Chapter X

An Examination of Inter-Organizational Decision Support Systems

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Abstract

A broad range of Inter-Organizational Decision Support Systems (IODSSs) can be built to support external stakeholders of an organization. This article examines recent developments associated with building and deploying such systems. The IODSS concept is defined, and an information technology architecture for such a system is explored. Examples of current implementations are categorized as communication, data, document, knowledge, and model-driven IODSSs. Further, implementations of IODSSs are categorized as customer- and supplier-focused. Advantages, disadvantages, and current issues associated with IODSSs conclude the discussion.

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Introduction

According to Microsoft Chairman Bill Gates (1996, p. 158), the Internet “will carry us into a new world of low-friction, low-overhead capitalism, in which market information will be plentiful and transaction costs low.” To help managers and companies exploit this radically different business environment, more innovative decision support capabilities must be developed. It is especially important that more decision support capabilities be made available by organizations to external stakeholders. Organization stakeholders make many interdependent decisions that can be supported and potentially enhanced using information technologies. Decision interdependencies impact the success of the organizations making them.

For many reasons, the logical technologies to use for building IODSSs are the global Internet infrastructure and Web development and server technologies. The dominant information technology platform in companies is changing from mainframes and LAN-based, client-server systems to Web and Internet technologies. This technology change is expanding the possibilities for computerized decision support. The target users for DSSs can expand significantly to serve a large group of external stakeholders. The variety of decision support applications that can be developed, delivered, and shared is also becoming much larger.

Today, innovative inter-organizational examples of all five generic DSS types (cf., Power, 2002) can be found in organizations, including communications-driven, data-driven, document-driven, knowledge-driven, and model-driven DSSs. These five types of DSSs are the foundation of an expanded decision support framework (cf., Power, 2000, 2002). In the context of IODSSs, communications-driven DSSs can enhance communication in inter-organizational work systems, including supply chains and distribution networks; data-driven DSSs can provide stakeholders with access to historical data warehouses and other relevant data; document-driven DSSs encourage knowledge sharing; knowledge-driven DSSs help distribute expertise more widely to those who could benefit; and finally, model-driven DSSs can provide assistance to any stakeholder who needs access to the “what if?” analyses made possible by the model. The expanded DSS framework also identifies three secondary issues that must be understood and specified when planning and examining specific DSSs. These issues are the enabling technology used in building the DSS, the purpose of the specific DSS, and the targeted users, including external stakeholders.

If the primary targeted users of a DSS are external stakeholders, it is best described as an IODSS. What is the need for IODSSs? IODSSs can help create an extended enterprise, improve stakeholder satisfaction, reduce inventories, speed response to stakeholder requests, reduce decision cycle time, and improve cooperation among partner organizations. To realize these benefits, managers
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