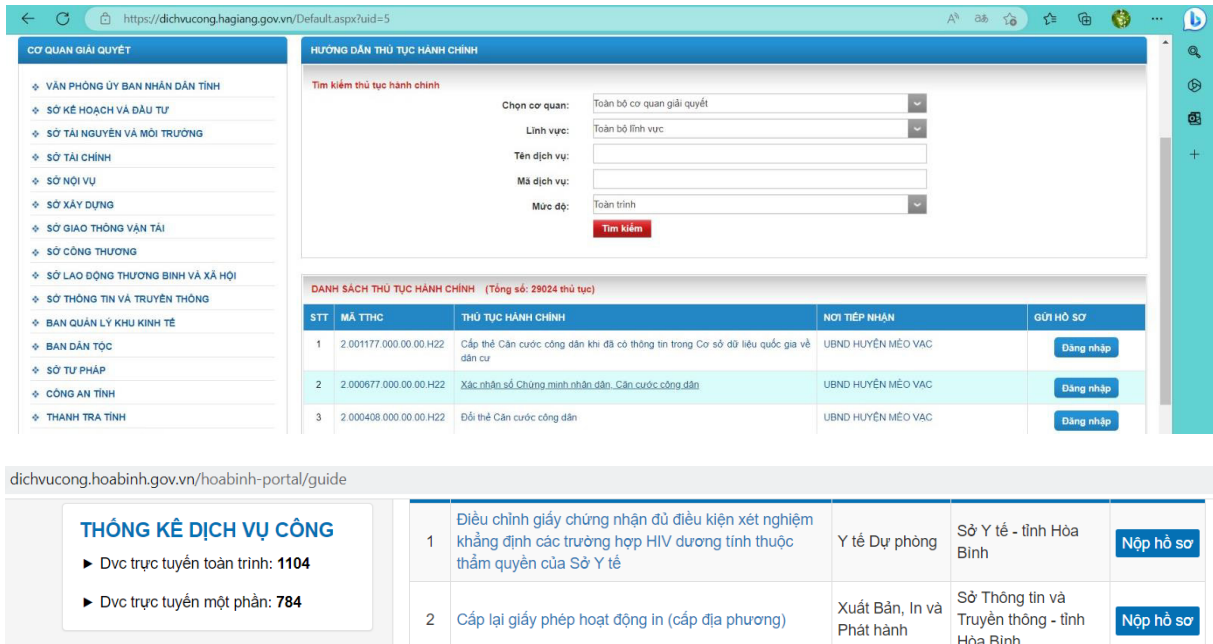
Figure 2: Display errors of the chatbot tool on the ESPs of Hai Phong, An Giang, Vinh Phuc, and Quang Ninh provinces/cities

Figure 3: Exemplary performance of virtual assistants on the ESPs of Hoa Binh and Tay Ninh provinces

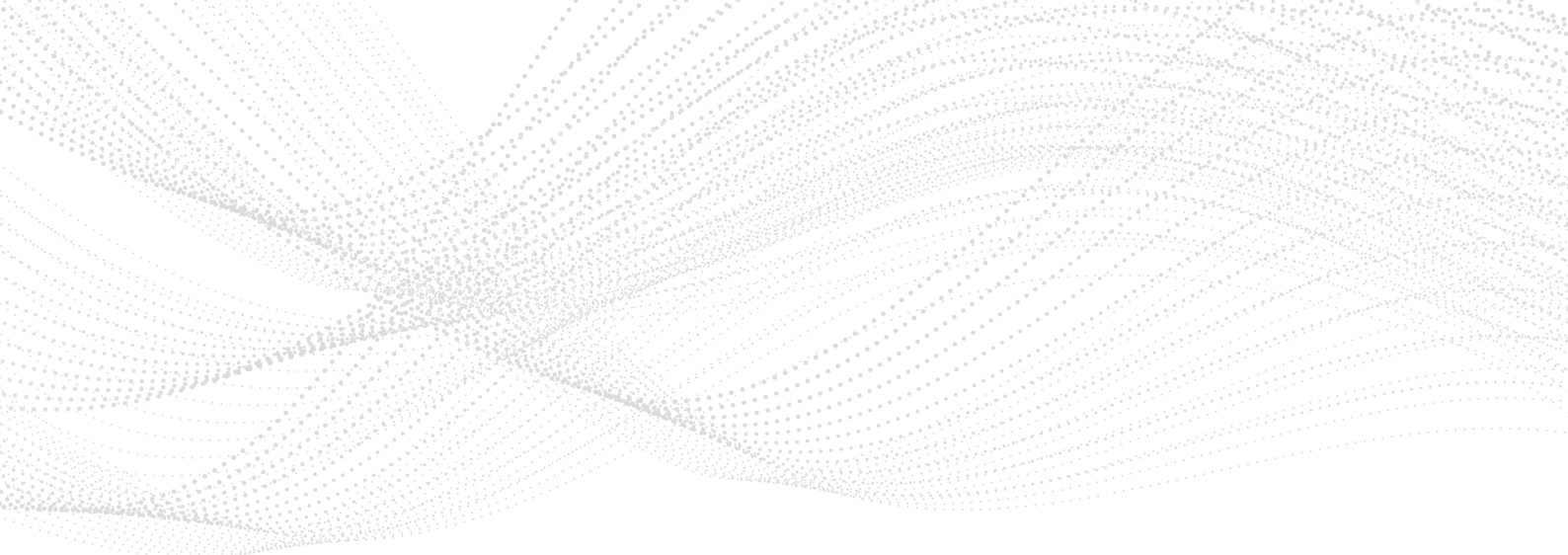**Figure 4:** Best practices of the ESP of Thai Nguyen province in connecting with the National Population Database