Information Systems Project Failure: A Comparative Study of Two Countries

WAYNE F. LEMON, University of Maryland–Baltimore County, USA
JAY LIEBOWITZ, University of Maryland–Baltimore County, USA
JANICE BURN, Edith Cowan University, Australia
RAY HACKNEY, Manchester Metropolitan University, UK

Many organizations, regardless of size, engage in at least one, and often many information system projects each year. Many of these projects consume massive amounts of resources, and may cost as little as a few thousand dollars to ten, and even hundreds of millions of dollars. Needless to say, the investment of time and resources into these ventures are of significant concern to chief information officers (CIOs), executives staff members, project managers, and others in leadership positions. This paper describes the results of a survey performed between Australia and the United States regarding factors leading to IS project failure. The findings suggest that, among other things, end user involvement and executive management leadership are key indicators influencing IS project failure.

INTRODUCTION

A growing number of companies are engaging in initiatives which combine the benefits of human skill with those of technology and business. In this information age, the role of information systems in leveraging businesses against competitors in the marketplace, while taking advantage of new opportunities, is steadily increasing. Information systems projects have become staples in companies seeking to fulfill their strategic objectives.

Despite this, the Standish Group International reports that at least 31.1% of information technology-related projects will be canceled before completion (Kapur, 1997). This statistic and many others, which report even higher percentages of information systems project failures, form the backdrop of a serious problem facing many organizations today. According to Vandersluis (1997), 61% of business functionality expected from an information system project actually makes it to the final version. And only 13% of the information technology systems projects are considered successful by the executives who sponsored them.

Conventional wisdom suggests that it is imprudent to initiate any sort of information systems project without first fully understanding the business functions within the organization, and how the information system is supposed to support them. Information systems projects are notoriously difficult to manage and too many of them end in failure. In 1995 alone, annual United States spending on software projects reached approximately $250 billion, and included an estimated 175,000 projects (Keil et al., 1999). Some of the more conspicuous and visible information systems project failures include: Denver International Airport’s baggage claim system; Bank of America’s Masternet trust business accounting system; the Confirm reservation system that was supposed to connect Hilton Hotels Corp., Marriott International, Inc. and Budget Rent-A-Car Corp.; the system that drove FoxMeyer Drug Co. into bankruptcy; the New Jersey Division of Motor Vehicles’ car registration syste, and the Internal Revenue Service (Glass, 1998). The Internal Revenue Service stands out as an example of how arduous and expensive a failed IS project can be. Despite an annual computing budget of $8 billion, the IRS has managed a series of project failures that have cost taxpayers $50 billion a year, which is roughly as much money as the yearly net profit of the entire computer industry (Glass, 1998). It is no surprise with this rate, or similar accounts of information system project failures, businesses are anxious about how to successfully develop and implement information systems projects.

The key question explored by this paper is: What are the key factors influencing IS project failure? In studying two industrialized nations, such as Australia and the United States, it is hoped that this study can serve as a source of information and insight for executives, and others in leadership positions, to reference in their continuous effort to leverage the benefits of IS projects in their organizations. The remainder of the paper is segmented into several sections. A literature review on IS project failure is presented next, followed by the research method used for the study.
After the results are presented a discussion section is provided followed by a conclusion.

LITERATURE REVIEW

According to CMA Management (1998), at least three common areas for information systems project failure persist. They are:
1. Poor project planning–risk management was not addressed or project plans were weak.
2. Poor business case–in that the need for the system was not fully justified in ways that related directly to the organizations business requirements or priorities.
3. Lack of top management involvement and support. Jiang and Klein (1999) suggest that project size, technological change, novelty of application area and personnel changes are the key factors influencing information system project failure. It is not, however, uncommon to have many of these factors present concurrently during the course of a single information system project. Regardless of the technological platform, whether it be mainframe or network based, the menace and reality of failure persists.

Investigating whether such failures can be avoided, or at least reduced by some degree, is certainly a worthwhile effort. James (1997) suggests that most information system project disasters are avoidable. Many times, warning signals occur long before an information systems project has begun to fail. History has shown that software projects are far more likely to be successful if they are highly focused and built upon well-understood technology (James, 1997). The list of items below displays some other factors to be aware of during IS project management:
1) End users–Keeping users involved in the design, implementation, and testing of a new system is one of the best ways to guarantee project success.
2) Lack of top management support–Any significant project will require redefinition of job roles and responsibilities. Top management support is required to ensure this happens smoothly.
3) Fuzzy business goal–IS project should relate directly to business goals. Information at your fingertips does not necessarily translate into large productivity gains.
4) Over dependence on consultants–Time is the enemy of successful projects. Consultants usually invoice their time, and the more time they take to complete a project, the more profit they generate.
5) Lack of contingency plans–Unforeseen issues will arise. Having a plan to deal with issues not present when the project began is critical.
6) Lack of testing–Inadequate testing will usually create severe problems for a project. Exhaustive testing is the best way to avoid this factor from becoming an issue.
7) Lack of training–End users need to fully understand the system, its nuances and any other special conditions. Proper training for users is mandatory.
8) Denial that IT project is in trouble–Heavy investment into an IS project may lead the sponsors to deny that it is in trouble. Heeding the warning signs will help to take corrective action and avoid a costly IS disaster.

Some IS projects should be segmented into smaller sub projects to increase the likelihood of success. Pilots can be used in this case as relatively inexpensive methods to provide a “proof of concept” for an application before additional resources are allocated. This is especially useful when it comes to the use of new technology. Perhaps one of the biggest mistakes a company can make is using a new technology on a highly visible and large project. A $100 million project should not be started with any technology unless a $10 million project has used it first, and a $10 million project should not be conducted until a $1 million project has been completed (Glass, 1997). Bleeding edge technology is notorious for having software bugs and other anomalies. The problems should be reconciled on a small, low visibility project, where problems are easier to address before it is unleashed on a larger project. In addition, it has been suggested by Jiang and Klein (1999) that information system project managers avoid unrealistic schedules and budgets, incorrect user interfaces and functions, and a continual stream of requirement changes.

To keep a project manageable, periodic assessment, particularly as it relates to problems encountered during the project is crucial. Verifying that those responsible for implementing the information system project remain focused on the correct goals is also paramount. What is the source of poor performance in bringing information systems projects to a successful completion? The answers lie largely in the fundamentals of project management. Vandersluis (1997) suggests that an organization’s chances of successfully implementing an information systems project are increased if they do the following:
1) Get a plan–Before a single line of code is written, create a schedule which matches the scope of the project. If uncertainty about areas of functionality exist, divide the project into phases which isolate the risk and authorize each phase individually.
2) Track the progress of the plan–Set up a weekly or monthly review of the schedule where the progress for each task is outlined and the impact on the rest of the project is identified.
3) Close the loop–Once the project is complete, learn from it. Ensure the lessons learned and any inconsistencies between the plan and the result are used to improve the planning and project control process.
4) Choose tools with care–They should be as strong in the project execution phase as in the planning phase.

In regard to the third notion of closing the loop, one study identified additional steps that can be performed to improve information system project success once the project has been completed (Mandell, 1999). They include:
• Analyze how and why the project failed (e.g., post-mortem analysis).