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# Critical Success Factors for Tax Web sites

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**Abstract:**

Information and Communication Technology (ICT) is wide spread in private sector. Companies are using ICT to deliver better and quicker services to their customers. So, the customers who are also citizens have been spoiled by advanced e-services and support. They have developed increased expectations regarding e-services from the public sector too. Thus, the public sector has to deliver advanced e-services to facilitate the citizens. One of the major transactions between the state and the citizens is tax filling and payment. Most governments have created tax Web sites in order to offer this service through the Internet.

This chapter points out critical success factors for a tax Web site. It analyzes criteria that a tax Web site has to satisfy in order to be useful and attractive to citizens. Furthermore, it evaluates various tax Web sites using these criteria and identifies their strengths and limitations. Finally, best practices are underlined and suggestions for improvement are made.

## 1. Introduction

Governments have a major opportunity to grant better and quicker services through the internet. Internet-based technologies not only modify the habitual functions of public agencies, but also introduce irreversible changes to the fundamental relations between government agencies and public [1].

E-government is the use of ICT by government. It must be understandable that e-government is more than online services. It is the transformation of government into a mechanism "citizen-centred" [2] without bureaucracy, delays, misunderstandings and other problems that exist in our transactions with the state. A citizen has the possibility to interact with government in the same way as he interacts with an e-shop.

There are a lot of "products" that a citizen or a business must be able to find, like laws and regulations that pertain to them, access helpful compliance assistance tools, or register their business, or get a license or permit online, even more pay their taxes online.

One of the major transactions between the citizen and the government is the taxation. Tax sites are Web sites that help citizens to find information about taxes and to realise their taxes' obligations through the Internet. In this chapter we focus on this e-government service. Web sites for taxes give the opportunity to citizens to learn more about and arrange online their financial obligations to the state. They also minimize citizen's waste time and money due to the bureaucracy. In order to design and develop a successful tax site, critical factors should be identified. Generally, the transition to tax filling through a Web site must follow four phases [3]. The first phase is Web presence. In this phase citizens can find basic information on a Web site. The second phase is Interaction. In this phase citizens can access online critical information, download forms, and contact by email. The third phase is Transaction. In this phase citizens can complete entire transactions or processes online. Finally, the fourth phase is Transformation. In this phase the delivery of government services and potentially the operation of government itself are redefined. Information, service delivery and government processes are integrated across traditional boundary lines. Information and services are increasingly customised to the particular needs of individuals and businesses. The identity of individual agencies matters less to people as information and services are accessed through a single point of contact on the web.

Previous work on evaluating e-government sites includes the American Customer Satisfaction Index (ACSI) methodology [4]. The ACSI is a cross-industry measure of customer satisfaction produced quarterly by the University of Michigan. Another tool to evaluate e-government sites is the E-Qual (previously called WebQual) instrument developed at the University of Bath. In the beginning E-Qual has been used to evaluate e-commerce sites but by the time has been modified to evaluate e-government web-sites. The method turns qualitative customer assessments into quantitative metrics that are useful for management decision-making [5]. WebQual is based on quality function deployment (QFD), which is a "structured and disciplined process that provides a means to identify and carry the voice of the customer through each stage of product and or service development and implementation" [6]. Other research is based on quality [7]. Various useful web diagnostic tools can be also used. WebXact (http://webxact.watchfire.com) WebXact evaluates accessibility, quality and privacy. Netmechanic (http://www.netmechanic.com) identifies broken links, W3C's HTML validator (http://validator.w3.org) validates HTML code and Vizcheck (http://www.vischeck.com) examines how the colour schemes used by the respective portals impact upon people with various forms of colour blindness. A citizen-centric approach has been taken on [8]. Four methods for evaluating commercial web sites are described in [9]. They include Usability testing, User feedback, Usage data and Web and Internet performance. Three tools for tax sites evaluation are presented in [10]. They focus on usability and functionality. As we can see, each work is specialized in some evaluation's area. Based on these papers, on a survey among students and employees and on our experience on web site evaluation, we develop our Tax Site Evaluation Framework (TSEF) which may help in a full and integrated evaluation of tax sites.

This chapter develops a framework for evaluating tax sites from the tax payer's point of view. It examines how the characteristics of the tax site interact with both the service and the client to influence the efficient delivery of services. Moreover, it may be useful to designers and developers of tax sites because it suggests how a tax site should be designed. The next section describes critical factors for successful tax site. Section 3 presents the evaluation results of the five tax sites. We select these tax sites based on our ability to examine them trying to represent various countries. Since we speak Greek and English, we select tax sites that speak Greek or English. However, many of them require registration. We also try to cover countries where people have different culture and computer experience. Firstly, we select our Greek tax site (www.taxisnet.gr) with which we have a lot of experience. Then, we select 3 tax sites from countries with widespread Internet use (U.K., New York, Canada). U.K.'s tax site (www.inlandrevenue.gov.uk) is one of the best tax sites in Europe. New York's tax (www.tax.state.ny.us) site is one of the best tax sites in U.S.A. Canada (www.ccra-adrc.gc.ca) is a developed country which operates a very good tax site. Finally, we select Malta's tax site (www.vat.gov.mt) where there is limited Internet use. Finally, section 4 concludes on the evaluation and suggests areas for improvements.

## 2. Tax Site Evaluation Framework (TSEF)

The development of TSEF is based on the selection and reorganization of criteria from previous works which can be used in the evaluation of a tax Web site. In addition we create new criteria in order to make a usable and integrated evaluation tool for tax Web sites. TSEF is an evaluation framework for tax sites across 5 categories: (a) Usability, (b) Presentation, (c) Technical, (d) Content, (e) E-services (Diagram).

Diagram. Tax Site Evaluation Framework.

The Usability category examines factors related to the easiness and friendliness of using the tax site. It consists of five subcategories: 1) User Interface, 2) Structure/Organization, 3) Navigability, 4) Orientation, and 5) Search. In the User Interface, we examine if the tax site satisfies the user needs. The customization of the site to every user and the easiness of using the site are analyzed. Customization can be delivered through the creation of a user's profile and by grouping specific subjects that are related to a particular profile. Easy of use can be accomplished by the simplicity and the easiness of menus, the usefulness and effectiveness of toolbars and buttons. Moreover "Accessibility means designing a user interface that is not only effective, efficient and achieving user satisfaction, but also inclusive of more people in more situations" [11]. In Structure/Organization we examine if the tax site has a logical order of pages that drive a user simply to the service that he wants. In Navigability we examine if it is easy to explore the site without wearying the user. We also examine if it provides useful shortcuts, help button, buttons to navigate to the next or previous page, button to go straight to the central page, buttons to navigate inside the current page (e.g. go to the top, bottom, etc). Finally, we also examine the absence of navigation errors like broken and missing links or pages under construction. Orientation is the subcategory which examines the user's ability to understand where exactly he is in the site. Usually, tax sites contain many pages and a user after many “clicks” can be lost. Finally, search is the subcategory which examines all the facilities that a tax site offers to a user in order to find the information that he is looking for easier and quicker. A search machine or subject directories are such tools.

The presentation category examines the way that information is delivered to the user. A tax site must be aesthetic and beautiful in order to make the browsing pleasant. This category consists of three subcategories: 1) Appearance, 2) Multimedia, and 3) Format. In the appearance, we examine the use of colors in the tax site. Colors must help the navigation and the attractiveness of the tax site. They must be neither very light nor very heavy for the user. In multimedia, we examine the use and quality of multimedia. ICT gives the opportunity to the designers to use sounds, photos or videos in order to make the site more understandable. In this subcategory, we evaluate the quantity, attractiveness and quality of multimedia. The last subcategory is format. In this subcategory we examine the appropriateness and quality of fonts. Fonts must be clear and attractive. It is an important factor for a tax site because the majority of information is given by text.

The technical category examines factors related to the technical aspects of the tax site. It consists of four subcategories: 1) Reliability & Maintainability, 2) Performance, 3) Compatibility, and 4) Security. “Reliability is the outward-facing feature of e-government - the part that constituents see, expect and depend on. When e-government infrastructures become hindered - unreliable and unavailable due to slowdowns or security breaches - the constituent experience and the rationale for undertaking the e-government initiative is threatened” [12]. So, in the first subcategory we examine if the tax site satisfies all the factors in order to be reliable. A tax site must operate continuous. If there is a functional problem, the user must be able to recover his information. Providing technical support to the user is also useful. Moreover, the tax site should send acknowledgments for transactions. A tax site must be continually upgraded in order to support the increasing number of users and services. In the second subcategory, we examine how fast it process the input or output data. We measure the time that a user needs to download multimedia or to upload a file. This is a very important factor because if the navigation is too slowly, user loses his interest and he is getting nervous. In compatibility, we examine the capability of the tax site to support various operating systems and various user devices. For example, we examine if the tax site supports many browsers. The last but not least subcategory is Security. Users in a tax site give very important information so they must be secured in all their transactions. Tax site has to use security certifications and guarantees. It will be also useful the possibility of encryption for the input or output data.

The content category examines factors related to the user's satisfaction regarding the information's quality and quantity that he gets from a tax site. It consists of two subcategories. In quantity, we examine if the existent content can satisfy all the possible users (e.g. a simple citizen, an immigrant, a business). Other classification modes (e.g. with respect to region, age, sex, occupation etc) can be also supported. In quality, we examine at what extend the content is useful, relevant, simple and clear. Moreover, it must be current and updated continuously.

The e-services category contains factors related to the internet's added value. Users are granted with services that do not exist before the internet's usage. In our days a citizen can get any information he wants from his home. Moreover, he can use e-mail, chat rooms, forums and many others tools to communicate in the first place with the site and in the second with other users. It is also useful the existence of Frequent Questions-Answers (FAQ). Customization is also a very critical factor. It is one of the big advantages over the traditional way of tax filling. Furthermore, we examine other social parameters. For example, the site must be accessible by special needs persons. "There are more than 750 million people with disabilities worldwide (at least 6 million in the United States alone). As noted earlier, at a time when the number of people with disabilities is increasing as the population ages, our society has become one that depends more and more on computers and digital technology for work, education and entertainment. Participating in the digital economy by definition requires the ability to access and use the Web. It is hence important to make every possible Web site accessible" [13]. Moreover, it must support at least one more language for foreigners, immigrants, etc.

## 3. Evaluation Results

In this section we display the results from the evaluation among the five tax sites. This is a very demanding work. Tax sites are very complicated and specialized. Moreover TSEF is an evaluation tool which has more than one hundred criteria. These factors make the evaluation very difficult. Firstly, the tester has to understand the sites and the TSEF. Secondly, he must consume many hours to complete the evaluation. It is understandable that the evaluation by other persons is too risky for the results' precision. Our knowledge and our research in this field make the evaluation by our team more accurate.

As we describe in section 2, TSEF is an evaluation framework for tax sites across 5 categories: (a) Usability, (b) Presentation, (c) Technical, (d) Content, (e) E-services. Each category has the same importance (weight) for the total score. Each category is divided into subcategories of equal sub-weight. In order to make the evaluation more understandable, we choose to present firstly the results by category and then we give the overall evaluation picture.

In the usability category, Canada's site achieves the highest score. A user has at his disposal many tools in order to make the site's usage easier. We find a site index, a very good idea because this service summarizes all the contents by name, and other useful buttons like a site map or "home" that help the navigation. Also, we can use a search engine to find subjects related to key words. Moreover, a user is able to create a profile in order to customize the site. The structure is very good and there are not broken or missing links. New York's and United Kingdom's site are very good too, but they need some improvements. A user can not customize these sites and there are shortages in navigation tools. The Greek site and the Maltese site seem poor in comparison to the other three sites. They do not have many tools and there is not customization. Since they are too simple and short, these shortcuts are unnecessary for a good navigation. We can see the results better in Figure 1.

Figure 1. Scores for the usability category.

In the presentation category, the differences among the five sites are not so large (Figure 2). All of them use colors at a satisfactory level and the format is good enough. However, there is a shortage in the multimedia subcategory. Most tax sites do not use videos in order to explain some points. We find a useful video in Canada site which explains how and why a user must create an account. This is the reason that Canada's site wins this category.

Figure 2. Scores for the presentation category.

In the technical category (Figure 3), all sites emphasize that input data are secured. New York's and Canada's sites give more information about security in order to remove any user's fear. Also, United Kingdom's site enables the user's trust. All the sites operate and are updated continuously. Their performance is quiet good. A user with a simple line (e.g. PSTN) does not have to wait very long to get the information he wants. Finally users with different systems and programs did not find problems to navigate the sites. To conclude a user is satisfied regarding this category. As we can see in Figure 3, New York's site is a little bit better from the others.

Figure 3. Scores for the technical category.

In the content category, New York's site is the best (Figure 4). It contains large and high quality content. Information is classified and is updated very often. A user can find anything easily and quickly. Also, a user is satisfied with United Kingdom's site. Canada's content is well organized but it seems inferior in quantity from the first two sites. The Greek and Maltese sites need more work. Their content is short and sometimes seems irrelevant.

Figure 4. Scores for the content category.

The last category is related to e-services and facilities (Figure 5). New York's site is the best in this category. It offers many facilities for communication and interactivity. United Kingdom's site is also advanced. It offers approximately the same facilities. Canada's site is a little bit worse. The Greek and Maltese sites are very poor. They do not use internet's advantages to facilitate the user's interactivity. It is positive that Canada's site supports French as a second language. Of course this was expected because French is a formal language in Canada. Similarly, a user can navigate Malta's site either in English or Maltese language. Furthermore, Canada's site gives useful information about laws and taxation to special groups like Indians. Finally, all sites exhibit a shortage in applications that help people with problems in vision or audition to use them.

Figure 5. Scores for the E-services and facilities category.

## 4. Discussion

The evaluation results show that New York's, United Kingdom's and Canada's tax sites are quite good. They offer many services and they correspond very well in all categories. Greek and Maltese sites seem that have a lot of problems. They need improvements in all categories. In Figure 6, we display the evaluation results in all categories for the five tax sites.

Figure 6. Total evaluation with all categories.

As we can see in Figure 6, presentation is the category that all sites achieve high scores. All the sites have a good appearance and the format is good. The only problem in this category is that they do not offer information and applications in audio and video. Tax sites must take advantage of multimedia capabilities in order to offer new services. Another category that tax sites score high is the technical category. All sites ensure the user that his data are safe. They seem to use the appropriate technology to protect information. Also, they offer good performance and compatibility. The only problem in this category is the updates. Greek and Maltese sites must update their information more often. The other three tax sites make updates very often but not in every page. It is not appropriate to find pages that the last update was 2 years ago.

In Content category, we find that there are problems in Greek and Maltese tax sites. These two sites are small. They need to be enriched with more information and services. Another problem is the quality of the content. Tax sites must give useful and relevant information and services. For this reason a tax site must classify the content. This helps the user to find the right information or service.

We find the majority of the problems in the usability category. Customization is a very important factor. It is the main reason that a user would prefer internet to make his transactions. The only site where a user can create an account is Canada's tax site. Moreover, tax sites do not use navigation or orientation buttons. The only button that they use is "home". In Search subcategory, New York's, United Kingdom's and Canada's tax sites offer many tools. They have search engine, site map or site index. The other two sites do not use these tools. Of course, as we mentioned previously, they are too small in comparison to the other three sites. However, a good tax site must offer search tools producing good and fast results.

In e-services category, tax sites need the biggest improvement. This category is very important because it can make the difference for the governance. Individuals who have a visual disability, a hearing impairment or who face other physical challenges, low-literate populations and people that speak or write another language than the main language must have the opportunity to use the tax site as easy as a typical user. There are a lot of programs that governments could use in order to offer these services. They could use sounds or a brief acoustic analysis in every option for people with visual disability. For low-literate populations sites could use explanations to make the navigation simpler. For people that could not speak or write the native language, tax sites should offer their services in a second or a third language. Of course, this is a project that requires a lot of work and money. So in the beginning, the sites could use translation programs in order to help these people. It is obvious that the firth category is the most demanding and it is the category that will show the big capabilities that a tax site can offer.

Finally in Figure 7, we summarize the total score for each tax site. New York' site is the best site closely followed by United Kingdom's and Canada's sites. The Greek and Maltese sites need more work.

Figure 7. Total Evaluation

## 5. Conclusions

The main goal of the e-government is to enable citizens to carry out more transactions or dealings with public agencies 'electronically' [14]. Citizens want and need the online communication with the government. A research by Taylor Nelson Sofres (2002) for 31 countries from North America, Europe and Asia-Pacific inform us that 15% of users made transactions with government sites. In 2002, we had an augmentation of 4% in use of government sites. Sweden (57%) and Norway (56% had the greatest percentage of using government sites. This element is very important because we can see that in some countries more than half of the citizens make theirs transactions with the government through the internet.

The transition to e-taxes offers many opportunities but also major challenges. Well-designed and smoothly functioning Web sites can be a strong platform for delivering a wide range of tax services electronically. Difficulties can arise in the development, implementation, and updating of e-government sites [15]. The realization of this project needs an evaluation strategy; that is why we create the Tax Site Evaluation Framework (TSEF). TSEF is a full and integrated tool to evaluate a tax site. It is well-known that the design and the analysis of an information system are the most difficult and important parts of the information system. Tax sites are very demanding information systems, so TSEF's principals can be used in the design stage in order to avoid mistakes that could provoke serious problems in the future. To conclude in this paper we tried to gather all these criteria that are important to create a functional and efficient tax site. In addition, we use TSEF to compare five tax sites in order to make more understandable the TSEF and to find out at which level these tax sites satisfy it.

"Governments have a historic opportunity to transform themselves, their businesses and their relationships with citizens into world-class players in the digital economy and society. Anything less will result in a seat on the sidelines" [2].

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