

How involvement, IS management effectiveness, and end-user computing impact IS performance in manufacturing firms

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Abstract

A rapidly changing environment requires firms to adopt a customer-driven approach in managing their information systems. Study results indicate that firms with high levels of organizational involvement in IS related activities have higher levels of IS management effectiveness. In turn, these higher levels lead to lower levels of end-user self-reliance in application development and higher levels of end-user dependence on IS expertise. In our study, end-user self-reliance indicated the presence of independent end-users circumventing the IS unit by developing software applications and engaging in traditional IS activities. In contrast, end-user dependence on IS expertise indicated that end-users believed that the IS unit was a valuable and reliable source of technical knowledge and application support. More effective IS management practices, combined with higher end-user dependence on the IS expertise, were found to lead to improved perceptions of IS performance. Data were collected from 265 senior manufacturing managers who were selected because their perspective of IS activities and performance was desired and manufacturing units are an important user of the services. Structural equation modeling was used to test our hypotheses.

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1. Introduction

The information-based society requires firms to develop IS that are more flexible, integrative, responsive, and information rich. Firms must align their IS unit with core business processes. Multiple paths toward strategic alignment can exist and conflicts may arise when a firm's IS technology strategies exceeds its ability to align them with its business strategies.

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Misalignments in IS strategies, goals, and objectives may be avoided by increasing end-user involvement [20]. The implementation of cross-functional decision processes creates greater work system integration, collapses traditional organizational boundaries, and promotes interdependent work [18]. With greater organizational involvement comes a revised set of IS management practices that better fit the IS requirements of a firm operating in an information-intensive society. The result is improved IS management effectiveness [21,35]. In contrast, a lack of effectiveness is often cited as a reason for end-users taking control of IS application development [14].

Many firms remain dependent on the IS unit for software application skill and knowledge as well as technical expertise [29]. An IS unit that delivers dependable and accurate service is viewed as reliable [39]. Therefore, greater IS management effectiveness and end-users' willingness to depend on IS expertise creates positive end-user perceptions of IS performance. When IS management is viewed as highly effective, users are more likely to report greater satisfaction with their systems and to exhibit high levels of IS performance [6].

We developed and tested a framework that relates organizational involvement in IS development, IS management effectiveness, end-user self-reliance in application development, end-user dependence on IS expertise, and IS performance. To test this framework, valid and reliable measures were developed to assess each variable, except for IS performance where a proven measure by Raghunathan and Raghunathan was used. To develop these instruments and to test the structural model, data was collected from 265 senior manufacturing managers who depend heavily on IT to reduce costs and improve business processes effectiveness. Structural equation modeling was used to test the proposed relationships.

2. Research framework and hypotheses development

As illustrated in Fig. 1, we assumed that:

1. organizational involvement in application development has a direct and positive impact on IS management effectiveness;
2. IS management effectiveness negatively impacts end-user self-reliance in application development and positively impacts end-user dependence on IS expertise;
3. end-user self-reliance in application development has a negative impact on end-user dependence on IS expertise; and
4. both IS management effectiveness and end-user dependence on IS expertise directly and positively influence perceptions of IS performance.

2.1. Organizational involvement in IS related activities

Organizational involvement is the extent to which personnel are involved in IS software development. Collaborative development involves some users and user groups and the broader user community. Through organizational involvement, the firm must define a common IS vocabulary and publish its meaning, the degree of information access, the quality of information that is acceptable, and the efficiency of processes [10]. Higher levels of systems' success are associated with the active involvement of members of the user community [13].

2.1.1. End-user involvement in IS related activities

End-user involvement is vital because it helps to ensure accurate requirements specifications, to facilitate the development of relevant application designs, and to foster a greater sense of empowerment and ownership among users of IS services. Prior research suggests that end-user involvement is positively associated with a desire to participate in the development process [24]. By providing end-users additional opportunities to influence IS decisions, their involvement should cultivate a greater sense of control, increase motivation and satisfaction with the products and services, and reduce resistance toward change [2,27].

2.1.2. Cross-functional involvement in IS activities

Cross-functional efforts are required for the successful development and administration of new software applications. Research has shown that cross-functional teams greatly improve firm communications, ensuring the integration of business and IT capabilities [41]. They are empowered by the organizational culture and structure in which the team operates [25], facilitating

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