National Electronic Commerce Coordinating Council

ROI Lessons Learned for E-Commerce or E-Government Projects

Exposure Draft, December 5, 2002

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NATIONAL ELECTRONIC COMMERCE COORDINATING COUNCIL

In 1997, as the use of the Internet was increasing at a stunning rate, a group of public and private professionals—government executives and information technology practitioners—met in San Antonio, Texas to discuss their common issues, problems and ideas. This first meeting was productive. Participants learned from each other. They felt that continuing to meet as a group would help them meet the challenges and opportunities posed by the rush of engulfing information technologies. This founding group formed the National Electronic Commerce Coordinating Council (NECCC), which has continued to meet regularly.

Today, NECCC serves as an alliance of government organizations dedicated to promoting electronic government through the exploration of emerging issues and best practices. Alliance partners are the National Association of State Auditors, Comptrollers and Treasurers; the National Association of Secretaries of State NASS; and the National Institute of Governmental Purchasing.

NECCC also works in partnership with these affiliate organizations: the Information Technology Association of America; National Automated Clearing House Association; National Association of Government Archives and Records Administrators; and National Association of State Treasurers

ACKNOWLEDGEMENTS

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I. INTRODUCTION

From the late 1990s through 2000, governments invested enormous amounts of money into information technology (IT) projects in order to keep their systems operational through the “Y2K” crisis. Whether that crisis was real or imagined, governments pumped billions of dollars into their technology departments to upgrade and/or replace their existing systems.

As a result of the slowing economy since mid-2001, governments have been forced to tighten their respective belts and cut spending in order to balance precarious budgets. IT projects have not been spared from these spending cuts. Additionally, a string of highly publicized IT project failures has citizens questioning the increasing amount of revenues dedicated to IT departments and projects. Technology projects have come under more scrutiny, and justification is now necessary to ensure governments get all they can with the limited resources available. IT departments compete with other agencies for increasingly limited revenue streams. As they attempt to improve the overall efficiency of operations, more governments require their IT projects to show value by increasing revenues or cutting costs in order to justify funding.

At the same time, there has been an increased demand for online services 24 hours per day. The growth in Internet use and the ability to buy goods any time, day or night, has impacted the way governments try to provide services to their citizens. Governments have attempted to ease the burden on their citizens by allowing them to pay for and obtain certain services online, thereby eliminating waiting in long lines during business hours. These attempts to improve service delivery have become a primary driver, sometimes the most important factor, in determining whether a project will receive funding or not. Citizens are expecting more from their governments, and in certain circumstances are willing to pay extra to avoid the inconvenience of doing business with a government only during its business hours. While governments may or may not experience a positive return on their investment in these online endeavors, the citizen expectations often require such projects to go forward in order to improve the effectiveness of government.

As governments try to balance public interest and demand with tightening budgets, selecting which projects to fund has become more difficult and has required even more scrutiny of which projects will create the largest return on investment (ROI). Governments have found it necessary to create a vehicle for evaluating ROI in IT infrastructure. Many governments have created IT committees to oversee all IT project requests and attempt to fund projects with the highest probability of success and benefits to their citizens. Governments have also created various templates in an attempt to standardize IT project requests and make objective comparisons between competing projects easier. When considering that “return on investment” may not be a monetary return but a service delivery improvement, governments are making every attempt to identify and measure intangible and hidden benefits resulting from the implementation of a project.
This paper attempts to outline what governments are doing to justify their e-commerce or e-government investments, trends for determining a project’s ROI, as well as the rationale behind requiring ROI justification. Section IV discusses some of the results and successes governments have had in providing ROI or business benefits on e-commerce or e-government investments. While it is apparent there is no one answer will ensure the success of an e-commerce or e-government project, the final section will attempt to summarize some of the information gathered from both successful and not so successful projects in order to provide the reader with the tools needed to increase the probability an e-commerce or e-government project.
II. BACKGROUND AND METHODOLOGY

NECCC’s interest in how governments justify their e-government investments is not new. This section presents background information on previous efforts by NECCC in this area, other efforts outside of NECCC to study e-government justification, and the rationale and methodology for this white paper.

Background

At its 2001 conference, an NECCC work group presented a paper entitled *Developing Justification and Support for e-Government Projects*. In it, the work group discussed how to prepare a business case for e-commerce or e-government projects, pointing out that cost/benefit analysis and ROI analysis are two of the more common approaches to justifying e-commerce or e-government projects. The paper drew from both analyses and suggested that the key components of a sound e-government business case should include:

1. Estimated costs (including development and operational costs).
2. Analysis of projected benefits (tangible and intangible).
3. Timing of expected costs and benefits accrued (one time vs. on-going).
4. Potential customer adoption/usage of application.
5. Identification of related services and applications and the potential costs and benefits associated.
6. Potential funding methods.
7. Relative policy or legislative rules.
8. Assumed marketing efforts.

In the “Analysis of Projected Benefits” section, the point was made that the private sector receives increased revenue from expanding business to the Web to improve customer service. The benefits of providing services on the Web for the public sector are not as clear; however, the concept of “added convenience to customers” should be included as part of any e-government business case. These customer benefits fall into three categories: customer convenience (availability of 24/7/365 access); improved customer service (customers can perform simple transactions on their own through self-service options and free up staff time for value-added service to customers); and increased access to more and better information.

Based on the interest in this discussion, agenda planners for the 2002 conference believed it would be important for one work group (named “ROI Lessons Learned”) to explore what government organizations were actually doing or not doing in terms of e-government justification, and, specifically, in terms of ROI strategies. This white paper is a result of that work group’s efforts.
The NECCC was not alone in recognizing the importance of this discussion. Although research into ROI in terms of e-government projects appears relatively new, with little written about the issue, there are some studies and information available as follows.

At its October 27-30, 2002 national conference, The National Association of State Chief Information Officers (NASCIO) presented an issue brief on the States’ Methods of Calculating ROI on IT Projects.iii In its discussion of ROI, the issue of “intangible benefits” (increased benefits for citizens) was addressed, as well as how to account for those benefits. The calculation of ROI as part of an effective business case on large IT or e-government projects is complex, difficult and sometimes subjective, with calculations ranging from detailed, multifaceted formulas to more intuitive approaches. According to the issue brief, the more successful ROI justification methodologies have the following attributes:iv

- Project Evaluation Threshold or Criteria
- Qualitative Project Review
- Quantitative Project Review
- ROI/Cost-Benefit Calculation
- Comparison of Competing Projects/Project Alternatives
- Risk Assessment
- Project Review Process

Government organizations use a variety of different methodologies or approaches for calculating ROI. Some states, such as Arizona and Iowa, use a mathematical formula to calculate ROI, while other states, including Iowa, assign a point value for a project’s percentage ROI. Tennessee, on the other hand, develops a cost/benefit analysis of only “hard dollar” values such as increased agency revenue and/or decreased costs. Tennessee’s model subtracts a project’s cumulative costs from its cumulative benefits to determine overall value. Utah has implemented an online planning tool to assist agencies in calculating ROI, while Pennsylvania outsources ROI or Total Cost of Ownership (TCO) analysis for certain high-profile projects.

In terms of quantitative project review, several states, including Iowa and Utah, attempt to quantify the benefits to citizens in terms of time and money saved. Iowa also assigns a point value for factors such as statutory requirements mandating a proposed IT project, customer service improvements and inter-agency collaboration. New Mexico provides for a periodic review of intangible benefits to see if a once intangible benefit has become tangible and hence, more quantifiable. New Mexico and Tennessee also categorize benefits according to whether they enhance services or revenues or whether they are quantifiable or non-quantifiable.

The issue brief also discusses ROI calculations for New Zealand, Australia, the United Kingdom and Canada, as well as some private firms. The issue brief is available from NASCIO’s Web site at www.nascio.org.
In addition to the above report, other information appears sporadically about what government organizations are doing. Other government organizations have recently implemented IT Project ROI models, as in the case of the state of Maine. Interestingly, Maine has a project evaluation threshold of $50,000 and above in project costs, but requires the model for each department’s top five IT initiatives over the FY04/05 biennium, regardless of cost. The model provides for a section that specifically addresses the intangible benefits to the state and end users.

The International City Manager Association’s 2002 Electronic Government Survey revealed some barriers in terms of e-government initiatives. When asked which of the following barriers to e-government initiatives has been encountered (check all that apply), 66 percent cited lack of technology/Web staff, 57 percent cited lack of financial resources, 47 percent cited lack of technology/Web expertise, and 37 percent cited difficulty in justifying ROI.

Methodology

Given the lack of information in this area, and in order to gain a better understanding of the environment in which e-commerce and e-government decisions are being made, the NECCC ROI Lessons Learned work group decided to survey government organizations. The survey attempted to determine trends for justifying e-commerce or e-government projects, how governments view and measure the results of their investments, as well as what e-commerce or e-government investment justification strategies they had used, are using, and would be using in an effort to look at what works and what doesn’t.

NECCC’s 2002 ROI Lessons Learned Survey (see Appendix B) was developed as an online survey using Eventhandler application software. E-mails announcing the survey and the survey site were sent from NECCC headquarters to members of NASCIO and the National Association of State Purchasing Officials (NASPO). Approximately 400 e-mails were sent. The survey was conducted during the period between September 8, 2002, and September 30, 2002. One hundred seventy-two usable surveys were returned, reflecting a response rate of approximately 43 percent (NOTE: The work group believes that this response rate may be lower than anticipated because e-mails are often forwarded by the intended recipient to others to be completed). Responses were compiled using both EXCEL and SPSS software.

The following table displays the jurisdictional type of the responding agencies:

<table>
<thead>
<tr>
<th>Types of Jurisdictions Responding:</th>
<th>No. Responses</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>State</td>
<td>28</td>
<td>16%</td>
</tr>
<tr>
<td>City/County/Town/Province</td>
<td>94</td>
<td>55%</td>
</tr>
<tr>
<td>Higher Education</td>
<td>14</td>
<td>8%</td>
</tr>
<tr>
<td>Category</td>
<td>Count</td>
<td>Percentage</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-------</td>
<td>------------</td>
</tr>
<tr>
<td>K-12 School District</td>
<td>17</td>
<td>10%</td>
</tr>
<tr>
<td>Federal</td>
<td>1</td>
<td>1%</td>
</tr>
<tr>
<td>Special District/Authority</td>
<td>13</td>
<td>8%</td>
</tr>
<tr>
<td>Miscellaneous or Not Indicated</td>
<td>5</td>
<td>3%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>172</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Results from the 2002 ROI Lessons Learned Survey show that government decision makers view ROI measurement as being of increasing significance in justifying new e-commerce or e-government projects. Section III discusses the results of the survey in relation to justifying e-commerce or e-government projects, while Section IV discusses trends in calculating ROI and success measurement.
III. HISTORICAL METHODS AND TRENDS FOR JUSTIFYING E-COMMERCE OR E-GOVERNMENT PROJECTS

With the budget surpluses of the 1990s a distant memory, chief information officers and others government leaders must be able to qualitatively and quantitatively justify every decision. The economic slowdown has significantly impacted government’s ability to initiate and complete e-commerce or e-government projects. Elected officials have been faced with the unenviable position of reducing services, laying off personnel, increasing taxes or some combination thereof. Governments are scrutinizing every aspect of their operation, including reviewing new e-commerce or e-government initiatives and asking the following types of questions:

1. How will the project improve service delivery to citizens?
2. How much will the initiative cost from both an operational and capital perspective?
3. How quickly will a return on investment be achieved?
4. Is new technology the most efficient way of delivering services?
5. Can the project be deferred without significantly impacting operations?

How have e-commerce or e-government projects justified funding requests in the past?

Historically, government organizations used a variety of methods or approaches to justify e-commerce or e-government funding requests. Over the past four years, governments primarily used non-economic methods to justify the need for e-commerce or e-government projects. Respondents to the 2002 ROI Lessons Learned Survey cited customer service enhancements and technology upgrade requirements as the most widely used methods for justifying e-commerce or e-government projects over the past four years. Somewhat surprisingly, 20 percent of the respondents indicated no justification was required. Of lesser importance were Y2K compliance, interagency collaboration, economic business cases, and state mandates.

Has the Method or Approach for Justifying Funding Changed Over the Last Four Years?

A majority of government organizations (69 percent) say that the approach for funding justification has not changed over the past four years. For the 31 percent of government organizations reporting a change in their justification approach, only half indicated that the change occurred within the past 18 months. The remaining government organizations indicated that their justification method or approach had changed within the past two to three years. Only two percent of the government organizations indicated their approach has changed within the past six months.
Many larger jurisdictions and a large number of states have created sophisticated ROI methodologies and models to measure the impact of e-commerce or e-government projects on service delivery, both internally and externally. However, some government organizations still have not focused on technology and its ability to provide a quantitative ROI.

**What Were the Primary Reasons for the Change?**

The 2002 ROI Lessons Learned Survey provides valuable insight into why the 31 percent of respondents changed their method or approach for justifying e-commerce or e-government projects. As a result of the slowing economy, 50 percent noted that decreasing revenues were the most important factor, followed by the post-Y2K focus on...
efficient technology spending (30 percent) and a decrease in spending on e-commerce or e-government projects (20 percent).

Further, of the 31 percent of respondents who observed a change in justification methodology or approach, a majority noted the alignment of technology projects to the strategic business requirements of the organization (54 percent) as the preferred justification for new e-commerce or e-government projects. This was followed by the use of economic (35 percent) and non-economic (11 percent) business cases.

With the economic slowdown significantly impacting government revenues, more governments insist the vendor community quantify a ROI on their equipment or solutions. Analysts, such as the nationally recognized Gartner Group, have recently noted that the creation of single vendor standards lead to significantly lower costs for the
ownership and maintenance of equipment. Clearly the results of the 2002 ROI Lessons Learned Survey show that projects meeting the strategic direction of an organization and having a strong economic business case are more likely to receive funding.

Will the Justification Method or Approach Change in the Future?

A relatively large percentage of government organizations (84 percent) do not anticipate changing their justification method or approach for funding e-commerce or e-government projects in the future. The small number that will change their justification method or approach will do so slowly. Less than 20 percent will change within the next six months while 37 percent do not anticipate changing for at least 18 months or longer.

Regardless of when the change occurs, the use of economic business cases will become more important. Over half of the government organizations responding (52 percent) indicated that economic business cases quantifying service level improvements, increased revenues and other process improvements would be required for all funding requests. This is a significant increase from the past and reflects the demands government organizations are putting on their managers during these difficult economic times. Justification based on strategic business requirements will continue to play an important role in justifying e-commerce or e-government projects while the use of non-economic business cases outlining qualitative benefits such as constituent service enhancements or better access to information will play a lesser role than in the past.
As governments are forced to evaluate and justify expenditures, a more direct relationship between the project and its impact on end users is being sought. If an e-commerce or e-government project cannot be related to an economic business case or a specific business requirement, the project will likely not be approved in the current economic environment. In future periods of economic growth, the lessons learned in effectively measuring the results of a project should better ensure that resources are used for projects that best meet the strategic business needs of the organization.
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IV. ROI RESULTS AND SUCCESS MEASUREMENT TRENDS

As discussed in previous sections of this document, the methods of justifying new e-commerce or e-government projects within government organizations have changed over the past few years. So have the way government organizations view and measure the results of their investments. Achieving the benefits or ROI from e-government or e-commerce projects has been elusive for many government organizations. Over half the respondents to the 2002 ROI Lessons Learned Survey indicated that their projects were ‘somewhat successful’ to ‘not successful.’ Only 16 percent of government organizations responding indicated that their projects were ‘very successful.’

How successful have e-commerce or e-government projects been in providing ROI or business benefits to your organization?

<table>
<thead>
<tr>
<th>Level of Success</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not successful</td>
<td>6%</td>
</tr>
<tr>
<td>Not very successful</td>
<td>14%</td>
</tr>
<tr>
<td>Somewhat successful</td>
<td>34%</td>
</tr>
<tr>
<td>Successful</td>
<td>30%</td>
</tr>
<tr>
<td>Very successful</td>
<td>16%</td>
</tr>
</tbody>
</table>

How have e-commerce or e-government project successes been measured?

Part of the reason that e-commerce or e-government projects have not been very successful may be the way that success is measured. Over the past four years, government organizations have focused on softer measures such as constituent and user satisfaction surveys. While these measures provide an indication of success and satisfaction with the solutions implemented, they do not provide a measure of the financial success of the projects. There are similar issues with the capture of key performance measures. Although key performance measures provide a much better view of the value of e-commerce or e-government projects, they do not provide a measure of the overall financial value of the projects to government organizations. Identifying and capturing key performance measures both before project implementation and after project go-live dates, however, do provide government organizations with quality information with which to calculate overall ROI.
Why have e-commerce or e-government projects been successful?

Human intervention appears to be the most significant factor for success of e-commerce or e-government projects. Significant user involvement in the project planning and implementation processes and top management sponsorship of business process change were the most frequently cited reasons for success of these projects. Perhaps the significant involvement of users in the planning and implementation processes was the key contributor to determining how project success was measured. Nonetheless, survey respondents indicated that user involvement was critical to the success of any project. Addressing user requirements was critical to overall user satisfaction.

Top management sponsorship of business process change was also cited often. This success factor is key to keeping projects on track and to making change happen. Project failures often cite the lack of top management support and guidance as reasons that projects are not successful, get cancelled or do not achieve the level of business process change needed to attain significant business benefits. It is important to have a strong top management sponsor who wants to create change and has the authority to make it happen across the entire organization.

Other reasons noted for project success included marketing of the new solution throughout the entire organization; dedicating full-time project staff to the implementation process; and the sustained resolve of the project team and champion to effect change throughout the organization. These factors all include elements of the change management process that are too often given a lesser role in project implementations. Education and training are also key elements of the change management process that are often thought of after the fact. The level of change that e-commerce or e-government projects bring to an organization requires that these issues are dealt with early in the planning and implementation process.
Perhaps not surprising was the fact that development of good, well-documented business cases was not often cited by survey respondents. Business cases are often cited as an important part of the project approval and planning process but are generally not developed because of the lack of time, information or organization willingness to develop and be held accountable for business process improvement targets. This also explains why calculation of post-implementation ROI was rarely cited as a key measure of success.

These findings mirror the results of studies conducted on private companies. For instance, in a survey conducted by Ernst & Young LLP in May 2002, 79 percent of Fortune 1,000 IT decision-makers agreed that financial justification of IT projects is important, yet only 40 percent conduct business case analyses on a regular basis. The reason behind the lack of follow through may be that IT decision-makers often lack the tools, resources and time to conduct full-blown ROI analysis for most IT projects.

How were the key reasons for success?

<table>
<thead>
<tr>
<th>Reason</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Significant user involvement</td>
<td>68%</td>
</tr>
<tr>
<td>Top management sponsorship</td>
<td>58%</td>
</tr>
<tr>
<td>Non-economic business case</td>
<td>18%</td>
</tr>
<tr>
<td>Economic business case</td>
<td>30%</td>
</tr>
<tr>
<td>Other</td>
<td>5%</td>
</tr>
</tbody>
</table>

How could government organizations better achieve ROI or business benefits?

When asked “What one thing would your organization change to better ensure a ROI or business benefits achievement on past projects?” survey respondents continued to cite the need for significant user involvement and top management sponsorship of business process change as critical success factors. However, development of a good, solid economic business case prior to implementation moved up significantly from historic reasons for success to be of equal importance to significant user involvement. The decline in government revenues and the need to better justify new e-commerce or e-government projects may be driving the need for or use of economic business cases. Conversely, the development of non-economic business cases was viewed as being of less importance than in the past. This too may relate to the need to better justify new technology investments in the current environment of declining revenues and decreased spending.
Other improvement factors cited included ensuring a strong project management environment, post-implementation follow through on marketing the new solution, dedicating full-time implementation staff and providing better information technology support and skills.

### What one thing would you change to ensure ROI or business benefits achievement on past projects?

<table>
<thead>
<tr>
<th>Factor</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic business case</td>
<td>29%</td>
</tr>
<tr>
<td>Non-economic business case</td>
<td>6%</td>
</tr>
<tr>
<td>Significant user involvement</td>
<td>30%</td>
</tr>
<tr>
<td>Top management sponsorship</td>
<td>25%</td>
</tr>
<tr>
<td>Other</td>
<td>11%</td>
</tr>
</tbody>
</table>

How will measures of e-commerce or e-government project success change in the future?

Somewhat surprisingly, a majority of government organizations do not plan on changing the measures that define project success in the future. Only 39 percent of NECCC 2002 ROI Lessons Learned survey respondents indicated that they would change the way they measure project success within the next two years. Those government organizations indicating a desire to change the measures defining success will focus equally on hard and soft measures of success.
Do you expect to change measures that define success in the future?

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>39%</td>
<td>61%</td>
</tr>
</tbody>
</table>

The government organizations that indicated they would change their measures defining project success will do so slowly. Forty-two percent of respondents indicated they would change within the two years while only 11 percent of respondents indicated they would change within the next six months. This hesitation to change is surprising given the need to better justify technology projects and better demonstrate value in the current economic environment.

Over what period of time do you anticipate changing success measures?

<table>
<thead>
<tr>
<th>Period</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Next 2 years</td>
<td>42%</td>
</tr>
<tr>
<td>Next 18 months</td>
<td>18%</td>
</tr>
<tr>
<td>Next 12 months</td>
<td>29%</td>
</tr>
<tr>
<td>Next 6 months</td>
<td>11%</td>
</tr>
</tbody>
</table>

More focus will be given to financial and strategic measures than in the past. The changes government organizations are making in the way they measure success will provide more emphasis on ROI calculations, key performance measures and strategic business measures. This trend reflects the need to better justify technology projects and demonstrate financial value in the current environment of decreasing revenues and
reduced government spending on technology. It is expected that user and constituent satisfaction measures will continue to be key measures of success.

![Chart: How do you plan on changing measures of success?](chart)

**Examples of ROI or Business Benefits Success**

The following case studies provide some examples of e-commerce or e-government successes. The City of Ft. Lauderdale and TexasOnline success stories were submitted as part of responses to the 2002 ROI Lessons Learned Survey. The Canada Post story was obtained from the executive summary of a third-party ROI Report published by Hill|Holiday, a Boston-based communications consultancy. The last part of this section provides some examples of business benefits governments should expect when implementing e-commerce or e-government projects along with ranges of business benefits some government organizations have experienced.

**City of Ft. Lauderdale Online Issuance of Purchase Orders and Electronic Signature of Purchase Orders**

**Background**

As with many government agencies, the typical method of issuing purchase orders is by printing and mailing. In today’s world, that process has become increasingly expensive, and time consuming. The City of Ft. Lauderdale Procurement and Materials Management Department issues over 3,000 purchase orders per year. Although the cost per purchase order is not extremely high, the process is very labor intensive—it is an extremely repetitive and time consuming task to print and stuff purchase orders into envelopes and mail them on a daily basis. However, this essential task must be accomplished with accuracy to assure the timely delivery of needed goods and services. Therefore, the city
believed there was a better way to deliver purchase orders more quickly and efficiently, adding both value and cost savings to the process.

Working in conjunction with its purchasing software vendor (BuySpeed), the city developed two faster and more efficient methods of transmitting purchase orders to vendors. The first and most often used method is faxing the purchase order to the vendor directly from within the purchasing software at the clerk’s desktop. Instead of hitting a print button, the clerk hits a fax button and the purchase order is faxed directly to the vendor’s fax number on file in the electronic vendor database. The second method is e-mailing the purchase order to the vendor. Again, instead of hitting the print button, if the vendor has an e-mail of record, the purchasing software converts the purchase order to an Adobe Acrobat file and e-mails it as an attachment to the vendor. In both cases, as the approving authority, once the manager of Procurement and Materials Management has approved the purchase order, an electronic signature, as a verification of issuance, appears on the document that is sent to the vendor. All of this is done directly from the clerk’s desktop PC, so there is never a need to walk to a standalone FAX machine or walk to the mailroom to make sure a purchase order gets into the mail that day.

In order to implement the faxing capability, the city needed faxing software that would integrate with its purchasing software. This integration entailed some research and custom programming within the purchasing software so faxing could be done directly from the purchasing software. The city looked at many faxing software packages and decided on the one they felt worked best for current needs and potential future applications. The e-mailing of purchase orders was a feature that was already included in the purchasing software, so implementing that capability meant only obtaining licenses for Adobe Acrobat writer. Receiving vendors only needed Adobe Reader to access purchase orders, which is free, so this more efficient program resulted in no additional costs.

**Results/Benefits**

A vendor now receives a purchase order much more quickly, generally the day it is electronically approved and signed by the manager or assistant manager, either via fax or e-mail. This process has greatly improved delivery times and decreased the number of purchase orders that do not appear to get to the vendor via mail. With the faxing of the purchase order, the city receives a confirmation of successful fax transmission. With the e-mailing of purchase order, the city receives an electronic notice if the e-mail is undeliverable. Additionally, when sending via e-mail, the city is generally able to send the purchase order directly to the sales person, as opposed to the general office, where things sometimes get misplaced. The city now saves the clerk’s time, which was used to stuff and mail purchase orders, and has freed that person up for other more strategic duties. Since the implementation, the city mails less than five percent of the purchase orders issued. The purchase orders that are mailed go to vendors for which the city does not have a good fax number or e-mail. The fax/e-mail capability has also been used in other departments’ software applications, since city departments all use the same fax
software. This interoperability has saved many dollars for the Building Department who has implemented a similar program for delivery of permit approvals.

Hard dollar savings for the printing and mailing of purchase orders are also being realized. Additional cost savings include the time of staff printing and stuffing the envelopes for every purchase order. The program was implemented two years ago and the city has almost reached their ROI point and paid for the project.

**TexasOnline**

**Background**

TexasOnline (http://www.TexasOnline.com) is the official state site for the state of Texas. The Web site offers citizens online services such as drivers license and I.D. card renewal, vehicle registration renewal, tax payment, occupational and professional licenses and vehicle registration address change. A benchmarking study was recently conducted to determine the benefits of using TexasOnline to deliver services to the citizens of Texas. The objective of the study was to compare the cost of conducting a transaction before and after online implementation and to determine the qualitative benefits that governmental entities predicted they would achieve compared to the actual benefits they experienced by placing a service online.

The study analyzed the qualitative and quantitative benefits that four pilot agencies experienced using TexasOnline to provide an online delivery channel for their services. The expected outcome from the study was that government entities would experience cost savings by placing services online. Both the government entities and the citizens using the online service would experience qualitative benefits from using TexasOnline as a service delivery channel. The study will be published the last week of November 2002 and will be available at http://www.dir.state.tx.us/egov/index.html.

**Results/Benefits**

The study identified benefits both to state agencies placing services online and citizens using the online site to conduct business.

Benefits to Texas government agencies placing services online included:

- **Outsourcing of Data Entry.** In many of the applications, the citizen or business inputs information when using the online system. This reduces the number of exceptions (errors) that need to be corrected by agency staff. In addition, staff does not need to perform data entry of the transactions, since the citizen or business has already done it for them.
• *Decline in Exception Handling.* One agency experienced an overall decline (from 11 percent to 3 percent) in the percentage of exceptions that needed correction. The design of the online system is such that the citizen cannot complete a transaction without filling in the required fields on the online screen. This contributes to the decrease in the number of exceptions.

• *Faster Processing Time.* Placing services online has enabled agencies to reduce internal processing times. Some agencies have had over a 50 percent reduction in the time it takes to process an application. Average processing time of online filings is instantaneous, in contrast to offline transactions, which take an average of seven hours to process.

• *Reallocated Staff Hours.* One agency has been able to reallocate over 1,000 staff hours in FY02 to other functions in the agency, and projects to reallocate almost 4,000 staff hours in FY03.

• *Interest Earned on Tax Dollars.* One of the applications benchmarked provides for timelier deposit of funds, meaning the tax dollars are being deposited into the treasury sooner and available for interest earnings. Most taxpayers mail their return on the due date and within one to three days of postal service time; the money arrives at the agency and must then be handled and keyed for entry. The online system gets the tax dollars into the treasury faster, with little or no intervention by agency staff.

• *Cost Savings.* One agency expects to see a 71 percent reduction in its cost per transaction in FY03.

Benefits to citizens using TexasOnline to conduct business included:

• *Customer Convenience.* The customer has the convenience of transacting with the government 24 hours per day, seven days per week, 365 days per year from any location. The customer also has the convenience of using a credit card and in some cases electronic check.

• *Expanded Renewal Time.* For renewal applications, the citizen can renew licenses online on the very last day to renew and still make the agency deadline. If the citizen were to send a renewal via mail, he or she would have to factor in time for the post office to get the renewal to the agency office in order to get it in before the deadline.

• *Increased Access to Service.* One agency has made not only the Web application available, but also an Interactive Voice Response telephone application (IVR). IVR is available for those without access to the Internet.

• *Faster Service.* For three of the agencies benchmarked, citizens using the online system can receive their requested service faster.
- **Secure Online Access and Payment.** Transmission of student records can be done through TexasOnline. Sensitive information, such as student records and payment transaction information, is secure and protected by TexasOnline.

- **Address Changes.** Two agencies allow address changes to be made for those persons renewing their license online.

Support from top management is seen as the key factor of success for Texas Online. Support from the agency’s top management is essential for any e-government program to be a success. Without top management support, implementation of the online service, marketing of the service and studying the cost/benefits of the service would be very difficult.

**Canada Post Corporation – Business Transformation with Customer Relationship Management**

**Background**

Canada Post is one of the world’s most technologically sophisticated postal companies and among the vanguard of global post companies in an era of fiscal accountability and competitiveness. With C$5.9 billion in annual turnover, Canada Post provides physical and electronic delivery solutions to over 30 million Canadian residential customers and nearly one million Canadian businesses and public institutions. Each year, the Canada Post delivers more than 10 billion messages and parcels to over 13 million addresses in Canada via 15,000 mail carrier routes, 6,000 contractors and 24 major plants. Within the international market, Canada Post contracts with postal partners in over 45 countries.

In the late 1990s, Canada Post was facing a rapidly changing marketplace. Fierce competition for Canada Post’s traditional markets from new Internet technologies was seen as a significant threat to the existing revenue base. Evolution and growing acceptance of these new technologies was driving rapid expansion of e-commerce and shaping customer demand for greater speed, flexibility and information as part of all delivery solutions. Compounding the challenge was a global trend among competitors and other postal organizations to expand product offerings and geographic reach. Canada Post recognized that significant investment would be required to sustain its current revenue base and capture growth from emerging market segments.

Achieving high levels of efficiency and becoming more responsive to customer needs was becoming critical. While a number of initiatives were introduced, the most important was a business-wide transformation program to make Canada Post responsive to business and market needs. Enabled in part by the implementation of mySAP CRM, the business transformation program is driving the elimination of activities not adding value for the customers and business, while more efficiently integrating all of the major business processes across the organization.
Results/Benefits

Major benefits of Customer Relationship Management (CRM) seen by Canada Post include:

- Improved value addition and allocation through the delivery of personalized solutions and services that differentiate based on customer value rather than volume.

- Increased customer satisfaction and a commitment to retaining and growing customers by delivering higher quality and more timely services as measured by a Customer Satisfaction Index (CSI).

- Eliminated C$25 million in revenue leakage thanks to actual customer data and verification of customer documentation at time of receipt.

- Improved billing processes by using single customer number within contract management to yield C$5 million margin increase.

- Increased sales force selling time by reducing administrative time to yield C$50 million revenue and C$10 million incremental margin annually, in addition to other cross-selling and up-selling opportunities.

- Reduced data entry and maintenance costs C$4 million annually by combining 80 legacy systems into one highly integrated database.

- Increased general process efficiencies to save C$3.5 million annually. Processes affected include order-to-cash as well as human resources, financial management, mail operations and logistics, and procurement.

- Enhanced Canada Post’s brand equity from “reliable, friendly, efficient, quality and value” to include “competitive, innovative and customer focused.”

- Attained sustained competitive advantage by driving competencies deep into the organization and moving away from just a contingency planning core competence with a command and control culture.

- Benchmarked against the best in the world and is set to make continuous improvement.

The ROI Report has projected that Canada Post’s CRM implementation will result in an ROI of 26 percent.
Other Examples of Business Benefits Government Organizations Should Expect

With e-commerce or e-government projects, government organizations are often provided with new capabilities that can be challenging to quantify. Operational confirmation of improved business processes provide the tangible view of the investment opportunity, potentially in “real” dollar savings, through cost avoidance, cost reduction or some measure of economic value added. Intangible benefits are, however, not to be overlooked. Process innovation that supports enhanced ability to meet strategic objectives and provides critical access to real-time information has significant paybacks in performance. Realignment of the technical infrastructure to support the integrated project initiative has an enormous impact on an organization’s information technology strategy and enables significant improvement in the cost and capability of the IT department.

Benefits are unique to each organization based on:

- The state of their current technology.
- The efficiency of their current business processes.
- The productivity of the current staff.
- The accuracy of the information currently available to them.
- The internal cost of gathering, maintaining and reporting on the information that is required to effectively and efficiently run the business.

Listed in Appendix A are some examples of the benefits realized by government organizations implementing e-commerce or e-government solutions. Many variables can impact the range of benefits realized by an organization. These variables include the implementation approach, the quality of the project team, level of senior management commitment, project scope, and so on. The benefit ranges shown in Appendix A are not intended to be a guarantee of the benefits that an organization will achieve. They are intended to demonstrate the value an organization should expect to receive as a result of implementing e-commerce or e-government solutions. In fact, total organizational commitment could lead to benefits exceeding the experiences shown.
V. CONCLUSIONS AND LESSONS LEARNED

This paper has attempted to outline what governments are doing to justify their e-commerce or e-government investments, what the trends for determining a project’s return on investment are as well as the rationale behind requiring ROI justification. Section IV discussed some of the results and successes governments have had in providing ROI or business benefits on e-commerce or e-government investments. This section attempts to summarize some of the conclusions and lessons learned from both successful and not so successful projects in order to provide government organizations with knowledge to increase the probability that an e-commerce or e-government project will become a success.

Methods of Justifying E-Commerce or E-Government Projects Are Changing

As discussed in Section III, the rationale and methods for justifying e-commerce or e-government projects has changed over the past four years and will continue to change due to economic pressures in the current environment. Historically, very few e-commerce or e-government projects required formal, quantified economic justifications. Y2K compliance was the primary justification driver prior to the year 2000. Other non-economic methods included customer service enhancements, technology upgrade requirements, and interagency collaboration.

However, these methods are changing and will continue to change. Over the past four years, project justification methods have focused more on strategic business requirements and economic business cases quantifying service level improvements, increased revenues and other business process improvements. This trend is expected to continue over the next two years with an increased emphasis on economic business cases.

The primary factor causing the change in justification methods is the decreasing revenues being experienced by governments in the current economic environment. Half of the government agencies surveyed identified this factor as the primary reason for change. Additional factors causing changes in justification methods include post-Y2K focus on efficient technology spending and decreased spending on e-commerce/e-government projects. These additional factors also appear to be the result of fewer dollars being available because of lower tax revenues.

Project Success Measures Are Also Changing

As discussed in Section IV, the ways government organizations measure the success of e-commerce or e-government projects has also changed over the past four years, a pattern expected to continue. In the past, government organizations focused on softer measures such as constituent and user satisfaction surveys, which provided an indication of success and satisfaction with the solutions implemented, but not a measure of the financial success of the projects. Now, government organizations are capturing key performance
measures providing a better idea of the value of e-commerce or e-government projects, but still not providing a measure of the overall financial value of the projects to government organizations. If government organizations identify and capture key performance measures both before project implementation and after project go-live dates, they will have quality information with which to calculate overall ROI for the project.

While only a small percentage of government organizations plan on changing the measures that define project success in the future, those that do will focus equally on hard and soft measures of success. Change is expected to be gradual, as many government organizations indicated they would begin changing within two years, while only a small number indicated they would change within the next six months. This hesitation to change is surprising given the need to better justify technology projects and better demonstrate value in the current economic environment.

Government organizations that change the way success is measured will focus more on financial and strategic measures than in the past, with more emphasis placed on ROI calculations, key performance measures and strategic business measures. This trend reflects the need to better justify technology projects and demonstrate financial value in the current environment of decreasing revenues and reduced government spending on technology. However, user and constituent satisfaction measures will continue to be key measures of success as they have in the past.

Lessons Learned—How Can Projects More Successfully Deliver Value?

**Significant User Involvement in Project Planning and Implementation**

Significant user involvement in project planning and implementation was the most often cited historical reason for success of e-commerce or e-government projects. This factor was cited by government organizations as the key contributor to determining how project success was measured (User Satisfaction Surveys). Addressing user requirements was viewed as being critical to overall user satisfaction. Government organizations believe that significant user involvement will continue to be the most significant success factor.

**Top Management Sponsorship to Business Process Change**

Top management sponsorship of business process change was also cited often as a historical critical success factor for project success. This success factor is key to keeping projects on track and to making change happen. Project failures often cite the lack of top management support and guidance as reasons that projects are not successful, get cancelled or do not achieve the level of business process change needed to attain significant business benefits. It is important to have a strong top management sponsor who wants to create change and has the authority to make it happen across the entire organization. Government organizations believe that top management sponsorship will continue to be a significant success factor.
Use of Economic Business Cases

Perhaps not surprising, development of good, well-documented business cases was not often cited as a historical success factor. Business cases are often cited as an important part of the project approval and planning process but are generally not developed because of the lack of time, information or organizational willingness to develop and be held accountable for business process improvement targets. This may also be a primary reason why calculation of post-implementation ROI is rarely cited as a key measure of success.

However, many government organizations view the development of a good, solid economic business case prior to implementation as important a success factor as significant user involvement. The decline in government revenues and the need to better justify new e-commerce or e-government projects is driving the need for the use of economic business cases. Conversely, the development of non-economic business cases is viewed as being of less importance than in the past. This may relate to the need to better justify new technology investments in the current environment of declining revenues and decreased spending.

Education and Training

Providing education and training to employees on business processes for e-commerce or e-government projects requires both a focused commitment and an appropriate level of resources. Education and training, like change management, should be regarded as evolving, learning processes. Users have information presented to them in new ways, often changing the way they get their jobs done. When these users do not understand the business process context, it can lead to frustration with the solutions and a fear that their actions may negatively impact someone else. Since thinking in terms of business processes is one of the biggest adjustments users have to make, they should be trained on the entire business process, not just the transactions, in order to move through the learning curve quickly.

Change Management

Robust and continuous change management is a crucial component of successful e-commerce or e-government implementations. These solutions enable sweeping transformations in traditional practices and processes to which employees must be prepared to adapt. The decision to transition from a heterogeneous mix of systems to an integrated solution necessitates attention to change even before the implementation.

Early creation of a change management strategy and function embodied in a change management team is important to overall project success and attainment of the expected business benefits and value. Committed to working with executives, process owners, process teams and employees, the change management team can act as an educational resource to explain the changes to come. However, no matter how thoroughly organizations plan, unexpected events regularly occur.
The need to manage change and its consequences does not cease after the initial introduction of new solutions and business processes, but is an ongoing challenge and opportunity. As optimization continues over time, skilled team members can provide useful guidance to the rest of the organization through targeted communications that detail their own lessons learned in making various technological and cultural adjustments. Such communications can represent a powerful form of organized internal marketing and are most successful when, in addition to specifics, they seek to continuously reinforce the rationale and significance of the overall project.
### Appendix A: Examples of Potential Business Benefits and Expected Improvements

<table>
<thead>
<tr>
<th>Potential Business Benefit</th>
<th>Expected Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process Improvements Due to Elimination of Reconciliations, Duplicate Data Entry, etc.</td>
<td>15%-45%</td>
</tr>
<tr>
<td>Improve Time to Process A/P Invoice</td>
<td>15%-40%</td>
</tr>
<tr>
<td>Reduce Term Discounts Lost</td>
<td>25%-75%</td>
</tr>
<tr>
<td>Improve Time to Close Books</td>
<td>35%-80%</td>
</tr>
<tr>
<td>Reduction in New Item Inventory</td>
<td>10%-30%</td>
</tr>
<tr>
<td>Procurement Process Efficiencies</td>
<td>35%-80%</td>
</tr>
<tr>
<td>Increase Compliance of Purchases from Government-Wide Contracts</td>
<td>25%-50%</td>
</tr>
<tr>
<td>Reduce Cost of Materials/Services</td>
<td>2%-6%</td>
</tr>
<tr>
<td>Purchase Cycle Time Improvements</td>
<td>30%-80%</td>
</tr>
<tr>
<td>Reduction in Warehouses Maintained</td>
<td>15%-85%</td>
</tr>
<tr>
<td>Reduction in Inventory</td>
<td>10%-50%</td>
</tr>
<tr>
<td>Personnel Administration Efficiencies</td>
<td>10%-40%</td>
</tr>
<tr>
<td>Reduce Time and Expense Reporting</td>
<td>10%-20%</td>
</tr>
<tr>
<td>Employee Self-Service Transaction Reduction</td>
<td>25%-50%</td>
</tr>
<tr>
<td>Recruitment/New Hire Efficiencies</td>
<td>15%-25%</td>
</tr>
<tr>
<td>Reduce Number/Cost of Interfaces Maintained</td>
<td>25%-75%</td>
</tr>
<tr>
<td>Reduction in Work Order Prep Time</td>
<td>25%-75%</td>
</tr>
<tr>
<td>Reduction in Cost to Re-Enter Work Order Data into Payroll</td>
<td>100%</td>
</tr>
<tr>
<td>Improve Field Service Response Time</td>
<td>10%-20%</td>
</tr>
<tr>
<td>Reduce Project Reporting Costs</td>
<td>5%-20%</td>
</tr>
<tr>
<td>Efficiencies Due to Electronic Workflow</td>
<td>50%-75%</td>
</tr>
<tr>
<td>PC Maintenance and Upgrading Efficiencies</td>
<td>65%-80%</td>
</tr>
<tr>
<td>Call Center Efficiency Improvements</td>
<td>20%-90%</td>
</tr>
</tbody>
</table>
Appendix B: E-Commerce/E-Government ROI Lessons Learned Survey

The National Electronic Commerce Coordinating Council (NECCC) is conducting this survey to determine the success government organizations have had over the past four years in achieving financial returns or substantial business benefits from investments made in the electronic commerce or government projects. The results of the survey will be presented at the NECCC Annual Conference to be held in New York City from December 4, 2002 through December 6, 2000 at the New Yorker Ramada. Additional details regarding the NECCC or the annual conference may be found on their website at www.ec3.org.

This survey focuses on two areas related to return on investment (ROI): 1) Methods or approaches utilized by government organizations to justify funding requests for investments in e-commerce or e-government projects; and 2) Financial results or business benefits achieved from these investments. Results of the survey will be made available to all participating organizations. Your response by September 13, 2002 would be greatly appreciated. If there are others within your organization whom you feel are more suited to respond to this survey within a timely manner, please forward the survey to them and have them complete it. Thank you in advance for your prompt participation and support for the NECCC.

The NECCC is an alliance of national state government organizations dedicated to the advancement of electronic commerce within states. The alliance is comprised of the National Association of State Auditors, Comptrollers and Treasurers (NASACT), the National Association of State Chief Information Officers (NASCIO), the National Association of State Procurement Officials (NASPO), the National Institute of Governmental Purchasing, Inc. (NIGP), Information Technology Association of America (ITAA), National Automated Clearing House Association (NACHA), National Association of Government Archive Records Administrators (NAGARA), National Association of State Chief Administrators and the National Association of Secretaries of State (NASS). The NECCC’s mission is to promote electronic government based on emerging issues and best practices.

1. What is your title?
   
   o CFO or Finance Director
   o CIO or Information Technology Director
   o Controller
   o Project Manager
   o Other (please specify) ____________________________________________


2. What is the population of your organization?

3. What type of organization? State local regional, etc.

**Justifying Technology Investments**

4. How has your organization justified funding requests for new e-commerce or e-government projects over the past 4 years? (Check all that apply)

   - No business case or justification required
   - Y2K compliance requirement
   - Economic business case developed
   - Non-economic business case developed
   - Interagency collaboration
   - Customer service enhancements
   - State mandate
   - Technology upgrade requirement
   - Other (please describe) ______________________________________________

4. Has the method or approach for justifying funding for e-commerce or e-government projects changed over the last 4 years?

   - Yes
   - No

   If yes, please answer Questions 5 through 7, otherwise proceed to Question 8.

5. Over what period of time has the justification method or approach changed?

   - Past 6 months
   - Past 12 months
   - Past 18 months
   - Past 2 years
   - Past 3 years
6. What were the primary reasons for changing the justification method or approach?
(Check all that apply)

- Decreasing revenues
- Decreased spending on e-commerce/e-government projects
- Post Y2K focus on efficient technology spending
- Other (please describe) ___________________________________________

7. How has the justification method or approach changed?

- Economic business case quantifying service level improvements, increased revenues and other process improvements required for all funding requests
- Non-economic business case outlining qualitative benefits such as constituent service enhancement or better access to information required for all funding requests
- Justification based on strategic business requirements
- Other (please describe) ___________________________________________

8. Does your organization anticipate changing the justification method or approach for funding e-commerce or e-government projects in the future?

- No change anticipated
- Anticipate change within the next 6 months
- Anticipate change within the next 12 months
- Anticipate change within the next 18 months
- Anticipate change within the next 2 years

If no change anticipated, proceed to Question 10, otherwise answer Question 9.

9. How do you anticipate your justification method or approach will change over this period?

- Economic business case quantifying service level improvements, increased revenues and other process improvements required for all funding requests
- Non-economic business case outlining qualitative benefits such as constituent service enhancement or better access to information required for all funding requests
- Justification based on strategic business requirements
- Other (please describe) ___________________________________________
Financial Results or Business Benefits Achieved

10. For e-commerce or e-government projects completed over the past 4 years, how successful have the projects been in providing a return on investment (ROI) or business benefits to the organization?

- Very successful
- Successful
- Somewhat successful
- Not very successful
- Not successful

11. How has success been measured?

- Post-implementation return on investment calculation (please provide a copy of how ROI calculations are determined)
- Key performance measures captured
- User satisfaction surveys
- Constituent satisfaction surveys
- Other (please describe) ______________________________________________

12. What were the key reasons for success?

- Good economic business case developed prior to implementation
- Good non-economic business case developed prior to implementation
- Top management sponsorship of business process change
- Significant user involvement in project planning and implementation process
- Other (please describe) ______________________________________________

13. If your organization had to change one thing to better ensure a ROI or business benefits achievement on past projects, what would that be?

- Good economic business case developed prior to implementation
- Good non-economic business case developed prior to implementation
- Top management sponsorship of business process change
- Significant user involvement in project planning and implementation process
- Other (please describe) ______________________________________________

14. Do you expect to change the measures that define success of e-commerce or e-government projects in the future?

- Yes
- No

If yes, please answer Questions 15 and 16, otherwise proceed to Question 17.
15. Over what period of time do you anticipate changing the measures of success?

- Anticipate change within the next 6 months
- Anticipate change within the next 12 months
- Anticipate change within the next 18 months
- Anticipate change within the next 2 years

16. How do you plan on changing measures of success?

- Provide more emphasis on ROI calculations
- Provide more emphasis on key performance measures
- Provide more emphasis on user satisfaction measures
- Provide more emphasis on constituent satisfaction measures
- Provide more emphasis on strategic business measures
- Other (please describe) ______________________________________________

17. Please provide any other comments your organization would like to make related to justification methods or approaches for funding e-commerce or e-government projects or the results of achieved from completed projects.

_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________

18. Would your organization be willing to serve as a success story on how government organizations are achieving significant ROI or business benefits from e-commerce or e-government projects? If yes, please provide a brief description of the project and the success your organization has achieved.

- Yes
- No

_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________

40
NOTES


[5] State of Maine, Department of Administrative and Financial Services, Office of the Chief Information Officer, “Memorandum to Commissioners; Department Budget Officers and Information Services Managers Group, August 2, 2002, 1.