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INFORMATION OWNERSHIP, ACCESS AND CONTROL: STRATEGIES FOR REENGINEERING INFORMATION SYSTEMS IN NETWORKED CORPORATIONS

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We analyze the issues surrounding information ownership, access and control when a firm reengineers its business processes. The emergence of new intranet technology for universal access to corporate information has led to widespread migration efforts toward these open systems. However, although such access is *technologically feasible,* when attempting to switch to such information systems, companies face significant *internal business problems* related to *ownership, maintenance and control* of information. They also require mechanisms to monitor and streamline universal access.

Our motivation arises from a number of reengineering and process design projects on which we have worked with a Fortune 50 company. For instance, this company stores all its personnel data in a hierarchical database running on a closed legacy mainframe. During its reengineering efforts, access to portions of this information was often required by field managers and employees in the sales and service divisions. The infeasibility of remote access from the existing system precluded granting access. Consequently, the new processes were implemented either by treating this closed system as a constraint (thereby failing to eliminate some handoffs and rekeying, and increasing cycle time), or by replicating the necessary portion of the information on a different platform. Migrating this legacy system to an open architecture has not occurred because of the cost of disruption, because the needs of the personnel division are adequately met by the existing system, and (importantly) the IS employees of the personnel division, who are crucial for a successful transition, have incentives to oppose switching to a new platform.

The resolution of problems such as the one created by the personnel data system described above are impeded by the reality that the ownership of this information lies in the department that created and maintains the system. This causes conflicts when cross functional access is desired and significant misalignment of the objectives of the firm and the incentives of the department when migration to a more efficient system is required.

Interestingly, decentralized access is technologically possible — intranet technology and related database and communications advances have ensured this. However, there are significant organizational issues that need to be resolved first. The access problems described above and the technological feasibility of their resolution have led us to formulate and address a number of research questions. These questions and preliminary results are summarized below:

1. How can a corporation achieve widespread decentralized access of information owned by functional departments while ensuring the maintenance, updating, data quality and consistency and database integrity of this information? Our results indicate that the ownership of this information should be centralized. A related question that we also address is the degree of centralization of information ownership (at what level should ownership reside).

2. What will the form of these access control mechanisms be? We propose that certain forms of transfer pricing will align the incentives of the information controllers and users. Centralized ownership assumes increased importance in this context, as it will allow the feasibility of a firm value maximizing technology infrastructure and an efficient set of decentralized access control mechanisms. We also examine the optimal level of aggregation when pricing information; due to accounting and transaction cost considerations, it is infeasible to price every byte of data, or every record in a database individually; however the greater the granularity, the less efficient the outcome. The decreasing cost of information processing has important and interesting implications in this regard.