

Measuring Factors That Influence the Success of E-government Initiatives

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Abstract

Understanding how citizens value e-government services is critical to the success of these initiatives. This paper describes the development of a model to identify factors that influence value judgments of citizens, utilizing two concepts from the field of decision analysis: means-ends chains and value-focused thinking. Based on the data of 210 responses, two instruments were developed to measure perceived e-government value. They were means objectives and fundamental objectives. What is important to e-government users are the fundamental objectives. Means objectives help to achieve the fundamental objectives. The study results suggested a 4-factor 20-item instrument that measures means objectives in terms of public trust, information access, public accessibility, and quality of services. The results also suggested a 4-factor 18-item instrument that measures fundamental objectives in terms of time savings, efficiency of service, service to citizen, and social awareness. The study also showed evidence of content validity, construct validity, and reliability.

1. Introduction

As Information Systems (IS) evolve, government agencies search for better ways to operate and provide improved services to the public through its use [30]. In the 1990s, the advent of network-based IS, represented a turning point in the strategic direction for government agencies, which now had the opportunity to utilize e-commerce to achieve their objectives [12] through e-government.

E-government is narrowly defined as “the delivery of government information and services online through the Internet or other digital means” [30]. E-government can be viewed as (a) transformation of the business of governance, i.e. improving service and renewing administrative

processes, and (b) transformation of governance itself, i.e. re-examining the functioning of democratic practices and processes [1]. E-government can be thought of as a conceptual lens through which the changing role and shape of the public sector in the 21st century can be examined. It is expected to be more digital, knowledge-intensive, driven by innovation, and interdependent than any previous time [26].

2. Problem Statements and Goal

Having invested an enormous amount of resources in e-government [23], governments strive to succeed in this endeavor. To achieve the success of e-government, it is critical to understand and influence citizens’ acceptance of e-government services [9] because the success of e-government initiatives is contingent upon citizens’ willingness to use these services [4]. The addressable problem is that it is not clear whether citizens will embrace the use of such services [4]. As values are the basic principles that guide actions and preferences [14], citizens are likely to use such services if they feel that they get better value than from the conventional government services. Thus, e-government *value* to citizens is an important factor for the success of e-government. The broad goal of this research was to explore e-government values from citizens’ perspectives. From the broad goal, the two main goals of this research were:

1. Conceptualize the *value* of e-government.
2. Develop two instruments to measure factors that influence the success of e-government initiatives – means objectives and fundamental objectives.

The specific research question being addressed in this study was “What do citizens value most in e-government services?” The research question was measured by a case study

that collected e-government values from citizens via online Web surveys. Numerous studies have analyzed success factors of e-commerce. Yet to date, no study has identified the success factors of e-government [4] that focuses on value specially. In this research, a model of factors that influence the success of e-government initiatives was developed based on the “Value-focused” thinking approach by Keeney [15], as well as exploratory studies on the value of Internet commerce to the customer by Torkezadeh and Dhillon [28]. The value includes benefits and prices of the services, benefits and costs of ordering and receiving services (e.g., reduced effort), and possible benefits and costs to the world (e.g., environmental impacts).

Keeney [14] suggested that the value-focused thinking approach be used to design Web-based businesses for business-to-consumer commerce. In his preliminary study, he identified 91 objectives, grouped into 25 categories, 16 of which are classified as means objectives and the rest are fundamental objectives. Torkezadeh and Dhillon [28] followed up on his work with a comprehensive data collection effort and derived a more complete set of objectives. They generated 125 objectives (value items) that influence Internet commerce success. A similar effort to derive objectives in an e-government context is lacking. This study applied their approach in a business-to-consumer (B2C) context to a government-to-citizen (G2C) context. Several new objectives appropriate for an e-government context were generated.

3. Relevance and Significance

Given that more government entities invest heavily in e-government, e-government has become an evolving and important research area in the IS field [5]. One of the e-government areas worthy of research is to clarify how the success of e-government can be measured [23]. This research intended achieving this goal.

The theoretical foundation for this research comes from two concepts in Decision Analysis. Decision Analysis [31] is a field in business which seeks to improve human decision making by developing new concepts, theories, and tools. One of the concepts is means-ends analysis. It is a problem solving strategy that attempts to search and apply an action (means) to achieve a goal (ends). A second concept is the notion of value, as discussed by Keeney in value-focused thinking. The value-focused approach stresses

that values are fundamentally important in any decision situation, while alternatives are relevant only because they are a means to achieve the desired values. The two concepts of means-ends chain and value-focused thinking are closely related.

This study proposed a framework for the notion of e-government value using these two concepts, which can be illustrated using a simple example. Suppose a decision-maker, such as an e-government consumer, is faced with a choice between two alternatives, each of the alternatives is characterized by several attributes. One is tempted to ask the question: which alternative is better? However, if one is using a means-ends chain, one must ask two questions. What do I want? (ends). And how do I get what I want? (means). Keeney calls ends “Fundamental Objectives”, and means “Means Objectives”. In the context of an e-commerce purchase, online security gives the customer the confidence to make use of the innate convenience of e-commerce. Convenience is an ends objective. Online security and confidence are means objectives. Ends (end objectives) follow means (means objectives). A second aspect of Keeney’s value-focused thinking approach is that, instead of focusing on alternatives, it focuses on attributes of the alternatives. Some attributes characterize the means dimension and therefore, are called means objectives; others characterize the ends and are called fundamental objectives. That is, objectives are expressed as a suitably weighted combination of attributes of alternatives. Therefore, to understand which alternative is better, a decision maker considers the attributes, and weights their importance.

The following example is used to explain decision analysis approach and the definition of several terms that will be used throughout the study. Assume that, in the previous example, an e-government user has identified the attributes of the alternatives. The user’s model for judging the value of an alternative may be written down as:

Overall *value* of alternative = f (attributes of the e-government service)

Under further assumptions, the following multi-attribute model can be used to evaluate the user’s judgments:

Overall *value* = $\sum (w_i * x_i)$, where

w_i = weight/ importance of the attribute

x_i = level of the attribute

In this study, the word *value* (in italics) refers to overall value of the alternative, and value of attribute *i* to refer to the $w_i * x_i$. Attributes can be broken down further (e.g., x_i can be composed of

several sub-attributes such as x_{i1} , x_{i2} etc.) and these are referred to as value items. The above multi-attribute model can be presented with the e-government example as:

Overall e-gov *value* = $\sum (w_i * x_i)$, where
 i = attribute (e.g., online convenience)
 w_i = the weight attached to an attribute (e.g., a subject weights online convenience as 0.4, and, say, ease of use as 0.6)
 x_i = the score of an attribute (e.g., a subject scores attributes as 4 on online convenience from an e-government service on a Likert scale of 1 to 5)

value(i) = value of an attribute = $w_i * x_i$
 (e.g., value of online convenience to citizen is $0.4 * 4 = 1.6$ units)

Value = Sum of individual values = $\sum (w_i * x_i)$ (e.g., a subject uses 0.4 and 0.6 as weights for online convenience and ease of use, and scores alternatives as 4 on online convenience and 5 on ease of use. Then the *value* = $0.4 * 4 + 0.6 * 5 = 4.6$ units).

Using these concepts, one can provide systematic advice in terms of what a person wants (fundamental objectives or values) and how one achieves value (means objectives or values). The instruments developed with this approach can help an e-government researcher specify and test specific theories of e-government *value*. More importantly, they can assist practitioners in assessing whether their current e-government projects are providing value to users. The instruments can also be used to proactively assess whether a prototype e-government project can be a success.

4. Literature Review

This section starts with a discussion of the value theory in the field of decision analysis and explores its implications for decision-making. Then, e-government strategies and the value-focused thinking theory [15] along with its implications for the fields of e-commerce and e-government are addressed.

4.1. Decision Analysis

Choosing a course of action in a world of uncertainty is a chore that all people must perform. Most of these choices are made without careful analysis but there are those

situations where a more systematic way to arrive at a decision would be preferred [24]. Today's decision makers are faced with problems characterized by increasing demands upon a limited resource base; increasing complexity resulting from the interacting of biophysical, socio-economic, and institutional systems; and increasing awareness of the uncertainty that pervades the understanding of these systems. The decision-making context is further complicated by the now commonplace necessity to involve multiple stakeholders and their multiple objectives in the decision-making process. Under these complex and dynamic circumstances, a structured approach to decision making supported by appropriate analytical tools is imperative if good decisions are to be made [22].

Winterfeldt and Edwards [31] posited that many different models used in helping people make decisions can be distinguished by their topics and by whether they are descriptive or normative. Descriptive models describe people, environments, or tasks; normative models prescribe actions for people (or machines) in tasks and specify conditions that environments should attain. This study is based on the normative models. A normative model or theory is a set of rules specifying what individuals or groups should do. A normative model for decision making specifies what decisions one should make. The set of normative decision-theoretic models together with the techniques for applying them are usually called *decision analysis* (DA) [31]. The research carried out in DA has generated a considerable amount of literature on understanding and improving decision making of individuals, groups, and organizations. It is generally considered a branch of the engineering discipline of operations research but also has links to economics, mathematics, psychology [2], and business and management. Furthermore, among other disciplines, DA contributed to IS research. Central to normative theories are the concepts of rationality and optimality [8] that presents cleaner results. DA looks at the paradigm in which an individual decision maker (or decision unit) contemplates a choice of action in an uncertain environment. The approach employs systematic analysis, with some number pushing, which helps the decision maker clarify in his own mind which course of action he should choose [16]. Howard [11] stated that the discipline of DA represents a systematic procedure for transforming opaque decision

problems into transparent decision problems by a sequence of transparent steps. DA offers the decision-maker the possibility of replacing confusion with clear insight for a desired course of action [11].

Values pervaded in the field of operation research are expressed as objectives, goals, criteria, performance measures, weights, preferences, and/or objective functions; they are necessary in theoretical operations-research models and in applications [14]. The focus of the study was on values expressed as objectives. Though DA is often boiled down to a set of quantitative techniques for analyzing alternatives associated with complex decision problems, the qualitative aspects of the DA approach may also have significant relevance. For the qualitative approach, Keeney [14] [15] emphasizes the importance of concentrating on decision makers' values. Values are the basic principles that guide actions and preferences [14]. Developing a clear understanding of values is essential for properly defining decision situations, articulating objectives, and creating and evaluating alternatives. Values are what drive decision makers' preferences for different outcomes.

4.2. E-government Strategy

As e-government initiatives are pervasive at all levels of governments around the world, strategic agendas vary because each vision is driven by its own unique set of social, political, and economic factors and requirements. A key factor driving the achievement of any e-government program is the vision of e-government, articulated and adopted by a government administration [10]. The mission and objectives that emanate from these e-government visions variously manifest strong focus on one or two elements. For example, the South African government's e-government program is heavily weighted towards service delivery, while e-government efforts in the United Kingdom have tended to balance several strategic objectives. The United States has placed a major focus on service delivery and on increasing cross-functional efficiencies [29] whereas the Malaysian government concentrates on the exposure and outreach area [10]. E-government in China attempts to bring economic development through administrative reform [17] while e-government in Korea is to enhance the national competitiveness by increasing

productivity and transparency [20]. This study primarily focuses on e-government service.

4.3. Value Theory (Value-Focused Thinking Approach)

Values might be economic, personal, or social. A common value is economic, from which the decision maker will attempt to increase wealth. Personal value could be convenience or security while social value could mean protection of environment. This research focuses on the values that lead citizens (the decision maker) to use e-government services instead of conventional government services (the decision context). Values should remain relatively stable unless they are related to the emergence or alleviation of major issues [25].

In recent years, one of the most interesting areas of research has been the measurement of value systems [13]. Keeney [14] proposed the concept of a value proposition: value-focused thinking that provides a framework for defining value to the customers. To understand value-focused thinking, three classes of definitions need to be considered. These are the decision context, values, and fundamental objectives. The decision context presents alternatives appropriate for a given decision situation and is specified by the range of activities being contemplated [28]. For example, the decision context is whether or not to make purchases over the Internet [14]. Values are principles used for evaluating the desirability of possible alternatives in a specific decision situation [14]. Values come into play prior to a given decision problem. If the question of whether to purchase on the Internet or through conventional shopping is to be construed as a decision problem, then values afforded by the customer will form the basis for evaluating the alternatives [28]. Fundamental objectives make explicit the values that one cares about and define the consequences of concern [14].

4.4. Means Objectives and Fundamental Objectives

Keeney(15) posited that means objectives are those that help businesses achieve what is important to their customers – fundamental objectives. Therefore, fundamental objectives are the end objectives, as opposed to the means objectives. Means objectives are the ways to achieve the ends. Keeney uses the “Why is that

important?” test to classify the means and fundamental objectives where there are two possible types of answers. One type of answers reflects the given objective that is one of the essential reasons for interest in a situation, whereas the other type reflects the given objective that is important because of its implication for another objective. Objectives with the former response are fundamental objectives; and those with the latter are means objectives. For example, means objectives such as minimizing misuse of credit card or minimizing misuse of personal information are important because they influence fundamental objectives such as minimizing personal hassle and minimizing cost [15]. If the answer reflects different decision contexts, it constitutes a fundamental objective. For example, saving time is important because saved time can be used for other interests. Other interests reflect different decision contexts. Therefore, in the context of using e-government services, saving time (the “minimizing time spent“ objective) constitutes a fundamental objective.

The following examples further describe these two variables applied in different fields expressed in similar terms. Nah, Siau, and Sheng [19] in their value research of mobile applications stated that fundamental objectives, as the name implies, underlie the essential reasons for the given situation, whereas means objectives are those whose attainment will help achieve fundamental objectives. For example, the “minimize errors and mistakes” objective helps achieve the “maximize effectiveness” objective. Thus the first objective is a means objective, and the other is a fundamental objective. Dhillon and Lee [7] in their IS value assessment study categorized the two variables by determining if an objective is an intermediate one (being a means objective) or a final one (being a fundamental objective). For example, the “increase system consistency” objective (the intermediate) affects the “increase ease of use” objective (the final). Therefore, the former is a means objective, and the latter is a fundamental objective. These two interrelated categories of objectives are components of the same overall construct, measuring factors that influence the success of e-government initiatives.

5. Research Methods

This research proposed an empirical study, focusing on collecting the values citizens assign

to e-government services. This study first generated a list of e-government objectives from the exploratory study of Internet commerce by Turkzadeh and Dhillon [28] and the leading refereed literature covering the 6-year period from 2000 to 2005. Then the list was grouped into two types: means objectives and ends objectives. To explore this model (see Appendix), a survey was conducted with a total of 76 questions, 48 of which are the former and 28 are the latter. The instrument used a Likert-type scale of 1 to 5 reflecting “strongly disagree” to “strongly agree”. The sample for this study included 210 working professionals from metropolitan areas in the United States who had experience in using online e-government services. The target respondents were recruited from various professional sources, such as university alumni, bankers, lawyers, travel agents, accountants, IS engineers, and architects.

Upon collection of the data, data reduction and analysis were performed using factor analysis on each type of items separately. In addition, this study related the means and ends factors by examining the cross-correlations among factors. The outcome of this study was two instruments that together measure the factors that influence the success of e-government initiatives. One instrument measures the means objectives that influence using e-government services, and the other measures the fundamental objectives that are essential reasons for using e-government services.

6. Data Analysis

6.1. Means Objectives

The KMO measure of 0.925 was large enough to proceed with factor analysis as the extracted factors would account for a substantial amount of variance. The observed significance level for Bartlett’s test of sphericity was 0.000, indicating that the relationship among variables was strong.

The item purification and principal component analysis procedure reduced the means objective items to 20. Exploratory factor analysis reported a 4-factor 20-item model for the means objectives scale (see table 1). Factor one (six items) represented public trust, factor two (seven items) represented information access, factor three (four items) represented public accessibility, and factor four (three items) represented quality of service.

Using this data set, the correlated item-total correlation and Cronbach's α for the same 4-factor model were calculated. The corrected item-total correlation was 0.466 to 0.625 for public trust, 0.503 to 0.606 for information access, 0.383 to 0.499 for public accessibility, and 0.623 to 0.638 for quality of service. Reliability statistics (Cronbach's α) were 0.919, 0.873, 0.734, and 0.895 for public trust,

information access, public accessibility, and quality of service, respectively. Overall reliability for the entire scales (20 items) was 0.901.

The hotelling's T-squared test was significant for all 4 subscales ($p < 0.001$), with F values being 3.599, 17.724, 14.723, and 15.830 for public trust, information access, public accessibility, and quality of services, respectively.

Table 1. Factor Pattern for Measures of Means Objectives

	Factor				Corrected Item-Total Correlation
	1	2	3	4	
Public trust					
I am concerned about identity theft.	.897				.525
I am concerned about the safeguarding of personal info.	.890				.571
I am concerned about privacy risks.	.874				.562
I am concerned about misuse of my credit card.	.816				.514
I am concerned about transaction security.	.778				.625
I am concerned about sharing of personal info.	.687				.466
Information access					
I like to get as much information about services as possible.		.764			.578
I like to have information on demand.		.755			.525
I like to have a great amount of information.		.750			.503
I like to have search criteria.		.714			.592
I like the opportunity for two-way interaction.		.691			.596
I like to minimize the risk of skipping/missing info.		.676			.558
I like to have up-to-date information.		.638			.606
Public accessibility					
I feel accessibility for individuals with special needs (e.g., disabilities) should be maximized.			.759		.499
I like to minimize the digital divide demarcated by wealth, age, language, culture, geographical location, etc.			.736		.383
I like to promote public outreach.			.714		.479
I feel that new services should be made as convenient as possible utilizing various devices, such as cell phone, PDAs, etc.			.590		.403
Quality of service					
I am concerned about quality of the information and services delivered.				.831	.623
I am concerned about reliable delivery of information and services.				.742	.638
I am concerned about accuracy of transaction.				.708	.623

6.2. Fundamental Objectives

The KMO measure of 0.929 was large enough to proceed with factor analysis as the extracted factors would account for a substantial amount of variance. The observed significance level for Bartlett's test of sphericity was 0.000 indicating that the relationship among variables was strong.

The item purification and principal component analysis procedure reduced the fundamental objective items to 18. Exploratory factor analysis reported a 4-factor 18-item model for the fundamental objectives scale (see table 2). Factor one (seven items) represented time savings, factor two (three items) represented efficiency of service, factor three (five items) represented service to citizen, and factor four (three items) represented social awareness.

Using this data set, the correlated item-total correlation and Cronbach's α for the same 4-factor model were calculated. The corrected item-total correlation was 0.712 to 0.752 for time savings, 0.648 to 0.679 for efficiency of service, 0.588 to 0.659 for service to citizen, and 0.498 to 0.539 for social awareness. Reliability statistics (Cronbach's α) were 0.931, 0.846, 0.830, and 0.799 for time saving, efficiency of service, service to citizen, and social awareness, respectively. Overall reliability for the entire scales (18 items) was 0.936. The hotelling's T-squared test was significant for all 4 subscales ($p < 0.001$), with F values being 7.504, 9.039, 40.842, and 8.460 for time savings, efficiency of service, service to citizen, and social awareness, respectively.

Table 2. Factor Pattern for Measures of Fundamental Objectives

	Factor				Corrected Item-Total Correlation
	1	2	3	4	
Time savings					
It is important to minimize payment time.	.756				.724
It is important to minimize search time.	.750				.752
It is important to minimize overall communication time.	.745				.712
It is important to minimize processing time.	.734				.751
It is important to minimize the time it takes to select information and services.	.727				.752
It is important to minimize dispatch time.	.677				.721
It is important to minimize shipping time.	.630				.724
Efficiency of service					
It is important that information and services are useful.		.789			.661
It is important to find information and services easily.		.745			.679
It is important to make communication cost efficient.		.671			.648
Service to citizen					
It is important to make using e-government a social event.			.792		.588
It is important to inspire citizens to use e-gov online services.			.778		.613
It is important to bring government services closer to citizens.			.669		.613
It is important to avoid giving citizens cause to regret using e-government online services.			.565		.659
It is important to minimize unnecessary driving through the advantages of having services accessible from home (e.g., parking, accident, etc.).			.511		.588
Social awareness					
It is important to minimize pollution.				.866	.539
It is important to minimize environment impact.				.818	.534
It is important to always consider overall good of society.				.541	.498

6.3. Relating the Means and Fundamental Factors

To address the relation, the cross-correlation's among factors were examined (see table 3). It provided the correlations for constructs in each objective and between objectives. Subscales of means objectives (4 factors including public trust, information access, public accessibility and quality of service) are correlated more closely with the overall 20-item means objectives than with subscales of fundamental objectives, indicated by the ranges of 0.777 to 0.792 for means objectives that are greater than the ranges for fundamental objectives.

Likewise, subscales of fundamental objectives (4 factors including time savings, efficiency of service, services to citizen, and social awareness) are correlated more closely with the overall 18-item fundamental objectives than with subscales of means objectives, indicated by the ranges of 0.688 to 0.926. All subscales of means objectives correlate strongly with each other (ranged from 0.313 to 0.675) while all subscales of fundamental objectives also correlate strongly with each other (ranged from 0.490 to 0.718).

Table 3. Correlations Among Constructs (n = 210)

	1	2	3	4	5	6	7	8	9	10
(1) Means objectives (20 items)										
(2) Public trust (6 items)	.777									
(3) Information access (7 items)	.777	.313								
(4) Public accessibility (4 items)	.712	.331	.532							
(5) Quality of service (3 items)	.792	.675	.465	.408						
(6) Fundamental objectives (18 items)	.713	.468	.559	.655	.533					
(7) Time savings (7 items)	.638	.463	.460	.546	.522	.926				
(8) Efficiency of service (3 items)	.652	.383	.620	.498	.501	.812	.718			
(9) Service to citizen (5 items)	.575	.332	.485	.602	.364	.870	.705	.618		
(10) Social awareness (3 items)	.551	.373	.381	.570	.406	.688	.496	.490	.515	

7. Conclusions

The research conceptualized the *value* of e-government and developed instruments to measure factors that influence the success of e-government initiatives. Using a sample of 210 responses from e-government service users, two sets of instruments were created that measure the factors that influence the success of e-government initiatives. One instrument (4-factor 20-item model) measures the means objectives in terms of public trust, information access, public accessibility, and quality of services. The other instrument (4-factor 18-item model) measures the fundamental objectives in terms of time savings, efficiency of service, service to citizen, and social awareness.

Because increasing *value* to citizens is the key ingredient in the success of e-government, this research provided a useful list of the

comprehensive values for developing and improving the e-government initiatives.

To apply the results, the objectives identified by the instruments can not only be put to use at a high level, such as developing strategic plans, but also directly be implemented or tailored to the specific services. In addition, the list of e-government values generated in this research can be used as a foundation for developing a quantitative model of e-government *value*.

As new services and features continue to be added to e-government initiatives, triggered by emerging technology and ever-increasing demand, governments continue their e-government march. Continued studies are needed to examine the progress and effectiveness of e-governments in delivering services and facilitating citizens' political participation [18]. The scale developed in this study needs to be changed over time.

Appendix. Means and Fundamental Objectives for E-government Services

Means Objectives

I like the opportunity for two-way interaction.
 I like the opportunity for personal interaction.
 I feel it is important to improve communication between the government and its citizens.
 I like to promote universal access that will allow all citizens to easily and conveniently interact with e-government.
 I like to minimize the digital divide demarcated by wealth, age, language, culture, geographical location, etc.
 I feel accessibility for individuals with special needs (e.g., disabilities) should be maximized.
 I like to participate electronically and directly in decision making.
 I like to voice my preferences regarding policies.
 I like to promote knowledge sharing between the government and its citizens.
 I like to promote e-services (e.g., voting online, discussing public issues online, etc.).
 I am concerned about how much I can trust the government.
 I like to promote transparency in government.
 I like to promote fairness, providing non-discriminatory service.
 I like to promote public outreach.
 I like to have horizontal integration of government services (linking different functions of government with each other).
 I like to have vertical integration of government services (linking different levels of government, such as local, state, and federal).
 I like to facilitate information dissemination.
 I like to have information on demand.
 I like to have search criteria.
 I like to have a great amount of information.
 I like to have up-to-date information.
 I like to have a choice of information.
 I like to minimize the risk of skipping or missing information.
 I like to get as much information about services as possible.
 I like seeing greater use of style and format in Web site design.
 I like to have a variety of foreign language options available to people.
 I like to have e-government systems agreeing and implementing global standards (e.g., e-signature identification).
 I like to discourage unauthorized access.
 I like to discourage hacking.
 I am concerned about transaction security.
 I am concerned about misuse of my credit card.
 I am concerned about identity theft.
 I am concerned about privacy risks.
 I am concerned about the safeguarding of personal information.
 I am concerned about sharing of personal information.

I am concerned about receiving unsolicited material.
 I am concerned about reliable delivery of information and services.
 I am concerned about quality of the information and services delivered.
 I am concerned about accuracy of transaction.
 I am concerned about charging errors.
 I feel that new services should be made as convenient as possible utilizing various devices, such as cell phones, PDAs, etc.
 I feel ease of accessing information and services is important.
 I feel ease of search process is important.
 I feel ease of use for information and services is important.
 I like to have compatibility between e-government services and older "legacy" services (e.g., paper based system).

Fundamental Objectives

It is important to optimize citizen satisfaction.
 It is important to always consider overall good of society.
 It is important to ensure time flexibility in using services.
 It is important to offer personal interaction.
 It is important to reduce effort in receiving service.
 It is important to minimize personal hassle.
 It is important to find information and services easily.
 It is important that information and services are useful.
 It is important to keep down the cost of services.
 It is important to minimize travel costs.
 It is important to make communication cost efficient.
 It is important to minimize the time it takes to find information and service.
 It is important to minimize processing time.
 It is important to minimize search time.
 It is important to minimize payment time.
 It is important to minimize overall communication time.
 It is important to minimize the time it takes to find information and services.
 It is important to respond quickly to requests for information and services.
 It is important to ensure quick delivery of information and services.
 It is important to minimize shipping time.
 It is important to minimize dispatch time.
 It is important to make using e-government a social event.
 It is important to bring government services closer to citizens.
 It is important to inspire citizens to use e-government online services.
 It is important to avoid giving citizens cause to regret using e-government online services.
 It is important to minimize unnecessary driving through the advantages of having services accessible from home (e.g., parking, accident, etc.).
 It is important to minimize pollution.
 It is important to minimize environmental impact.

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