



Project preparedness and the emergence of implementation problems in ERP projects

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ABSTRACT

The problems that organizations face in implementing an enterprise-wide ERP project are linked to their level of understanding of what is involved in such an endeavor and how it influences their initial preparations. We sought to demonstrate empirically the causal relationship between the organization's preparedness and the emergence of implementation problems. We examined four case studies to extract insight into the criticality of certain factors and the type of problems created when no moderating measures were taken by project managers. Consequently, we developed a predictor-outcome model mapping a lack of preparedness with implementation problems.

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1. Introduction

ERP packages are one of the important software purchases of medium and small organizations, though they have been available for more than 10 years and have become the underpinning of IS for many organizations. However, ERP implementation problems are not understood by many managers [10] and their expected benefits are seldom realized. The magnitude and complexity of an enterprise-wide project poses considerable risks; therefore, strategies for controlling risk factors are paramount in achieving some degree of success. Some work has been conducted to identify the key players and activities that contribute to ERP success [17] and it seems that managers who make an initial evaluation of a project, determining its rules, players, goals, constraints, and project manager's responsibility and authority are more likely to be successful. Thus, an organization's state of readiness is extremely important. However, little is understood about what it means for an organization to be *mindful* [19] in its approach to investing in an ERP package.

We conduct an investigation into the managers' level of understanding of ERP project implementation and the preparations that should be made to increase the likelihood of its success.

To achieve this objective, we begin with a review of the ERP literature on *principles of preparedness* and its four typical 'macro' *implementation problem areas*. We then use four in-depth case studies to determine empirically the causal relationship between preparedness and outcomes.

2. Principles of preparedness and implementation problem areas for ERP project implementations

While organizations experience problems throughout all phases of the ERP project life-cycle, many of those experienced in later stages originated in the early stages. As in all IT implementations, inadequate user training and lack of user skills have been major reasons for failure. A number of authors have commented on the importance of preparedness for embarking on an enterprise-wide IT project. However, none attempted to examine the impact of these factors on the emergence of specific problems and on the outcomes of the project. We identified the notion of preparedness and classified its components in a framework (see Table 1) in order to formulate an initial set of *principles of preparedness* to be used in our analysis of case data.

We also attempted to structure the problems encountered by organizations into four macro-level groupings termed *implementation problem areas* (see Table 2).

These represent a synthesized view of ERP implementation problems. As can be seen from the descriptions, they are also a first step in providing a foundation for a causal link between actions of managers, and events that occur throughout the ERP life-cycle.

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Table 1
Principles of preparedness.

Principles	Description	References
Priority Project	Management must categorize the ERP project as a priority and consider it an investment.	[2,6,8,9]
Proactive Approach	An ERP implementation should address a pressing business need.	[9]
Organizational Goals	Organizations must know their goals and identify key processes that affect their success.	[4]
Communicate and Manage Expectations	Objectives and expectations should be clearly documented.	[2,9]
BPR	Carry out BPR ahead of ERP or implement the ERP package in its vanilla form.	[6,8,17]
Implementation Methodology	Work on a proven methodology with partners and certified consultants.	[5,12,19]
Education on ERP	Personnel should be well informed about ERP capabilities.	[17,20]
Best Business Personnel	Release the best, committed personnel to the project on a full-time basis.	[6,9]
Cross-Functional Team	Each critical business area impacted by the ERP should be represented on the team.	[1,9]
Approach to Training	A training centre with adequate facilities should be implemented.	[2,20]
Technical Infrastructure	Ensure the availability of adequate network infrastructure pre- and post-implementation, e.g. for training and testing.	[3,8,14,15]
Mindset Change and Attitude to Learning	Mindset changes at all levels, including top management, are required.	[12]

Table 2
Implementation problem areas.

Problem area	Description	References
The Fit	Failure to articulate clear project objectives aligned with strategic business objectives will degrade performance.	[6–9,12,13,16,18]
The Actors	Failure to educate all staff and allocate best resources to the project will result in inadequate or unworkable business processes by the team.	[2,6,8,9,11,12,16,18]
The Change	Failure to accept the changes resulting from the ERP implementation, both at the cultural and procedural levels, leads to partial implementation and uneven levels of usage.	[6–9,12,16,18]
The Plan	Failure to plan strategically leads to late and over budget delivery of inadequate solutions.	[6,8,9,12,16,18,20]

3. The research approach

A collective case study strategy, with intrinsic studies of several cases, was adopted. By studying a number of cases, we investigated the causal relationships between *principles of preparedness* and the emergence of implementation problems in ERP projects. To be included in our study, an organization had to have undertaken at least one ERP project, and, at the time of first contact, be in the post-implementation phase for all or part of the project, depending on the implementation approach followed. Originally we found 20 possible organizations and held discussions with 11 on their participation in our research; of these, 4 agreed to contribute to our study. These were: SerCom Solutions, Banta Global Turnkey (BGT) (acquired by R.R. Donnelley in January 2007), the Irish Health Service (now the Health Service Executive – HSE), and An Post. An Overview of these 4 organizations is presented in Table 3.

Multiple cases offer investigators a deeper understanding of processes and outcomes and provide a good picture of locally grounded causality. In our study, the four cases were complementary due to the variety of approaches adopted by the different ERP teams and the broad array of events which they allowed us to study. From

the outset, trying to follow these cases led to a better overall understanding of the variety of organizational approaches pursued in implementing ERP packages, and the preparations made. We initially decided to take a holistic view of ERP project outcomes and not only focus on their implementation. This was particularly important for three of our four cases, where major follow-on investments were required, contributing to the excessive duration of the projects.

3.1. The cases studied

3.1.1. SerCom solutions

Established in 1978, SerCom Solutions is a wholly owned subsidiary of DCC plc., one of Ireland's largest investment companies. It is recognized as a major provider of Procurement and Supply Chain Management services worldwide. It acts as a global outsourcing partner to many of the world's leading technology and telecommunications companies. These companies are increasingly entrusting key aspects of their supply chain to SerCom in order to achieve more cost effective and efficient manufacturing and distribution systems, shorter lead times to market, reduced cost base and reduced inventory levels.

Table 3
Overview of the four cases selected for our study.

Characteristic	SerCom	BGT	HSE	An Post
Sector	Private	Private	Public	Public
ERP Package	SAP R/3	JDE World	SAP R/3	JDE OneWorld
ERP Footprint	Core Operations (Manufacturing and Logistics)	Core Operations (Supply Chain Manufacturing and Finance)	HR/Payroll	Finance
ERP System Type	Value Chain Operations	Value Chain Operations	Support Operations	Support Operations
Project Type	Business Change	IT	IT	Business Change
Enterprise-Wide View	Yes	No	No	Yes
Project Initiation/Completion	2000/2002	1996/on-going process improvement	1997/2005	1997/on-going process improvement
Project Outcome	Very Successful	Near Failure	Suspended	Partly Successful
Initial Point-of-Contact Comment	"The project required an enormous effort from everyone but it was very successful"	"I could tell you all the things not to do. We have not done well with our implementation"	"This project is not going well. It will face huge issues in-use when rolled-out nationally"	"We have learned some hard lessons but that's the nature of these projects"

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