

Chapter 6

Business Process Re-Engineering

ABSTRACT

The chapter defines business Process Re-Engineering (BPR) from a few perspectives to make clear what it is, what it is not, and what it should be. Essentially, the classic definitions provided by Hammer and Champy, as well as Davenport, are used. The common themes encountered in re-engineered business processes are also mentioned, including the kinds of changes that occur when a company re-engineers its business processes. In order to better explain the concepts of BPR, a business process is defined in fundamental terms and distinguished from a function or department (i.e. work unit). The basic types of business processes are described, and those that are mainly focused on by companies in implementing BPR are highlighted. In addition, a general description of the entire spectrum of business processes typical to organizations, comprising both core and support activities, is provided as an overview. Specifically, the core and support processes that apply to the construction industry are defined. In the next part, the enabling role of IT in BPR is explained in relation to how it is crucial to process innovation for e-business, as well as process integration for supply chain management in the new information (or knowledge) economy. In essence, it stresses that new information and communications technologies enable instant communication and networking, and facilitate timely data-sharing and exchange, leading to the transformation of traditional organizations into those that are highly information-based. Examples of e-business and supply chain management are provided, as well as two case studies of Internet-based construction process innovation. In particular, the design and construction process is examined to identify areas for developing process models. Focusing on achieving design and construction process integration over the life cycle of a project, the requirements for change in the construction industry are highlighted. The applications of 3D/4D models are cited as examples, showing the different areas where they can be applied to derive benefits. Building Information Models (BIM) are introduced in the later part of the chapter as an approach that enables dramatic process improvement and innovation. The key concepts of BIM are covered, including research insights into the scope of BIM use, barriers to BIM use, and effects from BIM use. Process improvements as a result of adopting BIM for the purpose of data integration, systems integration, or collaborative working are discussed in both contexts of intra- and inter-organizational use. Illustrations are provided for the three different purposes. Recent developments in BIM are reviewed to present the current state of BIM implementation in the construction industry. The chapter concludes with a summary of the main points covered on BPR.

DOI: 10.4018/978-1-4666-4185-3.ch006

DEFINING BUSINESS PROCESS RE-ENGINEERING

Hammer and Champy (2001:35) define re-engineering as “the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical, contemporary measures of performance, such as cost, quality, service, and speed.” In explaining the meaning of their definition, they used four keywords:

1. “Fundamental” which concerns asking some basic questions about their companies and how they operate like “why do we do what we do?”, “why do we do it the way we do?” because they think that asking these fundamental questions forces people to look at the tacit rules and assumptions that underlie the way they conduct their businesses and, often, these rules turn out to be obsolete, erroneous, or inappropriate;
2. “Radical” where radical redesign means getting to the root of things, that is, not making superficial changes but throwing away the old, and it involves disregarding all existing structures and procedures and inventing completely new ways of accomplishing work as in about business reinvention – not business improvement, business enhancement, or business modification;
3. “Dramatic” which means re-engineering is not about making marginal or incremental improvements but about achieving quantum leaps in performance and the difference is that marginal improvement requires fine-tuning but dramatic improvement demands blowing up the old and replacing it with something new; and
4. “Processes” which in the context of a business process is a collection of activities that takes one or more kinds of input and creates an output that is of value to the customer.

They also mention several aspects which re-engineering is not in order to define what it is. They stress that re-engineering is not the same as automation, and business re-engineering is not software re-engineering which involves rebuilding obsolete information systems with more modern technology. According to them, re-engineering is not restructuring or downsizing, and not the same as reorganizing, layering or flattening an organization. Re-engineering is also not the same as quality improvement or total quality management as re-engineering seeks breakthroughs while quality improvement seeks steady incremental improvement to process performance. Acknowledging that there should be common characteristics in re-engineered business processes, they give the examples of horizontal compression of processes as the combination of several jobs into one and vertical compression as workers making decisions. Essentially, in the two examples, steps in the process are performed in a natural order because work is performed where it makes the most sense, checks and controls are reduced, and reconciliation is minimized. As the outcome of re-engineering, they single out the kinds of changes that can occur in a company which include:

1. **Work units change:** From functional departments to process teams;
2. **Jobs change:** From simple tasks to multi-dimensional work;
3. **People’s roles change:** From controlled to empowered;
4. **Job preparation change:** From training to education;
5. **Focus of performance measures and compensation shifts:** From activity to results;
6. **Advancement criteria change:** From performance to ability;
7. **Values change:** From protective to productive;

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