An Analytic Hierarchy Process for the Evaluation of E-Government Service Quality

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ABSTRACT

This paper proposes a measurement model for evaluating e-government service quality, and generates quality indicators to assist practitioners in identifying the strong and weak points of service delivery. The statistical sample is based on questionnaires of citizens’ preferences for the evaluation of an ideal e-government site. To accurately evaluate the influence of criteria and sub-criteria on service quality the model applies the Analytic Hierarchy Process (AHP) a multi-criteria decision-making method. Finally, the authors apply their model to the evaluation of the six most popular Greek e-government sites. To test the possible existence of interrelationships among criteria, they also apply the Analytic Network Process (ANP) method and compare the results of the two methods. The results show that ‘Reliability’ is the most important quality criterion, with ‘Citizen Support’, ‘Trust’, and ‘Efficiency’ following in importance. Furthermore, the case study revealed no interrelations between evaluation criteria of the model.

Keywords: Analytic Hierarchy Process (AHP), e-Government Services, Measurement Models, Multi-Criteria Decision Analysis, Service Quality

1. INTRODUCTION

The subject of e-service and Web site quality is very rich in context of definitions, models and measurement instruments. Nevertheless, different dimensions have been proposed and there is no consensus on the component dimensions. Collectively, the extant literature suggests that e-service quality is a multidimensional construct although the content of what constitutes e-service quality varies across studies (Zeithaml, Parasuraman, & Malhota, 2002).

Quality of service in the public sector has become an issue of great concern. Many...
organizations try to self-assess and measure the quality of service delivered. At the same time, significant progress has been made in the development of e-government services. While more and more citizens and enterprises use the online services, manifold problems related to quality of public e-services still exist, according to the Top of the Web survey (eGovernment Unit, DG Information Society, European Commission, 2004). Not being able to find the needed service/information, difficult use of e-services, the need for better help regarding the e-service provided on the website, the language understandability etc. are some of frequently reported problems. As Bertot and Jaeger (2006) stress many e-government sites insufficiently consider the needs of not just users with disabilities, but of all users and that researchers who study e-government have a key role to play in fostering user centered e-government and serve a growing digital majority. The Council for Excellence in Government (2003) states that many non-governmental users do not interact with government online because of difficulty in finding the website information they want. Although the PEW Internet and American Life Project finds that internet penetration reaches 73% of American adults (Madden, 2006), Hoggan (2004) indicates only 29% of those who contact government do so via E-Government. Schultz (2001) urges that e-government takes a user service approach to close the gap. It seems that e-government fails to achieve its full potential unless the importance of service quality is recognized and explicitly addressed.

Research has been conducted for e-government by collecting users’ opinions about the factors that characterize the quality of an e-government web page (Breben & Parkinson, 2006; Eschenfelder, 2004), while some efforts try to evolve an instrument that was developed originally for assessing user perceptions of the quality of e-commerce web sites (Barnes & Vidgen, 2003), or identify evaluation criteria and assess user perceptions (Horan, Abhichandani, & Rayalu, 2006; Korsten & Bothma, 2005).

Quality indicators have been introduced in e-government service to evaluate the quality delivered to citizens. To achieve this goal, a selection of a range of quality indicators appropriate for e-government service was made. Quality evaluation models in e-government usually encompass several quality criteria, and each criterion is further split into numerous sub-criteria. However, how to best balance these indicators is an important issue. An incomplete measurement model can result in inappropriate actions that may harm organizations’ e-government service delivery. When choosing an appropriate range of service quality measures, it is necessary to balance these measures, to ensure that one quality criterion, sub-criterion or a set of criteria or sub-criteria, is not emphasized to the detriment of the others. Moreover, the quality indicators selected must be measurable, and allow practitioners to monitor service quality.

Current research on e-government service quality is mostly descriptive and only discusses some of the aspects inherent in service quality. To the best of our knowledge, there is no standard framework defining e-government service quality. Since the existing literature of e-government service quality is not yet rich enough to provide a sound conceptual foundation, exploratory research is required to develop an understanding of the detailed determinants in the e-government service quality and their impact on citizen attitude. While certain aspects of Web site design might seem intuitive, other concepts may not be so straightforward and still others have yet to be identified. Hence, an empirical study is essential for the development and validation of such an instrument. The provision of such a scale will further enhance the e-government’s ability to exploit and further attract more citizens to make their transactions through the Web.

This paper proposes a measurement model for evaluating e-government service quality, and generates quality indicators to assist practitioners in identifying the strong and weak points of service delivery. Our model analyses the relationships between quality criteria and sub-criteria for assessment with a multi-attribute decision analysis method. Our statistical sample

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