5-2011

Human Resource Informtion Systems: The Challenges of Conversion

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HUMAN RESOURCE INFORMATION SYSTEMS: THE CHALLENGES OF CONVERSION

by

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B.S. Southern Illinois University, 2009
B.S. Southern Illinois University, 2005

A Research Paper
Submitted in Partial Fulfillment of the Requirements for the
Master of Public Administration

Department of Political Science
in the Graduate School
Southern Illinois University Carbondale
May 2011

RESEARCH PAPER APPROVAL

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Southern Illinois University Carbondale
12 April 2011

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CHAPTER 1

INTRODUCTION

Over the past several decades, an increasing number of human resource managers in the public sector realized that, for a variety of reasons, they needed to upgrade their information system. Once they chose to follow the path of IS conversion, they became aware of many of the same challenges that others have faced in similar circumstances. Some managers began to realize that their projects began to spiral out of control into the realm of failure sometimes without their understanding the reasons why, in turn wasting vast sums of taxpayer dollars in the process.

The public sector has had to take a step forward in recent decades from the older and usually slower legacy systems that they relied on for previous decades to systems that were promoted as more efficient and definitely more complex. A vast array of knowledge, tools, and options has become available to managers that are progressing through what is usually a long and uncertain conversion process.

Despite the wealth of knowledge provided by researchers and those who have already taken on the task of systems upgrades, IS projects still tend to fail. There are different types and reasons for a project to fail which has prompted many researchers to identify the causes and even to develop IS models for success to assist others in their projects (DeLone & McLean , 1992). Human resource managers of the public sector have the most to gain from closely examining outcomes of past projects since research suggests that only 18

percent of information systems projects ended successfully (when compared to private sector segments retail:59%, financial: 32%, and manufacturing: 27%) (Goldfinch, 2007).

This paper will begin by addressing what the specific challenges of IS conversions with examples of certain issues that affected agencies in the past. Challenges faced by the public sector are presented along with a few solutions. The paper will then move on to the types and causes for some of the documented information systems conversion failures. Failure types such as abandonment, enthusiasm, and the troubles associated with outsourcing are discussed with figures for emphasis. Finally, the paper will end with a look at some methods for averting a project failure and, instead, end with success. Each section will conclude with a discussion that will offer advice for the public sector human resource manager considering a conversion to their information system.

CHAPTER 2

PAST CHALLENGES

Challenges to Human Resource Management

Since the 1990's many public sector managers have begun to address the daunting issue of upgrading their legacy human resource information systems to more modern and efficient architectures (Arnold, 2007). An example of a public sector agency engaging in such a monumental task is the Arizona Department of Administration's system upgrade. The payroll component of their system alone stored the records for nearly 45,000 state employees in addition to 35,000 employee and benefit records for retirees and state university system employees (Arnold, 2007). The prospect of upgrading and the challenges included in the process can certainly be quite intimidating across the spectrum from small to large organizations. However, by researching what others have experienced along the way and by thoroughly examining one's own unique environment, the challenges can be overcome successfully (Arnold, 2007).

Governments attempting to develop their own human resource information systems have used many approaches. Some of the approaches included spreadsheet/ database systems, homemade systems, and special "standalone" applications. The first approach consisting of spreadsheet or database systems are often used because of human resource managers not being satisfied with some aspect of a financial management system. The dissatisfaction arises because the system might be too limited in accommodating any other needs

users may have. This solution may work for the HR department but may not be accessible to other departments (Ashbaugh & Miranda, 2002).

The second approach refers to homemade systems built by larger government agencies for things such as payroll. Homemade systems are those that are built by in-house employees to solve an immediate need (Ashbaugh & Miranda, 2002) However, once built, these systems lack scalability, or the ability to modify or add on to them in order to adapt to new demands. Such systems also run into problems with not being able to meet changes in regulations, professional standards, or organizational restructuring (Ashbaugh & Miranda, 2002).

The third approach by governments to address their human resource management requirements was to use specialized “standalone” applications. Numerous software applications were designed for specific needs such as applicant tracking, compensation/benefits planning, and risk management. These applications are typically cheaper than the homemade systems. However, they tend to increase the problems associated with data redundancy (Ashbaugh & Miranda, 2002). Data redundancy is simply the replication of the same data across either the same system or several systems. Data redundancy increases the chances of data errors since there are several different copies of the original data that may not be updated consistently (Ashbaugh et al. 2002).

The core problem with the previous government solutions are that they rarely connected the rest of the agency’s departments or were not compatible with other systems. In addition, in many cases, different software vendors had

to be used to create software for “financial” applications such as accounting, budgeting, and purchasing while a completely different software package was needed for the Human Resource Information System’s needs such as benefits administration and payroll (Ashbaugh & Miranda, 2002).

The need for many different types of software programs in an organization lead to a few complications. First, software packages tend to get larger and more complex as the years go by and tend to take up vast amounts of space on computers, whether it is a personal computer or a central server. Next is the problem of needing more storage to store software, which can get very expensive rather quickly. Finally, with data having to be copied for the many different software applications scattered around an organization one can develop a problem with data redudancy and data errors. One proven way of eliminating most of the challenges listed above is to use Enterprise Resource Planning (ERP) (Ashbaugh & Miranda, 2002).

To Replace or Not to Replace

Many smaller government agencies may question the need for something as large and encompassing as an Enterprise Resource Planning system. However, once the dust settles, agencies that have already implemented an HRIS often realize significant advantages over an older system. Studies conducted indicated that the road to a successful HRIS implementation is often rocky and treacherous at best (McNurnin & Sprague, 2006). Boston Consulting Group (BCG) studied the issue in twenty-one manufacturing companies, service

firms, and government organizations in North America, Europe, and Japan. The consulting firm noted that of the 21 projects they compared, only twelve were successful in that they worked and had a bottom line impact. The study's other nine projects were either labeled unsuccessful or did not deliver the desired results (McNurnin & Sprague, 2006).

When considering to replace an existing system, Boston Consulting Group recommended performing three analyses. First, they recommend conducting a rigorous analysis to determine costs and benefits of a new system (McNurnin & Sprague, 2006). Apparently most companies end up grossly underestimating the cost of replacing a system and overestimating the attainable value. Many organizations also fail to factor failure as a risk. The second recommended analysis is to determine how specialized the new system will be. Companies often think that they need a made to order system when all they really need is a purchased solution. In most cases, their requirements are not as unique as they would believe. Finally, the third analysis should focus on honestly assessing the staff's capabilities (McNurnin et al.2006). Several companies in the study failed to develop a replacement system because management had overrated the staff's skills. Projects often fail because the processes involved in such a change prove to be beyond the capabilities of the people working on it.

Upgrading Options: Enterprise Resource Planning

The major goal of introducing ERP systems was to replace all of the various systems used in finance, manufacturing, and administration with a single

platform of interconnected modules that serve the previously listed functions (McNurnin & Sprague, 2006).

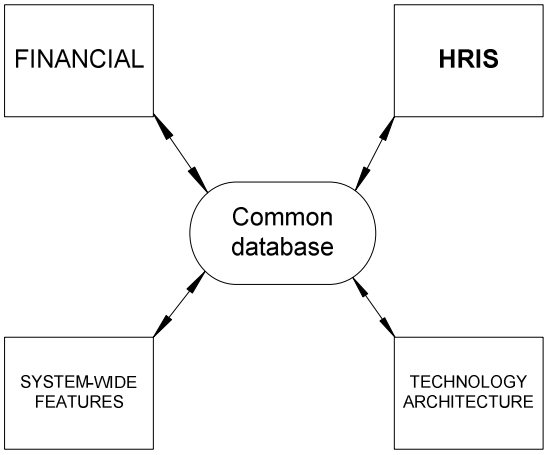

Figure 1. The ERP Concept (Ashbaugh p.10).

Table 1. ERP Component Breakdown (Ashbaugh p.10).

ERP Component	Applications
Financial	General Ledger, Accounts Payable, Accounts Receivable, Billing, Budget Preparation, fixed Assets/ Inventory, Grant Accounting
System-Wide Features	Development Tools, Security, Workflow, Internet/ Intranet, Reporting/ Querying, Drill down/ Audit trails, Document management
HRIS	Applicant Tracking, Benefits Administration, Employee Records, Payroll, Pension Administration, Risk Management, Time and Labor, Employee/ Manager Self-Service
Technology Architecture	Common Database (DBMS), Client/Server/ Web Enablement, Desktop Integration, Import/Export, Graphical User Interfaces, Data Warehouses/Business Portals

Figure 1 above illustrates how an HRIS becomes one of several integrated modules that connect a central or common database. Table 1 breaks down each of the ERP components by the applications that comprise it. By connecting the different functions into a central location, data redundancy becomes much easier to control and eliminate. Enterprise Resource Planning is a potential source for salvation for most organizations. The modularity allows managers not

just from human resources but from the entire organization to have access to the same data which is transformed into information to suit the user's needs. The typical common database at the center of an ERP usually contains some sort of database management system (dbms) that acts as a data scrubber as well as a means of storage (McNurnin et al., 2006). An example of data scrubbing would be to eliminate multiple versions of the same data record such as having multiple addresses for the same person or having one record for John Doe and Johnny Doe. Excess records are eliminated allowing for an increase in efficiency in the overall system (Rob & Coronel, 2007).

The ERP system is a great means for increasing an agency's overall operational efficiency. However, human resource managers should carefully figure the costs involved with implementing an ERP. The ERP itself consists of a software package that may easily cost in the millions (Burleson, 2001). A survey conducted by TechRepublic in 2001 illustrated that 79.4% of those responding paid less than $5 million for their ERP implementation, 10% paid $5-10 million, and 10.6% paid more than $10 million. It is critical for a manager to consider that they will not just be paying for the software package but should also allow for training costs as well. For example, if one pays $2 million for their ERP software, it would be wise to expect to pay an additional $6-8 million for consulting services to get the system operational (Burleson, 2001).

The benefits of installing an ERP in an organization, especially in government, are numerous because it allows the HR managers to have a higher degree of control over their assigned areas than they ever had before. With an

ERP, human resource managers can access important information regarding their department or any department from anywhere inside the building in which they work by way of an intranet, an Internet accessible only to employees of an organization. Extranets are another advantage gained by companies using an ERP. Extranets are a means for outside business clients of an organization to communicate securely with their designated contacts on the inside (McNurnin & Sprague, 2006).

Most importantly, such ERP systems would also reduce costs related to productivity losses caused by data errors. Since taxpayers are always monitoring how the government is using their money, it becomes most advantageous to have an Enterprise Resource Planning system to reduce overall costs and speed up the internal processes of their government.

Options: Using Analysts

For the reasons described above, it may not always be in the best interests of an HR manager to take on a project as vast as upgrading the HRMS by in-house personnel. To avoid missed completion dates and runaway budgets, managers may consider calling in the expertise of a consulting firm that specializes in starting, running, and implementing complex system projects. Several tools exist for assisting analysts in taking a system from being an idea to a fully functional HRIS.

The first tool used in either upgrading a system or creating an entirely new one would be the systems development life cycle (SDLC) (Hoffer, George, &

Valacich, 2006). The SDLC (figure 2) uses several phases to mark the progress of a systems design and analysis project. Typically, there are five phases (Planning, Analysis, Design, Implementation, and Maintenance) to the SDLC method however; it depends on the organization as to how many phases they may use.

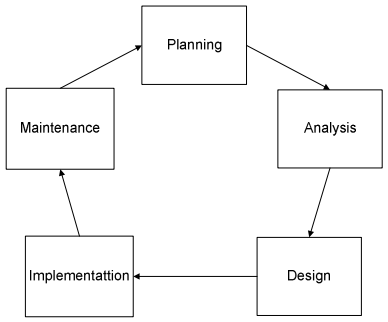

Figure 2. The Systems Development Life Cycle

In the planning phase, someone declares the need for a newer or upgraded system (Hoffer, George, & Valacich, 2006). In the analysis phase, the current system and procedures are thoroughly studied along with what the users of the system would want from a proposed system. At the end of the Analysis phase, the analysis team proposes an alternative solution to the initial problem, which is either accepted or rejected by those funding the project. During the design phase, the accepted recommendation is converted into both logical and physical system specifications. The logical specification consists of the system only existing on paper or in a computer as a blueprint. The physical specification comprises the hardware and software requirements needed to bring the system together in reality. Project implementation is the phase in which the consultants will bring everything together into a working system. The final phase is

maintenance, in which the documentation is provided along with the ongoing adjustment for better performance (Hoffer et al., 2006).

The SDLC functions as a backbone to project development and is often used in conjunction with other tools. In prototyping, analysts and users (HR personnel) get together and build a basic system and then rework it until they get it to a point at which the users are happy with it (Hoffer, George, & Valacich, 2006). Analysts will then use a type of Computer- Aided Software Engineering (CASE) tool, a type of software used for diagramming, storage, and report generating. Joint Application Design (JAD) consists of users, managers, and analysts coming together for a series of intensely structured meetings and run by a leader who maintains project discipline (Hoffer et al.2006). Project managers who decide to use JAD do so in order to better manage their time and resources more efficiently while also allowing the human resources personnel (the system users) to have a better understanding of their new system. Rapid Application Development (RAD) is a method that promises better and cheaper systems with a more rapid deployment by having the system developers and users work together jointly in real time to develop a system (Hoffer et al.,2006). These tools are just a few of the ones analysts may use to bring a project from concept to completion, and are described here to help reveal some of the benefits with using expert analysts to save a government agency large sums of time and money.

Implementation

Once the new system has been constructed, either by in-house means or through outside analysts, the final implementation phase reveals a final round of challenges for any governmental human resource manager. Upgrades, implementation, and training are all important issues that HRIS mangers must contend with ("One Organization's" S4). According to Roberts (2004), an organization might use either a phased rollout or a "big bang" (p.89) rollout, depending on the scope of the implementation and the experience of users that will be working with the new system (Roberts, 2004). "Both approaches work", says Bill Henry, vice president for strategy at PeopleSoft Inc., based in Pleasanton, CA. "The real issue is understanding the degree of change your organization can accept. The bigger the change, the more we recommend the phased approach" (p 89).

Case Study: United States Department of Agriculture

In the mid-1990s, the USDA initiated a reengineering project centered on its human resources, procurement, and financial managements utilizing the services of PeopleSoft (PeopleSoft 7). The use of PeopleSoft 7 eventually would trouble the project when the software company released a newer version (PeopleSoft 8) during the implementation of version 7. The HRIS specialists decided a phased rollout using eight phases would be best because the project was nationwide and because it would be easier to train smaller groups of HR users (Roberts, 2004).

During the rollout of PeopleSoft 7, the users were moving from old-fashioned green-screened terminals connected to a mainframe to desktop personal computers (PCs). Many users had never used a mouse before. To accommodate the unanticipated need for PC training found in the first phase of the rollout, the training team reacted by implementing PC basics training in the second and later phases (Roberts, 2004). The ability to fix unanticipated problems gradually is just one example of the benefits of the phased rollout.

A second major impact of the PeopleSoft, as discussed by Roberts (2004), was that it generated a large amount of resistance from users who began asking, "What's wrong with the old process?" (p 92). Here again is where the phased rollout was preferable: it allowed the first groups to like the new system, after they got used to it, they began to spread the word about their positive experience to people in the later groups with the effect of lessening resistance. The biggest drawback of the phased rollout in this circumstance was the need to have both the older and newer systems running at the same time, bogging down the HR staff when they had issues with employees and had to constantly alternate back and forth between the two systems to find that employee's information (Roberts, 2004).

In May 2002, the green light was given to the project manager to upgrade to PeopleSoft 8. There was a major change in architecture between the two versions. Version 7 was client-server (part of the application sits on a server and part sits on the user's desktop) while version 8 was web based (the entire application sits on a server and is accessed through a web browser and no

software is needed on the user's desktop). Even though there was a major change in the architecture between the two versions of PeopleSoft, there was less of a need for change management (training of personnel required for the new software version) for version 8 than version 7 (Roberts, 2004).

When it came time to rollout PeopleSoft 8, a "big bang" approach was used successfully because the users were already acclimated to using PCs. It was determined that the USDA's work community was ready for the change which convinced the training team that "big bang" was the preferable choice for the PeopleSoft 8 rollout. If the "big bang" had been used during the PeopleSoft 7 rollout there would have been groups of users nationwide all at the same time with issues pertaining to the lack of computer skills. Also, there would have been a longer and more pronounced period of user resistance.

Discussion

As illustrated in the case study above, there was clearly a need for government agencies to migrate from their older, decentralized human resource management system to a more modern human resource information system. Many challenges arose for managers considering going through with a modernization, such as knowing if they are ready to take on a large-scale and time-consuming project like a systems upgrade, how to integrate separate systems into one agency-wide system (enterprise system), and what tools they should use for their specific needs (analysts, CASE, and the SLDC). Human resource managers need to carefully consider the costs of some of the tools that

are available to them so that a tool does not turn into a budget disaster. The next section focuses on information system implementation failures and some of the reasons they fail.

CHAPTER 3

FAILURES OF INFORMATION SYSTEMS

Overview

The previous section of this paper discussed the challenges managers may face when they decide to start down the path of an information system upgrade and the tools that are available to assist them once they start down that path. Yet, despite all of the research and information that is available about the various aspects of information systems projects, there are many documented instances of project failures. A variety of factors may cause a project to fail in a variety of ways. Some of the factors for failure include: project abandonment, problems related to enthusiasm, and lack of creativity from management. Managers deciding to face the challenges of implementing a new information system in their agency need to be aware of why so many projects fail in order for them to avoid repeating some of the mistakes that others have made. This section focuses on naming some of the major reasons for project failure.

Measures of Failure

Research suggests that there are many ways one can measure an IS project's failure. Goldfinch (2007) states that a project can be considered a failure when it does one (or more) of the following: 1) The project's costs exceed the previously allocated funding resulting in it being over budget,; 2) The project falls behind the originally agreed upon time schedule,; 3) Upon completion, a

project is delivered with fewer functions than previously specified (p 919). In addition, a project's benefits may not offset the incurred costs of developing it leading it to be labeled as a failure (Goldfinch, 2007).

Public vs. Private Sector Failures

Public sector IS failures happen for mostly the same reasons as private sector projects do: going over budget, beyond time schedules, and lacking all features upon completion. However, public sector projects tend to fail more often because of some additional factors not found in the private sector. One factor the public sector has that the private does not is Max Weber's separation of policy makers from the administrators in the public bureaucracy (Berkley & Rouse, 2004). The policy makers are typically the elected politicians while administrators are the experienced professionals. This difference alone creates problems with public projects' budgets being monetarily constricted and inflexible to change. Public agencies are driven by their poor funding to seek out the cheapest deal they can which typically backfires for them (Bentham, 2007). Suppliers who sell their products for cheap prices tend to take advantage of the public agency later through numerous revisions. The added costs through revisions can push a project over budget (Bentham 2007).

Abandonment

Even though failure and information systems appear to go hand-in-hand, project abandonment is a facet of IS failure that is less widely known (Przasnyski

& Ewusi-Mensah, 1991). Abandonment occurs when management changes its direction, for a variety of reasons, and either temporarily or permanently halts a project under development. Abandonment may result from cost overruns, scope creep (the slow increase in project size and budget due to poor project management discipline), technology inadequacies; and behavioral, political, or organizational issues (Przasnyski & Ewusi-Mensah, 1991). A memorable point was made by Keider (1984) who said, "although some projects fail because of technology or design problems, [the main reasons] for project failure indicate a lack of understanding of project management." (p. 38).

Project abandonment itself does not necessarily mean complete and utter failure in each occurrence, however. Instead it can come in one of three forms related to severity (Przasnyski & Ewusi-Mensah, 1991). The first level is partial abandonment, which is when the original scope of a project is scaled back without incurring major alterations to the original specifications of the project. Substantial project abandonment is the next level, which occurs when there is a radical change in a project away from the original specifications. Total abandonment is the highest level of abandonment, resulting from the complete shutdown of all project activity before it is fully implemented (Przasnyski & Ewusi-Mensah, 1991).

Expectation failure is a cause of failure fueled by the perceptions of people involved in the project (Przasnyski & Ewusi-Mensah, 1991). Expectation failure is a perceived inability of a project to fulfill the expectations of the project's stakeholders. Stakeholders of an information systems project may include 1) any

management personnel who make decisions regarding the future of the agency and who have control of funding for the project,; 2) the information systems professionals who are responsible for the technical components of the project,; and 3) the end users who may or may not view a new project or system favorably. Any one of the three stakeholders may perceive there to be a problem with a new project and begin to steer that project toward failure (Przasnyski & Ewusi-Mensah, 1991).

Problems with Enthusiasm

The literature on the subject of information systems failures is riddled with horror stories (along with the corresponding data) that truly boggle the mind. Most information systems projects are eventually deemed unsuccessful, with the larger projects being more likely to result in failure (Goldfinch, 2007). Of course, the success of a project depends on how exactly it is measured: Generally, 20 to 30 percent of all developments are total failures that result in abandonment, 30 to 60 percent are partial failures, and only a few are considered successes (Goldfinch, 2007). An estimate of projects in the United States from 2001 indicated that size did matter according to which ones failed. Interestingly, Goldfinch (2007) stated that the success rate for projects under $750,000 had a success rate of 55 percent while those with budgets over $10 million had no reported successes (p.917)! Goldfinch (2007) also indicated that government information systems projects only had a success rate of 18 percent while the

retail, financial, and manufacturing sectors had success rates of 59 percent, 32 percent, and 27 percent respectively (p. 917).

Among the reasons for failures in public sector information systems is the misguided belief that the best course for an agency to pursue is one that involves the inclusion of the biggest system with the newest technology available at the time (Goldfinch, 2007). This apparently is not always in an agency's best interests, as the United Kingdom found out when they began an upgrade of its National Health Service at a cost of $11 billion, which was largest public sector project ever (as of 2002) (Goldfinch, 2007). Big, new, shiny systems that come with all the bells and whistles frequently get public agencies in over their heads ultimately leading to project failure.

Despite the history of failed information systems projects, more failures continue to occur. Goldfinch (2007) proposed an explanation of why public agencies continue to pursue ambitious projects by pointing out what he called the "four pathological enthusiasms" (p. 921). The first of Goldfinch's (2007) enthusiasms was *idolization*, or an infatuation with technology by public officials. Goldfinch recanted Heeks' and Davies' (1999) statement that public officials:

> "Use computers and are overaware (sic) of IT's potential. They believe that IT can transform the business of government. The public sector becomes awash with IT driven reform projects, which place technology at the heart of the change process" (p. 27).

Public officials have a history of letting the excitement of a proposed new system get the better of them.

The second type of enthusiasm that proves to be detrimental, according to Goldfinch (2007), is *technophilia* or the "myth of the technological fix" (p.921).

This enthusiasm propagates through the professionals in the information systems field, aka geeks, who are hooked on the premise that the answer to practical problems is to throw copious amounts of newer technology at it. Information technology professionals tend to be captivated by new technologies and the challenges they promise. The lure of new technology, acting almost like an opiate, can overcome their reason and allow them to paint themselves into a corner with a large, expensive, and complex system (Goldfinch, 2007).

Goldfinch's (2007) third and fourth enthusiasms are what he calls lomanism (a reference to a character in *Death of a Salesman*) and managerial faddism, respectively. Lomanism, as described by Goldfinch (2007), is the enthusiasm of the sales representative or company officials who promote their company's new products. The sellers have no choice but to hype-up their products or risk the purchaser going to the next seller. This results in the sellers projecting a sense of enthusiasm for their product that does have an effect on the purchasers being coerced into making the purchase (Goldfinch, 2007). The fourth enthusiasm covered by Goldfinch (2007) was managerial faddism, or:

> "The tendency of consultants and mangers to eagerly embrace the newest management fad, methodology, or uttering of the management guru of the moment."(p 921).

This enthusiasm is related to how management sees IS projects as a means to an end in improving management structures in their public agency environment. Public sector managers are locked, or trapped, in a state of competition with the private sector for newer technologies or risk appearing obsolete and resistant to change (p 922).

Failures Related to Outsourcing

Currently faced with harsh budget cuts, government agencies along with some small business owners must make hard decisions if and when they need to upgrade their information systems. Many small agencies simply do not have budgets that allowed them to have their own dedicated IT personnel to research or implement information systems and so they turn to outsourcing as a means for them to address their information system needs (Devos, Landeghem, & Deschoolmeester, 2008).

As stated before, there are many types of systems failures with a few being expectation failure and termination failure. (Devos, Landeghem, & Deschoolmeester, 2008). Expectation failure relates to failures of correspondence, process, and interaction that cause a project to fail to meet stakeholder's expectations. Termination failure occurs when stakeholders abandon a project altogether, or abandonment (Devos et al. 2008). A third type of failure discussed by Devos et al. (2008) is Outsourced IS Failure (OISF), which occurs when a project is a part of an outsourced environment. Failures contributed to outsourcing happen because of three interrelated factors: information asymmetry, goal differences, and risk behavior differences,(Devos et al. 2008).

When discussing problems with outsourcing, it helps to think of outsourcing as an exchange between two parties: a principal (the one seeking a service) and an agent (the provider of services) (Devos, Landeghem, & Deschoolmeester, 2008). The first of the outsourcing failures, information

asymmetry, occurs when the agent has information about the true quality of their product information system that they keep hidden from the principals, allowing the agent to gain the upper hand in negotiations. Information asymmetry leads to a principal not being given the opportunity to differentiate a good IS from a bad one. The goal differences between the parties (one party hiding information and the other searching for the best information to make the best purchase) comprise the second factor of outsourcing failure. Goal differences tend to be conflicts of interest that arise between a principal and an agent. The third type of outsourcing failure, risk behavior differences, is attributed to the frequently immeasurable outcomes of information system implementation which give rise to increased uncertainty. It is the principal who tends to become overconfident in their sense of certainty because they are not fully aware of the agent's intentions nor can they see what the end result will be until it is too late (Devos et al. 2008).

Overall, outsourcing appears to be a solution for many small organizations with small budgets that are in need of some service related to information systems. However, outsourcing itself has had its own causes of failure. Managers should make themselves fully aware of some of the challenges that may arise when considering the option of outsourcing.

Discussion

A project can fail for reasons such as abandonment, over-enthusiastic stakeholders, and issues related to outsourcing to name a few. According to studies conducted on the subject, the government has the worst record when it

comes to the number of successes among the studied sectors (Goldfinch, 2007). The size of the information systems projects appears to correlate to the risk of a given project's failure. Many stakeholders feel as though they need to get the latest and greatest in new technology when they really do not need to and this frequently leads to failure as well. The decisions of management are what move a project along from concept to creation and they need to make good decisions so that they may choose the best solutions to the challenges that have derailed so many others.

When considering taking on a project with the scope of an information systems conversion, there are a few key points managers should review. The first is that they should take a hard look at their knowledge of project management and assess their ability to maintain discipline over a project. This will help ensure that a project will not go over budget or run beyond completion times. Next, human resource managers should not give in to the enthusiasms of systems sellers nor their technical professionals. Technical enthusiasms may overinflate the need for a brand new information system. Finally, managers should be mindful of the intentions of outsourcing agents or risk being taken advantage of due to a lack of technical knowledge on the manger's part. The outsourcing agent's primary concern is to sell their product whether the manager know what they are doing or not.

CHAPTER 4

SUCCESSES

Overview

After discussing the challenges of upgrading human resource information systems and some of the reasons some of them fail, it would not do to conclude this paper without addressing what makes a successful system. Of course, no two systems are exactly the same, and failures always stand out when doing research on the subject more than the successes. The research on the subject of information systems success reveals that defining what constitutes a success can be just as ambiguous, or even more so, than a failure. The research also takes a more optimistic turn by suggesting that just because a project runs into trouble does not mean that it will fail. To the contrary, success may yet be achieved.

The DeLone and McLean IS Success Model

When doing research on HRIS successes, two names always seem to find mention: Drs. William H. DeLone and Ephraim R. McLean. DeLone, (currently the interim Executive Director for the Center for Teaching, Research, and Learning at the American University's Department of Information Technology, Washington DC.) (William DeLone, 2011) and McLean (Chairman at Georgia State University's Department of Computer Information Systems) (Ephraim R. McLean, 2011) are known world-wide for their studies and work in the field of information systems. Their report (DeLone & McLean, 1992), updated ten years

later, presented what is known as the DeLone and McLean Information Systems Success Model, which was to be used as a framework form measuring the elusive topic of IS success (DeLone & McLean , 2003).

The IS success model creates a more coherent knowledge base from previous research and to act as a guide for future research endeavors (DeLone & McLean , 2003). DeLone and McLean's model incorporated six interrelated, rather than independent, dimensions of success to be used for the measurement, analysis, and reporting of IS success in empirical studies (DeLone et al. 2003). The interrelated dimensions consisted of: system quality, information quality, use, user satisfaction, individual impact, and organizational impact. Table 2 below gives a more detailed description of each of the DeLone's and McLean's six dimensions.

Table 2. Breakdown of the IS Success Model (p. 64)

Dimension of IS Model	**What is Measured**
Information Quality	Accuracy, timeliness, completeness, relevance, and consistency.
System Quality	Ease of use, functionality, reliability, flexibility, data quality, portability, integration, and importance.
System Use	Frequency of use, time of use, number of accesses, usage patterns , and dependency
User Satisfaction	Manager's overall satisfaction with the IS system, manager's attitudes
Individual Impact	The degree that the system has improved department productivity or improved individual decision making process.
Organizational Impact	Degree of operating cost reduction, increases: profits, return on investment, number of functional computer applications.

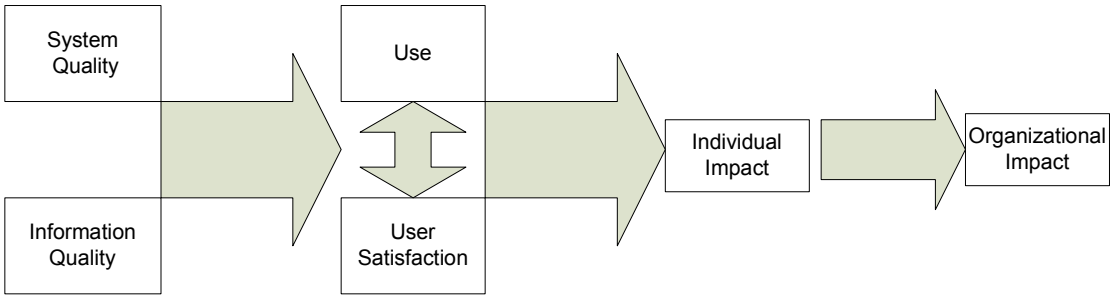

Figure 3. DeLone and McLean's Information Systems Success Model (p. 87)

According to DeLone and McLean (1992), the dimension of user satisfaction is the one most used by researchers to measure IS success. There are three reasons for user satisfaction being the chosen favorite which include: 1) Satisfaction has a high degree of validity because system success is hard to deny when users claim that they like it,; 2) There are many proven tools for measuring satisfaction among users and comparing results,; and 3) Most of the other dimensions are poor measures of success due to their weakness or difficulty in obtaining empirical data (DeLone & McLean, 1992). According to DeLone and McLean (1992), the dimensions consisting of individual and organizational impact were the one that were the hardest to measure.

Since their original model was published in 1992, DeLone and McLean (2003) updated there IS Success Model to include the dimension of net benefits as the final success dimension in place of individual and organizational impacts. This alteration in their model attempts to show more of a causal relationship between use and user satisfaction. Figure 4 illustrates how use and user satisfaction will cause a change in perceived net benefits of the system. The dimension of net benefits will positively feed back into system use and user satisfaction when the project owner percieves their to be positive net benefits

from the new system. When the owner perceives there to be positive net benefits as a result of positive user satisfaction and system use, the owner can declare their system a success. Net benefits can also have the negative effect when there is a lack of percieved positive benftis. The negative feedback can cause a decreased use of the system and poor user satisfaction resulting in a system failure (DeLone & McLean 2003).

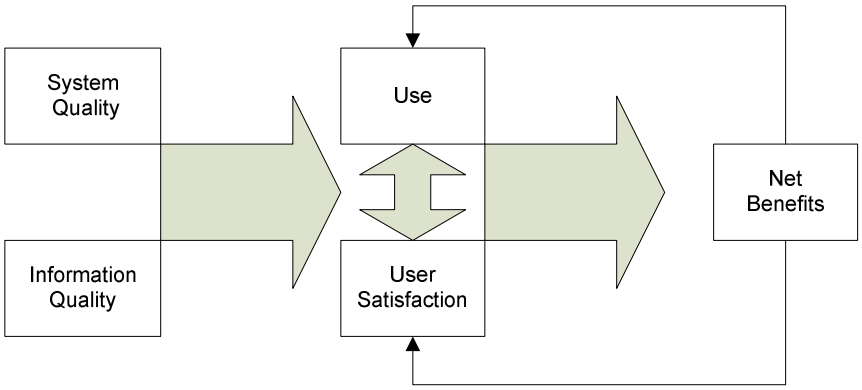

Figure 4. DeLone and McLean's Updated IS Success Model (p.24)

Overall, DeLone and McLean (1992) indicated that focusing on just one of the dimensions does not give one an accurate measure of success. Instead, they suggest averaging all of the dimensions together to get the best measure of success. The six dimensions are interrealted where system and information quality singulary and together affect both system use and user satisfaction. The same can be said of how system use can, positively or negatively, affect user satisfaction. In the end, indiviual dimensions by themsevles do not tell the whole story of an information system's success (DeLone & McLean,1992). DeLone and McLean's (1992) IS Success model is, of course, just one method for attempting to guage systems success.

De-escalation

Once a project has taken a turn for the worse, all hope of turing it around into a success is not lost. The term that describes this turn- around of events is de-escalation (Montealegre & Keil, 2000). Typically, managers escalate their failure through poor decision making, false perceptions, and the inabillity to obtain accurate information (to name a few). According to Montealegre et al. (2000), there are four phases that lead to de-escalation: 1) problem recognition, 2) re- examination of the prior course of action, 3) searches for alternate courses of action, and 4) the implementation of an exit strategy (p.417).

Case Study: Denver International Airport

The authors Montealegre and Keil (2000) applied their concept of de-escalation to the construction of Denver International Airport's computerized baggage handling system. The baggage system, tasked with moving a person's baggage to any point in the airport in 15 minutes and processing nealry 1,000 bags per minute, was riddled with problems from the start that threatened to delay the airport's opening (Montealegre and Keil 2000). The problem recognition phase was easily identified when reporters were invited to observe a test of the system only to have it fail miserably, with "Piles of discarded clothes and other personal items lying beneath the telecar's tracks." (p.424) . After much debate and finger- pointing, an outside German consulting firm was chosen by the stakeholders to assess the state of the beleaguered baggage system.

After identifying the problems, the mayor of Denver was forced to re-examine his previous course of action (Montealegre & Keil, 2000). The prospects of costing the city tens of millions of dollars per month by having it closed and the risk of losing federal grant money prompted the mayor (expected to run for re-election the following year) to form a task force to find alternatives to the computerized baggage system (Montealegre and Keil 2000).

The task force proposed implementing a temporary baggage system that would be for up to two years while the bugs in the permanent system were resolved (Montealegre & Keil, 2000). This alternative course of action was a major turn in the project's management. There were still complaints, especially those of the air carriers (United), who felt their aircraft turnaround times threatened by the alternate system. Montealegre and Keil's (2000) final stage, implementing an exit strategy, was carried out by re-negotiating the contracts between the City of Denver, United, and BAE Automated Systems (the company that designed the troubled automatic baggage system). The final solution was rather complex with regards to which parts of the airport received the alternative baggage systems (the original computerized design was scrapped). The end result, and the one that is probably most important, was that the stakeholders were able to identify their problem, change course, and then implement a new system that would work for the airport (Montealegre and Keil, 2000).

CHAPTER 5

CONCLUSION

Many human resource managers proved that they are not aware of the challenges of converting their older methods of management system to a newer information system. Vast amounts of research exist today regarding how prior agencies, both public and private, dealt with the daunting challenge of upgrading their system. Managers need to consider whether they and their staff are up to the challenge of converting their system and if they are fully aware of what it entails. There are several options for managers such as enterprise resources management, outsourcing, as well as a variety of tools designed specifically for upgrading information systems.

Despite the wealth of information regarding information systems conversions, many failures still occur. Research indicates that there are many causes for failure including project abandonment, enthusiasm, and outsourcing. Causes for failure range from inexperienced management to users who lack the skills needed to utilize a newer system and stakeholders that withdraw support for a project before it is completed.

Project successes are often overshadowed by the failures while conducting research however, they do happen and managers need to give them equal consideration. Successes in information systems frequently relate to work done by Drs. DeLone and McLean with their Information Systems Success Model (DeLone & McLean , 1992). Their work illustrates which parts of a system are more likely to relate to overall system success and should require more focus

from management. Even though a system conversion may appear to be heading down the path of failure, sometimes a manager can de-escalate the troubled project by recognizing their problem and re-examining their options.

After reviewing the challenges, failures, and successes of information systems conversions in the public sector, this paper will end with a few points of advice for human resource managers. The manager needs to know, first, if their agency is in the position to afford what usually turns out to be a costly venture. Once they proceed past the question of affordability, the manager needs to know whether all stakeholders (i.e.: staff and users) are prepared to see the project to its completion without faltering. Managers should also take a close look at their own project management skills because research shows that many projects fail because of inadequacies in this skill (Keider 1984). A manager needs to be fully aware of the many ways projects have failed in the past so that they may avoid making the same mistakes when they assume the responsibility.

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Research Paper Title:
Human Resource Information Systems: The Challenges of Conversion

Major Professor: Dr. Stephen Shulman