

**SELECT DIMENSIONS OF INFORMATION SYSTEM
SUCCESS – A DIAGNOSTIC ANALYSIS**

**(A STUDY OF RELATIONSHIPS BETWEEN INFORMATION SYSTEM
STRUCTURES AND ORGANISATIONAL CHARACTERISTICS)**

by

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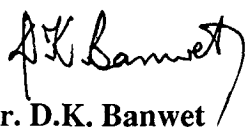
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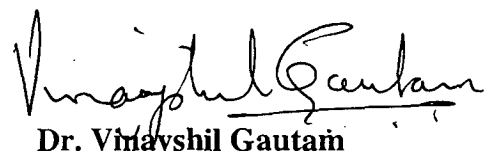
The Thesis entitled **Select Dimensions of Information System Success – A Diagnostic Analysis (A study of relationships between information system structures and organisational characteristics)**, being submitted by **Mr. Rakesh Shalia** to the Department of Management Studies, Indian Institute of Technology, Delhi, for the award of **Doctor of Philosophy (Ph.D.)** is a record of bonafide research work carried out by him. He has worked under our guidance and supervision, and has fulfilled the requirements for the submission of this thesis, which has attained the standard required for a Ph.D. degree of the institute. The results presented in this thesis have not been submitted elsewhere for the award of any degree or diploma.

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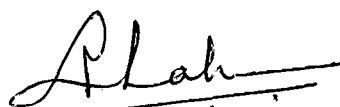
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ABSTRACT

The matching of Information System (IS) structure, or the distribution of electronic communication, processing, and storage capabilities, with the needs of the firm is one of the most critical decisions of a corporation. In response to competition, many corporations are altering their organisational structure by downsizing their middle management. These leaner structures can put new demands on managers, which place heightened importance on obtaining an appropriate IS structure to support the flatter management structure. In spite of the increasing dependence of organisations on IS structure, few classification schemes exist that recognize IS archetypes. A classification scheme would allow an organisation to identify its current IS structure and its alternative structural choices. This would be an essential step in the process of matching IS structure with organisational characteristics. As information system expenditures are significant balance sheet items, it has become essential to evaluate the success of information systems in the organisation. Also the information system success evaluation would help in identifying the right combination of IS structure and organisational characteristics required in the organisations.

A general conclusion from the literature survey is that multiple environmental and organisational variables and their interactions contain relevant information in explaining system success. In addition, the resultant characteristics of information systems are seen as partly dependent upon existing organisational characteristics such as decision – making structure, size, form etc. These characteristics and their relationship with resultant structural attributes of the information services function such as functional centralisation, software/data distribution, and hardware deployment have formed the basis for much of the past research seeking to explain emergent IS structures and their effectiveness.

This research study was carried out with the objectives of empirically deriving a taxonomy of IS structure, based on the degree of centralisation of computer processing, capability to support communications, and the ability to share resources. The study aimed at empirically testing the anticipated/hypothesised relationships between IS structures and organisational characteristics such as: Organisational decision making, Organisational form, Organisational size, Organisational integration, Role of Information Technology (IT) and Organisational competitive strategy. However the main focus of the study was to establish

the linkage between organisational characteristics and information system success and measure the level of information system success of the participating organisations.

By using a multistep cluster analysis, it was possible to derive both the membership and number of groups from the responses of the 156 firms. Four unique and stable groups were identified; centralised (centralised processing, low communication, low sharing), decentralised (decentralised processing, low communication, low sharing), centralised cooperative (centralised processing, high communication, high sharing), and distributed cooperative computing (decentralised processing, high communication, high sharing). The derived taxonomy appears to be exhaustive, mutually exclusive, stable, and consistent.

A total of 2 guiding and 24 micro research propositions were proposed. The study findings revealed that there exists a strong linkage between information system structures and organisational characteristics like decision making structure, organisational integration, role of IT, organisational form and competitive strategy. The finding revealed strong relationship not only between IS success and IS structure but also between IS success and organisational characteristics. Organisations having different combinations of organisational characteristics and IS structures have different levels of IS success.

The results revealed that the organisations having combination of characteristics like decentralised decision making structure, high organisational integration, role of IT as integral, matrix type organisational structure and prospector type competitive strategy support distributed cooperative type of IS structure. This combination also gives maximum information system success. On the other hand the organisations having centralised decision-making structures, low organisational integration, role of IT as traditional, functional type organisational structure and defender type competitive strategy supports centralised IS structure. This combination doesn't yield high level of information system success. Two case studies were developed to examine the pragmatic application of the conceptual model of information system structure and information system success. The findings of this research study are very revealing and useful both for the information system practitioners and for the researchers.

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