



THE INFORMATION SYSTEM 'BUSINESS': A FRAMEWORK AND MEASUREMENT OF INFORMATION SYSTEM INTEGRATION (RESEARCH-IN-PROGRESS)

Elizabeth S. Roberts

Department of Accounting and Finance
The University of Melbourne, Australia

ABSTRACT

This research project (in progress) examines the concept and measurement of the integration of information systems (IS) in organizations. For the purposes of the study, an organization's IS is defined as *the combination of information technology, data, personnel and associated business functions which interact to generate information and which, when appropriately managed, create an information resource which assists the organization achieve its goals efficiently and effectively*. The IS integration concept is multi-faceted, and may be regarded as the degree to which an IS is an essential and effective part of its organization's fabric and strategic operations. IS integration can be viewed on a continuum. Traditionally, IS functions developed as service centers, providing data processing at lower cost and higher speed than comparable manual systems. Where an IS has all the characteristics of a service center, *ceteris paribus*, its level of integration would be low. At the other extreme, however, many IS are now central to the ongoing functioning of their host organizations, and some of these IS would have a very high level of integration.

The concept of IS integration is potentially an important construct in organizational studies involving IS. The degree of IS integration may be one of the critical factors affecting successful adoption of new information technology (IT). Anecdotal evidence from manufacturing enterprises suggests, for instance, that many accounting information systems (AIS) have not kept pace with new processing techniques and, in fact, may have even impeded such developments. One reason suggested for this failure in individual organizations is a low level of overall IS integration.

The search for an appropriate measure of IS integration involved several stages. First, a framework based on the concept of an IS as a 'business-within-a-business' was developed. This framework indicates the role of the IS unit in its organizational environment. It depicts the development, production, and delivery of IS products throughout the organization. It also emphasises the relationships associated with the management of the information system resources. Next, four important areas within this framework were identified: (i) the relationships between IS management, top executives, and managers of other line and staff functions; (ii) the role, position and structure of the IS unit within the organization; (iii) the day-to-day IS planning and control activities; and (iv) the interaction between the IS unit and users. The important features of each of these areas were then identified from the literature -- recent studies of the key issues of concern for IS management were particularly relevant. Those features identified with the first area (management relationships), for example, included the existence of strategic planning and the use of steering committees. The effect of each feature on overall IS integration was carefully considered using two sources: previous studies, and a pilot study. Many studies have described and analysed a number of attributes of these individual IS features. While none of these considered integration explicitly, some inferences can be drawn. For example, an IS whose strategic plan is aligned with the overall organizational strategic plan is likely to be more integrated than one whose plans are not aligned. An IS without strategic plans would be even less integrated. The validity of such interpretations was considered during field studies of the IS in thirteen manufacturing organizations. At the same time, data were collected on the attributes discussed in the previous studies. Each relevant feature was scored according to its contribution to the integration of the IS in the organization, and these scores were summed to generate an overall integration measure. Further research to refine the IS framework, and to validate the integration measure, is now in progress.