Chapter 10
On Flexibility in Business Process Management Systems

Amit Deokar
Dakota State University, USA

Nazim Taskin
Dakota State University, USA

ABSTRACT

Business Process Management Systems (BPMS) provide the necessary infrastructure for managing business processes, in both intra-organizational and inter-organizational contexts. These process support systems also provide the technical support for managing changes in business processes, either at design time or run-time. Consequently, it is necessary for a BPMS to be flexible and amenable to changes at various levels. This chapter highlights key dimensions along which process support systems such as BPMS can be made more flexible, provides an overview of the existing body of knowledge on these dimensions, and motivates the future work in this direction. The intention is to provide the reader a strong starting point for either conducting a more detailed literature study or pursuing further research along any of these dimensions.

INTRODUCTION

Business Process Management Systems (BPMS) are essentially "process-aware" information systems (Dumas, van der Aalst, & ter Hofstede, 2005). Systems such as Workflow Management Systems (WFMS) (e.g., Staffware, COSA, MQ-Series), Group Decision Support Systems (GDSS) (e.g., FacilitatPro, GroupSystems), case handling systems (e.g., FLOWer), process coordination modules in ERP systems (e.g., SAP, Baan, Oracle) are examples of BPMS (Chang, 2006). Supporting management of change in business processes from strategic, operational, and system perspectives is one of the key objectives of a BPMS (Earl, 1994). In that regard, BPMS should be highly flexible and amenable to change. This need for flexibility

has been highlighted by many researchers (van der Aalst & Jablonski, 2000).

Flexibility, although much desired in the context of BPMS, has varied notions and literature abound. The goal of this chapter is to highlight key dimensions along which process support systems can be made more flexible, provide an overview of the existing body of knowledge on these dimensions, and motivate the future work in this direction. The intention is to provide the reader a strong starting point for either conducting a more detailed literature study or pursuing further research along any of these dimensions. The article is organized as follows. First, we discuss different notions of flexibility and highlight four main dimensions, which are elaborated later. The next four sections summarize research work done along each of these dimensions. Finally, we summarize the discussion by highlighting opportunities for future research.

CHARACTERIZING FLEXIBILITY IN BPMS

The most widely accepted classification, one that has been used by the trade press and endorsed by the WfMC, divides workflow in four categories: *production*, *administrative*, *ad-hoc*, and *collaborative* (Georgakopoulos, Hornick, & Sheth, 1995). As shown in Figure 1, these business processes are characterized from the perspective of repeatability and business value. Production business processes are most repeatable with high business value, while ad-hoc business processes are at the other end of the spectrum.

Soffer (2005) discusses two forms of flexibility in business processes: short-term and long-term. *Short term flexibility* relates to the ability to recover from small, short term changes by deviating temporarily from the standard way of working, e.g., exception handling. This is analogous to the notion of *system versatility* described by Zhao (1998), which refers to the ability of BPMS to accommodate process variations caused

Figure 1. Types of workflows (adopted from Stohr & Zhao, 2001)
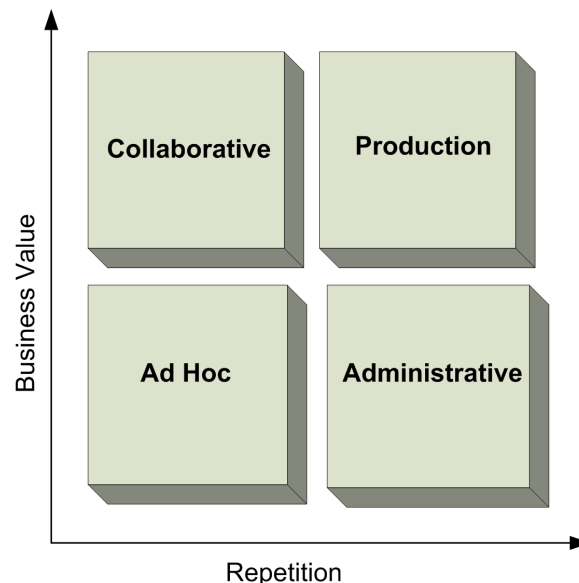
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