Chapter 83
A Mashup-Based Approach to Optimize Human Performance in IT Service Management

Carlos Raniery Paula dos Santos
Federal University of Rio Grande do Sul, Brazil

Lisandro Zambenedetti Granville
Federal University of Rio Grande do Sul, Brazil

David Loewenstern
White Pages, USA

Larisa Shwartz
IBM T.J. Watson Research Center, USA

Nikos Anerousis
IBM T.J. Watson Research Center, USA

ABSTRACT

Modern IT service provider organizations are under a continuous pressure to increase their competitiveness. Ways to reduce costs while improving performance of services are a key focus area for companies in the IT industry. However, despite all the solutions that have been proposed, modeling and optimizing human-centered processes remains a challenging task. The human operator may be influenced by multiple factors and execute the process in a different way each time, thus introducing a significant variability in the final process outcome. Therefore, the goal of this chapter is to introduce the concept of mashups as an effective approach to improve performance in terms of productivity and reliability of human-centered IT Service Management (ITSM) activities. In particular, this chapter aims to define management solutions required to deliver and demonstrate improvements in performance of human-centered ITSM processes. The introduced management solutions are examined through a real case study, related to the Request Fulfillment process.

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INTRODUCTION

Humans are still responsible for a significant part of the work performed in IT Service Management (ITSM). However, because of human's complex behavior, modeling and optimizing human performance is a challenging task. Even in a service management operation organized according the most comprehensive frameworks of best practices, the presence of humans decreases the service performance. Even high trained human operators, performing routine tasks, may execute the process in a different way each time. For example, a system administrator may need to use a different set of tools and techniques in face of unexpected events (e.g., malfunctioning, outages). As a result, enforcing and obtaining tight performance bounds in a human-staffed organization is far more difficult than in a process executed by a machine.

Mashups are powerful applications created from the integration of multiple and distributed information sources. In the context of ITSM, mashups are an effective approach to optimize human performance (dos Santos et al., 2011, 2013). Compared to traditional approaches used to decrease quality variation (e.g., automation and system design), mashups present the additional benefit of supporting the rapid development of human-centric applications. By using mashups technology, human operators can create their own specialized tools and share their creations to build more sophisticated applications in a cooperative fashion.

Considering the feasibility of mashups to improve human performance, we propose a comprehensive methodology that uses service analytics to guide the development of mashups for human-centered ITSM activities. The investigation carried out during this work was conducted based on Six Sigma DMAIC (Define, Measure, Analyze, Improve, and Control), which is a widely accepted management methodology for service quality improvement (Pande, Neuman, & Cavanagh, 2000). Six Sigma focuses on understanding causes for process variability and driving to reach higher levels of consistency. In addition, this work also defines management solutions required to deliver and demonstrate performance improvements in such activities. We use our experience in applying SixSigma in real environments (dos Santos et al., 2011, 2013) to illustrate the introduced management solutions. Specifically, we focus on dispatch, an activity centered on human operators called dispatchers, with knowledge of standard fulfillment procedures. In dispatch, once the customer creates a new request (i.e., incident, problem, or change request) in Service Desk, a ticket is sent to a dispatcher, who is responsible for analyzing the ticket and selecting the appropriate Systems Administrator (SA) to handle it. The investigation allowed us to identify key performance problems that may arise during the execution of ITSM processes and identify the areas where performance improvement is possible.

The rest of the chapter is organized as follows. First, we review key concepts related to mashups. We then present an extensive study of performance management in human-centered ITSM processes. Next, we demonstrate the application of mashups in the dispatch process. This allowed us to identify the areas where performance improvement is possible through the usage of the mashups technology. Finally, the concluding remarks and future research opportunities and directions are presented in the closing section of this chapter.

MASHUPS

Over the past few years, Web applications have taken on renewed interest by the research community. These applications, termed as Web 2.0, are focused on the end-users and more importantly, encourage

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