A Framework for Light-Weight Composition and Management of Ad-Hoc Business Processes

Todor Stoitsev, Stefan Scheidl, and Michael Spahn

SAP AG, SAP Research CEC Darmstadt, Bleichstr. 8,
64283 Darmstadt, Germany
{todor.stoitsev, stefan.scheidl, michael.spahn}@sap.com

Abstract. The increasing importance of unstructured, knowledge-intensive processes in enterprises is largely recognized. Conventional workflow solutions do not provide adequate support for the management and optimization of such processes. Therefore the need for more flexible approaches arises. This paper presents a conceptual framework for unobtrusive support of unstructured, knowledge-intensive business processes. The framework enables modeling, exchange and reuse of light-weight, user-defined task structures. In addition to the person-to-person exchange of best-practices, it further enables ‘outsourcing’ of dynamic task structures and resources in personal workspaces and organizational units where these are managed according to local domain knowledge and made available for reuse in shared repositories. The delegation of tasks enables the generation of enterprise process chains, spreading beyond the boundaries of a user’s personal workspace. The structures emerging from user-defined tasks, task delegations and on-demand acquisition of dynamic, externally managed tasks and resources adequately represent agile, human-centric business processes. Thereby the framework facilitates effective knowledge management and fosters proactive tailoring of underspecified business processes through end users in a light-weight, unobtrusive manner. The presented concepts are supported within the Collaborative Task Manager (CTM), a novel prototype for email-integrated task management.

Keywords: Task management, ad-hoc workflow, computer supported cooperative work, knowledge management, human computer interaction, agile business processes.

1 Introduction

The amount of unstructured, knowledge intensive processes in organizations is increasing. Conventional workflows do not provide sufficient flexibility to reflect the nature of such processes and to provide adequate support for their optimization [3], [18]. Therefore the need arises to elaborate more flexible approaches, able to represent and manage underspecified, highly dynamic user tasks. This is accompanied with the increasing demand to facilitate effective Knowledge Management (KM) in organizations, which could increase the efficiency of business users, engaged in non-routine tasks and which could enable them to better shape their everyday work through application of shared best-practices [12], [20].
The presented paper focuses on intrinsic flexibility and KM aspects, concerning ad-hoc, knowledge-intensive processes. The described framework aims to deliver a generic conceptual base for a software system, which is able to support light-weight, unobtrusive composition and management of underspecified processes in different enterprises from various business domains. The concepts are supported within the Collaborative Task Manager (CTM), a novel prototype which enables proactive tailoring of ad-hoc business processes through end users.

The paper is organized as follows. Section 2 provides an overview of related work in the area of software support for agile business processes. Section 3 describes the basic solution approach behind the framework. Sections 4, 5, 6 and 7 describe the basic framework entities and the associated functionalities. In section 8 conclusions and future research directions are given.

2 Related Work

Software support for unstructured, knowledge-intensive processes has been in the focus of extended research in the last years. The reuse of emerging task hierarchies within a global enterprise infrastructure is often described as one of the major possibilities to support such processes. Riss et al. [17] discuss the challenges for the next generation business process management by suggesting the generation, recognition and application of reusable ‘task patterns’ and ‘process patterns’ as an alternative to static workflows. The task pattern technique is further considered by Grebner et al. [9], who describe basic directions for the utilization of task-based approaches to support users engaged in intensive, unstructured knowledge work. Within the presented paper a task is generally referred to as a self contained unit of work, which can be refined through an arbitrary number of sub tasks and aims to achieve a certain business goal. Thereby the focus is set on high-level tasks, representing single steps in ad-hoc business processes, and the notion of task patterns presented in the above studies is used. In the literature ‘task patterns’ are discussed also regarding reusable structures for task models in the field of interactive systems design [8], [14], [15]. However, such observations focus on low-level interactive activities like e.g. searching, browsing or providing generic system input, and are beyond the scope of the presented paper.

A comprehensive approach, addressing the gap between completely ad-hoc processes, which are in the focus of Computer Supported Cooperative Work (CSCW), and rigid, predefined business processes, which are well supported through conventional workflow solutions, is provided by Bernstein [7]. This approach provides “contextual basis for situated improvisation” by enabling delivery of “process models, process fragments, and past cases” for tasks and providing shared, distributed-accessible, hierarchical to-do lists, where different process participants can access and enrich task resources and information. An extended state of the art study in the area of flexible workflows and task management and a further approach for integrating ad-hoc and routine work is presented by Jorgensen [13]. He reveals major issues concerning business process flexibility and how it can be facilitated through interactive processes models.