Evaluating contingency approaches to information systems design

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Abstract

The search for contingency approaches to information systems design (ISD) began in the early 1980s when it was recognised that there is no single best methodology for all ISD projects and when there existed heterogeneous methodologies to select from. Twenty years later, there is now in the IS field not one, but three contingency approaches: 'contingency at the outset', 'contingency with a fixed pattern', and 'contingency along development dynamics'. While the variety of contingency approaches provides IS developers and users with richer insights and greater flexibility to tackle diverse, complex and uncertain ISD situations, to realise the promises and potential benefits of these approaches demands further research on at least three questions: the question of 'which contingency approach', the question of rigor, and the question of cultures. © 2002 Elsevier Science Ltd. All rights reserved.

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1. Introduction

The search for contingency approaches to information systems design (ISD) began when it was recognised that (1) there is no single best methodology for all ISD projects/situations and (2) there exists a variety of methodologies to select from.

This paper suggests that the search has so far produced three kinds of contingency approaches, namely: contingency at the outset (choosing a single methodology or a fixed combination of methodologies for the whole lifecycle of an ISD project), contingency with a fixed pattern (selecting methodologies according to a conceived linear working sequence of human-technical issues in the ISD process) and contingency along development dynamics (employing various methods and tools as the dynamic complexity of ISD unfolds).

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The development of contingency approaches in such a historical order is not accidental but was informed by the failures (and successes) in ISD practice in the last twenty years, as well as by advances in other disciplines such as sociology, organisation studies, cognitive sciences, systems and management sciences (see, e.g., Burns & Stalker, 1961; Child, 1984; Flood & Jackson, 1991; Galbraith, 1973; Kast & Rosenzweig, 1981; Lawrence & Lorsch, 1969; Perrow, 1973; Pugh & Hickson, 1976; Thompson, 1967).

This paper is not particularly concerned with the wider debate since the 1970s on the contingency approach to organisational management in general (for an introduction to that significant debate see, e.g., Donaldson, 1985, 1995, 2001); rather, it will mainly address the on-going search in the field of information systems for flexible, rigorous and workable design approaches.

Further, the paper will not present the details of each contingency ISD approach (interested readers may consult related materials listed in the references). The major objective of the paper is to bring together and present to the IS community an overview of the variety of such approaches, to surface their assumptions, to analyse similarities and differences, and to suggest directions for further research.

2. Contingency at the outset

As early as 1981, it was established that one serious deficiency in ISD is the lack of recognition that different projects require different development approaches. No longer could developers apply the same development methodology to all ISD projects, systems or situations. The ability to choose the most appropriate methodology or a combination of methodologies to fit a particular case was seen as increasingly important (McFarlan, 1981).

The issue of selecting methodologies became more realistic and urgent when the prototyping methodology became available in the early 1980s in addition to the more traditional system life cycle methodology (SLCM). It is further claimed that there was a third methodology: a 'mixed methodology' that integrated 'the best' of the two methodologies—SLCM and prototyping (Alavi, 1984a, b; Alter, 1977; Boar, 1984; Dennis, Burns, & Gallupe, 1987; Earl, 1982; Gorry & Scott Morton, 1971; Martin, 1982; Naumann & Jenkins, 1982; Naumann, Jenkins, & McKeen, 1980). The major rationale behind the favouring of combined methodologies at that time was usually that complementary use of prototyping might help clarify user requirements, especially during the initial analysis phase of the formal SLCM process (Alavi, 1984a, b; Gorry & Scott Morton, 1971).

As selecting methodology(ies) became realistic and necessary, approaches that assist and guide such a selection needed to be, and indeed have been, sought. These approaches have, since then, often been called contingency approaches; some prefer other names, e.g., 'situational approaches' (Saarinen, 1990).

The type of contingency approaches available at that time reflected an assumption that it is possible and necessary to classify system (project) types and to match them with corresponding development strategies. I call this kind of approach 'contingency at the outset', since it emphasises (1) selecting a single methodology or a fixed combination of methodologies before developers begin their project, and (2) subsequently following the same selected methodology or combination