

Editorial

Information systems and inter-organizational networks

This special issue of EJIS results from a call for papers on inter-organizational information systems (IOS). The aim was to bring together some of the best work in this important and rapidly changing field in order to promote a clearer understanding of the way organizations are using the technologies and to highlight recent theoretical approaches which may better explain such behaviour. In the early stages of the implementation of IOS the prevailing idea was of a move to market type relationships (Malone *et al.*, 1987). However most empirical research has shown that the phenomenon is far more complex than anticipated. The development of electronic markets has proved problematical, and IOS have often been used to strengthen the links between organizations leading to more hierarchical relationships. For example the trend to the use of fewer suppliers is now generally accepted. Of crucial interest is the role of information systems (IS) in these changes: is it the driver, enabler, or technological spectator? Would such changes be occurring if IS were not involved? It is to questions such as these that this special issue is addressed. We hope that the chosen papers will contribute to the debate, provide new empirical evidence, stimulate theoretical insights, and encourage more research on this topic.

The first three papers offer new theoretical perspectives starting from differing points on the markets and hierarchies spectrum. Reimers ('Managing electronic markets: the non-market preconditions of electronic markets') concentrates on the reasons for electronic markets forming, and suggests a theoretical framework which encompasses a set of conditions which are necessary if electronic markets are to prevail. The underlying approach is one of favouring the emergence of electronic markets 'in order to improve economic efficiency and social justice', while providing a theoretical understanding of why they have been far more difficult to achieve than first expected. Bensaou and Venkatraman ('Inter-organizational relationships and information technology: a conceptual synthesis and a research framework') complement the first paper by looking at the inter-organizational use of information technology (IT) that is employed in order to 'leverage information technology capabilities'. Their eclectic approach uses the three dominant theoretical perspectives of the debate – organi-

zation theory, transaction costs economics, and political economy – and proposes a research framework based on information processing which encompasses the main concepts within a conceptual model of inter-organizational relationships. The authors suggest that the model may be used in a variety of important roles, ie a descriptive (conceptual), empirical (analytical), and a prescriptive (normative) framework. The third paper in this part looks at how a group of companies have configured themselves to establish a closed form of market, and is positioned in the middle of the first two papers. Klein ('The configuration of inter-organizational relations') takes the electronic markets model and associated transaction costs theory (Williamson 1991), and compares them with alternative explanations of the effects of IS on the structure of market networks. Klein adopts the research framework proposed by Holland and Lockett (1994) and enhances it by the addition of social-based economics and resource-based strategy literature to include the constructs coordination strategy, governance structures, market and industry structure, transaction and relation attributes, and the resource base of the organization. The framework is used to analyse the empirical findings of the case of EUROSELECT, a network of 12 European grocery wholesalers.

All of the theoretical papers offer rich insights and should provoke further research in the area. They illustrate the complexity of the arrangements that are facilitated by the development of IOS, and the central role that information plays in the formation of new types or relationships. The use of a wide range of theoretical perspectives also suggests that IOS may be having a major impact on the relationships between organizations both now and in the future.

The second set of papers, while using various theoretical perspectives to analyse a series of cases, mainly concentrate on the presentation of new field work. They are therefore extremely useful in both testing the theoretical perspectives, and pointing to new and developing research areas. Cavaye ('The implementation of customer oriented inter-organizational systems: an investigation from the sponsor's perspective') presents an important study of the adoption of nine different systems. Unlike earlier work which has tended to concentrate on the development of the systems, Cavaye is looking at the literature on innovation to explain better the various take-up rates of the products. The contrast

between the cases proves very illuminating, and implications for practice are drawn. In the second paper, Reekers and Smithson ('The role of EDI in inter-organizational coordination in the European automotive industry') take a particular industrial sector as their focus. They throw new light on some of the structural changes that are being brought about within the industry. The role of EDI as a contributing factor to such change is identified, but its effect has to be seen in connection with parallel developments that are also taking place. The paper also raises many questions on the control of the suppliers by the manufacturers, and suggests that the power relationships may be under stress. A clear need for a much deeper understanding of the new organizational processes and arrangements is highlighted, suggesting that much more research in this area may be fruitful. The final paper in the series by ourselves, ('The creation of a virtual bank') considers the novel relationship that has been implemented between an international bank and a number of regional banks. It illustrates how the overall system was developed by a combination of internal systems produced by separate divisions of the international bank which were then offered to smaller regional banks in partnership. Regional banks in essence outsource their international payments, while becoming a virtual international bank. The case shows how the power of separate systems can be harnessed to a mutual organizational advantage with little technical difficulty.

Inter-organizational systems of this type may be one of the growth areas of the future, and virtual organizations are one manifestation of the increasing interconnectedness between separate organizations. The three empirically based papers show the richness of inter-organizational systems. Although at the early stages of technological development, the cases suggest that their variety, size and complexity will increase dramatically as the technological barriers decrease.

The set of papers has been brought together to highlight the research topic, and create a broader awareness of the importance of the research area. A reading of them provides fascinating insights into what organizations are doing with IOS and they provide theoretical frameworks which partly explain the diverse range of IOS and firm behaviour. The papers also show the wide range of literature that is required to help develop comprehensive perspectives. Information systems have had an enormous impact on the internal management of organizations, and they are now beginning to have a similar impact on the relationships between organizations. These papers, while illustrating many exciting new developments, also point to the inherent complexity of the phenomena under study. We need much deeper understanding of the changes that are taking place, and much better theories to explain them. This is one of the challenges that faces IS researchers, and we hope that this special issue helps stimulate debate and further research.

References

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