

## Chapter XIV

# Process–Oriented Assessment of Web Services

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### ABSTRACT

Though Web services offer unique opportunities for the design of new business processes, the assessment of the potential impact of Web services is often reduced to technical aspects. This paper proposes a four-phase methodology which facilitates the evaluation of the potential use of Web services in e-business systems both from a technical and from a strategic viewpoint. It is based on business process models, which are used to frame the adoption of Web services and to assess their impact on existing business processes. The application of this methodology is described using a procurement scenario.

### INTRODUCTION

Web services (WS) is an emerging set of technologies that aims at facilitating the flexible and standardised implementation of interoperable software systems. Considerably hyped in recent years, Web services are expected to ease many current IT problems, such as the large-scale integration of heterogeneous software applications or the cost-effective establishment of E-business interactions. From a more technical viewpoint, investment in Web services is seen as a prerequisite to adopt a service-oriented architecture.

Although the intensity of development efforts and standardisation activities is very high,

systematic assessment approaches of the actual impact of Web services on existing IT infrastructures are still rare. Thus, many organisations are still struggling to assess the real impact of Web services and the accompanying opportunities and threats. Without appropriate business alignment, however, Web services might be perceived as a technical solution without a clear value proposition, in the sense that its potential benefits might not justify associated software reengineering efforts. This constitutes a potential risk factor in light of current IT spending practice and could eventually hamper a wide adoption.

Addressing the alignment of Web services to business priorities is therefore a critical step towards the success of this emerging technology: it will determine whether Web services can fit into (and more importantly improve) existing business practices and thus increase the competitiveness of the organisations that adopt them.

Business process modelling encapsulates all forms of graphically visualising business processes and related elements such as data, resources, and so on for a wide variety of possible purposes including among others process documentation, process improvement, compliance, software implementation, or quality certification (Becker, Rosemann, & Von Uthmann, 2000; Curtis, Keller, & Over, 1992). It is an established approach for analysing and improving existing business processes. Business process models, extended with relevant information, have the potential to serve as a decision support instrument for assessing the potential of Web services. They are able to show the process context and ways of how Web services can enable business process innovation.

This paper proposes a methodology for identifying and assessing opportunities for introducing Web services into organisations by means of business process modelling. After briefly outlining and justifying the research approach, a framework is presented for selecting the most appropriate processes for incorporating Web services. Following this, information domains and types are identified

that need to be contained in a business process model to support systematic Web services assessments and to facilitate Web services deployment. This information is then mapped into a specific representation in the context of the ARIS Toolset (Scheer, 1998a), a widely used solution for business process modelling. This mapping as well as the conceptual possibilities of the methodology are then illustrated through an example from the area of e-procurement. Finally, conclusions and directions for future work are outlined.

## **RESEARCH APPROACH**

The proposed assessment methodology is grounded in related literature and complemented by focus group discussions with early and prospective Web services adopters. The purpose of the focus groups was to explore the current practice of Web service implementations, and industry's perception and approaches on how to address the challenge of business alignment. Specifically, two focus groups were organised: one for discussing the uptake and adoption of Web services technologies and a second one for discussing the use of business process models for assessing Web services adoption opportunities.

The participants of the focus groups were selected on the basis of their experience with Web services or their affiliation to organisations that were considering the deployment of Web services. The choice of participants was also guided by the objective of covering different organisations and industry sectors, and striking a balance between participants with a technical and a management background. Overall, the focus groups included 15 participants from eight organisations and covering four different groups (IT users, vendors, consulting firms, and research).

The reason for choosing focus groups as the empirical basis for this study lies in their effectiveness for gathering the general opinion of a target audience by providing an environment that

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