An Analysis of the Imagine PA Public Sector ERP Project

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Abstract

For the past several decades, we have seen organizations on a global scale continue to streamline their business processes enabled by enterprise resource planning (ERP) systems. Despite the recent economic downturn, the public sector represents one of the largest potential areas for new ERP sales. In addition the scale of public sector ERP projects is potentially huge as evidenced by the projected $3B for the US Navy ERP implementation and the US Army ERP implementation that is expected to include over 135,000 end users. The huge scale of these projects reinforces the need for successful ERP implementation methodologies for the public sector. Several governmental agencies in the US, Germany, Australia, and Malaysia have reported that the integration of agencies and systems in the public sector can be quite different from the private sector, requiring the use of a different approach and model. However, these agencies only attempted to implement different parts of an ERP system, whereas the US commonwealth or state of Pennsylvania is one of the first to attempt the integration of almost all of its governmental agencies with a single ERP package on a large scale. The question remains if there is a need to use a different enterprise systems implementation approach and model for a large-scale integrated ERP system in the public sector as compared to the private sector. This paper first identifies various differences in ERP implementation methodologies deployed in the public and private sectors, and then focuses on the issues and success factors of one large-scale public sector ERP project. Finally, these issues and success factors are compared to private sector ERP implementations.

1. Introduction

Organizations have been focused on streamlining their business processes enabled by enterprise resource planning (ERP) systems for several decades. During this time, implementations of ERP systems in the private sector have flourished with almost 80% of the Fortune 500 firms having implemented some form of ERP system. Recently these firms have experienced a downward trend in the private sector for ERP implementation. Despite the recent downturn in the global economy, there has been a growing trend of new ERP implementations in the public sector around the world. As a result the public sector has emerged as a key initiative for the top ERP vendors and consulting partners alike, with some having established new divisions dedicated to the public sector. These vendors are primarily targeting three public sector government agencies including Federal, state, and local/ municipal (Makulowich, 1999).

A majority of the public sector implementations have been on a small-scale, focusing on a few ERP modules within a department or agency. These small-scale ERP implementations have been attempted in various governmental agencies in Australia, Germany, and the US (Chang et. al., 2001; Watson et. al, 2003; Boyer 2001). In 1998, the Queensland State Government in Australia integrated all of their financials successfully using SAP R/3. Several US states, counties, and cities have recently initiated or completed various portions of an ERP system, some including:

- State of Kansas – one of the first to attempt an ERP implementation in 1994 using PeopleSoft to integrate human resources, payroll, and benefits.
- City of Phoenix – integrated financial systems with web applications in 1998.
- County of Sacramento, California – integrated some financials and payroll functions in 1998.
- Multnomah County, Oregon – integrated financial and payroll functions in 1998 (Boyer, 2001).
- State of Arkansas is currently spending $30 million to integrate some of their financial and human resource functions with SAP R/3 (Watson, et al. 2003).

- Several counties in the state of Florida are currently integrating various functions with SAP R/3.

The common factor with these ERP implementations is that these agencies only attempted to implement different parts of an ERP system. Only recently have there been attempts to integrate several agencies of one public sector organization into one single ERP package. The scale of these public sector projects can be immense as evidenced by the projected $3B that the US Navy will soon spend on its ERP implementation and the US Army ERP implementation that is expected to include over 135,000 end users (Process World 2003 presentation). Several other US states such as Delaware, Ohio, and North Carolina are seriously looking at implementing an integrated ERP system. The commonwealth of Pennsylvania is one of the first to attempt the integration of almost all of its governmental agencies with a single ERP package on a large scale with a budget of $250M.

Several government agencies implementing small-scale ERP projects, such as in the US, Germany, Australia, and Malaysia, have reported that the integration of agencies and systems in the public sector can be quite different from the private sector, requiring the use of a different approach and model. The question remains if there is a need to use a different enterprise systems implementation approach and model for a large scale integrated ERP system in the public sector as compared to the private sector. The focus of this paper is to first identify various differences in ERP implementation methodologies deployed in the public and private sectors, and then discuss the issues and success factors of the ImaginePA[1] ERP project as they compare to private sector ERP implementations.

2. A Typical Approach to an ERP Implementation

ERP implementations have been well established in the private sector over the past decade, as a result there is an agreement that ERP benefits are maximized when a tight coupling is established between the implementation approach and project threads or business-wide performance measures (Al-Mashari et al., 2003; Mohan, 2003). A generalized structured implementation methodology that combines these approaches is illustrated in Figure 1.

While there are many ERP development life cycles practiced today, there is a general agreement on the typical phases of this life cycle for ERP implementations (O'Leary, 2000). Several studies of private sector ERP implementations have agreed that ERP implementation success increases when the implementation approach includes "threads" designed to address implementation challenges and leverage ERP success factors. Some of the common ERP Implementation challenges include resistance to change, inadequate sponsorship, unrealistic expectations, poor project management, and no change management program (Mohan, 2003). Common ERP Implementation success factors include methods of addressing the challenges such as managing change, developing training strategies, developing a project management plan, obtaining senior management support and involvement throughout the project, and the development of a clear definition of your business processes and requirements (Mohan, 2003; Al-Mashari et. al., 2003; Mabert et. al., 2003).

Therefore, ERP implementation success is improved when the life cycle phases are combined with project "threads". These threads which are interwoven into all phases of the life cycle, include:

- Project management – All projects need management and coordination. An ERP implementation project is no exception. This thread focuses on the organization and management of the entire project including risk management, planning, monitoring, communication, budgeting, staffing, and quality assurance.
- People/ change management – The ability to manage change throughout an ERP implementation has been noted as being critical to success. This thread's purpose is to not only to ensure leadership commitment to the project and facilitate team dynamics but also develop organizational design and change readiness policies and procedures (Boyer, 2001; Chang et. al., 2001).
- Security and controls – Throughout the life cycle, this thread ensures the process integrity by developing security infrastructure that includes policies, procedures, application security, and audit control.
- Information technology – This thread involves the assessment, design, development, implementation, and testing the technical architecture.

[1] Imagine PA is the Project name for the US Commonwealth of Pennsylvania ERP system

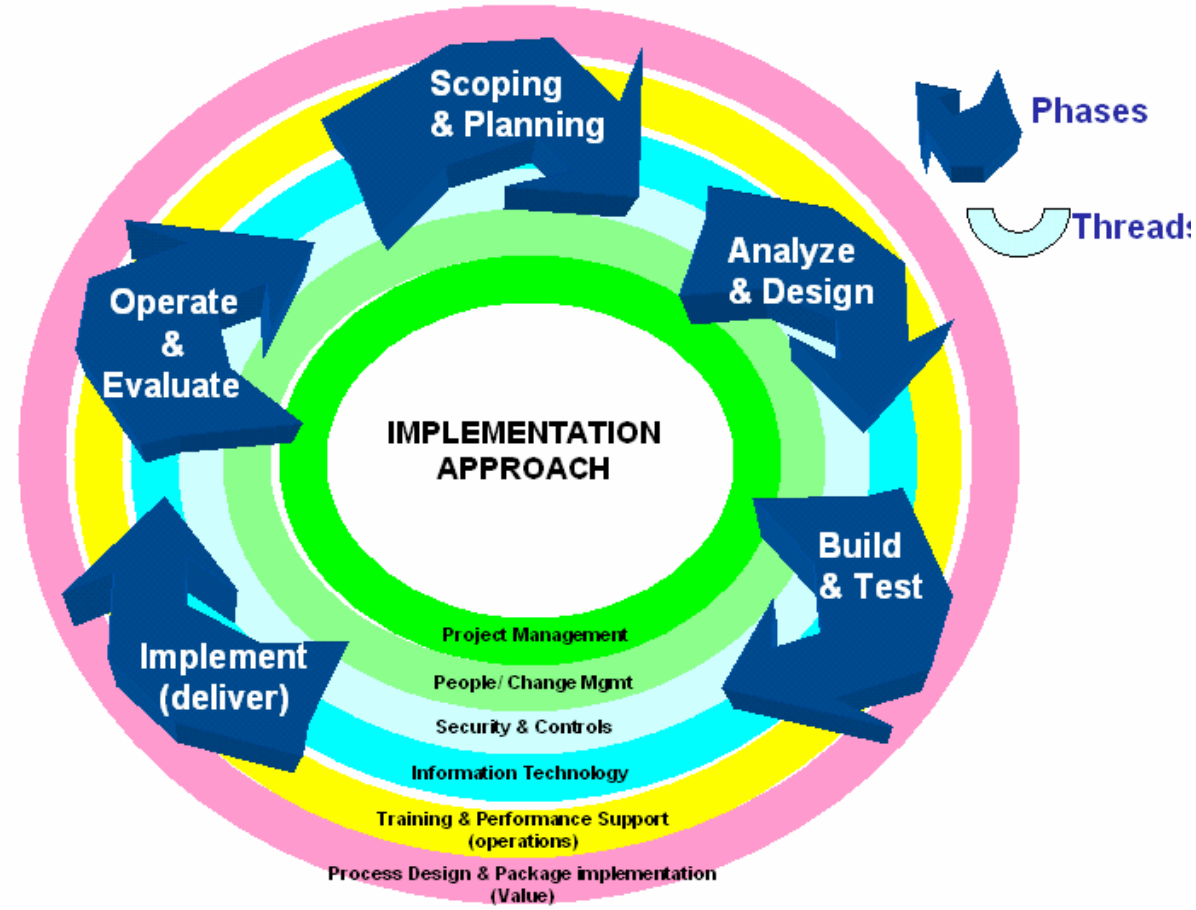

Figure 1: Generalized ERP Implementation Approach

- Training and performance support (operations) – The focus of this thread through the life cycle is internal and external needs assessment and support. This includes aligning the project with the business strategy, performing a gap analysis, developing overall testing and documentation procedures, process implementation and monitoring.
- Process design and package implementation (value) – This thread involves defining the ERP system from a business perspective in order to make a sound and attractive business case. The focus is on value by defining a scope and solution that leverage best practice performance for a return on investment.

Recognizing the experience of private sector ERP implementations, several government agencies utilized this experience with implementation partners (Watson et al. 2003). As a result the public sector has adopted much of the generalized private sector ERP implementation approach and tailored it to the public environment.

2.1. What are the differences between the Public and Private Sector?

When comparing ERP implementations between the public and private sectors, there are several areas indicated in the literature that appear to be different. First and foremost, the culture has been indicated as a major difference, primarily effecting the first phase of the general ERP implementation structure. The organizational structure of several governmental agencies such as the Navy, Army, and many US States tend to be more complex, consisting of many departments and divisions, each having their own manager, business rules, and processes. For example the Navy's NAVAIR ERP implementation project involves 4 units, each having their own admiral (Process World 2003 presentation). This complex political system and fragmented power system

intensifies the challenge in obtaining top management commitment (Watson et. al., 2003; Chang et. al., 2001). In addition, the political composition of many government agencies in the US can change frequently affecting the leadership and objectives of the project, creating a challenge for maintaining a large-scale ERP implementation focus and top management commitment (Watson et. al., 2003).

The organizational complexity also affects the ability to integrate the many departments and identify a process owner as opposed to a function owner. Significant process analysis is required in order to identify process owners, once identified educating the process owners and determining the proper role of enterprise process office in interacting with process owners and consultants can be difficult (Blick et. al., 2000). Project team dynamics also tend to be different from the private sector. Small project teams are preferred in the private sector where a typical business team supporting a single module would consist of 3-5 members (1-2 consultants and 2-3 managers from the business). The public sector project team composition tends to be quite different in order to accommodate representation from the many departments and divisions. The ERP implementation at Multnomah County, Oregon had a project team of 43 county employees and 17 employees from their implementation partner for a financial and payroll implementation of 1200 end users (Boyer, 2001).

Another cultural difference in the public sector organization structure, specifically in the US government agencies, is the requirement of the Program Office to define requirements and review proposals from industry before awarding the contract and handing the project over to industry to produce and deliver the product. There is no real private sector equivalent to a Program Office. Therefore the participation of this office in the ERP implementation process needs to be defined (or redefined) in the implementation (Blick et. al., 2000).

Another difference indicated from public sector project initiatives include funding source differences, indicating that government agencies have very complex budgeting and allocation processes (Makulowich, 1999). Most often revenue generation programs are used as a source of funding for the public sector. These funds are supplied from several sources such as donors, members or associates, and federal, state or municipal governments (Sjoquist and LeBel, 2002).

Overall Sjoquist and LeBel (2002) found that most public sector organizations on a worldwide scale share similar requirements, however each country tends to have unique differences. This creates a difficulty in defining "best business practices" for the public arena. However, the basic functionalities of public sector best practices are, for the most part, similar to the private sector practices. Typically the public sector needs to add extensions to meet their specific requirements (Blick et. Al., 2000). In addition, large-scale ERP implementations in the Public Sector tend to have a high level of organizational complexity combined with a large number of users across many ERP modules. For these reasons, it may be impossible to adopt the commercial processes (Blick et. al, 2000). Therefore, for large-scale public sector ERP implementations additional time is required during the analysis and design phase to focus on the gap between the commercial process and the required process. This gap analysis helps determine the level of changes preferred in an ERP Vendor's best practice. However, just as in several private sector implementations, some public sector projects, such as the Navy's NAVAIR, it is preferred to minimize these changes and extensions as much as possible, with a preference to exclude them completely (Blick et. al., 2000).

There appear to be several similarities between public and private ERP implementation phases after the analysis & design phase. In fact they appear to be the same from a purely technical perspective (Blick et. al., 2000). Based on these differences and similarities, a general comparison in the ERP implementation practices between the public and private sectors as expressed by several implementers of public sector ERP projects reveals that a public sector ERP implementation requires a significant increase in time dedicated to the initial phases of an ERP implementation project (Scoping & Planning; Analysis & Design), but that the core implementation (Build & Test; Implement; Operate & Evaluate) is similar to the private sector. An initial analysis of the Imagine PA study seems to support this.

3. US Commonwealth of Pennsylvania ERP Project

3.1. Case Background

The commonwealth or as it is more commonly known, state of Pennsylvania is one of the largest and most diverse state economies in the US, managing a $20.8B budget, with goods and services purchasing at $12B, managing 84,000 employees, a $3B payroll, and maintaining records for more than 150,000 vendors. The size of this governmental agency rivals those in the private sector. The main difference, until recently, was that the commonwealth was managed as 53 different agencies, boards and commissions. Supporting the operation of this diverse group of agencies were 16 data centers running a wide variety

of different information systems. As a result there were many inconsistencies in processes between the agencies, duplicated effort, inability to share information, unnecessary costs, and in 1999 they were faced with the pending Y2K compliance certification.

In 1999 the CIO of the US commonwealth of Pennsylvania, Charlie Gerhart, presented the concept of an ERP implementation to his 18-member CIO Advisory Council that had experiences in implementing ERP systems (one being the much publicized ERP project at Hershey Corporation located just down the interstate from the capital). After considerable debate, the CIO Advisory Council voted to approve the concept, and with Governor Ridge's approval, the Gartner Group was brought in to evaluate the feasibility with a result of validating the concept. Under the leadership of Governor Ridge, then Governor Schweiker, and now Governor Rendel, the Imagine PA project is the largest public sector ERP project date. The expected benefits of this project involve the improved services to all of Pennsylvania's constituents such as improved decision making by commonwealth government business managers, reduced costs and cycle times, increased employee satisfaction, and more effective use of resources, to name a few.

3.2. Imagine PA ERP Implementation

Prior to this project, the commonwealth of Pennsylvania had little business process and information technology integration between the 59 agencies. The commonwealth had a robust web site with some online form capability, but these applications were not linked into an integrated database. Initially instead of rushing an ERP project to ameliorate their Y2K problems, it was decided to patch the existing systems for Y2K compliance, allowing time to properly implement the ERP system.

Early in the planning stages of the implementation project, the Pennsylvania commonwealth leaders recognized that this initiative needed to be a business transformation project as opposed to a system replacement project, understanding that the technology is a tool to enable the business strategy. To this end, the employees were empowered to help re-design existing processes and make decisions about the "to-be" processes. It was also decided to leverage existing technology and use off-the-shelf ERP software minimizing the amount of customization. It was determined that almost 80% of the commonwealth's needs would be met by SAP R/3 best business practices. After the evaluation of their core processes, and the effort by SAP to streamline their "best practices" as a starting point in the reengineering process, the commonwealth discovered that almost 90% of what they did was related to procurement of goods and services. In addition, after much discussion among the process owners of various agencies, the commonwealth adopted 92%of SAP's suggested best practices.

The State and it's partners, the CIO advisory Council and the Gartner Group, completed the first ERP implementation phase, scoping and planning. During this phase a Steering Committee was formed from leaders of the largest participating agencies. These representatives underwent two weeks of intensive SAP R/3 training. After this, the scope of the Imagine PA project was determined to encompass the following areas; Accounting, Budgeting, Payroll, Human Resources, and Procurement. In addition all agencies agreed to participate in the ERP implementation project except the Auditor's General office and the commonwealth legislature itself.

The commonwealth of Pennsylvania also recognized the importance of an implementation partner to the ERP implementation success; as a result BearingPoint[2] was determined to have the expertise for such a large scale, public sector ERP implementation. BearingPoint assigned over 250 full-time staff to this project. The remaining ERP implementation phases used by BearingPoint were as follows:

- Analysis and Design:
  - Develop a project blueprint, establishing basic requirements
  - Gain input from agency representatives through 120 workshops for 1200 users (identification of process owners)
  - Document how the commonwealth's business processes currently work
- Build and Test
  - Redesign and streamline business processes - This was a type of gap analysis where the scope of the Imagine PA project includes the changing of over 150 SAP business processes in the various SAP modules.
  - Test the system to ensure integrated functionality
- Implement the software in phases
- Manage change

Overall the project was planned to take 33 months to complete and was broken into six distinct phases or waves (see Figure 2).

[2] BearingPoint is an IT consulting company formerly known as KPMG Consulting.

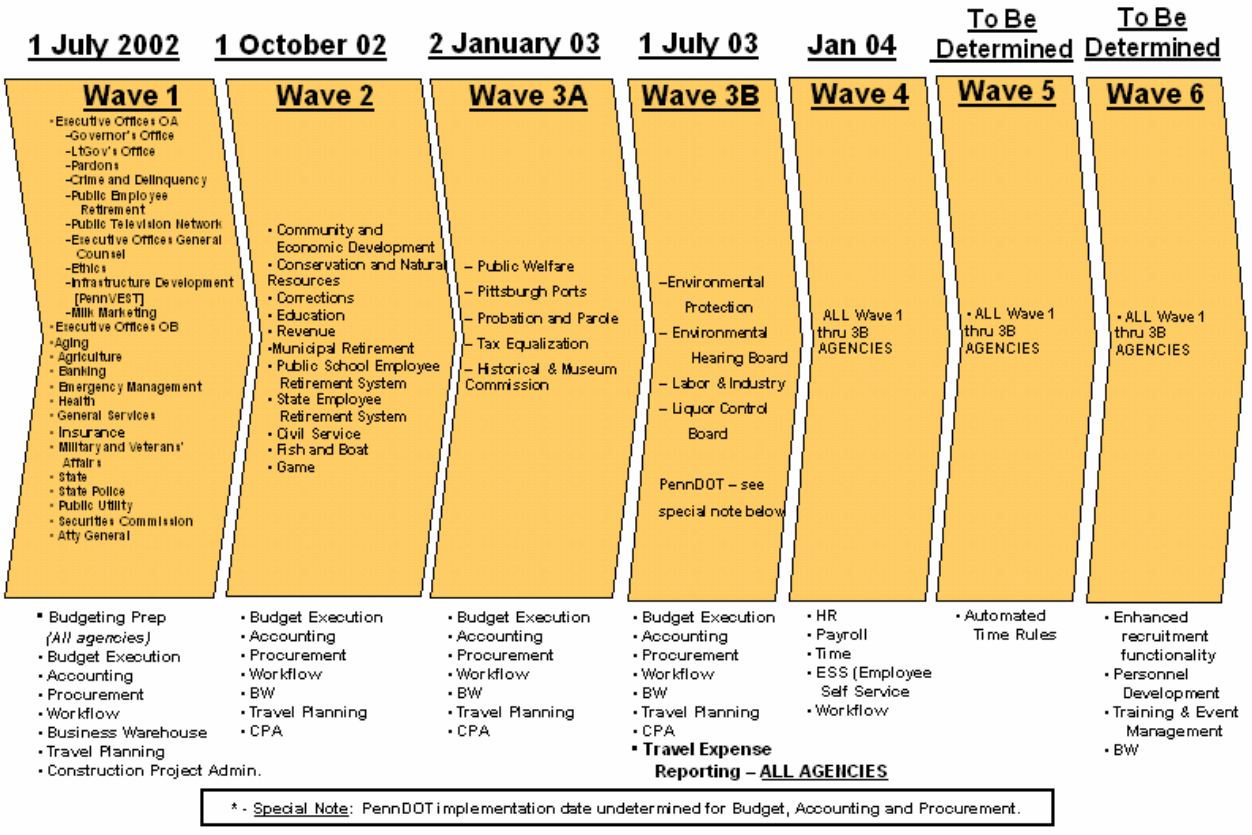

Figure 2: Imagine PA Project Timeline

The commonwealth of Pennsylvania included some important "threads" throughout their implementation process. The importance of training end users and how ERP knowledge would be transferred from the consultants to the commonwealth was identified and as a result parallel projects teams were developed at all agency levels.

As of July 2003, three waves of the Imagine PA project have been completed. Over 90% of the processes were redesigned and approved by the steering committee. In a "train-the-trainer" strategy, more than 100 commonwealth employees from 45 commonwealth agencies had been trained in workshops and began training the more than 16,000 commonwealth employee end-users. In this time 52 commonwealth agencies went live on procurement, budgeting, workflow and travel planning functions. Currently the project is on schedule and on budget.

The commonwealth has already begun to see some of the benefits of this project. Normally in July, the commonwealth has a two-week "black out" period when all agencies are supposed to close the books for the fiscal year. In 2003, the black out period ended four days earlier than normal. The procurement life cycle has been integrated with the accounting and budgeting processes, though it is doubtful whether the commonwealth will be able to take full advantage of its purchasing power because of built-in procurement regulations. Payroll processing costs have been reduced and personnel data is now available for decision-making and analysis.

The success of this project with the combined factor that 92% of SAP's best practices were deployed indicates that the processes of public sector agencies may not be as different from the private sector as previously indicated in the literature. Also contrary to the literature, this project was able to effectively motivate its employees to participate in the changes required of a successful ERP project. This may be due to the fact that change management was threaded throughout the ERP implementation life cycle. Overall, the ERP implementation method used in the Imagine PA project was very similar to general ERP implementations in the private sector.

Some of the key differences surrounded the nature of the public sector organization as opposed to the private sector. One very crucial thing is that the public sector does not have the same notion of a "customer" that they have to compete with other organizations to attract. So they have to work more to

instill a culture of customer service. Conversely, they are not rewarded for attracting more customers, as they might be in the private sector, so there may be a different incentive system for them. Secondly, the 59 different agencies within the commonwealth often have very little in common. They may have totally separate leadership and financial structures such as the Dept. of Transportation and the Dept of Corrections. The nature of the political cycle and changes in funding also required that the project had very strong top-level support from the governor.

With respect to technology, the technology used is not different but the public sector is somewhat different in that it doesn't have much experience with enterprise wide applications. The only enterprise wide technology initiative prior to the ERP project was the effort to make sure everyone had a standard desktop. This meant that they had to have an unusually high dependence on outside consultants in the planning and implementation phases. They also had to go to extreme lengths to get user buy-in by having a very public "bake-off" between the ERP vendors and the subsequent vote. User confidence in the system was maintained throughout by having specially trained end users function as SWAT teams within their respective agencies. Being selected to be a member of one of these teams became a special honor among the commonwealth workers. This was important because the skill level of some of the users was very low and some of them had not used web browsers yet, so this posed some problems for them to use any of the "self-service" applications via a portal interface.

The very real concern that there was an appropriate knowledge transfer between the consultants and the commonwealth IT specialists meant that they had to take the somewhat unusual step of creating parallel teams for all parts of the implementation; one from the consulting side and the other from the commonwealth.

On the process side, it was somewhat surprising to see that many of the processes in the public sector could be modeled using the "best practices" supplied by the ERP vendor. This is because 90% of the commonwealth's processes involve procurement, and the rules governing the commonwealth's procurement practices had recently been loosened. Some of the public sector accounting required special fund management techniques, but there was already some expertise in this area for ERP implementations. Some of the potential impact of the labor unions on the redesign of the commonwealth's core processes was blunted by the promise that the ERP project would not be used as a vehicle for personnel layoffs. During the implementation process there was also some problem with SAP's organizational elements that forced users to model all storage facilities using the concept of the "plant".

4. Conclusion

Pubic sector ERP implementations have been slow to enter the market for various reasons. Recently there has been a surge in ERP project initiatives on a worldwide scale. Experience with ERP implementations in the public sector is relatively limited compared to the private sector. Generally the public sector has adopted much of the private sector ERP implementation experiences and tailored it to the public environment. According to Blick et. al., 2000, the ERP implementation approach must be different for the public sector to accommodate regulatory and cultural differences, however to what extent? The question remains if these private sector ERP implementation methods are appropriate for large-scale public sector ERP implementations.

Although we found that much of the private sector ERP implementation methodology was similar to public sector ERP implementations for the Commonwealth of Pennsylvania, we also found that the best practices are also very similar with some organizational differences. This suggests that there is a further need for additional analysis and studies of possible differences between public and private sector ERP implementations in order to determine if the ERP implementation structure utilized in the private sector for large-scale ERP projects is appropriate for the public sector. Just as in the private sector, one measure of the success of this ERP implementation will be how much the commonwealth can leverage their newly integrated processes and improve the quality of public sector decision-making and also build more effective e-Government applications off of it.

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