

Usability evaluation of eGovernment national portals: The case of gov.gr

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Abstract

eGovernment's primary strategic priority is to offer electronic services to citizens. However, the complex structure of public organizations often makes it difficult for citizens to find the services they need. In response, governments have adopted web portals as a single point of contact. This research paper evaluates the usability of the Greek government's official web portal called "gov.gr". The study reveals that users encounter usability problems due to the ineffective performance of the search engine, the lack of a minimalist design, and difficulties navigating within the system. To improve the portal, the study recommends upgrading the search engine, focusing on a minimalist redesign, and implementing specific features such as a visible 'home' button.

Keywords

Usability, Evaluation, eGovernment, Web-portal, gov.gr

1. Introduction

One of the main strategic priorities of eGovernment is to provide electronic services to citizens. However, the complex structure of public organizations has made this initiative challenging, as citizens often struggle to locate the services they require. To address this, governments have embraced web portals as a single point of contact for online service delivery linking all government services and information to a central location.

In 2020 in Greece "gov.gr" has been launched as the official government web portal¹. It offers citizens access to 1,709 digital public services offered by ministries, organizations, authorities, and the country's regions. Since its launch, the portal has gained significant

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¹ <https://www.gov.gr/en>

popularity, and aims to be the primary point of contact for citizens and businesses in the public sector.

Ensuring user-friendliness in gov.gr design is crucial for its success. However, usability issues can hinder the user experience. To address this, researchers from the University of Macedonia, employees of the Greek Ministry of Digital Governance (MDG), and an expert of “Expertise France” collaborated closely in a joint project to evaluate gov.gr usability. Thus, the present study aims to disseminate the results of this ongoing project driven by the following research questions:

RQ1: Can users easily navigate gov.gr without any obstacles, doubts, or questions?

RQ2: What obstacles or difficulties might users encounter while navigating gov.gr?

RQ3: What are the proposed solutions to improve gov.gr usability?

The rest of the paper is structured as follows. In Section 2, we outline the overall project that funded this research. In Section 3, we provide the background and related work of the study. Section 4 outlines the methodology used to evaluate the usability of gov.gr, while Section 5 presents the evaluation results. Lastly, Section 6 discusses the research findings, presents conclusions, identifies study limitations, and provides recommendations for future work.

2. Project Overview

This research is part of a the “Next Generation of Digital Public Services” project which provides technical support in the areas of digital transformation and cybersecurity to the MDG. The project is funded by DG REFORM under the Technical Support Instrument (TSI 2022)² and is implemented with the support of Expertise France. The main objective of the project is to implement a common Framework for the next generation of improved digital public services to the citizens via the “gov.gr” ecosystem.

The MDG, in an effort to ensure a homogeneous user experience across all domains and service categories offered by the new digital portal of the public administration (gov.gr), is aiming at creating the next generation, gov.gr ecosystem, which will operate as the single point of contact between citizens, businesses and the public sector. This new gov.gr platform will provide digital services with a common “aesthetic” identity, developed under a common framework (business and technological user-centric design) and offering automation by being linked to the underlying business processes, currently organized within the National Registry of Administrative Public Services “Mitos”³. Moreover, it will support cross border electronic services for all EU citizens.

The aim is for “gov.gr” to be redesigned to function as the digital service center, which will gather all solutions and information that citizens and businesses should be aware of in their interaction with the administration. In other words, it is intended to operate as the one and only point of contact between citizens, businesses and the public sector. For this

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³ https://en.mitos.gov.gr/index.php/Main_Page

purpose, a usability evaluation of the current form of "gov.gr" was deemed essential and that work is presented in this paper.

3. Related work

Usability refers to the interaction between humans and computers, including dimensions such as learnability, efficiency, and user satisfaction [1]. According to ISO 9241 it is defined as the extent to which specified users can achieve specified goals with effectiveness, efficiency, and satisfaction in a specified context [2]. Various studies have evaluated the usability of eGovernment portals through expert analysis and user feedback. For instance, some studies have utilized Analytic Hierarchy Process (AHP) method [3] and mixed methods combining usability heuristics and automated analyses [4] to assess the usability of Australian and Alabama county web portals, respectively. Other studies have investigated the usability of Iraqi [5] and Peruvian [6] government e-portals using heuristic evaluation methods. Moreover, [7] used a questionnaire to assess the usability of fifty US state portals. Similarly, [8] evaluated a redesigned US state government portal using a think-aloud protocol. [9] evaluated the usability of the Korean eGovernment portal, while [10] conducted an evaluative usability test of the Hungarian e-government portal. Finally, [11] investigated the usability of three Dubai eGovernment department portals using eye-tracking methodology.

4. Methodology

The project's objectives and the associated research questions guided the selection of usability evaluation methods. We used heuristic evaluation and formative usability testing with the think-aloud protocol to gain insights from usability experts and real users, respectively. We also collected user feedback through satisfaction questionnaires.

4.1. Heuristic evaluation

Between October and December 2023, 332 students enrolled in the Department of Applied Informatics at the University of Macedonia conducted a heuristic evaluation of gov.gr. To ensure the accuracy and reliability of the results, the students enrolled in the "Information Systems" course acquired the necessary skills. The students were divided into groups and informed about the gov.gr website. 40 personas and 44 illustrative scenarios were created to guide them through the 11 service categories (Table 1). Each group was given a persona and scenario and asked to explore the website. Students individually evaluated gov.gr based on Nielsen heuristics [12]. They identified usability problems, matched them with heuristics, and provided justifications and screenshots. Afterward, they convened a joint meeting to evaluate and prioritize the findings for the final assessment report.

Table 1

Personas and scenarios given to students (restricted to 5 for space reasons)

Persona	Scenario
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1. Pupil's parent	"You want to enroll your child in kindergarten."
2. Unemployed	"You want to apply online for regular unemployment benefits."
3. Married	"You are interested in applying to adopt a child."
4. Patient	"You want to schedule an appointment with a doctor."
5. Fisherman	"You want to change the name of your fishing vessel."

4.2. Formative usability test through the think-aloud protocol

Between November and December 2023, 34 students from the Department of Applied Informatics at the University of Macedonia conducted a formative usability test to evaluate gov.gr. 67 novice users participated in the test, divided into six user groups. The students assigned tasks to the users, allowed them to freely browse the system, and gathered their thoughts and opinions while working with it. After completing the user testing, the group discussed their findings and prepared the final evaluation report.

4.3. Completion of standardized questionnaires

Between October and December 2023, 57 out of 67 novice users and 191 out of 332 students participated in a study. They completed the SUS [13] and SUPR-Q [14] questionnaires after performing the assigned tasks. In January 2024, a study was also conducted to evaluate the convergence between the SUS and SUPR-Q questionnaires for usability assessment. The study aimed to determine if the score from answering the two usability-related statements in the SUPR-Q questionnaire could predict the score from answering the ten questions in the SUS questionnaire. This could lead to a more efficient assessment process for user satisfaction.

5. Results

After reviewing the final assessment reports submitted by the students who conducted the heuristic evaluation on gov.gr, we classified the findings into four main categories: Navigation (Table 2), Content (Table 3), Terminology (Table 4), and Functionality (Table 5). We also noted the number of student groups identifying each finding and its average significance. Additionally, we used the Nielsen significance classification table to characterize the importance of the findings, where 0= false alarm, 1= cosmetic problem, 2= minor problem, 3= medium problem, 4= major problem, 5= usability catastrophe [1]. After analyzing the usability reports from the students who performed the formative usability test through the think-aloud protocol, we identified the most critical usability issues reported by the users and captured their frequency (Table 6).

Table 2

Navigation-related usability issues (restricted to the top-5 issues for space reasons)

Usability issue	#Groups	Avg. significance	Heuristic
1.The user is facing difficulty in returning to the home page.	20/69	2,65	2

2.The user is experiencing difficulty while navigating the gov.gr website using the mobile phone.	19/69	2,43	7
3.The user may be directed to an external website with a different structure and appearance than gov.gr.	13/69	2,85	4
4.If the user wants to go back a step in the service process, they won't be able to save the data they entered.	5/69	3	3
5.The user may be redirected to a "dead" link or icon.	4/69	3	5

Table 3

Content-related usability issues (restricted to the top-5 issues for space reasons)

Usability issue	#Groups	Avg. significance	Heuristic
1.The website's home page and other pages contain too much information, leading to confusion for users.	26/69	2,51	8
2.The website lacks explanatory images that could assist the user in comprehending its content.	22/69	1,86	10
3.Some system parts and functionalities are not easily visible to users.	18/69	2,3	1
4.The font size, images, and buttons frequently fail to meet the user's requirements.	17/69	2,4	2
5.In the event of an error, the user is not provided with clear instructions on what to do.	15/69	3,38	9

Table 4

Terminology -related usability issues

Usability issue	#Groups	Avg. significance	Heuristic
1.It is challenging to find the desired service by navigating through the 11 service categories.	28/69	2,2	2
2.The wording of the services is problematic.	5/69	2	2

Table 5

Functionality-related usability issues (restricted to the top-5 issues for space reasons)

Usability issue	#Groups	Avg. significance	Heuristic
1.If the user misspells or types a service differently than its registered name on gov.gr, the search engine fails to return results.	56/69	3,17	7
2.In case English is selected, the service is executed in Greek.	28/69	4,06	2
3.Other than English, translation to foreign languages is not supported.	18/69	2,89	2
4.Users face difficulty in finding the desired service when browsing in English.	10/69	3,5	7
5.The mobile search feature does not suggest results to users.	8/69	3,11	7

Table 6

Top-5 usability issues reported by the users during the formative usability test

Usability issue reported by the users	#Users
1."I had trouble using the search bar to find the service I was looking for"	60/67
2."I found it challenging to navigate back to the homepage of gov.gr"	40/67
3."I found it inconvenient to constantly log into the system for running service processes."	27/67
4."I found it cumbersome to repeatedly enter information already known to the Public Administration."	26/69
5."I found the home page of gov.gr to be overwhelming with too much text, making it confusing and difficult to navigate."	21/69

Following the research findings, it has been identified that the search bar on the website and the way the services are categorized present usability issues for users. Users face difficulties in finding the services because of challenges in identifying the correct search terms, the lack of spelling error prevention, and the confusing service categories. Furthermore, the wording of services and the term "life events" is often conceptually ambiguous, which adds to the confusion for users. Users have found it challenging to use gov.gr due to the absence of minimalist design, overloaded pages, lack of images and infographics, poor use of colors and font size, and difficulty returning to the homepage. Additionally, constant reconnection to the system by entering personal details already known to the Public Administration has caused annoyance and a loss of willingness to consume the services.

According to the results of the SUS and SUPR-Q questionnaires, both novice users and undergraduate students had difficulty achieving their goals within the gov.gr application. Novice users rated gov.gr at 64.9%, while students rated it at 67.75% on the SUS scale, falling into the D-POOR category. The SUPR-Q questionnaire also revealed that novice users

rated gov.gr at 3.5/5 (70% on the 100-point SUS scale), while students rated it at 3.57/5 (71.4% on the 100-point SUS scale), which is the B-GOOD category according to the proposed SUS scale. However, postgraduate students rated the gov.gr-native digital services as excellent, suggesting that usability issues may be related to locating digital services rather than their internal processes.

Finally, it has been observed that the statements in the SUPR-Q questionnaire related to usability can predict SUS questionnaire score. Even without statistical testing, the evidence strongly supports this finding, aligned with relevant literature [14]. Indeed, undergraduate students and novice users averaged 66.33 on the SUS questionnaire, with an average of 3.7 out of 5 (74% on the 100-point SUS scale) for the first statement and 3.38 out of 5 (67.6% on the 100-point SUS scale) for the second statement. Postgraduate students scored an average of 83.75 on the SUS questionnaire and 4.42 out of 5 (88.4% on the 100-point SUS scale) for the first SUPR-Q statement and 4.27 out of 5 (85.4% on the 100-point SUS scale) for the second statement. The results suggest that the second SUPR-Q statement is a better predictor of the SUS score than the first one.

6. Discussion and Conclusions

This study evaluated the usability of "gov.gr," the web portal of the Greek government. The evaluation revealed that users experienced usability issues mainly due to problems with the search engine, the absence of a minimalist design, and difficulties in navigating the system.

To enhance gov.gr usability, we recommend upgrading the application's search engine. It is also essential to focus on a minimalist redesign of gov.gr, avoiding unnecessary information on the home and other application pages. To achieve this, gov.gr UI/UX designers should reconsider categorizing services at the conceptual level (for example, by adopting a more explicit mental schema) and the design level (by introducing images). It would also be helpful to implement specific functionalities such as a visible 'home' button to make it easier for users to navigate to the home page and within the application. Moreover, we propose rather than using the ten SUS questions, to use a pop-up menu that only includes the second statement of the standard SUPR-Q questionnaire ("*It is easy to navigate within the website*"), allowing users to assess their satisfaction simply and efficiently.

During our research in December 2023, the Greek government introduced a digital assistant (chatbot) on the portal. As a result, we have not investigated its impact on the usability of gov.gr, which is a limitation of our study. Further research is required to determine whether both the application's search bar and the digital assistant are necessary. If it is determined that an effective search engine is essential along with the digital assistant, appropriate measures will need to be taken to improve the search engine. In addition, as future work, it would be helpful to assess the digital assistant's usability and the extent to which it enhances the web portal's usability. This analysis will provide valuable insights that will enable us to understand the implications of introducing the digital assistant. Consequently, the results will help to improve the portal's usability and enhance users' overall experience.

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