

Chapter 17

A Steady–State Framework for Integrated Business Change and Information Systems Development and Maintenance

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ABSTRACT

Success models often treat Information Systems (IS) as static. Yet most IS evolve continuously, and most development effort occurs during the so-called maintenance phase. For an IS to succeed, its evolutionary process must also remain successful. Unfortunately many IS projects fail, particularly when outsourced. This chapter argues that the practice of managing IS work in project form may itself be implicated in IS failure. The project model is critically examined, identifying mismatches with the reality of IS work as a component of business change. The results suggest that merely trying harder to make projects succeed may be ineffective. An alternative framework for “steady state” development is proposed, which characterises IS work as evolutionary and inseparable from its context of business change, providing a blueprint for IS development without the need for projects, and offering improved chances of success when “big bang” project management would otherwise be the only option.

INTRODUCTION

This chapter examines factors that contribute to success in information systems (IS) work. Success models for IS focus on the use and benefits of IS, often treating them as static entities (Delone

& McLean, 2003; Salmerona & Smarandacheb, 2006; Seddon & Kiew, 2007). This accords with the traditional view of IS development as episodic and project-based. According to that view, IS emerge through a relatively brief development process and remain essentially unchanging thereafter. Yet, in reality, contemporary IS are dynamic; they constitute an important component of business

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change and evolve over long periods. In fact, the large majority of effort expended on IS development occurs during the so-called maintenance phase, typically spanning many years (Grubb & Takang, 2003). Therefore, for an IS to provide benefits, the continuous process through which it comes into being and evolves must also remain successful. This process is often constituted as a series of interlinked projects. Unfortunately, many IS projects fail, despite substantial research efforts to determine the causes of failure (Janssen & Klievink, 2010; Keider, 1984; Warne & Hart, 1996). Outsourced IS developments are especially at risk (Iacovou & Nakatsu, 2008).

The cost of IS project failure is high. Advice on how to avoid it often points to project management inadequacies. But this research explores the proposition that the use of project management may itself be implicated. Project-based work structures are often applied routinely, with little consideration of alternatives. Projects can produce quick results; a focus on limited goals allows the team to ignore wider complicating factors. When there is little organisation in work, packaging tasks into project form can provide helpful structure. But it can be difficult to fit work into a project when the work is continuous, or tasks have complex dependencies, or the goals are hazy or changing. This is the case in IS, most of which evolve continually and are integrated with other systems. Projects impact on multiple systems and/or projects, and objectives often shift as work proceeds. These factors suggest that the project model may be less appropriate for IS development. The chapter is structured as follows. After some historical background on competing views of IS development, the nature of contemporary IS work is critically analysed to assess its fit with project structures. The chapter builds on this analysis to present a framework of principles for “steady-state” IS development without the use of projects. The chapter concludes with suggestions for further research.

BACKGROUND: COMPETING VIEWS OF IS DEVELOPMENT

The *engineering project* is today the dominant structural metaphor for thinking about IS development. Metaphors shape perception, particularly in IT which has re-purposed many existing ideas including *record*, *file* and even *computer* (Ezhkova, 2005; Light, 1999). “Good” engineering is a scientific and formal process rather than a fuzzy, intuitive one, and its product is technology. The engineering project metaphor indicates that IS requirements must be specified clearly before construction commences, and design must proceed according to established principles. IS development is characterised as bursts of focused activity (IT projects) in which technology is manipulated (system design) in a planned manner (project management) by experts (developers) on behalf of non-experts (end users) using analytical techniques (IS methodologies) to derive solutions (IS) to known problems (requirements). This engineering project view of IS development falls into a wider set of approaches to problem-solving characterised by the top-down application of external expertise and analytical thinking; Operational Research (OR) is one example. Its goal is to build an IT system; any associated business change is considered a separate concern, to be managed independently. Messy real-life issues, such as poor communication, fuzzy requirements and shifting priorities, are treated as aberrations; despite the high incidence of these problems, it is assumed that they can be avoided in well-run projects (Liu et al., 2010).

Although dominant, the engineering view of IS development has not gone unchallenged. One alternative sees IS development not as mechanistic engineering or manufacturing, but as ad hoc, political and subject to conflict; IT professionals are “change agents” (Ciborra, 1993). In Socio-Technical Design, IS development is viewed as participative and social issues are given explicit attention, helping to moderate the technological imperative (Mumford & Henshall, 1978). In Soft

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