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Two Basic Types of Business-to-Business Integration

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ABSTRACT

In this paper we argue that there exist two basic forms of business-to-business integration (B2Bi), namely, extended enterprise integration and market B2Bi. The paper at hand clarifies the meaning of both concepts, shows that the difference between both is fundamental, and discusses the consequences of the difference in the realm of Web services development. The importance of coordination and the role of standards are studied for both types of e-business. The authors hope this paper clearly shows the foundations of B2Bi, and that the paper as such brings clarity into B2Bi practices.

Keywords: business-to-business integration (B2B); coordination; extended enterprise integration; market B2Bi; standards; transaction cost economies; value chain integration; Web services development

INTRODUCTION

Information and communication technology (ICT) is becoming more and more prevalent in many businesses. In the past, many information systems have been developed to deliver some specific functionality. Nowadays, one of the tasks of information technology (IT) departments is to integrate existing information systems, not only within the company borders, but also across company borders. Also, new information systems are being developed which should deliver cross-company functionality. The human communication processes that are involved in analyzing and designing the business, and in designing, implementing, and maintaining information systems are affected by the fact that the IT department of one company has to create software to fulfill requirements of people not only in their own company, but in *other* companies, too. In this context, the term *extended enterprise* is often used. The extended enterprise concept is, however, not unequivocally defined.

This paper first discusses the concept of the extended enterprise and opposes this form of economic organization to the two other basic forms of economic organization, namely, the firm and the market. Next, we derive from organization theory (see, e.g., Hatch, 1997; Morgan, 1996) two basic types of B2Bi, namely, extended enterprise integration and market B2Bi. We show that the extended enterprise constitutes a specific context within which information systems are being developed, integrated, and maintained, and that this context allows for and needs specific ways of integration. We discuss the role of standards and coordination for both types of B2Bi.

This paper is relevant for both researchers and practitioners. Researchers can relate their research to the two types of B2Bi. It is interesting to note that not all ICT innovations are appropriate for both types of B2Bi. For example, the public universal description, discovery, and integration (UDDI) initiative focuses on market B2Bi, not on extended enterprise integration. For practitioners the paper reveals a number of coordination issues they should be aware of when pursuing B2Bi. For both groups it is interesting that the paper investigates the role of standards in realizing B2Bi.

EXTENDED ENTERPRISE VERSUS OTHER FORMS OF DOING BUSINESS

For a long time, two basic forms of economic organization have been recognized: markets on the one hand, and hierarchies (firms) on the other. Powell (1990) refers to Ronald Coase as the person who first discussed the firm as a governance structure rather than just a black box that transforms inputs into outputs. Coase (1937) asserts that firms and markets are alternative means for organizing similar kinds of transactions. Only in the 1970s, proponents of the *transaction-cost economics* acted upon Coase's findings. One of these proponents, Williamson (1975, 1985), argues that some transactions are more likely to take place within hierarchically organized firms (Williamson equated firms with hierarchies) than through a market interface. More specifically, he states that transactions that are to be executed within hierarchically organized firms are likely to involve uncertainty about their outcome, recur frequently, and require substantial "transaction-specific investments" (of money, time, or energy) that cannot be easily transferred. On the other hand, exchanges that are straightforward, nonrepetitive, and require no transaction-specific investments can be expected to take place across a market interface. According to Powell (1990, p. 303), "Organization, or hierarchy, arises when the boundaries of a firm expand to internalize transactions and resource flows that were previously conducted in the marketplace."

This dichotomous view of markets and hierarchies — as discussed by Williamson (1975) — sees firms as separate from markets and assumes the presence of sharp firm boundaries. These sharp boundaries, however, do not always seem to be present. This is true especially in the case of partnering organizations (extended enterprises). Transactions between partnering companies can be seen as a hybrid form of economic organization. That is, if transactions are distributed as points along a continuum with discrete market transactions located at one end and the highly centralized firm at the other end, partnering companies fall in between these poles. This is illustrated in Figure 1.

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