Chapter VI

Migrating Legacy System to the Web: A Business Process Reengineering Oriented Approach

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The Internet is an extremely important new technology that is changing the way in which organizations conduct their business and interact with their partners and customers. To take advantage of the Internet open architecture, most companies are applying business reengineering with the aim of moving from hierarchical centralized structures to networked decentralized business units cooperating with one another. As a consequence, the way in which software information systems are conceived, designed, and built is changing too. Monolithic, mainframe-based systems are being replaced by distributed, Web-centric, component-based systems with an open architecture.

Ideally, business process reengineering should entail the adoption of new software systems designed to satisfy the new needs of the redesigned business. However, economic and technical constraints make it impossible in most cases to discard the existing and legacy systems and develop replacement systems from scratch. Therefore, legacy system migration strategies are often preferred to replacement. This entails that a balance must be struck between the constraints imposed by the existing legacy systems and the opportunities offered by the reengineering of the business processes.
This chapter discusses a strategy for migrating business processes and the supporting legacy systems to an open, networked, Web-centric architecture. The overall strategy comprises modeling the existing business processes and assessing the business and technical value of the supporting software systems. A decisional framework helps software management to make informed decisions. This is followed by the migration of the legacy systems, which can be enacted with different approaches. The chapter discusses a short-term migration approach and applies it to an industrial pilot project.

**INTRODUCTION**

Convergence between telecommunications and computing and the explosion of the Internet suggest new ways of conceiving, designing, and running businesses and enterprises. More and more companies are moving towards a virtual organization model, where independent institutions, departments, and groups of specialized individuals converge in a temporary network with the aim of utilizing a competitive advantage or solving a specific problem.

Information and communication technology is a primary enabler of virtual organizations, as people and institutions in a network make substantially more use of computer-mediated channels than physical presence to interact and cooperate in order to achieve their objectives. However, technology is not the only factor: taking advantage of the Internet and its open architecture requires that the way in which business processes are organized and enacted be profoundly changed.

Business Process Reengineering (BPR) is defined as “the fundamental rethinking and radical redesign of business processes to achieve significant improvements of the performances, such as cost, quality, service, and speed” (Hammer & Champy, 1993). Most BPR projects aim at converting business organizations from hierarchical centralized structures to networked decentralized business units cooperating with one another. This conversion is assuming a strategic relevance as the Internet is radically changing business processes, not only because they are purposely reengineered, but also because the Internet and, in general, the information and communication technology, offer clients and customers more convenient means of fulfilling their requirements.

Current business processes have been profoundly fitted to the available hardware and software. The technologies involved in process execution impact the way businesses are conceived and conducted. Abstractly, reengineering business processes should entail discarding the existing and legacy systems to develop new software systems that meet the new business needs. This is superficially attractive and humanly appealing. However, in most cases, legacy systems cannot be simply discarded because they are crucial systems to the business they support (most legacy systems hold terabytes of live data) and encapsulate a great deal of
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