Information Systems Leadership Roles: An Empirical Study of Information Technology Managers in Norway

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Information systems (IS) leadership roles have undergone fundamental changes over the past decade. Despite increased interest in recent years, little empirical research on IS managers has been done. This article presents results from a survey in Norway. The survey collected data on general leadership roles such as informational role, decisional role and interpersonal role, as well as on specific IS leadership roles such as chief architect, change leader, product developer, technology provocateur, coach and chief operating strategist. The empirical analysis indicates that strategic responsibility as well as network stage of growth influence the extent of informational role, while the extent to which the chief executive uses IT influences the extent of decisional role, and the extent to which subordinates use IT influence the extent of interpersonal role. IS managers with greater operating responsibility will be chief architects. The role of a change leader is positively influenced by the number of years in IT, the extent of IT use, the extent of strategic responsibility and the organisation’s revenue, while it is negatively influenced by the number of years in the current position. Product developer can be predicted by strategic responsibility and chief executive’s IT use, while technology provocateur can be predicted by the extent of IT use. Coach can be predicted by the extent of subordinates’ IT use, and chief operating strategist can be predicted by the extent of strategic responsibility. Although several significant predictors of IS leadership roles were identified in this research, the search for more significant explanations should continue in future research.

INTRODUCTION

Information systems (IS) and information technology (IT) leadership roles have undergone fundamental changes over the past decade (Applegate and Elam, 1992; Cross et al., 1997; CSC, 1996; Stephens et al., 1995). Despite increased interest in recent years (e.g., Armstrong and Sambamurthy, 1995; Earl and Feeny, 1994; Rockart et al., 1996), little empirical research on IS/IT leadership roles has been done. This paper was motivated by the need for identification of IS/IT leadership roles and their potential explanations. The research makes a contribution to the stream of studies which examine the characteristics and role of the chief information officer (CIO) or IT director (Peppard, 1999). The paper presents results from a survey conducted in Norway. Survey results are compared with previous empirical studies by Applegate and Elam (1992), CSC (1997) and Stephens et al. (1992).

LEADERSHIP ROLES

Managers undertake activities to achieve the objectives of the organisation. Mintzberg (1994) notes a number of different and sometimes conflicting views of the manager’s role. He finds that it is a curiosity of the management literature that its best-known writers all seem to emphasise one particular part of the manager’s job to the exclusion of the others. Together, perhaps, they cover all the parts, but even that does not describe the whole job of managing. Mintzberg’s role typology is frequently used in studies of managerial work (e.g., Pinsonneault and Rivard, 1998). According to Mintzberg (1990), the manager’s job can be described in terms of various roles:

1. **Informational Roles.** By virtue of interpersonal contacts, both with subordinates and with a network of contacts, the manager emerges as the nerve centre of the organisational unit. The manager may not know everything but typically knows more than subordinates do. Processing information is a key part of the manager’s job. As monitor, the manager is perpetually scanning the environment for information,
interrogating liaison contacts and subordinates, and receiving unsolicited information, much of it as a result of the network of personal contacts. As a disseminator, the manager passes some privileged information directly to subordinates, who would otherwise have no access to it. As spokesperson, the manager sends some information to people outside the unit.

2. **Decisional Roles.** Information is not an end in itself; it is the basic input to decision making. The manager plays the major role in a unit’s decision-making system. As its formal authority, only the manager can commit the unit to important new courses of action; and as its nerve centre, only the manager has full and current information to make the set of decisions that determines the unit’s strategy. As entrepreneur, the manager seeks to improve the unit, to adapt it to changing conditions in the environment. As disturbance handler, the manager responds to pressures from situations. As resource allocator, the manager is responsible for deciding who will get what. As negotiator, the manager commits organisational resources in real time.

3. **Interpersonal Roles.** As figurehead, every manager must perform some ceremonial duties. As leader, managers are responsible for the work of the people of their unit. As liaison, the manager makes contacts outside the vertical chain of command.

**IS/IT Leadership Roles**

Changes in both information technology and competition continue to change the role of the information systems executive. CSC (1996) has suggested six new IS leadership roles which are required to execute IS’s future agenda:

1. **Chief Architect.** The chief architect designs future possibilities for the business. The primary work of the chief architect is to design and evolve the IT infrastructure so that it will expand the range of future possibilities for the business, not define specific business outcomes. The infrastructure should provide not just today’s technical services, such as networking, databases and desktop operating systems, but an increasing range of business-level services, such as workflow, portfolio management, scheduling, and specific business components or objects.

2. **Change Leader.** The change leader orchestrates resources to achieve optimal implementation of the future. The essential role of the change leader is to orchestrate all those resources that will be needed to execute the change program. This includes providing new IT tools, but it also involves putting in place teams of people who can redesign roles, jobs and workflow, who can change beliefs about the company and the work people do, and who understand human nature and can develop incentive systems to coax people into new and different behaviours.

3. **Product Developer.** The product developer helps define the company’s place in the emerging digital economy. For example, a product developer might recognise the potential for performing key business processes (perhaps order fulfilment, purchasing or delivering customer support) over electronic linkages such as the Internet. The product developer must “sell” the idea to a business partner, and together they can set up and evaluate business experiments, which are initially operated out of IS. Whether the new methods are adopted or not, the company will learn from the experiments and so move closer to commercial success in emerging digital markets.

4. **Technology Provocateur.** The technology provocateur embeds IT into the business strategy. The technology provocateur works with senior business executives to bring IT and realities of the IT marketplace to bear on the formation of strategy for the business. The technology provocateur is a senior business executive who understands both the business and IT at a deep enough level to integrate the two perspectives in discussions about the future course of the business. Technology provocateurs have a wealth of experience in IS disciplines, so they understand at a fundamental level the capabilities of IT and how it impacts the business.

5. **Coach.** The coach teaches people to acquire the skillsets they will need for the future. Coaches have two basic responsibilities: teaching people how to learn, so that they can become self-sufficient, and providing team leaders with staff able to do the IT-related work of the business. A mechanism that assists both is the centre of excellence—a small group of people with a particular competence or skill, with a coach responsible for their growth and development. Coaches are solid practitioners of the competence that they will be coaching, but need not be the best at it in the company.

6. **Chief Operating Strategist.** The chief operating strategist invents the future with senior management. The chief operating strategist is the top IS executive who is focused on the future agenda of the IS organisation. The strategist has parallel responsibilities related to helping the business design the future, and then delivering it. The most important, and least understood, parts of the role have to do with the interpretation of new technologies and the IT marketplace, and the bringing of this understanding into the development of the digital business strategy for the organisation.

**RESEARCH MODEL**

IS/IT leadership role is the dependent construct in this research as illustrated in Figure 1. Three groups of role explanations were identified. First, individual characteristics of the IS/IT leader consist of years worked in the organisation, years worked in IT, years worked in the current position, years of higher education, extent of own IT use and relationship with chief executive (Applegate and Elam, 1992; Earl and Feeny, 1994; Feeny et al., 1992; Stephens, 1993; Watson,
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