IDEA GROUP PUBLISHING # ITJ2239
701 E. Chocolate Avenue, Hershey PA 17033-1117, USA
Tel: 717/533-8845; Fax 717/533-8661; URL-http://www.idea-group.com

Key Issues in IS Management in Norway: An Empirical Study Based on Q Methodology

PETTER GOTTSCHALK, Norwegian School of Management

Information systems (IS) departments face many challenges in today's rapidly changing environment. One approach to understanding these challenges is to survey IS managers to elicit what they consider are key issues. Studies of key IS management issues have been conducted for some years in many nations and regions. However, most of these surveys lack a theoretical basis for the selection of key issues. Furthermore, most studies have used a single-round or a multi-round Delphi method. This paper provides an overview of research approaches to key issues studies combined with key issues results from previous research. The paper presents methodological issues and choices for a survey on key issues in IS management which was conducted in Norway. A three step procedure for key issues selection is introduced, and a Q-sort analysis is adopted. The paper presents results from the Q-sort survey and analysis. The highest ranked key issue in Norway, according to the survey, is concerned with improving links between information systems strategy and business strategy.

INTRODUCTION

Information systems (IS) departments face many challenges in today's rapidly changing environment. One approach to understanding these challenges is to survey IS managers to elicit what they consider are key issues. According to Niederman et al. (1991), the primary purpose of such studies is to determine the IS management issues expected to be most important over the next three to five years and thus most deserving of time and resource investment.

This paper provides an overview of research approaches to key issues studies and presents methodological issues and choices for a survey on key issues in IS management which was conducted in Norway in 1998. A three step procedure for key issues selection is introduced, and a Q-method analysis is adopted. Finally, the paper presents results from the Q-sort survey and analysis.

LITERATURE REVIEW

This research is concerned with key issues selection procedure and key issues survey approach: it is assumed that the ranking results of the studies presented above were influenced by selection procedure and survey approach. The most common selection procedure is to start with an old key issues list and let it be revised in multiple survey rounds as shown in Table 1. Some studies start from scratch by asking respondents to specify issues that they think will be key issues. The most common survey approach is the Delphi technique as shown in Table 1. Some studies apply other methods. This research applies Q-sort that already has been used in Brazil by Morgado et al. (1995, 1999).

KEY ISSUES SELECTION

Some key issues appear to emerge quickly. The sudden prominence of business process redesign in many recent studies (e.g., Brancheau et al., 1996), indicates that IS managers may be too willing to respond to a current hot topic, and their attention may be too easily diverted from fundamental, long-term issues. If asked in 1998, many Norwegian IS managers would probably rank "Year 2000" as a key issue. The Year 2000 issue was, however, both a short-term problem and an issue that is part of the larger problem of maintaining software. Hence, the selection of key issues for survey research is associated with several problems as listed in Table 2.

The lack of theory is a major concern. Watson et al. (1997) suggest that a sufficiently relevant theoretical model, on which to base a new key issues framework, should be identified. They discuss role theory, managerial IS competencies and general management practices as "redesign" ap-

Manuscript originally submitted April 28, 1999; Revised September 6, 1999; Accepted November 17, 1999 for publication.

proaches to potential new key issues frameworks (Watson et al., 1997, p. 111):

Advantages of the "redesign" approach include the possibility that the framework be complete, consistent, parsimonious, and both regionally and temporally stable. Disadvantages include the lack of continuity with previous studies and the danger that the issues might become so abstract that they would cease to have meaning to IS managers and executives, thus breaking an important link to practice.

Niederman et al. (1991) made a theoretical contribution by classifying key issues along three dimensions and categorizing them into four groups. The three dimensions are management versus technology issues (M/T), planning versus control issues (P/C), and internal versus external issues (I/E). The four groups consist of:

- **Business relationship:** These issues deal with concerns external to the IS department. They focus on managing the relationship between IS and the business. The group includes data resources, strategic planning, organizational learning, IS organization alignment and competitive advantage.
- **Technology infrastructure:** These issues deal with technology concerns. They focus on the integration of technology components to support basic business needs. The group includes information architecture, technology infrastructure, telecommunications systems, distributed systems, and electronic data interchange.
- **Internal effectiveness:** These issues focus internally on the IS function. They are concerned with those essential activities comprising the bulk of the IS function's work. The group includes human resources, software development, applications portfolio, and IS effectiveness measurement.
- **Technology application:** These issues focus on the business application of specific information technologies. The group includes CASE technology, executive/decision support, and end-user computing and image technology.

Table 1: Comparison of Methodological Choices in Key Issues Studies

Study	Key Issues Selection			Key Issues Survey		
	List	New	Method	Respondents	Score	Nation
Badri (1992)	Old	No	1 round	CIOs	Rate	Gulf nations
Brancheau et al. (1996)	Old	Yes	Delphi 3 rounds	SIM members	Rate	USA
Burn et al. (1993)	Old	Yes	Delphi 3 rounds	Managers	Rate	Hong Kong
CSC (1998)	Old	No	Survey 1 round	IS executives	Rate	USA, Europe, Asia/Pacific
Deans et al. (1991)	Old	Yes	Survey and Interview	MIS managers	Rate	USA
Dekleva and Zupancic (1996)	New	Yes	Delphi 4 rounds	IS managers	Rate	Slovenia
Dexter et al. (1993)	New	Yes	Delphi 3 rounds	IT managers	Rate	Estonia
Galliers et al. (1994)	New	No	Delphi 1 round	Executives	Rate	UK
Harrison and Farn (1990)	Old	No	Survey 1 round	Professionals	Rate	USA Taiwan
Kim et al. (1999)	New	No	Survey 1 round	IS practitioners	Rate	USA
Mata and Fuerst (1997)	Old	Yes	Survey 1 round	IS managers	Rate	Costa Rica Guatemala
Morgado et al. (1995, 1999)	Old	Yes	Q-sort ISM	IT managers	Rank	Brazil
Moores (1996)	Old	No	Delphi 1 round	MIS managers	Rate	Hong Kong
Olsen et al. (1998)	Old	No	Delphi 1 round	IT managers	Rate	Norway
Palvia and Palvia (1992)	Open	Yes	Seminar	Managers	Rate	India
Pervan (1993)	New	Yes	Delphi 3 rounds	IS managers	Rate	Australia
Pollard and Hayne (1996)	Old	Yes	Delphi 2 rounds	IS personnel	Rate	Canada
Swain et al (1995)	Old	Yes	Delphi 1 round	Information manager	Rate	USA
Usman and Stein (1999)	Old	No	Delphi 1 round	IS managers	Rate	Australia
Wang (1994)	Old	No	Delphi 1 round	IT manager	Rate	Taiwan
Wrycza and Plata-Przechlewski (1994)	Old	No	Survey 1 round	Seminar participants	Rate	Poland
This study	New	Yes	Q-sort	CIOs	Rank	Norway

However, classifying issues into dimensions and categories is a challenging task (Smith, 1995). In Table 3, the latest US SIM classification is listed.

Table 3 can be used to identify both potentially missing and overlapping issues. For example, there are no business relationship issues involving technology, and there are four business relationship issues involving management-control-external. This analysis shows that there are essentially 32 different issues, which are generated by crossing the four categories with the three binary measures (i.e., M/T, P/C, I/E).