



Serviceflow beyond workflow? IT support for managing inter-organizational service processes

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Abstract

The designing of IT support for the management of inter-organizational service processes inherits the full complexity of aspects dealt with in approaches altering, automating, and supporting these processes in general—and it needs to go beyond. As customer concerns, especially in long-lasting processes, may change over time, support has to provide flexible service, adjustments among different providers, and opportunities to care for the customer. With serviceflow management (SFM) we argue in favor of putting these service-related aspects in the center of modeling, design and architectures. Its conceptual distinction between the serviceflow (as the portion of the process where the customer's concern is evaluated and cared for) and background processes enables SFM (1) to guide providers as well as designers to focus on service design and delivery, (2) to provide support for serviceflows with enhanced flexibility and service configuration, and (3) to suggest the design of service points where service workers and customers “meet”. Thus the original workflow metaphor, which directs the design of process support from a mass production point of view, is questioned and replaced by a more suitable concept, which considers social and quality aspects in service delivery. Instance-based XML process representations, generic components and architectures for their exchange as well as for the provision of service tasks are presented and discussed, exemplified by an e-health process.

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1. Introduction

Successfully meeting business demands intertwined with realizing technological potentials are important prerequisites for successful inventions in the Internet age. Recent approaches in e-business, e-enterprises [1], virtual organizing [2], or business networking [3] aim at creating added-value by

converging e-commerce, i.e. interaction with the customer in single transactions, and customer relationship management, i.e. comprehensive customer care over time, and supply chain management, i.e. in-time ordering of supplies, in order to provide a comprehensive service. Applications are intended to offer services or goods, often supplied by different providers, in a personalized, configurable, and comprehensive way. Moreover, the customer should be guided through the corresponding inter-organizational service process.

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However, the design of IT support for managing inter-organizational service processes is far from trivial. Since the early nineties results from the BPR movement, from workflow management approaches, and from the area of computer-supported cooperative work (each from their different perspectives) bear testimony to the complexity involved in altering and supporting working processes with the means of IT. BPR, of which the original contribution was to focus on processes, had to learn over time that a radical change approach is less feasible. Research in computer-supported cooperative work (CSCW) argued for the acknowledgement of situated and tacit ways of working and for equipping responsible workers with adequate computerized artifacts, while lacking realizations of great impact. Workflow management provided the technical feasibility of automating business processes and integration of application systems, although reports of deficits in required flexibility have increased. Over time, the awareness for different process characteristics as well as organizational contexts has grown, and several authors expressed the “pressing need” of bringing together the different (business, organizational, (group) workplace and technological) perspectives involved [4–6].

Furthermore, the characteristics of service delivery, as will be argued, only add to the complexity in the design of suitable process support. From a technical perspective, and in compliance with inter-organizational processes in general, support means to enable the (often) decentralized process execution across heterogeneous workflow or enterprise systems. From a service perspective, support still needs to overcome the existing, product-oriented attitude in service delivery (visible e.g. in buying real estate [3], planning a move [7], undergoing an operation [8]). Hence, improvements should relieve the customer from having to become an expert in the process (over time) and being involved in coordination work. In addition, suitable customer support has to focus on customer concerns, which may change over time. All in all, IT support has to enable a flexible and configurable service delivery, provide flexible adjustment of different providers, and offer the

opportunity for caring about customer concerns and pay attention to the subtleties in customer satisfaction with a multitude of factors to be taken into account [9]. Service delivery quality, as we will see, certainly goes beyond mere efficiency and familiar ways of systems design, and new approaches are required.

In order to satisfy these requirements, service-flow management calls for process patterns serving as a mutual framework among providers and as templates for the exchange of case/instance based process knowledge, based on XML process representations. This enables flexibility as well as interoperability and thus *goes beyond* former “bulk”-based *workflow* execution. Sharing process history in accessible process representations at each provider’s site even allows for jointly caring for the possibly changing customer concern despite physical and organizational distribution of process management. Furthermore, specific system support is designed for service points, a conceptual place where customer and provider meet and/or the customer’s concern is evaluated and (partly) satisfied. The approach focuses on service through separating customer-oriented process portions from background processes and empowering highly functional specialized work places in service delivery. The implementation is characterized by a component architecture that allows for choice. Each provider organization may adapt to a different stage in realization due to its specific infrastructure. The entire provider network can be supported through a centralized, semi centralized, or decentralized approach in compliance to the specific service process or provider network characteristics.

Section 2 centers around characteristics of inter-organizational service processes, illustrated by means of an e-health example. Section 3 relates to selected results from BPR, workflow management, and CSCW, and discusses limitations of available approaches and technology in the light of the given demands. Section 4 presents the overall concept and modeling approach of serviceflow management by exploiting Internet technology and combining it with results from different research fields. Section 5 describes the use of different stages of realization among provider

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