Using View Process Models in Collaborative Business Processes

Jörg Ziemann
Institute for Information Systems at the German Research Center for Artificial Intelligence, Germany

Timo Kahl
Institute for Information Systems at the German Research Center for Artificial Intelligence, Germany

Dirk Werth
Institute for Information Systems at the German Research Center for Artificial Intelligence, Germany

INTRODUCTION

Increasing interconnection of organizations is a global trend. Independent organizational units or entire organizations build temporary or permanent collaborations, which pool resources, capabilities, and information to achieve a common objective (Sydow, 1993). New business models are emerging and existing ways of working are redesigned forming long running processes between various (external) partners—so called Cross-Organisational Business Processes (CBPs). In order to realize a collaborative scenario in an efficient and effective manner, it is necessary to design, manage, and optimize CBPs on a global level. This requires the externalization of internal information of every single partner in the network. In practice, the following requirements for modeling and implementing collaborative business processes were observed (cp. Lippe, Greiner, & Barros, 2005):

- It is necessary to provide a level of abstraction on which the partners first agree on the business goals of their collaboration. To implement the collaboration with ICT systems, the involvement of technical staff is necessary.
- The internal business processes of each partner have to be linked into a CBP without revealing confidential or private information. Depending on the level of trust between the collaborating partners, a scalable exposition of internal processes should be possible.
- Simplified process adoption has to be achieved; for example, a company interacting with other different companies should not require different private processes for each collaboration.
- The user should be supported in automation of CBPs.

In the following, we will show how to model CBPs on a conceptual level by fulfilling the requirements formulated above. The focus is on the externalization of internal information with view concepts. In order to realize the requirement of executable CBPs, how to implement these models further will be discussed.

CONCEPTUAL MODELS OF CBPS

Different modeling frameworks have been defined for enterprise modeling; prominent examples include the Framework for Information Systems Architecture (Zachman Framework) (Zachman, 1987) and the Architecture of Integrated Information Systems (ARIS) (Scheer, 1999). Both frameworks offer modeling support for various dimensions of an enterprise. The ARIS framework distinguishes between organization, function, output, information, and control views. The purpose of the Zachman Framework is to provide a basic structure which supports organization, access, integration, interpretation, development, and management of a set of architectural representations of the organizations' information systems. Although both frameworks combine different user perspectives and allow modeling on different levels of abstraction, the focus of these frameworks is on internal knowledge modeling. They lack methods which allow modeling of cross-organizational collaborations as a creation of an external view on which the organization is not supported. Nonetheless, the event-driven process chains (EPC)—the notation used inside ARIS to model the control view and to connect the other views—can be

Copyright © 2008, IGI Global, distributing in print or electronic forms without written permission of IGI Global is prohibited.

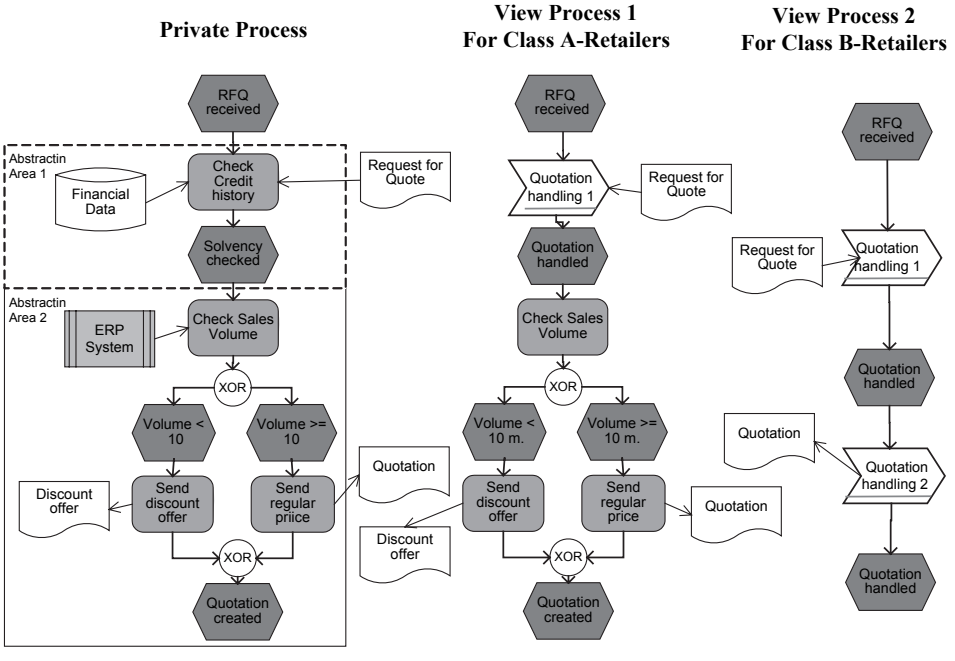
used to capture the various aspects of collaborative business processes on a conceptual level (cp. Greiner, Lippe, Kahl, Ziemann, & Jaekel, 2006; Klein, Kupsch, & Scheer, 2004).

For this aim, three different concepts are defined: private, view, and collaborative processes. Private processes (PP) refer to a specific organization and are the type of processes that have been generally called workflow processes. The abstraction of information is achieved by the introduction of process views as an additional abstraction layer between the PPs and the CBP model as proposed by Schulz (Schulz, 2002; Schulz & Orlowska, 2004). Process views provide a process-oriented interface toward business partners and are not only known to their owning organization but exposed to the outside world. They are an abstraction of the private processes, containing information that needs to be published for the purpose of an interaction. This leads to the following definition: A view process (VP) abstracts information from one or more PPs and thus enables companies to hide critical information from unauthorized partners. It is an interface to the outside world which extracts only the kind of information that is necessary for interaction with one or more potential partners. Thus, a VP can be seen as general interaction description of one or more PPs from the perspective of one partner.

While a VP describes allowed interactions from the perspective of one partner, a CBP describes these interactions from a neutral perspective, capturing all allowed interactions between all partners. One VP can contain interactions with different partners. Note that sometimes a VP suffices to describe all allowed interactions of various collaborating enterprises: if all interactions of the CPB happen only between the partners and the enterprise that provides the VP. While more technical definitions of view processes reduce them to descriptions of digital message exchanges (cp. Bussler, 2002), on the conceptual level, partner interactions regarding money ("Payment received") or material (e.g., "Deliver Container") can be described in a view process.

Figure 1 illustrates how to model VPs with EPCs. On the left side of the figure, the RFQ-handling process of a manufacturing company is shown. This process contains two sensitive subprocesses: the checking of the solvency of the retailer and the calculation of a price discount. If the retailer orders more than 10 products a month, a 10% discount is given; in all other cases, the retailer gets no discount. This process has to be distributed to several retailers in order to show them the sequence of the order processing so that they can inform their staff and configure their workflow engines. The manufacturer wants to hide its discount system

Figure 1. Modeling private processes and view processes with event-driven process chains



6 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage: www.igi-global.com/chapter/using-view-process-models-collaborative/17815

Related Content

Using a Design Science Research Approach in Human-Computer Interaction (HCI) Project: Experiences, Lessons and Future Directions
Muhammad Nazrul Islam (2017). *International Journal of Virtual and Augmented Reality (pp. 42-59).*
www.irma-international.org/article/using-a-design-science-research-approach-in-human-computer-interaction-hci-project/188480

Tacit Knowledge in Communities of Practice
Michele Suzanne Zappavigna (2006). *Encyclopedia of Communities of Practice in Information and Knowledge Management (pp. 508-513).*
www.irma-international.org/chapter/tacit-knowledge-communities-practice/10539

VR Presentation Training System Using Machine Learning Techniques for Automatic Evaluation
Yuto Yokoyamaand Katashi Nagao (2021). *International Journal of Virtual and Augmented Reality (pp. 20-42).*
www.irma-international.org/article/vr-presentation-training-system-using-machine-learning-techniques-for-automatic-evaluation/290044

Study on an Interactive Truck Crane Simulation Platform Based on Virtual Reality Technology
Yong Sang, Yu Zhu, Honghua Zhaoand Mingyan Tang (2018). *Virtual and Augmented Reality: Concepts, Methodologies, Tools, and Applications (pp. 277-292).*
www.irma-international.org/chapter/study-on-an-interactive-truck-crane-simulation-platform-based-on-virtual-reality-technology/199690

VR Presentation Training System Using Machine Learning Techniques for Automatic Evaluation
Yuto Yokoyamaand Katashi Nagao (2021). *International Journal of Virtual and Augmented Reality (pp. 20-42).*
www.irma-international.org/article/vr-presentation-training-system-using-machine-learning-techniques-for-automatic-evaluation/290044