

LEADING OR LAGGING? AN EMPIRICAL INVESTIGATION INTO ORGANIZATIONAL LAG AND IS INNOVATION

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ABSTRACT

Many firms struggle to derive business value from IS innovations. Research indicates that the benefits from IS innovations often lag far behind the initial investments. One theoretical explanation is organizational lag [3] [5]. This theory posits that organizations adapt over time to absorb IS innovations and that later organizational adopters have a briefer lag period between implementation and benefit. We conducted multiple case studies examining a single IS innovation implemented across a multinational corporation. We found support for three theorized types of organizational lag, but not for later adopter's benefit from earlier adopter's experiences.

INTRODUCTION

Effective system implementation requires changes in the social systems and business processes to maximize the value of IS innovations. The gap between initially implementing an IS innovation and effectively utilizing it has been referred to as "organizational lag" [1] [4] [5].

This paper examines multiple implementations of a single IS innovation, the HighArch Sales Force Automation System at Large Consumer Goods Company (LCGC) to develop a deeper understanding of how organizational lag affects IS innovations within a multinational firm adopting a single IS innovation within several business units. The research question guiding this study is: how do later organizational adopters benefit from the experience of early organizational adopters within a firm?

Organizational lag

As organizations adopt IS innovations, they often struggle to align their business processes with those embedded in the IS—a phenomena referred to as organizational lag. Swanson [5] identifies three distinct types of organizational lag. There is often a lag between the work organizational features and the information technological features of an innovation (OL1). In other words, changes in the social setting of the workplace ("work organizational features") will occur some time after the IS innovation ("information technological features") is in place. In fact, the work organizational features are often modified to fit or "absorb" the IT features. Of special interest to this point is Swanson's assertion that "early adopters are apt to carry the heaviest burden; [since] their hard-learned lessons can be packaged and transmitted to later adopters as new organizational features" [5, p. 1083]. The second form of organizational lag is an increased focus on the business benefits of an innovation as opposed to its technical benefits (OL2). A third form of organizational lag is the delay between the technical and administrative utilization of an IS innovation (OL3).

Leading or Lagging?

Prior research has demonstrated that the degree of organizational lag is inversely related to organizational performance [1]. Since organizational lag hinders firm performance, it is important to develop a deeper understanding of organizational lag in IS innovations. In this study we explore organizational lag in the sequential adoption of a custom sales force automation system within three SBU's of a multinational firm.

METHODS

Because the research question for this study is a "how" question seeking understanding of real world phenomenon, that does not require control over behavioral events, a case study approach was selected [6]. Our study consisted of three SBUs within a multinational firm which implemented HighArch technology. By focusing on the same technology adopted at three sites within a single firm, we took advantage of the natural manipulation of the organizational and technological differences between three SBU's while simultaneously controlling for firm and IS innovation differences [2]. We employed a type 4, multiple-site, embedded design by analyzing organizational and individual levels of analysis within each study [6]. By combining data collection methods we were able to examine qualitative and quantitative data at both organizational and individual levels of analysis.

Case study locations

All three case studies were conducted within LCGC, a multi-national consumer-goods company with operations in over 180 countries. As one of the top three firms in their industry, and a Fortune Global 500 Company, they employed over 86,000 employees and had revenues of over \$18 billion in 2000. The strategic business units (SBUs) are typically operated at the country level and referred to as "end markets". We conducted on-site case studies in LCGC headquarter in London, as well as on-site visits to Santiago, Chile, Bogota, Colombia, and San Jose, Costa Rica.

Project HighArch

In mid-1997 LCGC began developing a sales-force automation and CRM system for Trade Marketing and Distribution ("TM&D" included sales, marketing, and distribution responsibilities) called HighArch. The development effort was federally coordinated with several end markets in the Latin America Region identifying best practices and conducting overall system design with the development effort based in London at headquarters. The design work was led by LCGC Chile, but representatives from every direct-distribution market in Latin America were involved in the design phase.

FINDINGS

Consistent with other research [1] [3] our evidence supports the concept of organizational lag in adopting innovations. More specifically, these results indicate moderate support for three forms of organizational lag.

Evidence for OL1 was found at all three sites. Consistent with Swanson's [5] argument, the trialability and complexity of technological innovations allowed them to be "absorbed" into the organization over time. This gap was shortened by taking a holistic stance towards an IS implementation. In end markets where HighArch was seen as a business process change—not merely a technological one—the gap between the technical features and the organizational features was moderated.

OL2 received strong support from all three sites. As the system was implemented across the continent, the business rationale grew stronger. In Chile, the first implementation site, there was a clear understanding of technological benefits and constraints, and the business case was less clear. By the third implementation in Central America, the business rationale for implementation was crystallized. In fact, in Central America the business rationale of HighArch was emphasized to the degree that the technology was viewed as a panacea to an increasingly complex operating environment.

OL3 received moderate support. The strongest evidence was found in Colombia where the IS innovation evolved such that it was elaborated with additional business functionality (i.e. AMiT). It is logical to assume that this feature will eventually be transferred to other end markets that use HighArch.

DISCUSSION

The tri-core model of IS innovations argues that as IS innovations are adopted by organizations they will experience three forms of organizational lag. By examining the implementation of a single IS innovation in three end markets within a single firm we have found positive evidence for these conceptions of organizational lag. Future studies should examine a variety of industries, and IS innovation types. The current study offers preliminary support for Swanson's tri-core model of IS innovation and builds empirical support for the tri-core model. However, it is noteworthy that the least successful of the three implementations was the final one. The current study was unable to isolate a precise cause for this as there were multiple factors that likely led to a suboptimal outcome.

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