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The Adoption and Impacts of B2B Marketplaces: Transaction Versus Collaboration Marketplaces

Chair

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Introduction

B2B electronic marketplaces (EMPs) are an interesting and important phenomenon because of their potential to affect company and supply chain performance and to alter industry structure. They are also especially interesting for the IS field because of their potential to alter inter-firm governance arrangements. Today, organizations are highly autonomous in their choice of information technologies and pair-wise “trading partner agreements”. Widespread adoption of EMPs as intermediaries in inter-organizational relationships could significantly alter patterns of inter-firm coordination and collaboration.

In this panel we distinguish two broad types of electronic markets: Transaction-oriented marketplaces and collaboration-oriented marketplaces. Whereas *transaction-oriented marketplaces* are characterized by catalogs, auctions or exchanges and support for negotiated pricing, *collaboration marketplaces* are characterized by planning capabilities such as continuous planning, forecasting, and replenishment or product life-cycle management. Collaboration marketplaces have different benefits than transaction-oriented marketplaces and different adoption considerations. Therefore, theoretical frameworks such as transaction cost theory, which apply quite well to transaction-oriented marketplaces, provide only a partial explanation of collaboration marketplace adoption.

In this panel we will discuss the adoption and impacts of these two main types of marketplaces first from an applied angle and then from a theoretical angle. In addition we will compare several alternative theoretical perspectives on transaction versus collaboration marketplaces and discuss their implications for future research.

Background

Organizations have long known the benefits of better relationships with the customers and suppliers. Better inter-organizational relationships both require and follow from increased information sharing (Anderson and Weitz 1989; Boyle, Dwyer, Robicheaux and Simpson 1992). And information technology has long been viewed as a means to promote better information sharing and better relationships with customers and suppliers. For example, inter-

organizational systems like electronic data interchange (EDI) have permitted firms to exchange information on a more timely and frequent basis (Damsgaard and Lyytinen 1998; Damsgaard and Lyytinen 2001), (Swatman, Swatman and Fowler 1994).

Until quite recently, however, most attempts to improve information sharing with customers and suppliers have focused on *pairs* of business partners (Corbett, Blackburn and Van Wassenhove 1999). Despite standardization efforts (Damsgaard and Truex 2000), EDI is usually customized and implemented on a pair-wise basis, incurring considerable set-up and maintenance costs. And when closer coordination is sought, efforts required to achieve electronic integration increase (Webster 1995; Zaheer and Venkatraman 1994). Inter-organizational improvement efforts, therefore, have generally relied quite heavily on costly “relationship-specific” IT and process investments.

Three things have started to change in recent years. First, companies are increasingly recognizing that their performance depends upon the competitiveness of their *extended supply chains*. Extended supply chains consist of at least three parties, such as a manufacturing company and its suppliers and customers, or a manufacturing firm and its first and second tier suppliers. The importance of extended supply-chain relationships is illustrated by the huge inventory losses Cisco incurred through lack of visibility into the ordering behavior of its first-tier suppliers (Kaihla 2002).

Second, organizations are starting to recognize that better supply chain performance requires information sharing beyond the boundaries of both organizations and their pair-wise relationships. The importance of information sharing in supply chain performance is now well understood. Information sharing has been found to augment supply-chain profits in game theoretic models. Information sharing throughout the supply chain can considerably reduce inventory levels and other information asymmetry costs (Lee and Whang 2001). Exchange of information in a timely, effective way is a key driver of supply chain performance (Fisher, Hammond, Obermeyer and Raman 1997; Klobas 1998).

Third, organizations are recognizing the need for new approaches to using IT for inter-organizational information sharing. Although IT has been a known factor in improved supply chain performance since the 1980s (Porter 1985), only recently have companies started experimenting on a moderate scale with “network” type IT arrangements for B2B buying and selling. So, to avoid future supply chain information visibility problems, Cisco, for example, is currently building a collaborative marketplace to automate the flow of information between Cisco, its contract manufacturers, and its component suppliers (Kaihla 2002).

One response to these three developments has been the emergence of B2B EMPs. Much research and theorizing about business-to-business electronic marketplaces (B2B EMPs) is based on certain assumptions about what these organizations do. B2B EMPs are usually understood as “spaces” where buyers can discover products and their prices by means of electronic catalogs, auctions or exchanges, and IT-capabilities that support negotiated pricing. We call these EMPs *transaction EMPs*. But some EMPs have been observed to support collaboration among companies and *not* to support business partner and price discovery. We call the latter type of EMP *collaboration EMPs*. The potential impacts of collaboration EMPs are great, but they are likely to be quite different from those of transaction EMPs. Therefore, when deciding whether to join collaboration EMPs, companies are likely to employ different logics than when deciding whether to join transaction EMPs. Because collaboration EMPs may exhibit different adoption and impact behavior, it is worthwhile to consider different theoretical frameworks in addition to traditional theoretical approaches.

In the IS literature, the leading perspective on EMPs is transaction cost theory. Other factors important in understanding the adoption and impact of marketplaces include: integration benefits (that is, collaboration and coordination *other than* selling and buying),

preexisting and extended supply chain relationships among the participating organizations, and non-economic factors such as power. These factors might be particularly important for the adoption and impact of collaboration marketplaces. A number of other literatures with a bearing on electronic marketplaces have critiqued and extended transaction cost models. Among the ones discussed will be strategic networks theory, marketing channel theory, and political economy. Some of our panel members will defend transaction cost focus while others will challenge it.

The main questions we will address in this panel are: Do the two types of marketplaces have different adoption dynamics and/or impacts? Do they have different impacts on buyer and seller relationships? On industry structure? On inter-firm coordination? On information sharing? We will discuss several promising lines of further theoretical development or empirical investigations of EMPs in the light of the questions outlined below.

Issues Addressed by Panel Members

- Do these two types of B2B marketplaces have different adoption factors?
- Do these two types of B2B marketplaces have different impacts ?
- Do these two types of B2B marketplaces require different theoretical anchors from the ones traditionally used by the IS literature?
- Are the two types of B2B marketplaces just hype or do they represent a fundamental shift in inter-organizational collaboration and coordination?

The Structure of the Panel

The panel will consist of the presentation of a set of propositions that will be discussed and defended or challenged by each of the participants. Proponents of the collaboration EMP view will include Ellen Christiaanse, Christina Soh and Lynne Markus, whereas Jan Damsgaard and Kalle Lyytinen will be the proponents of the transaction EMP view. After each proposition there will be ample opportunity for the audience to participate in the discussion. The aim of the panel to be as interactive as possible. Therefore we avoid having each panel member make a formal presentation sequentially.

Panel Members' Bios

M. Lynne Markus is Trustee Professor, Department of Management, Bentley College. She was formerly Professor (Chair) of Electronic Business at the City University of Hong Kong. Professor Markus's research focuses on electronic business, enterprise systems integration, change management, and knowledge management. Dr. Markus was formerly a member of the faculties of the Peter F. Drucker Graduate School of Management, Claremont Graduate University, the Anderson Graduate School of Management (UCLA) and the Sloan School of Management (MIT). She has also taught at the Information Systems Research Unit, Warwick Business School, UK (as Visiting Fellow), at the Nanyang Business School, Singapore (as Shaw Foundation Professor), and at the Universidade Tecnica de Lisboa, Portugal (as Fulbright/FLAD Chair in Information Systems). Dr. Markus has received research grants and contracts from the National Science Foundation, the Office of Technology Assessment (US Congress), The Advanced Practices Council of SIM International, the Financial Executives Research Foundation, and Baan Institute. She is the author of three books and numerous articles in journals such as *MIS Quarterly*, *Management Science*, *Organization Science*, *Communications of the ACM*, and *Sloan Management Review*. She serves on the editorial boards of several leading journals in the information systems field. She serves as AIS VP Education and has served as VP for Academic Community Affairs for SIM International. Markus holds a B.S. in Industrial Engineering from the University of Pittsburgh and a Ph.D. in Organizational Behavior from Case Western Reserve University.

Ellen Christiaanse is an Associate Professor of Information Systems at the University of Amsterdam in the Netherlands and at ESADE Business School, Barcelona, Spain. Professor Christiaanse has spent 3 years as a visiting scholar at the MIT Sloan School in the US, and holds a Ph.D. in Economics from the Free University in Amsterdam, the Netherlands. Dr. Christiaanse taught at Nyenrode University and Delft University in the Netherlands and at international institutions as a guest lecturer. Professor Christiaanse's research interests include on-line supply chains, (mobile) electronic channels and the leveraging of expertise and information as an asset in inter-firm settings, in particular B2B exchanges. She has been awarded several international prizes for her research by the Academy of Management, the EFMD, and the ECIS. Her work has been published in *Management Information Systems Quarterly*, the *Journal of Global Information Management*, the *International Journal of Physical Distribution and Logistics Management* and the *Journal of Information Technology*, and the Proceedings of ICIS, ECIS, and HICSS. Her teaching and consulting activities are focused on IT strategy, B2B marketplaces and electronic channels.

Jan Damsgaard is a Professor at the Department of Informatics, Copenhagen Business School, Denmark. He holds a Master's degree in Computer Science and Psychology and a Ph.D. in Computer Science. His research focuses on the diffusion and implementation of networked and standard-based technologies such as intranet, extranet, Internet portals, EDI, mobile technologies and corporate information infrastructures. In much of his research he seeks to combine network economics with an appreciation of technology characteristics. He presented his work at international conferences (ICIS, ECIS, PACIS, HICSS, IFIP 8.2. and 8.6) and in international journals (*Information Systems Journal*, *Journal of Strategic Information Systems*, *Information Society*, *Journal of Global Information Management*, *Journal of Organizational Computing and Electronic Commerce*, *Information Technology and People*, and *Journal of the Association for Information Systems*).

Kalle Lyytinen is a Professor in Information Systems at Case Western Reserve University and an Adjunct Professor at the University of Jyväskylä, Finland. He currently serves on the editorial boards of several leading IS journals, including *AIS journal*, *Information Systems Research*, *EJIS*, *JSIS*, *Information & Organization*, *Requirements Engineering Journal*, and *Information Systems Journal*. He has published over 150 scientific articles and conference papers and has edited or written eight books on topics related to system design, method engineering, implementation, software risk assessment, computer supported cooperative work, standardization, and ubiquitous computing. He is currently involved in research projects that look at the IT induced innovation in software development, architecture and construction industry, and is developing a high level requirements model for large scale systems. He is also engaged in a project supported by NSF that focuses on the institutional forces involved the development of global electronic commerce. His research interests include information system theories, computer aided system design and method engineering, system failures and risk assessment, computer supported cooperative work, nomadic computing, and the innovation and diffusion of complex technologies and the role of institutions in such processes.

Professor Soh is Head of the IT and Operations Management Division at the Nanyang Business School, and Director of the Information Management Research Centre (IMARC), Nanyang Technological University in Singapore since 1998. Prior to her academic career, she worked for Ernst and Young, and also for Seagate Technologies. She received her Ph.D. from the Anderson School of Management at the University of California, Los Angeles, and has an honors degree in Accountancy from the National University of Singapore. She has over 10 years of experience in industry and government related research in the areas of IT investment and business value, national IT policy, and enterprise systems. Her current areas of research are E-business strategy and B2B Marketplaces. Her research has been funded by the National Computer Board of Singapore, Overseas Chinese Banking Corporation, CommerceNet Singapore, and Anderson Consulting Australia, among others. She has made many presentations to senior executive audiences of large local conglomerates, multinational companies, Singapore and Malaysian government organizations. She is active in the international research community, and is currently on the editorial board of the *Journal of Strategic Information Systems*, *Information and Organization*, *MISQ Executive*, and *Journal of the Association for Information Systems*. She is a regular reviewer for the *MIS Quarterly*, and *Information Systems Research*. She was the research-in-progress track-co-chair for the International Conference on Information Systems 2001 (New Orleans), and is also a track co-chair for ICIS 2003 (Seattle). She has also served as a faculty advisor for the ICIS doctoral consortium in 1997 and 2001, and on the AIS Lifetime Achievement Awards Committee (1999) and the AIS Executive Council Nominations Committee (2002). Her papers have been published in journals such as the *Communications of the ACM*, *Database*, and *Journal of Strategic Information Systems*.

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