

# A comparative analysis of critical issues facing Canadian information systems personnel: a national and global perspective<sup>☆</sup>

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Received 13 July 1998; accepted 24 March 1999

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## Abstract

A survey was conducted of 157 Canadian Information Systems (IS) personnel in organizations throughout Canada using a modified Delphi technique and follow-up interviews to identify the perceived critical issues in IS during the following 5 years. The important issues included: (1) building a responsive IT infrastructure; (2) improving IS project management practices and (3) planning and managing communication networks. Significant differences in the rating of the importance of these issues were reported between IS executives and non-management IS personnel. Qualitative data collected in 35 follow-up interviews provided some interesting insights into the rationale behind the ratings. The top 10 issues were compared to rankings previously reported in Canada and to data collected internationally in a comparable time period. The trend in Canada has been towards technological issues. From a global perspective, Canada currently appears to lead in management issues and lag in technological issues. © 2000 Elsevier Science B.V. All rights reserved.

*Keywords:* Critical issues; Key information systems issues; Information systems management; Information technology management; Management priorities

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## 1. Introduction

During the past 20 years, the business environment and the technology embedded within it has seen tremendous change. Information technology (IT) has grown by many orders of magnitude in capacity and speed and the importance of information as a

corporate resource has increased dramatically. Personal productivity and decision-making tools are now accessible to enhance most business functions. New technologies on the horizon promise to enhance the richness of electronic communications and automate the development of even more systems.

This increased capability of IT coincides with changes in the business environment, including mergers, leveraged buyouts, downsizing, strategic alliances, globalization and commitment to total quality management and empowerment. In the 1990s, aligning Information Systems (IS) with the enterprise and managing processes appeared to be the theme [3]. These environmental changes presented

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demands on personnel at all levels of IS departments; these included the provision of timely, high-quality information and support of innovative products, production techniques and organizational designs. IS executives are particularly challenged, because they operate at the intersection of IT and the organization. In the face of rapid change, IS executives must be able to interpret trends in IT and assess the impacts on their organization while managing day-to-day operations.

Issues associated with IS management have regularly been investigated in the United States. These studies report a changing focus from largely technological issues in the earlier studies [1,7,9] to a greater focus on management of technology [14] and technology infrastructure issues [2]. Similar investigations have been conducted in other countries, e.g. Australia [19], China [16,17], Hong Kong [12], Germany [11], Slovenia [4] and Taiwan [20].

Global firms can no longer afford to view their IS function within the context of national and regional boundaries. IS issues appear to depend on the political, legal, economic, cultural and technological environments that exist in the foreign country under study [5]. The scope of our study expands on that of prior studies in two ways. First, we compare Canadian issues to those previously reported. Canada has a unique set of circumstances when compared to other countries; a very large geographical size (with correspondingly small population), different political structure, distinct regulation of telecommunications, disparate trade agreements, and a distinct culture. Second, very little work has been done to examine whether a shared vision of critical IS issues exists at different levels of the organization. Previous researchers admit that their survey results cannot be claimed as representative of the IS population in general as their data collection was usually limited to IS executives. We continue the move toward collecting data at various levels of IS personnel to examine whether the 'vision' of top IS executives is correlated to the perspectives of IS professionals at other organizational levels.

Specifically, we seek to address the following research questions:

1. What are the 10 most critical managerial and technical issues IS personnel in Canada perceive

they will face over the next 5 years? What is the order of importance of these issues?

2. How much agreement is there among the different levels of IS personnel on the key issues and their importance?
3. How do the 10 top Canadian critical issues compare with data collected in international studies during a similar time period?

## 2. Previous research

A previous Canadian IS issues study reported some interesting findings and clearly demonstrated the need to collect data in Canada, rather than consider that collected in the US as representative of the IT industry in Canada. Rivard et al. [15] surveyed 188 IS managers across Canada. They reported a mix of operational and strategic issues that, when compared with those of the 1989 US study, showed marked differences in both content and prioritization. The US and Canadian lists agreed on the prioritization of only the top two issues: IS planning and competitive use of IT. Of the remaining issues, eight on the Canadian list (i.e. training users, communication with users, managing microcomputers, user participation in IS development, control of IS budget, implementation of new technologies, user friendliness of communications software and software costs too high) had not been previously mentioned in any of the US studies. The prioritization of the remaining issues differed considerably. This data suggested that Canadian IS personnel face different challenges than their counterparts in the US.

Several key issues studies conducted during a similar time period in countries other than Canada, underlined these national differences. Since culture can play a large role in the overall ranking of key issues [18], a comparison of the data collected in several countries is insightful. Similarities and differences between the data currently collected and a number of international studies conducted during a similar time frame will be explored in the results section of this paper.

## 3. Methodology

We report on a survey to investigate information systems issues that are currently facing business

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