

Chapter XII

A Comprehensive Process Improvement Methodology: Experiences at Caterpillar's Mossville Engine Center (MEC)

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ABSTRACT

Since the beginning of the 1990s, business process reengineering (BPR) has received considerable attention from the management information systems (MIS) community (Caron et al., 1994; Davenport, 1993). However, dramatic improvements touted by BPR advocates have failed to materialize in many organizations (Hammer & Champy, 1993; Kotter, 1995). Current research has provided limited explanatory power concerning the underlying reasons behind BPR failure. Hence, in-depth research is needed into companies experimenting with BPR. This case provides a longitudinal view of Caterpillar Inc. Mossville Engine Center experiences with BPR since 1991. It describes how Caterpillar Inc. (Peoria, IL) introduced BPR into one business unit, Mossville Engine Center (MEC), five years ago and saved between US \$10 and \$20 million. Caterpillar believes that its success with process improvement can be directly tied to adoption and implementation of an enterprise-wide methodology called Business Process Simplification and Improvement (BPS/I). BPS/I provides a systematic

methodology for analysis, design, and implementation of reengineering principles. The methodology provides the structure, techniques, and new job roles to effectively implement redesigned business processes. The role of information technology includes facilitation of data transformation, information flow, and communication through each stage of the BPS/I methodology. The case was co-authored by the Process Improvement Manager. His job was to facilitate, instruct, and oversee BPR initiatives. Information was gathered via in-depth interviews, observation, company documentation, and consultant information. Our hope is to introduce mechanisms and guidelines to help other firms effectively implement and manage BPR initiatives.

BACKGROUND

Caterpillar MEC manufactures a variety of small-and-medium-sized diesel engines. The engine center employs approximately 5,000 people with 1,200 in management positions. Total revenue for Caterpillar Engine Division is approximately US \$3.7 billion.

Historically, the management style has been hierarchical with top-down decision making and bottom-up reporting. Line workers are assigned specific tasks and must adhere to specifications provided by project leaders and managers. Managers are provided directives from upper management and are allowed some latitude in how they delegate assignments. Top management creates directives from long-term strategic plans, decides on priorities for major projects, develops the corporate vision, and communicates the vision to employees.

SETTING THE STAGE

Caterpillar Inc. embarked on a long-term strategy to grow its businesses and rethink existing business units and divisions. Over a seven-year period, beginning in 1987, Caterpillar invested US \$1.8 billion in a plant modernization program. The modernization effort enabled the company to improve quality, reduce waste, and helped the Engine Division grow its diesel engine business. In 1990, Caterpillar began a corporate-wide effort to reorganize its business. Its goal was to replace its centralized organization with a decentralized business unit organization focused on meeting customer needs and improving the bottom line. Today, Caterpillar has 17 business units.

In 1991, BPS/I was introduced in several Caterpillar businesses. BPS/I utilizes proven correction, simplification, and reengineering techniques to improve both office and factory business processes. Historically, operational processes have always undergone continuous scrutiny. However, office processes had received little attention. Hence, Caterpillar has shifted its focus to improving inefficient and ineffective office processes.

Formerly, small engine production was part of a larger profit center; consequently, its productivity wasn't as closely scrutinized. As an independent business, Small Engine Products now had to turn a profit in a business that has a lot of competitors and tight profit margins. Small Engine Products management believed that business survival dictated an "improve or perish" mentality. Moreover, it appeared that administrative and cultural changes would be needed to prosper in the future. For these reasons, Small Engine Products management turned to BPS/I.

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