

**The Interactions Between Improving Access to Data and Improving Processes**  
(Work in Progress)

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New information technologies and enterprise systems have significantly impacted process design in many firms. These effects can occur at both departmental and organization-wide levels resulting in different intended and unintended outcomes (Foster and Franz, 1995). One of the expected outcomes of an enterprise information system is process rationalization and simplification. Rationalization refers to the organizational analysis of processes to determine key processes and to assess how these processes interact to satisfy customer needs. This can result in organizational redesign and the elimination of some low priority processes. Simplification is a systems analytic approach through which teams or individuals study processes with an eye towards eliminating non-value added steps or redesigning processes.

Dichotomous approaches to process design depend on the enterprise software used. Software such as SAP R/3 and PeopleSoft contain many standardized processes within the software that require the adopting firm to adapt its processes to the requirements of the software. SQL and Oracle are more adaptive and allow firms to tailor the software to firm processes. Both of these approaches have their advantages and disadvantages.

This paper contains a case study showing how the Idaho State Department of Water Resources (IDWR) implemented an SQL-based enterprise information system and used this process to simplify its major customer-oriented processes to improve service to the taxpayers of Idaho. The focus of this paper is on methods used in this project. Finally, we will outline key lessons learned from our successes and mistakes during this process.

**Case**

Now that we have defined workflow and enterprise systems, we will discuss the organization where these were implemented. We will then discuss some “lessons learned” from this process.

The key participants in this project were employees from the IDWR, a team of consulting programmers and systems designers from Enabling Technologies, Inc., and the authors of this article. To begin the processes, a team of departmental managers called the Information Technology Steering Committee (ITSC) developed a list of 52 core processes for the department. Phase 1 of the project involved training department employees in a variety of divisions to draw workflow diagrams, process flowcharts, data flow diagrams, and context diagrams using Microsoft PowerPoint. Figure 1 shows a sample flowchart for the Water Rights new application process. This process included receiving the application and doing the analysis, field examinations, and work required to generate a water right. Documentation was also created outlining system parameters, process objectives, and deficiencies of the current system.

Led by the manager of the Adjudication Division of IDWR, top management recognized that along with migrating the data, the department had a significant opportunity for improving processes and creating organizational improvements in the areas of data availability and customer service. As a result, prior to beginning development of the system, a Phase 2 process was begun to upgrade the processes prior to systems development. Of the 52 processes previously identified, key processes were chosen. Teams of process owners and users were formed to study the processes and make improvements to the processes.

At the beginning of Phase 2, team members received an intensive 2 days of training in quality concepts, including Deming's 14 points and Baldrige core values. Next they received an introduction to quality tools with an emphasis on team decision making tools such as fishbone diagrams, structured brainstorming, and affinity diagrams. After this training, teams undertook a 13-week project to study the processes and make improvements. Figure 2 shows the revised Water Rights Division new application process. During phase 2, team members were challenged to shorten the process to 45 days. The old process could literally last years. This represented a major improvement in customer service for the Water Rights division.

System requirements were developed and prioritized by seven self-directed work teams with heavy involvement by the system designers. Areas covered by the work teams included: network infrastructure, user interface standards, data structures, document management implementation, geographic information systems, software quality, and risk management. A series of technology demonstration prototypes were developed concurrent with the activities of the process analysis and system requirement teams. These prototypes helped team members to visualize how advanced technology could assist the organization and to validate the overall system architecture.

### **Lessons Learned**

This project, with its focus on the interactions between automated and human processes has yielded several benefits. This section lists some of the generalizable concepts we have learned from this project.

*Cultural change can result from the creation of an enterprise database system.*

*When integrating disparate, unconnected databases, data gaps emerge that make processing difficult.*

*Sharing data breaks down barriers between departments.*

*Enterprise databases provide government an opportunity for getting closer to the customer through data sharing over the internet and through customer co-production.*

### **Conclusions**

This paper contains the results of an implementation of an enterprise database at the Idaho Department of Water Resources. This department has used this project as an opportunity to focus on cultural change and process improvement along with better access to information. The full paper, including citations, is available by contacting either author directly.