Center for Technology in Government

Public ROI - Advancing Return on Investment Analysis for Government IT
Case Study Series

The Commonwealth of Pennsylvania's Integrated Enterprise System

Sharon S. Dawes
G. Brian Burke
Lucy Dadayan

Center for Technology in Government
University at Albany, SUNY
187 Wolf Road, Suite 301
Albany, NY 12205
Phone: (518) 442-3892
Fax: (518) 442-3886
http://www.ctg.albany.edu

This material is based upon work supported by SAP. Any opinions, findings, conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of SAP.

This Page Intentionally Left Blank

TABLE OF CONTENTS

This Page Intentionally Left Blank

Introduction

This case and the others in this series examine how government IT investments come to deliver value to the public, what we call public return on investment (Public ROI). The cases are part of a larger project to develop a new framework for assessing public returns to government IT investment. The results of these case studies and related research are featured in a white paper that presents the framework and recommendations for conducting public ROI assessment for government IT projects. All five case study reports and the white paper are available at CTG's Web site.[1]

In each of the case studies, we examine how the IT investment was conceived and developed, with particular attention to the role of public value in the process. We take the view that government IT investment generates public value two ways:

- By improving the value of the government itself from the perspective of the citizens, and
- by delivering benefits directly to persons, groups, or the public at large.

The first way is based on the idea that, assuming a government has benign intentions, the better it functions overall, the better off its citizens will be. The government is an asset to the community or nation that delivers a wide range of values. Internal improvements enhance its value to the public. The second type of value generation can be described as three types: financial, political, and social. Financial consists of lowering the cost or increasing the efficiency of government as well as delivering direct financial benefits to the citizens. Political value consists of increasing government fairness, transparency, legitimacy, etc., or giving advantage to elected officials or citizens. Social returns include increased social status, relationships, or opportunities; increased safety, trust in government, and economic advantage. These general understandings of public value are used to guide the data collection and presentation of the case results.

The case studies examine public value in terms of returns to the overall IT investment. This perspective includes returns that can be generated by a government IT investment and the possible mechanisms to produce them. We do this by considering the links between investment goals, implemented systems, government performance, and public returns in terms of where they represent value in the chain shown in Figure 1 (below).

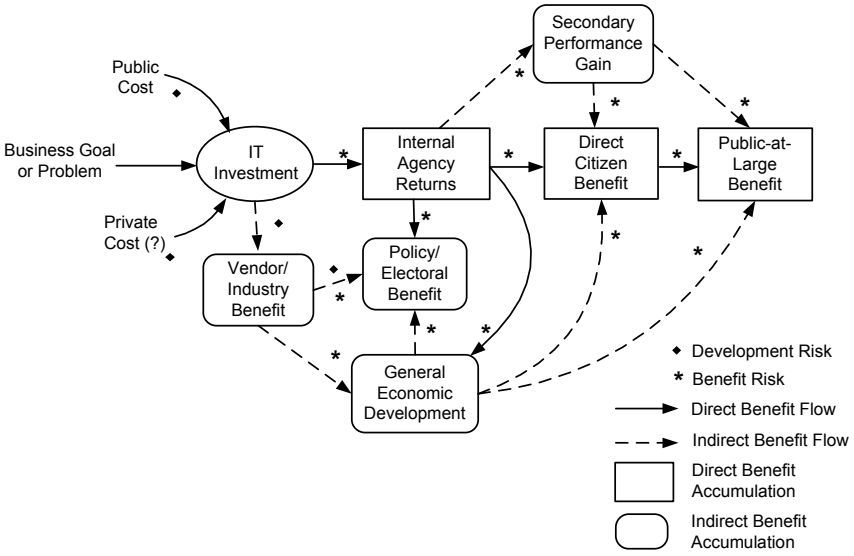


Figure 1. Public ROI Value Propositions

[1] View and download copies of the white paper and case study reports at www.ctg.albany.edu/projects/proi.

The public returns from the investment can flow from the internal improvements in the agency resulting in returns to individual citizens and the public at large (the main flow through the center). Other returns can flow to the political system and the economic environment (below the center), or through effects on other agencies (secondary performance gains). This general view of public returns informs the case studies and helps summarize the results.

The case studies were conducted through site visits and interviews with the participants in each project, combined with review of project documents and other evidence. We are indebted to the members of the Bureau of Integrated Enterprise System (IES) and the Governor's Office of Administration, especially Chris Dwyer, Andy McIntyre, Christine Meholic, Rafael Perez-Bravo, Colby Smith, and Dana Zamolyi for their generous participation in the case study and hospitality in Harrisburg. The findings and views expressed in this report, however, are those of the authors alone and do not reflect the policies or views of the participants or the Commonwealth of Pennsylvania.

Background Information

In 1999, then Pennsylvania Governor, Tom Ridge, launched a number of strategies that focused on technology as enabler of improved government effectiveness, efficiency and service provision (i.e., public value).[2] As one result, the Commonwealth of Pennsylvania (the Commonwealth), launched a large project to implement a new, fully integrated business information system using Enterprise Resource Planning (ERP) software as the key enabler. In this initiative, the Commonwealth set out to redesign core business processes for five administrative functions (accounting, budgeting, human resources, payroll, and procurement) and to transition them from legacy systems into the new ERP (see Figure 2):

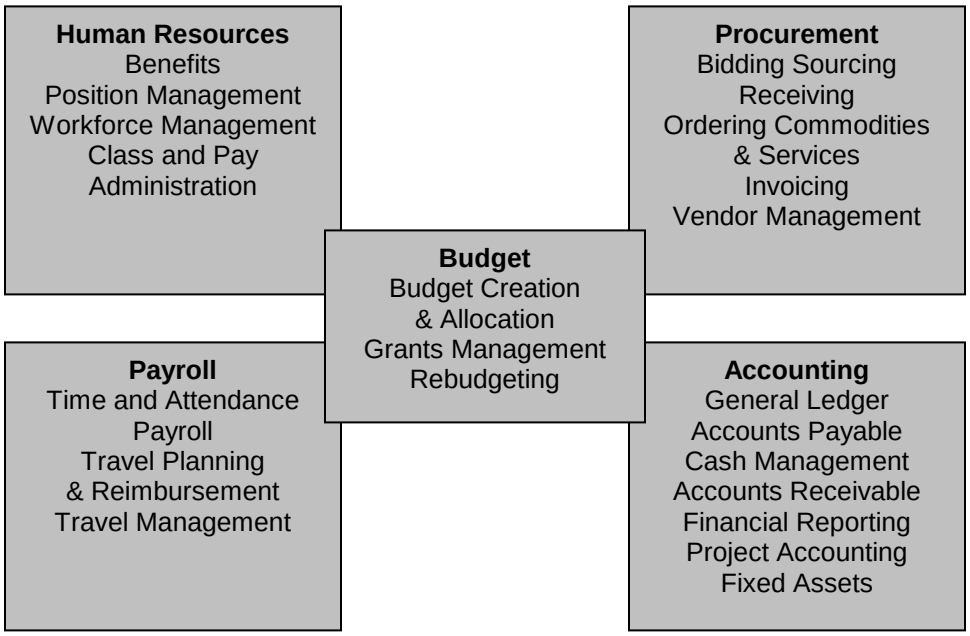


Figure 2. Key Government Functions Impacted by ERP Implementation

The ERP implementation project was named *Imagine PA* as a signal to:

- Encourage Commonwealth employees to imagine how different the workplace could be if they had the technological tools to perform their jobs better, and

[2] For more background information on the IES program see http://www.ies.state.pa.us/imaginepa/cwp/view.asp?A=6&Q=58215.

- to invite all Pennsylvanians to imagine interacting with a world-class customer-focused state government that, provides excellent services over the Internet.

These two goals capture the project's focus on communicating value not only to citizens but also to government workers – a key stakeholder group whose support and active involvement in the project were critical to its success.

Between early 2001 and mid-2004, the ERP implementation for the five business functions was completed for 53 Commonwealth agencies including all 49 of the agencies under the Governor's jurisdiction. In July 2004, as a result of the successful implementation, the Imagine PA *project* began its transition to the ongoing Integrated Enterprise System (IES) *program*. This transition from a *project* to *program* was a very explicit and pragmatic strategy for the Commonwealth. Imagine PA was a high-visibility change project with start and end dates, dedicated funding, assigned organizational roles and responsibilities, and a project management office charged with design and implementation of both new technology and new business process standards. In contrast, the IES program is responsible for continuous and now institutionalized sustainment of the existing infrastructure and functionality of the initial ERP implementation project as well as the managed improvement and growth of the IES enterprise. The transition from project to program signaled new funding approaches, modified organizational roles and responsibilities, and an overarching program strategy to maintain existing enterprise capabilities and while creating new features and enhancements through multiple improvement projects.

From the beginning, Imagine PA was much more than a technology project. The ERP implementation continued through three gubernatorial administrations with consistent top level executive support; eventually putting in place the technical infrastructure and enterprise standards for core administrative functions with improved public value. Immediate returns in the form of improved government operations were realized soon after implementation and continue today. This infrastructure also provides the Commonwealth with capability that can be further leveraged to support additional improvements in government operations that go well beyond direct improvements in core administrative functions.

The Commonwealth has begun such efforts. The IES infrastructure provides public returns in the form of direct improvements in the efficiency and effectiveness of core administrative functions. This infrastructure also provides the basis for improvements in the back office operations of other service areas which in turn offer improved services to the public. The Commonwealth has recently taken steps to move in this direction by implementing the necessary institutional structures and policies to take fuller advantage of this enterprise-level asset.

Context Factors

Historical Context

The Commonwealth's ERP implementation was one of several efforts to use IT to improve government effectiveness, efficiency and service delivery, beginning with the creation of the Commonwealth's first ever Home Page on the Web. This effort was followed by a series of initiatives that use technology as a catalyst and mechanism for change. These include:

- The Justice Network (JNET): a governance mechanism and infrastructure for data sharing among criminal justice agencies at the state and local government levels.
- Data Powerhouse Project: consolidation and outsourcing of 17 state agency data centers.
- Online Procurements: online competitive auctions to purchase items such as coal and aluminum.
- Public Safety Radio Project: a unified, state-wide 800-MHz radio network.
- Link-To-Learn: a $166 million effort to put more technology into schools and to bolster technology training for teachers.

- Technology 21 Report: prepared by industry leaders to help outline the Commonwealth's technology policy to drive state-wide economic development and global competitiveness[3]

In 2000, $20 million (followed by an additional $10 million in 2001) was earmarked to support the "Friction-Free Government" initiative. This money supported the creation of online government services such as driver's license renewal and business registration.

In a 1999 article in *Government Technology* Governor Ridge summarized his strategy for bringing about positive change in the Commonwealth with the use of technology. "When I became governor in 1995, I immediately set about changing the business climate and building a foundation to make Pennsylvania a global technology leader. . . . Our investments in technology are part of an overall strategy to make Pennsylvania a vigorous competitor for jobs. . . . We also strive to lead by example. . . . New technologies are revolutionizing the way the world does business. Like the private sector, I think government must rethink traditional practices and assumptions or risk becoming obstacles to opportunity."[4]

The ERP implementation was launched less than a year before Governor Ridge left the Commonwealth to become the Director of the US Office of Homeland Security in October 2001. Then-Lieutenant Governor Mark Schweiker assumed the office of Governor until 2003. As Lt. Governor, Schweiker had been the executive sponsor of Imagine PA and he continued to support the Friction-Free Government initiative, of which Imagine PA became a part. According to Governor Schweiker, "Our Imagine PA project is an important part of my Administration's emphasis on making Pennsylvania state government "friction free" for our customers. And what's making it work is our people – the state employees who have led the redesign of our business processes and who will now use our enhanced software tools to deliver world-class government service to our customers." During Governor Schweiker's Administration (2001 – 2003), the Imagine PA team successfully completed the first three of four waves of the initial ERP implementation.

Governor Edward Rendell's election in November 2002 ushered in a new administration led by a different political party. Governor Rendell's perspective on the role of technology is more intertwined with a larger reform agenda rather than focused on technology per se. The last two waves of Imagine PA project implementation proceeded in the context of the Governor's commitment to streamline government operations and reduce government spending. Several highlights from Governor Rendell's Fiscal Year 2004-2005 Budget Address capture these priorities:

- "One of the first promises I made as Governor was that before asking the people of Pennsylvania to send an additional penny to Harrisburg, we would put the government's fiscal house in order."
- "We started by instituting an across-the-board cut in general government operations, saving $210 million."
- "Now we are working on nine different "strategic sourcing" projects – from computers to office supplies – in which the state will leverage its purchasing power to get better prices than ever before."
- "This year we will push again to trim the fat of spending. I am convinced that we can decrease the cost of basic government operations, and I am directing our departments to find more ways to make administrative cuts and to save money in our programs."[5]

A history of political will and executive sponsorship surrounding the ERP project is evident across all three administrations, (see Figure 3). All three governors view the ERP as an instrument to enact substantial change. The Ridge and Schweiker Administrations view of technology as an enabler for change helped launch the ERP implementation and focus it as a government transformation effort rather than simply a technology project. This focus, the success and maturity of the implementation, and Governor Rendell's commitment to continuing government reform helped assure the final implementation phases and

[3] For a more complete list and timeline of technology related initiatives during the Ridge administration see http://www.informationweek.com/858/pa_time.htm.
[4] For complete interview with Governor Ridge see http://www.govtech.net/magazine/story.php?id=94822&issue=12:1999.
[5] For the complete text of Governor Rendell's 2004-2005 Budget address see http://www.governor.state.pa.us/governor/cwp/view.asp?a=1115&q=436369.

transition to the successful IES program. The results today are a robust technical infrastructure, streamlined administrative business processes, and the potential to leverage both to provide increased public value throughout the Commonwealth.

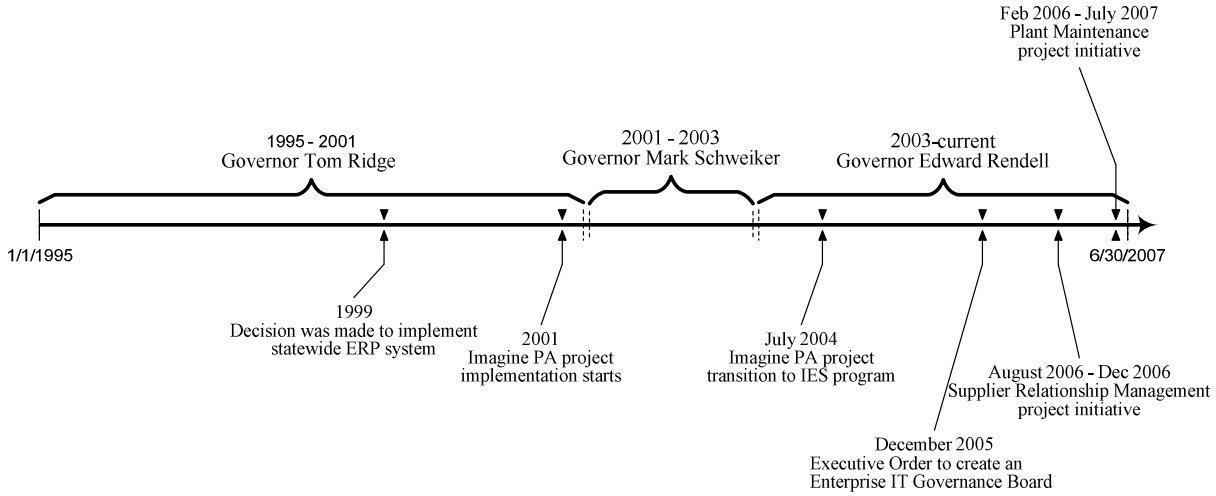


Figure 3. Timeline of Administrations and Key Milestones

Institutional and Political Contexts

The institutional context surrounding the ERP implementation illustrates how executive support for the Imagine PA project was operationalized in terms of bringing the appropriate stakeholders together and clarifying the roles and responsibilities of the key organizational players. In the Commonwealth, the Governor, Lieutenant Governor, Attorney General, Auditor General, and State Treasurer are all elected offices. All of the core administrative functions of government that were the focus of the ERP implementation (i.e., Accounting, Budget, Human Resources, Payroll, and Procurement), fall under the Governor's jurisdiction within the Governor's Office of Administration, Office of the Budget, and Department of General Services (see Figure 4). However, since the State Treasurer is a separately elected official, the Commonwealth's authority to issue payments resides outside of the Governor's jurisdiction. Therefore, from an institutional and political perspective, the Governor has authority over the Commonwealth's finance processes just short of payment. Today, the State Treasurer is not part of the Commonwealth's ERP. Efforts are underway to streamline and automate the transfer and access of data between the Executive Offices and the State Treasury.

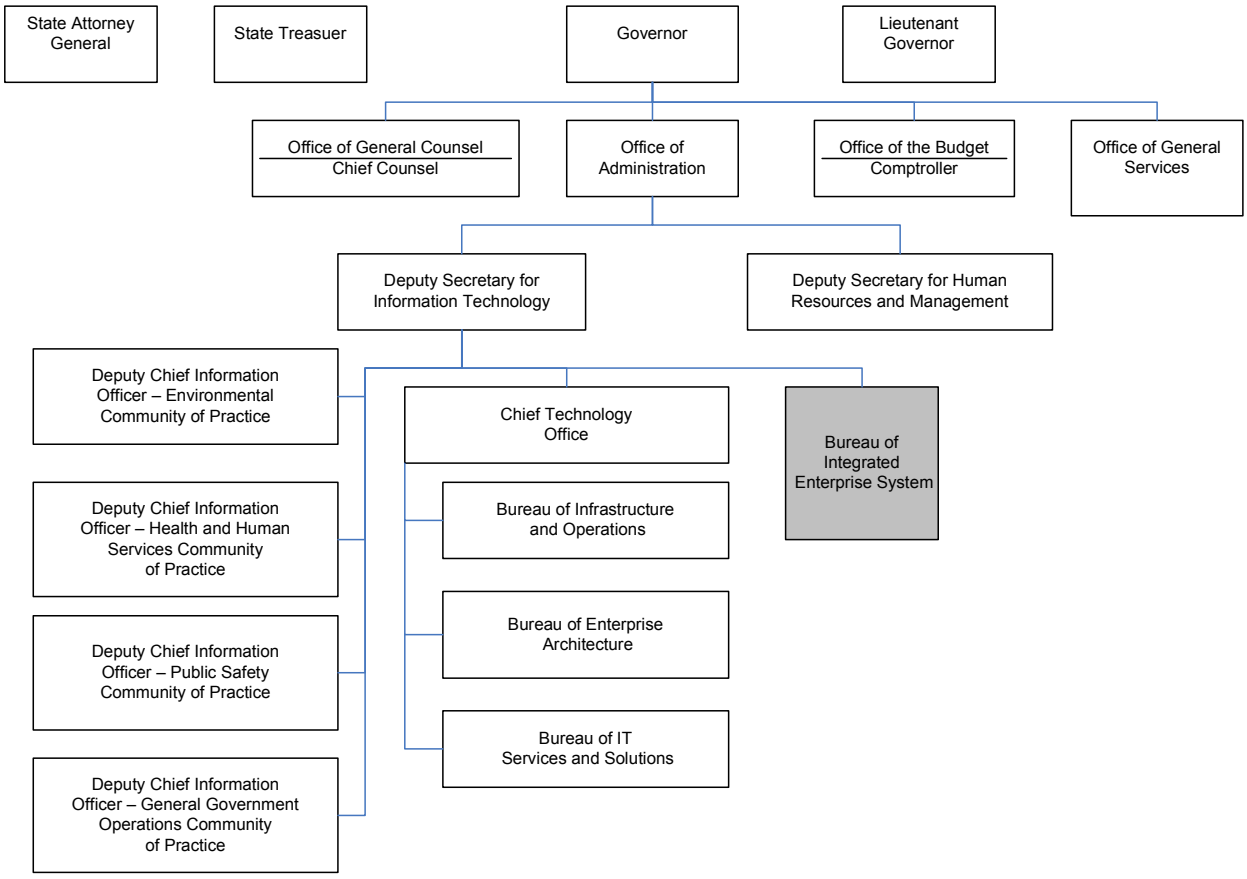


Figure 4. Relevant Commonwealth Organizational Structure for IES[6]

The Imagine PA project team that managed the initial implementation from 2001 to 2004 reported to the Secretary of Administration. Today, the Bureau of Integrated Enterprise System (IES) is organizationally located within the Office Administration under the Deputy Secretary for Technology (i.e., the equivalent of the State CIO). The Deputy Secretary for Human Resources and Management, leader of one of the key business areas served by IES, also reports to the Secretary of Administration (see Figure 4).

From an institutional and political perspective, the relevant IT, Accounting, Budget, Human Resources, Payroll, and Procurement functions are under the direct jurisdiction of the Governor. The inclusion of Deputy Secretaries for Information Technology and Human Resources and Management under the Secretary of Administration along with the Secretary of Budget and the Secretary of the Department of General Services, all of which are appointees of the Governor, provided a very clear institutional structure for managing the project.

Initiation and Development

In the mid-1990s the Commonwealth payroll, human resources, procurement, and budget business areas were searching for solutions to resolve long-standing and new business and information technology problems.[7] The Commonwealth's aging business information system was known as the Integrated Central System (ICS). ICS was customized by the Commonwealth and had taken about ten years to develop. It

[6] This is an organizational structure of select agencies and units relevant to the Imagine PA project and IES program. It is based on a June 2007 organizational chart of the Governor's Office of Administration.
[7] *Case for Change Report for Imagine PA*, KPMG Consulting, April 27, 2001.

was implemented during the mid-1980s. Unlike many other states the ICS did provide the Commonwealth with an integrated system between the HR component and the payroll system. According to Rafael Perez-Bravo, Director, Bureau of Systems, Policy and Program Planning, Office of Administration, "ICS was very mature and it did what it was designed to do very well." However, it was a legacy system in need of updating.

The Commonwealth's Corporate CIO Advisory Group (made up of private sector chief information officers from PA businesses) and Gartner Consulting recommended an ERP solution to replace and advance beyond ICS. At that time, the strategic value of an ERP solution had been proven most often in the private sector with limited application in government. This situation provided the Commonwealth with little in the way of best or current public sector practices to draw on and naturally brought with it the risk inherent in any pioneering endeavor. However, the primary advantages of ERP in the private sector supported the Ridge Administration's strategy to use technology to enable government change. The primary advantages of deploying the ERP software were expected to be:

- "Best business practices" incorporated in the software;
- state agency officials and staff would have ready access to real-time data for making better informed business decisions;
- improved infrastructure from which to deliver electronic-government services;
- increased opportunities for employees to enhance service delivery;
- potential for delivering improved service to internal and external customers; and
- economic development resulting from more effective state government operations making PA more attractive for business.[8]

In early 1999, the Commonwealth began two separate but closely related procurement processes: one to select the ERP software and a second to select a systems integrator to help state agencies manage their migration to a new ERP-based business information system. In June 2000, SAP was selected under a competitive procurement to provide its mySAP.com software and in December 2000 KPMG Consulting was selected as the system integrator to help the Commonwealth plan and execute the transition from the existing Integrated Central System to the mySAP.com software. The three-year contract for both the software and consulting was for approximately $51 million; funding for which was included in the 2001 Commonwealth budget.

Vision

A newly formed Steering Committee worked in the summer of 2000 to develop a vision for the project that was guided by the Governor's direction, as well as the recommendations of the Corporate CIO Advisory Group (see Table 1).

Table 1. Enterprise-Wide Imagine PA Vision Points[9]

Category	Expected Benefits
People	• Increased job satisfaction • Changes in employees' roles and responsibilities • Increased decision-making power • Enhanced customer service delivery • Visible, accessible and reorganized workforce
Business Process	• Integrated and universal processes across the enterprise • Agency mission and vision aligned to processes • Single point of data entry at the source • Continuous business process improvement •

[8] IES Project Background http://www.ies.state.pa.us/imaginepa/cwp/view.asp?A=6&Q=58215.
[9] *Case for Change Report for Imagine PA*, KPMG Consulting, April 27, 2001.

Table 1. Enterprise-Wide Imagine PA Vision Points[9]	
Category	**Expected Benefits**
Technology	• Provide technology at all levels for all employees • Technology provides timely access of data for decision-making • Technology provides transparency and accountability • Technology liberates resources for direct services in support of agency missions • Technology provides a better communication channel across government, customers, employees, vendors, citizens, etc.

The vision and expected benefits went well beyond technology. They were categorized as *People*, *Business Process*, and *Technology*. The categories helped the team clearly identify the key stakeholders that needed to be involved in the project for it to be successful (i.e., business owners of administrative functions, system users in the agencies, and executive support). While the vision explicitly identified the benefits to these stakeholder groups, it also implicitly included a complex mix of policy, management, and technology issues and potential risks that would have to be addressed. These issues and risks required consistent engagement with and support of business owners, future system users, and senior government leaders.

Mobilizing Support and Resources

With strong executive support and funding secured for the project, the next level of support and resources to be mobilized was the business owners and system users from the core administrative functions to be addressed by the system. In order to develop and implement standard business processes across the core business functions, a standardized collaboration process was developed to guide the interactions of the Imagine PA team and these stakeholders.

The key to the Imagine PA team's success in this area was a well-structured project management process for system evaluation and change initiation. The key players in this process were the stakeholders themselves, each of which had specific roles and responsibilities:

- User Groups – Comprised of end-users who represented all areas of functionality of the ERP. Provided advice and feedback on both individual ERP functionality issues and general enterprise-wide and ERP-system related issues.
- Implementation Leadership Committee – Comprised of 12 Deputy Secretaries for Administration. Reviewed all the information provided by user groups and forwarded the business process related issues to the relevant business process owners.
- Business Process Owners – Comprised of HR, Budget, Accounting, Payroll, and Procurement managers. Provided operational guidance within their specific functional areas.
- Project Teams – Comprised of IT staff and project managers from the Imagine PA team. Provided knowledge and ability to configure and customize, if necessary, the system to meet the business owners' functional requirements.
- Steering Committee – Comprised of the Deputy Secretary of the Budget, Deputy Secretary for Comptroller Operations, Deputy Secretary for Procurement, Deputy Secretary for Information Technology, Deputy Secretary for Human Resources and Management, and the Deputy Secretaries for Administration for the Department of Public Welfare and the Department of Corrections. This body provided operational guidance and direction to the project.[10]

[10] The Steering Committee was deactivated upon project completion and replaced with a new Advisory Board to provide guidance and direction during the transition of the Commonwealth's ERP's from a project to a program. Upon the Commonwealth's ERP's successful transition, the Advisory Board was deactivated. Also activated at the beginning of the transition was the IES Operating Committee. This body, which is comprised of representatives of the IES business owners and the staff of the Bureau of the IES, remains active upon publication of this Case Study. The Operating Committee's primary function is to coordinate, approve, and/or prioritize enterprise sustainment and improvement activities thereby linking the Bureau of the IES with the business owner community.

- Advisory Board – Comprised of the Secretary of Administration, Secretary of the Budget, and Secretary General Services. These three cabinet-level officers of the government were the sponsors and executive-level business owners of the Imagine PA project.[11]

Two types of User Groups engaged in the system change control process. The Knowledge Sharing Workshop was comprised of end-users who represented all areas of functionality of the ERP. This group provided feedback on general enterprise-wide and ERP-system related issues. The Functional User Groups represented end-users who provided advice and feedback on individual ERP functionality issues.

Feedback from both user groups was reviewed by the Implementation Leadership Committee (ILC), which comprised the 12 Deputy Secretaries for Administration. The ILC reviewed all the information provided by both types of User Groups and forwarded the business process related issues to the relevant Business Process Owners. Any system related issues were forwarded to the Imagine PA Project Team. Both the Business Process Owners and the Imagine PA Project Team assessed the information and forwarded the actionable items to the Steering Committee for final approval or re-evaluation (see Figure 5).

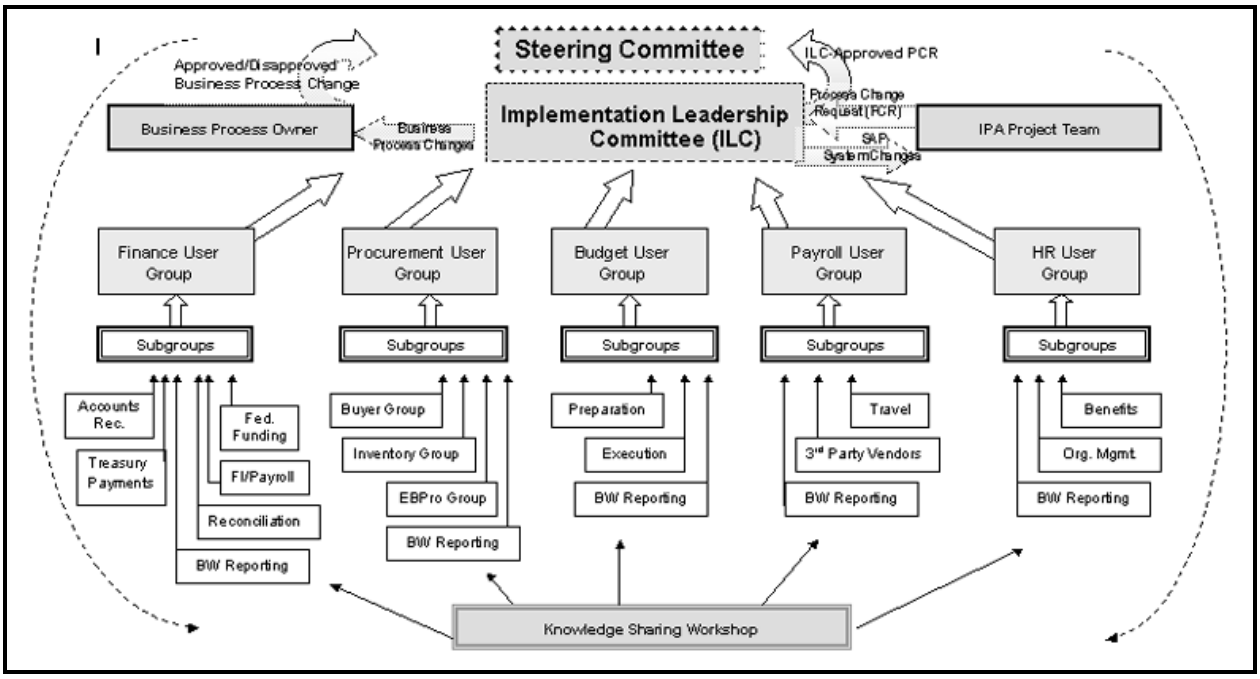


Figure 5. Imagine PA Business Process[12]

One other key aspect of the Imagine PA team's approach to effectively engage with the key stakeholders and mobilize support for the project occurred external to yet in parallel with the implementation strategy. Early in the project, the Imagine PA team conducted a thorough legislative review to determine whether any existing legislation would impact the project. While determining that no existing legislation would negatively impact the implementation, the review did reveal the need to change the law that governed how Local Earned Income Taxes under Act 511 of 1965 were withheld for Commonwealth employees. The result was passage of legislation that allowed alignment of the legacy payroll system local tax withholding process so that the employee's would not be faced with a major shortfall in withholding requiring filing of quarterly tax payments or face a large tax due at year end. This effort reinforced the Imagine PA strategy of using technology as just one of several enablers to bring about improved government business processes and apply best practices to government operations that ultimately serve the citizens.

[11] The Imagine PA advisory Board was inactivated and merged with the Imagine PA Steering Committee during the Imagine PA project to streamline decision making and provide timely executive-level guidance and direction to the Imagine PA project.
[12] See http://www.ies.state.pa.us/imaginepa/cwp/view.asp?a=4&Q=172539&PM=1.

Implementation Strategy

The Imagine PA team used the above Business Process approach in its implementation strategy. Table 2 below shows the timeline for each implementation wave as well as specific functions that were implemented in each wave and the agencies involved.

Table 2. ERP Implementation Phases

Date / Phase	Agencies Involved	Functional Areas Affected
July 2002 Wave 1	• Executive offices of the Office of Administration • Executive offices of the Office of Budget • Aging • Agriculture • Banking • Emergency Management • Health • General Services • Insurance • Military and Veterans Affairs • State • State Police • Public Utility • Securities Commission • Attorney General	• Budgeting preparation (All Agencies) • Budget execution • Accounting • Procurement • Workflow • Business Warehouse • Travel planning • Construction Project Administration
October 2002 Wave 2	• Community and Economic Development • Conservation and Natural Resources • Corrections • Education • Revenue • Municipal Retirement • Public School Employee Retirement System • State Employee Retirement System • Civil Service • Fish and Boat • Game	• Budget execution • Accounting • Procurement • Workflow • Business Warehouse • Travel planning • Construction Project Administration
January 2003 Wave 3A	• Public Welfare • Pittsburgh Ports • Probation and Parole • Tax Equalization • Historical and Museum Commission	• Budget execution • Accounting • Procurement • Workflow • Business Warehouse • Travel planning • Construction Project Administration
July 2003 Wave 3B	• Environmental Protection • Environmental Hearing Board • Labor and Industry • Liquor Control Board	• Budget execution • Accounting • Procurement • Workflow • Business Warehouse • Travel planning • Construction Project Administration • Travel Expenses (All Agencies)

Table 2. ERP Implementation Phases		
Date / Phase	**Agencies Involved**	**Functional Areas Affected**
January 2004 Wave 4	• All Wave 1 through Wave 3C Agencies	• Human Resources • Payroll • Time • ESS • Workflow
July 2004 Wave 3C	• Department of Transportation	• Budget execution • Accounting • Procurement • Workflow • Business Warehouse • Travel planning • Travel Expense Reporting • Construction Project Administration

Where It is Now

Today, the IES conducts regular internal system performance evaluation by collecting daily performance data and analyzing it monthly. Table 3 is a snapshot for IES system performance for the month of February 2006 for transactions per month, system availability, and support groups. As Table 3 depicts, in February 2006, the IES system processed nearly 1.9 million transactions. Moreover, the system was available 99.9 percent of the time and had 53 state government agency members and over 55,000 users.

Table 3. Integrated Enterprise System (IES) Performance Statistics[13]	
Transactions	**Total Number**
Electronic paychecks processed	192,000
Travel expense voucher processed	25,000
Human resources actions processed	206,000
ESS leave transactions processed[14]	171,074
Financial documents processed	1,300,000
Budget documents processed	1,666
Procurement documents processed	143,000
Business reports processed	25,000
Total Transactions	***1,892,666***
System Availability	**Measure**
Online availability to the user	99.9%
Request to response time for real-time transactions	< 1 second
Support Groups	**Total Number**
Business owners (Budget, Finance, Payroll, Travel, Procurement, and Human Resources)	6
PA state government agencies	53[15]
Business users	21,900
Employee Self-Service (ESS) users	53,454

[13] For the month of February 2006.
[14] **B**ased a simple average of ESS leave transactions from July 1, 2005 through June 30, 2006.
[15] 49 out of 53 agencies are under the Governor's jurisdiction.

Table 4. Financial and Non-Financial Returns	
Secondary Performance Gains	**Value**
Electronic paycheck distribution via IES rather than by mail	$500,000 annual savings
Improved efficiencies in operations and personnel management	$1.2 million return to PA
IES generated 2005 income tax forms – produced and distributed faster than in previous years	Potential increased employee satisfaction
IES payroll support was extended to support the Health Care Cost Containment Council	Leveraging existing infrastructure to other agencies

As illustrated in Tables 3 and 4, during its first three years as an operational enterprise program, IES focused on the ERP's reliability and security as a government-wide infrastructure for core administrative functions. The Commonwealth employs a distributed approach to measuring Public ROI. The ERP itself delivers measurable public return in terms of transactions and cost savings related to internal government operations. According to Andy McIntyre, Chief, IES Policy, Standards, and Strategic Planning, "The business owners are responsible for their business measures, and Bureau of the IES are responsible for measuring the technological delivery of services."

Two primary measures are paramount for the Bureau of IES, according to McIntyre. "First, the availability of the system to the end user . . . the person who actually does work in the field, because it's their system. Second, the availability of the Business Warehouse, to the end user." The Business Warehouse is a repository of management summary level data created from transactions in the IES. It is used by government managers to develop management reports and to help make informed and timely decisions.

In the initial years of the operational ERP system, this approach enabled the business owners and system users throughout the Commonwealth to build trust in the system with its new standards for conducting the core administrative functions of government. The ultimate success of the system and its ability to enable improved public value in the form of better government operations depended on the ability and willingness of Commonwealth employees to use the system and learn how its functionality can help them do their jobs better.

While the Commonwealth has been successful in both implementing the enterprise infrastructure and providing business owners and users with a consistently reliable and secure system, steps have also been taken to expand the enterprise approach. Beginning with Governor Rendell's December 2005 *Executive Order* to create an Enterprise Information Technology Governance Board, the Commonwealth is now systematically expanding its existing technical infrastructure and implementing new enterprise institutional structures, standards, and policies to better identify and measure additional public returns on IT investments as they enable Commonwealth priorities and strategies to improve government operations and services to citizens. [16]

> The purpose of the Enterprise Information Technology Board is to:
> *. . . establish an Enterprise Governance Structure to oversee the investment and performance of information solutions across the Commonwealth's agencies and to advise and counsel the Governor on the development, operation, and management of the Commonwealth's IT investments, resources and systems.*

The composition of the board includes the following senior Commonwealth leaders:

- Secretary of Administration;
- Secretary of Budget;
- Secretary of General Services;
- Governor's Chief of Staff;
- Deputy Secretary for Information Technology, who will serve as the Commonwealth's CIO.

[16] To view full text of Executive Order see http://www.oa.state.pa.us/oac/cwp/view.asp?A=351&Q=185706.

Of note, this same board membership that comprised the core senior leadership led the development of the IES program and successfully implementation of the Commonwealth's government infrastructure.

In addition to the Enterprise Information Technology Governance Board, the Executive Order created a process of cross-agency prioritization of information technology projects in the form of Communities of Practice (CoP).[17] The purpose of the CoP planning process is to determine if agencies that share program and policy objectives, serve common populations, or have compatible data collection and management needs can be supported by either leveraging existing technical infrastructure or `a single solution that meets the majority of the agencies' needs. [18] For example, the Pennsylvania State Police, Office of Homeland Security, and Department of Corrections are part of the Public Safety CoP. An enterprise perspective in for this CoP will assess whether existing infrastructure could be leveraged to meet the needs of these agencies or whether a single solution in the market could meet, for example, 90% of the needs of these three organizations.

In terms of leveraging the existing government infrastructure provided by the IES program, the Commonwealth currently is undertaking two additional projects:

- A Plant Maintenance module to support the management and maintenance of PA roads, bridges, and associated supporting vehicles.[19]
- A Supplier Relationship Management module to support improving statewide sourcing and purchasing processes.[20]

Both of these projects leverage the existing government infrastructure to support Governor Rendell's priorities for improving the efficiency and effectiveness of government operations.[21]

As highlighted earlier in this report, the current Administration's focus is less on the technology and more on the results that it and other strategies can deliver. According to Chris Dwyer, Special Assistant to the Secretary of the Budget, "When the Governor pledges that by the end of this calendar year we will have saved a billion dollars, it's not about the technology per se but about the specific money we saved. This is how he communicates to the legislature and public. Some of these strategies for saving money might have been enabled by technology but it's not the technology per se."

For the Bureau of IES and the Office for Information Technology, the current Administration's approach presents both challenge and opportunity. The challenge is that, like all other government agencies and programs under the Governor's jurisdiction, the IES program is expected to deliver continuing cost savings and efficiencies. However, the opportunities to do so are numerous. The current Administration is clear in its priorities for transforming the Commonwealth into a more effective and efficient provider of services to citizens. These priorities, along with the new enterprise IT governance structure, now give the Commonwealth the opportunity to leverage the existing infrastructure provided by IES to enable existing and future government strategies to bring about the necessary changes to further realize the Administration's goals by moving beyond infrastructure and back-office administrative processes to customer-facing service programs.

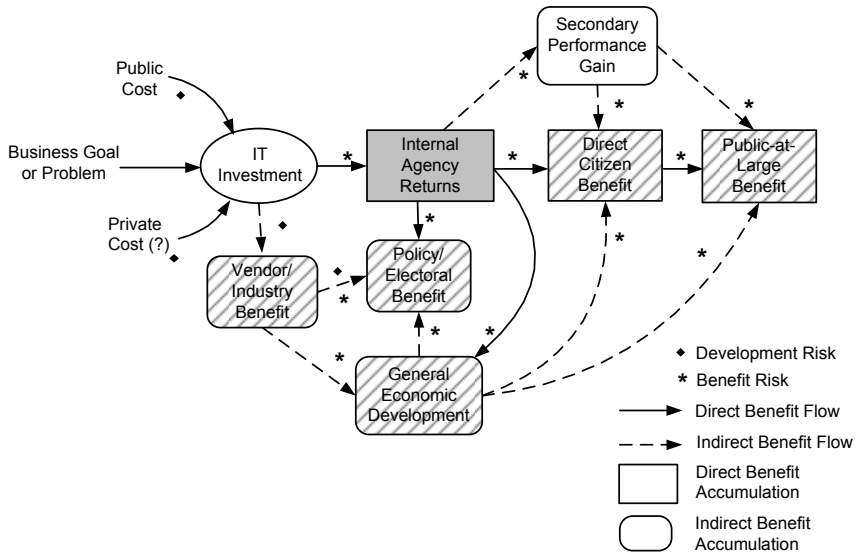
---

[17] See Section 5 of Executive Order 2004-8 Amended at http://www.oa.state.pa.us/oac/cwp/view.asp?A=351&Q=185706.
[18] Current Communities of Practice: (1) health and human service, (2) public safety, (3) environment, and (4) general government operations. For more information on the Communities of Practice approach see the *Keystone Technology Plan: An Information Blueprint for the Commonwealth of Pennsylvania* at http://www.oit.state.pa.us/oaoit/cwp/view.asp?Q=185825&A=182&oaoitNav=|.
[19] For more information on the Plant Maintenance project see http://www.ies.state.pa.us/plantmaintenance/site/default.asp.
[20] For more information on the Supplier Relationship Management project see http://www.ies.state.pa.us/srm/site/default.asp?srmNav=|&imaginepaNav=|.
[21] For more information on Governor Rendell's strategic sourcing initiative see Governor Rendell's Agenda at http://www.governor.state.pa.us/governor/cwp/view.asp?a=1113&q=438224. For more information on the priority Governor Rendell's has given to more efficient and effective use of existing government resources such as state vehicles see Governor Rendell's 2005-2006 Executive Budget Address at http://www.governor.state.pa.us/governor/cwp/view.asp?a=1101&q=440156.

Public ROI Perspectives

The Bureau of IES, which manages the IES program, is not a traditional government agency but rather an enterprise institution supporting other agencies. As a consequence, there exists no internal agency return such as one would find in an agency like a department of transportation or a ministry of finance. The public returns from this investment currently are focused instead on government operations in the form of secondary performance gains to the Commonwealth agencies that use the IES. However, the potential exists to extend the returns beyond improved government operations to include both direct political and social benefits, as well as potential and indirect effects. The shading in Figure 6 below (modified from Figure 11 in the introduction) represents these existing and potential returns, indicating where there is evidence for direct and documented returns (unshaded sections) and for indirect or potential returns (hatched sections).

The IES statistics and financial and non-financial returns included in Tables 3 and 4 above represent secondary performance gains in the form of continuing savings of direct expenses and enhanced efficiency in those agencies or agency departments responsible for the core administrative functions of Budget, Finance, Human Resource, Travel, and Procurement functions.



Index:
Hatched = Indirect or potential returns
Unshaded = Direct and documented returns
Shaded = Not applicable or lack of foreseen indirect or potential returns at this time

Figure 6. Types of Documented and Potential Returns

Potential returns are linked to the Commonwealth's ability to leverage the existing government infrastructure to support other political, policy, management, and even technology strategies and investments for improved government operations beyond core administrative functions to other core business needs. Examples of areas where additional public returns could be identified and measured include the current IES Plant Maintenance and SRM projects and their impacts on Commonwealth efforts to bring additional efficiencies and improved services beyond administrative overhead to areas such as public transportation. Moreover, the potential to link the SRM project to other public returns such as general economic development or direct citizen returns is a logical next step in the evolution of the IES. For example, as highlighted in Governor Rendell's strategic sourcing initiative, expected savings of at least $100 million each year from "buying smarter" can go to early-childhood education, economic

development, and health and human services.[22] The IES infrastructure and its SRM component clearly represent one strategy to enable such public returns.

Implications for Public ROI Assessment

Our approach to public ROI assessment looks at two main ways by which IT investments return value to the public: by improving the value of the government itself from the perspective of the citizens, and by delivering benefits directly to persons, groups, or the public at large. This case shows an investment that has generated and documented substantial public value in the first sense, but is only beginning to do so in the second, at least at the present time. This particular IT investment has clearly increased the intrinsic value of the Commonwealth from the point of view of the public. As a result of the investment, government is much more capable in financial management, in making wise use of resources, and in providing information for financial transparency and accountability. While difficult to quantify, these returns are meaningful and form an important part of the overall value proposition. In a sense, government can be thought of as a tool that societies invent and fashion to create value in terms of services and other cultural and political activities. An investment that improves the "tool" in some significant way can be said to return value, even if the direct connection to a return at the level of the individual citizen cannot be specified or measured. Since the investment in this case is so substantial and the returns so diffused throughout the government, more attention to recognizing and describing these returns seems appropriate.

Beyond the financial metrics for efficiency and savings that are readily available in this case, it would be useful to consider how the increment in this "asset" value of the government can be described. The question rests in part on how to describe what the overall asset value of a government could be. The price of government services (i.e., taxes and fees) does not provide much guidance, since much of the services one "purchases" in this way are not priced via a market and are public goods in the economic sense. If the Commonwealth reduced taxes each year by the exact amount saved, the return to the public in money terms would be clear, but this is neither likely nor possible. The value of a "saving" that is subsequently applied to some alternative use is not a true cost reduction. A sufficiently sophisticated accounting system could identify the added value or savings from the "infrastructure" value of the ERP in supporting improved services in various government areas, but that sort of data is not available in this case. Moreover, the necessary baseline data on service costs and quality were not collected at the beginning of the project, so it is not possible to measure change in these factors.

Alternatively, citizen satisfaction surveys might reveal some insight into how these internal improvements are valued by citizens. This could yield estimates of value in qualitative terms, such as a rating of government performance or "excellence" on some arbitrary scale. Since the IES program has the capability to add value across the government, such a survey could elicit opinions about the performance of government across many programs and service types. As IES and the Communities of Practice develop and implement shared services, it might be possible to establish a cost and service quality baseline and then measure improvements after implementation. However, government agency actions are usually just one factor among many affecting these indicators, making the assessment quite problematic.

It is also quite expensive and conceptually difficult to assemble all the necessary data to assess an investment with such broad reach in government. It was not necessary for the government decision makers in this case to ask for or seek public value data to justify the initial investment. At this point in the development of the system, the internal efficiency case has been sufficient. Now that the ERP is part of the everyday fabric of government, justification of investments in further development may require more data. The Commonwealth's Enterprise Information Technology Governance Board and its Communities of Practice strategy represents a comprehensive and holistic approach to assessing future IT investments

[22] For more on the Governor's strategic sourcing initiative see http://www.governor.state.pa.us/governor/cwp/view.asp?a=1113&q=438224.

linking them to public returns on an enterprise level throughout the government. The existing ERP capability and the government infrastructure it provides is an important part of this new strategy. It would be useful, therefore, to have baseline data about service levels, quality indicators, costs, and public opinion data for areas of planned and claimed improvements. These would support the ongoing investment in this and other potentially valuable new IT tools.