A BALANCED SCORECARD ANALYSIS OF E-GOVERNMENT SERVICE DELIVERY PERFORMANCE
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ABSTRACT
The significance of aligning usability and interactivity of web portals with government service delivery strategy is widely recognized, but the lack of appropriate methodologies prevented government units and their constituents from integrating web portal projects with e-government service delivery performance. This paper addresses the issue of delivering electronic government services using the concept of an accepted management tool, the Balanced Scorecard. In other words, the Balanced Scorecard may be used to identify the strategic impacts of usability and interactivity of web portals on e-government service delivery performance. A framework, based on G2G and G2C e-government, is developed to match potential benefits of usability and interactivity of web portals with government service delivery strategy in four dimensions: innovation and learning, internal business process, customer, and financial. The implications of the framework in future research are discussed.
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1. INTRODUCTION
Governments use information technologies (IT) to deliver valuable services to their citizens at a lower cost. Government executives need performance measurements that indicate the extent to which the governments are achieving their objectives. Performance measurement began in the 1930s as part of systems analysis and has grown in importance in recent years as part of the overall emphasis on accountability and government achievements (Stowers, 2004). Performance measurement can be defined as measurement of the results (outcomes) and efficiency of services on a regular basis (Stowers, 2004).

Generally, performance measurement is tied into an organization’s strategic planning process as a way of measuring the implementation of goals and objectives derived from an organization’s mission (Stowers, 2004). The application of private sector models for strategic information systems planning to the public sector is a controversial issue because, in government, IT and information are public property not a proprietary resource to be protected and exploited for competitive advantage (Dufner et al., 2002).

Traditional financial accounting measurements are extensively used to evaluate government performance (Wright et al., 1999), but they do not reveal adequately the benefits of investing in IT. Financial accounting measurements do inform management of historical outcomes, but they do not indicate why those results were achieved or what management has to be performed to improve future results (Wright et al., 1999). Because excessive reliance on financial accounting performance measurements is inadequate and can be misleading, Wright et al., (1999) suggested a Balance Scorecard theory as a consistent performance measurements tool for the use of IT.

Performance measurement is also important to assess e-governments efforts so that a government can track what is working and what is not and assure citizens that the government’s time and funds are being well spent (Stowers, 2004). Some traditional performance measures may be appropriate for e-government, but e-government service is different in its delivery modes and expectations. E-government service delivery applications are relatively new and government service providers and researchers can only learn so much from traditional cost-benefit analyses. Therefore new performance measures need to be developed to provide accountability for jurisdictions’ e-government efforts. In addition, the significance of aligning usability and interactivity of web portals with government service delivery strategy is widely recognized, but the lack of appropriate methodologies prevents government units and their constituents from integrating web portal projects with e-government service delivery performance.

This paper addresses the issue of delivering electronic services using the concept of an accepted management tool–the Balanced Scorecard. In other words, the Balanced Scorecard may be used to identify the strategic impacts of usability and interactivity of web portals on e-government service delivery performance. Like many other innovative technologies, government web portals can generate sustainable electronic service delivery performance if the technology is used for improving the operational efficiency of government services.

This paper is organized as follows. Section II contains the description of the Balanced Scorecard theory. In Section III, characteristics of government web portals are examined. In Section IV, Balanced Scorecard as a performance measurement tool for e-government service delivery is analyzed. The conclusion of this paper is presented in section V.
2. BALANCED SCORECARD THEORY
In its original form, the Balanced Scorecard was designed to be a performance measurement tool, using four interrelated business perspectives: financial, customer, internal business process, and innovation and learning (Huang and Hu, 2004). In the heart of the Balanced Scorecard concept is its theory of business: firms that continuously improve their capabilities for learning and innovation achieve better performance in their internal business processes which, in turn, leads to more effective execution of their customer value propositions and eventually result in sustained competitive advantage and improved financial performance (Huang and Hu, 2004).

The Balanced Scorecard serves as a tool for the following purposes:
- Identifying the performance drivers that effect electronic service delivery.
- Establishing a set of cause-and-effect relationships among these factors above.
- Setting up explicit linkage to financials as the ultimate success indicators.

Kaplan and Norton (Wright et al., 1999) developed the Balanced Scorecard to link a firm’s strategic objectives to performance measurements. The Balanced Scorecard theory:
- Suggests measurements that guide a firm towards its strategic objectives.
- Integrates measures of the causal determinants of financial outcomes.
- Concentrates on operation of business processes to permit a more accurate capture of the benefits that result from investments in IT.

The Balanced Scorecard requires firms to identify:
- The knowledge, skills, and systems needed to improve the business continually (innovation and learning perspective).
- Necessary factors to build strategic capabilities and efficiencies (internal process perspective).
- Values that customers seek (customer perspective).
- Financial performance to maximize the shareholder value (financial perspective).

These components are not isolated. These four factors are linked in a causal relationship that leads, directly or indirectly, to the financial performance of the firm. Cause and effect linkages are identified from the execution of daily activities to eventual results. Performance measurements are considered from these four factors (Wright et al., 1999).
3. CHARACTERISTICS OF GOVERNMENT WEB PORTALS
One of the more widespread electronic commerce approaches is the digital government service delivery, i.e., the use of web portals to advertise, display and offer government services. A portal is commonly defined as an aggregated websites that offers a collection of services that help users, government agencies, and their constituents navigate the Internet (Damsgaard, 2002). Web portals are complex and offer a variety of characteristics ranging from the aggregation of static websites to the aggregation of active, dynamic, usable, and interactive websites that allow transactions with provisions for security, privacy and personalization. In this study there are essentially two factors that encompass the characteristics of government web portals: usability and interactivity of web portals. Each of them is discussed below.

3.1. INTERACTIVITY OF WEB PORTALS
The concept of interactivity is complex and multi-dimensional (Lombard and Ditton, 1997). According to Rafaeli and Sudweeks (1997) like face-to-face communication, computer-mediated communication has the capacity of enabling high interactivity. Two of the major ways in which the Internet differs from other communication media is that it allows for two-way interaction and multimedia capacities. In short, the interactivity on the Internet refers to the extent to which government agencies/units engage in online communication with others without feeling affected by the constraints of distance and time.

3.2. USABILITY OF WEB PORTALS
According to Larsen and Rainie (2002), the use of government web portals has been one of the most rapidly increasing user activities in the United States (Cetiner and Ryan, 2004). The International Organization for Standardization defines usability as the extent to which a service can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use (Cetiner and Ryan, 2004).
4. BALANCED SCORECARD AS AN E-GOVERNMENT SERVICE DELIVERY PERFORMANCE MEASUREMENT TOOL

Prior to our study, many authors have examined the integration of IT or web services with Balanced Scorecard.

To understand Compaq’s financial success better, Wright et al., (1999) used the Balanced Scorecard to develop a causal model of firm performance that highlights the contribution of IT to four different dimensions of that performance. They found that IT, along with process reengineering, when properly aligned with Compaq’s business strategy contributed substantially to Compaq’s overall success and market.

Huang and Hu (2004) have developed a framework to address the issue of deploying web services strategically using the concept of a widely accepted management tool, the Balanced Scorecard. The web services Balanced Scorecard framework developed by Huang and Hu (2004), subscribing to the Balanced Scorecard theory of business, emphasizes the critical issue of how web services technology can be integrated into a firm’s competitive strategy to deliver results where they are desirable, measurable, and beneficial to the firm’s strategy.

Building and expanding on previous efforts (Huang and Hu, 2004), we address the following questions: how would usability and interactivity of government web portals impact electronic service delivery performance? What benefits do usability and interactivity of web portals bring to government agencies and citizens?

![Figure 2: Web Services Balanced Scorecard Framework (Adopted from Huang and Hu, 2004)](image)
4.1. E-GOVERNMENT SERVICE DELIVERY BALANCED SCORECARD FRAMEWORKS

According to the Performance Institute (PI) (2002), Internet users who interact with government agencies can be classified in the following three major segments (Cetiner and Ryan, 2004):

- Government to Citizen (G2C): Individuals accessing services or information
- Government to Business (G2B): Organizations accessing services or information
- Government to Government (G2G): Partner government agencies accessing services or information or integrating services across agency organizational boundaries through technologies.

This study will focus on the users who are in the G2C and G2G categories.

Our definition of G2G is based on the assumption that the fundamental difference between G2G and G2C is the nature of the relationship. In G2G e-government, the idea is to form a close relationship between two government agencies that will make complementary investments to enable one another’s e-government strategy. The relation involves the adoption of similar standards, extensive inter-government communication and collaboration, and joint IT investment. In contrast, G2C e-government is characterized by arms-length relationships. While there may be elements of branding, citizen relationships, and personalization, there is no mutual investment in IT or communication. The only investments required by the citizen are a PC and an Internet connection, which are both completely general tools.

4.1.1. G2G CONTEXT

USABILITY AND INTERACTIVITY OF WEB PORTALS FOR IMPROVING LEARNING AND INNOVATION PERSPECTIVE

Proposition 1: Usability and interactivity of web portals can improve a government’s service delivery capability for continuous learning and innovation through increased level of knowledge sharing.

The focus is on the government’s employees, their skills, knowledge, motivation, innovation and productivity. Knowledge can be viewed as a result with learning as the process leading to this result (Edgington and Chen, 2002). Innovation is largely an organizational property with an intimate relationship between innovation and learning (Edgington and Chen, 2002). Usability and interactivity of Web portals can facilitate the dissemination of knowledge across government units, even to the point of making virtual teams a viable alternative to face-to-face work (Griffith et al. 2003). Usability and interactivity of web portals may stabilize the relationship between governments and their employees when it comes to the transfer of knowledge. Web portals may provide a means of structuring teamwork, enhance the information available to the team, and provide a communication system. Web portals may create information where it did not exist before for a team of government employees. Web portals allow government employees to share knowledge. Usability and interactivity of web portals may form teams of government employees regardless of the physical location of the employees, providing further opportunity and flexibility in building the best skilled, knowledgeable and motivated teams. The reduction in physical and temporal boundaries subsequently diminishes the likelihood that homogeneous teams are formed for convenience, or due to factors that might co-locate members in either space or time (Griffith et al. 2003).

USABILITY AND INTERACTIVITY OF WEB PORTALS FOR IMPROVING INTERNAL BUSINESS PROCESS PERSPECTIVE

Proposition 2: Usability and interactivity of web portals can lead to more efficient and effective internal business processes through improved e-service delivery capability, and reinventing and reengineering processes and procedures.

The focus is on optimizing quality and time attributes of each electronic service delivery process. Manual and batched working processes are often the result of inefficient use of information resources in government agencies. In such instances, web portals can be deployed to increase the level of information sharing and automate previously manual processes. Government units will provide the automated service delivery to citizen service providers and citizen representatives.

The effective usability and interactivity of web portals requires their integration into existing government agencies work processes. That integration is defined as the extent to which the usability of a web portal diffuses across government work processes and becomes routinized in the activities associated with those processes. This might necessitate changes to current work processes.
Michael Hammer (1990) advocated the use of IT to make radical changes in business processes (Wright et al., 1999). Many firms followed Hammer’s ideas. Governments also followed Hammer’s advice when they designed e-government service delivery projects. E-government occurred simultaneously with movements within the public sector to reinvent and reengineer processes and procedures throughout government (Stowers, 2001). To gain a better understanding of e-government’s service delivery potential, Gassan et al. (2001) examined major initiatives around the world. They found that the real value of e-government derives less from simply placing public services on-line than from the ability to force an agency to rethink, reorganize, and streamline their delivery before doing so, much as the redesign of core processes in the 1980s transformed many businesses.

**USABILITY AND INTERACTIVITY OF WEB PORTALS FOR IMPROVING CITIZEN VALUE PROPOSITION PERSPECTIVE**

*Proposition 3: Usability and interactivity of web portals can lead to effective execution of the citizen value proposition through enhanced government service delivery capability and partnerships.*

The focus is on how government agencies/units may partner with businesses, citizen representatives, and citizen service providers. Partnerships are created when citizen representatives work closely with citizen service providers or government agencies. In the management of service delivery, frequent quality communication needs to be in place to foster partnerships and cope with changing services needs (Moon, 2002). Electing to use web portals to deliver services expands the amount and kind of data the partners can exchange (Huang and Hu, 2004). This enhances the collaborative activities among government agencies and their constituents, allowing them to participate in a dynamic service delivery relationship where mutual beneficial information can be shared (Huang and Hu, 2004). Finally, allowing and facilitating governments’ units and their constituents to share and access crucial service information using web portals would be an important way for them to build relationships with each other.

**USABILITY AND INTERACTIVITY OF WEB PORTALS FOR IMPROVING FINANCIAL PERSPECTIVE**

*Proposition 4: Usability and interactivity of web portals can lead to better financial performance (reduced operational cost) through improved government service delivery capability.*

Based on the above three perspectives, the focus is on outcome measure of cost reduction.

Lock-in effects capture the idea that the delivery of certain service through portals soon becomes a habit that is hard to break. When a web portal becomes well known to the government employees, they no longer pay attention to it or the dependency they developed (Damsgaard, 2002). The challenge for a portal is to offer services that lock-in the government units, citizen representatives and government service providers. The design and the composition of the portal user interface and services may allow governments’ employees to become dependent on them for seamlessly navigating the Internet. If the government units, citizen representatives and government service providers decide to switch to a different portal, not only will they incur switching costs due to organizational lock-in but also the switching costs that stem from retiring from the present portal.
Learning and Innovation Perspective
How would usability and interactivity of government web portals support or leverage ability for continuous innovation and learning?

EXAMPLE: Web portals allow government employees to share knowledge. Knowledge can be viewed as a result with learning as the process leading to this result. Innovation is largely an organizational property with an intimate relationship between innovation and learning.

Financial Perspective
How would usability and interactivity of government web portals enhance financial performance?

EXAMPLE: The challenge for a portal is to offer services that lock-in the government units and their partners. If the government units, citizen representatives and government service providers decide to switch to a different portal, not only will they incur switching costs due to organizational lock-in but also the switching costs that stem from retiring from the present portal.

Internal Business Process Perspective
How would usability and interactivity of government web portals improve internal business processes?

EXAMPLE: Government units automate previously manual processes that are often the result of inefficient use of information resources in a government agency. These might need the public sector to reinvent and reengineer processes and procedures throughout government.

Customer Perspective
How would usability and interactivity of government web portals support citizen value?

EXAMPLE: Government units may partner with other government service providers or citizen representatives. Electing to use web portals to deliver services expands the amount and kind of data the partners can exchange. This enhances the collaborative activities among government agencies and their constituents.

Figure 3: Government web portal Balanced Scorecard Framework from G2G perspective

4.1.2. G2C CONTEXT

USABILITY AND INTERACTIVITY OF WEB PORTALS FOR IMPROVING LEARNING AND INNOVATION PERSPECTIVE

Proposition 5: Usability and interactivity of web portals can improve a government’s service delivery capability for continuous learning and innovation through an increased level of empowerment of citizens.

Governments must continually improve employee skills for better understanding of citizen expectations. Therefore employees will be able to teach and transfer the service delivery process to citizens. It is critical while improving government web portals to understand clearly citizens’ expectations in order to empower them (Cetiner and Ryan, 2004). When citizens can help themselves on web portals, they can get faster answers to their most pressing questions 24/7. Governments’ contact employees are able, via the web portal, to access information about their agency and its services. A web portal then is a tool
for citizen empowerment because once employees are well informed about their government’s web portal, the citizens will most likely learn from employees and be able to deliver government services to themselves.

Government web portals may regroup government web sites according to their expertise, including such material as important references, citizen representatives and employees’ accomplishments. Governments which take such steps empower their citizens when they have to negotiate with government service providers. This empowerment process has repercussions on the relationships which the employees initiate and maintain with citizens in order to increase government service delivery performance.

Government agencies often empower citizens to use web portals for receiving service online. This citizen empowerment is carried out by e-mail or through online discussion (online conferences, forums, or chat rooms) and allows government agencies and citizens to make the most of the online contact time provided by the Internet’s portal to share their views. Government agencies provide appropriate training for their employees in order to be able to offer various services, solutions, or products during interactive online contact with citizens and to modify, on the screen, the statements that governments use to deliver services to citizens on the basis of citizens’ reactions and views. Government agencies empower citizens who react online promptly.

**USABILITY AND INTERACTIVITY OF WEB PORTALS FOR IMPROVING INTERNAL BUSINESS PROCESS PERSPECTIVE**

*Proposition 6: Usability and interactivity of web portals can lead to more efficient and effective internal business processes through improved e-service delivery capability, and freeing up citizen representatives to have more time to devote to face-to-face interactions.*

Usability and interactivity of web portals can enhance internal business operations by enabling process automation. For example, citizen representatives may spend significant amounts of time assisting citizens. If they are able to automate service delivery to citizens (citizens using web portals), this may free up citizen representatives to pursue other government activities management.

It is also important to be absolutely clear that e-government transactions within the government context do not replace face-to-face traditional government. If a web portal automates internal processes, it ensures that routine transactions can be handled more quickly and staff has more time to devote to face-to-face interactions. After conducting six case studies and contacting over 50 government organizations, Cohen and Eimicke, (2001) found that e-government service delivery freed up staff to provide better service to in-person customers, and allowed workers to focus less on routine tasks that could be easily handled by computers.

**USABILITY AND INTERACTIVITY OF WEB PORTALS FOR IMPROVING CITIZEN VALUE PROPOSITION PERSPECTIVE**

*Proposition 7: Usability and interactivity of web portals can lead to effective execution of the citizen value proposition through enhanced government service delivery capability, citizen intimacy and adaptation to the citizen’s view of the portal, according to the task at hand.*

The key attributes of usability and interactivity of web portal can advance specific citizen value propositions through enhanced citizen intimacy. Every interaction on the web portal with a citizen should take place in the context of all previous online interactions with that citizen. Government agencies can use their direct web portal access to citizens so each time a citizen visits a government web portal is an occasion to deliver additional services or provide a path for other government units that want to reach that citizen. Government units add new value for their citizens by supplying them with regulatory information about such subjects as waste disposal at no fee; this strengthens relationships with citizens, but it weakens the business of private companies that provide such information for a fee.
USABILITY AND INTERACTIVITY OF WEB PORTALS FOR IMPROVING FINANCIAL PERSPECTIVE

Proposition 8: Usability and interactivity of web portals can lead to better financial performance (increased revenue) through improved government service delivery capability.

The resulting cost savings in electronic service delivery can be significant. Many valuable internal services may be made available to citizens, thus creating new revenue streams. E-service innovators have proven that citizen representatives can answer a tremendous percentage of citizens’ questions online without spending money and time they do not have. Usability and interactivity of web portals will reduce cost and increase citizen’s participation, therefore increased e-service delivery performance will follow.

When citizens help themselves at a web portal instead of having to call a conventional help desk, reduced cost of citizen service delivery will follow. Good e-service encourages citizens to use the web portal more often, which means they become more likely to use it for transaction and support. E-service thus lowers government’s cost of serving citizens. By continuously adding citizen-driven e-service content to the web portal, the percentage of citizens who can help themselves online also increases.

Learning and Innovation Perspective
How would usability and interactivity of government web portals support or leverage ability for continuous innovation and learning?

EXAMPLE: Government agencies must continually improve employee skills for better empowerment of citizens. A web portal is a tool for citizen empowerment because once employees are well informed about their government’s web portal, the citizens will most likely learn from employees and be able to deliver government services to themselves.

Financial Perspective
How would usability and interactivity of government web portals enhance financial performance?

EXAMPLE: Many valuable internal services on web portals may be made available to citizens, thus creating new saving cost streams.

Internal Business Process Perspective
How would web usability and interactivity of government web portals improve internal business processes?

EXAMPLE: By automating the generation and management of online support resources, e-service relieves citizen representatives of having to perform many repetitive, yet critical time-sensitive tasks, thereby freeing them to support other strategic activities.

Customer Perspective
How would usability and interactivity of government web portals support citizen value?

EXAMPLE: A consistent and friendly citizen interface or web portal that is capable of handling all citizen requests but hides the complexity of back-office operations is another significant feature of citizen value.

Figure 4: Government web portal Balanced Scorecard Framework from G2C perspective
5. CONCLUSION AND FUTURE RESEARCH
The significance of aligning web portals with government strategy is well noted by researchers, but the lack of appropriate methodologies prevented government units from integrating web portal projects effectively with e-government service delivery performance. Our proposal for the government web portal Balanced Scorecard framework is intended to address this issue. The government web portal Balanced Scorecard can guide government executives to identify the most valuable and rigorous web portal initiatives for their specific e-service delivery strategies and provide a basis for justifying and evaluating web portal investment initiatives. Further research is necessary as Internet technology evolves so rapidly. It is important for future studies to test and enhance the frameworks. Future empirical studies in the form of case studies and action research should be undertaken to determine how government units deploy web portals strategically as measured by the Balanced Scorecard. Finally, further research should also expand the range of web portal characteristics and examine their effects on e-government service delivery performance.

REFERENCES


