

# Web-Services in the Dutch Healthcare Insurance Sector: Expected Versus Achieved Benefits

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## ABSTRACT

The upcoming buzz words nowadays appear to be web service or open network environment [4]. This is the latest IT-technology to support business processes which is embraced by an increasing number of companies, many of which are in the financial sector. This paper investigates if the promises made by technology providers and IT strategists have been made true by looking at the actual business benefits of web services.

## Keywords

Service-oriented architecture, web services, IT alignment

## 1. INTRODUCTION

The Dutch healthcare insurance sector has undergone a structural reform [5]. The main objective of the reform was to create a more market-oriented insurance system for higher customer satisfaction. Three “players” are important in the insurance chain: healthcare insurers, healthcare providers, and patients or clients. A substantial competitive advantage will be gained by insurers who manage to optimize the value chain [1]. In an attempt to realize the value chain optimization, the European insurance sector is set to become a forerunner in the adoption of Service-oriented Architecture [6]. Furthermore, the segmentation of business processes through outsourcing or collaboration with partners in the value chain is leading to services automation. The necessity of IT alignment with the business strategy makes the implementation of flexible solutions using web services a logical choice. The strategic alignment model introduced in [2] acknowledges systemic competencies as an important area of IT strategy. As competencies, Henderson and Venkatraman list for example “system reliability, cost-performance levels, interconnectivity [and] flexibility”, each of which is promised to be well supported by SOA. Therefore SOA and web service technology is considered lately the de-facto standard for enterprise applications (see [2], [7], [10]).

## 2. RESEARCH STRATEGY

An extensive preliminary literature research is conducted, leading to the business processes of healthcare insurance companies suitable to implement web services and the associated benefits

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according to [1], [3], [9]. A survey is set up based on literature findings and consisting of the three sections regarding the implementation phase, perceived usefulness to the company and the expected versus achieved benefits of web services. The survey was sent out to the IT/IS experts at ten of the most representative healthcare insurance companies in the Netherlands. The company respondents cover nearly six million of the Dutch healthcare insurances. Information-oriented sampling is used to select a healthcare insurance company for a case study. Based on the survey results we selected the leader in implementing web services to its business processes (as it is expected to contain the most valuable information) for an in depth case study.

## 3. SOA AND WEB SERVICES

The field of Service-Oriented Architecture (SOA) has received much attention in the past years. SOA is an architecture style that relies on loosely coupled software components called services, which can be orchestrated to improve business agility and can be shared among different domains [8]. Thus SOA and service-orientation are based on the idea that application software supporting a business process should be composed of a collection of smaller, related pieces, i.e. the services, while web services constitute one technology implementing the SOA principles. A web service is a platform-independent, loosely coupled, self-contained, programmable web-enabled piece of application that can be described, published, discovered, coordinated and configured using XML artifacts for the purpose of developing distributed interoperable applications. Web services allow applications to work together over standard internet protocols to automate business operations without human intervention. [10]. It can be said that software complexity is pushed from the software development domain into the area of choosing the right services and orchestrating and composing them. The idea of creating small understandable blocks of logic requires high coordination from software developers in order to maintain the overview in a jungle of services. Therefore SOA should be applied to primary activities whose outcomes are inherently predictable (see [11]). Of the identified healthcare insurers' processes, the policy processing which includes customer acceptance and policy sending is a primary process which meets the predictability requirement and, thus, is expected to benefit from a SOA implementation. Policy sending is an important cost and time-to-market driver for insurers, as it is all done on paper and via post services.

## 4. SURVEY RESULTS

According to a recent survey conducted by McKinsey [7] amongst almost two thousand companies across the world, 58% of the respondents use web services which are used more for

internal purposes. When used externally web services support more the interfacing with customers than with partners and suppliers. The survey responses from the Dutch healthcare insurance sector in this research suggest a different trend (Figure 1). The healthcare insurance companies were more advanced with the implementation of web services in the claims handling, healthcare purchasing and premium process (i.e., mostly external processes) than the implementation in policy processing (internal process). The web services are mostly used externally towards the healthcare providers in contrast to the internal and client focus as expected from literature.

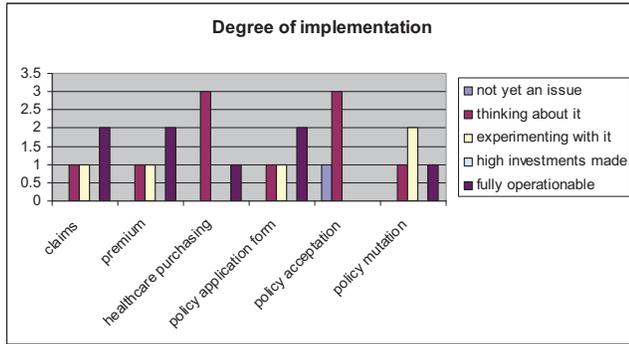


Figure 1: Expected vs. achieved benefits

The most important benefits according to literature are:

*Leveraging the IT investment:* wrapper web services allow legacy systems to communicate; shorter development time and cost due to reuse web services.

*Improved application integration (redundancy):* internal integration simplifies cross-departments transactions; external integration simplifies transaction between partners.

*IT alignment (adjusting to business changes):* composability of existing web services to form new services; ease of adding new web services to existing system; ease of switching service provider (contract).

The survey revealed that healthcare insurers' expectations are too high when it comes to the benefits (Figure 2). The most significant differences between expectations and results have been found for the following benefits: rid of redundancy by exchanging services, lower maintenance costs of IT applications, composing web services to adjust to business needs, improved integration between departments, improved integration between partners, less working hours through automation, composing services to adjust to business needs, possibility to add services to existing system, possibility to switch provider.

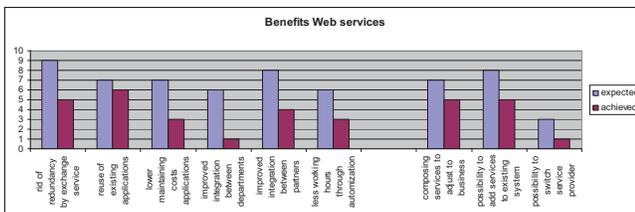


Figure 2: Expected benefits: survey conclusions

## 5. CASE STUDY RESULTS

The main reason why the insurers have not yet implemented web services for accepting customers is because, in practice, for both the basic and additional insurance all applying customers are accepted. In other words, currently there is no selection based on

risk for accepting clients, although this is allowed by law since the healthcare insurance scheme reform. The implementation of web services is conducted project-wise and is far from being enterprise wide. For now existing services have either been automated or functionality from existing systems has been turned into web services. This benefit will only become clear once new business opportunities are exploited using web services that interact with the existing system.

In the new situation, benefits achieved can not only be attributed to the web services, but also to the Service-orientation approach. Furthermore, according to the literature, for the full benefits of web services to be achieved, a company wide SOA approach is required. As previously mentioned only a part of the company is Service-oriented. Therefore various benefits of web services are not (yet) being achieved. It is not always profitable for the healthcare insurance company to develop their own web services, but through collaborations such as VECOZO (software company offering web service-based solutions for the health insurance sector), the insurance companies expect progress to be made.

## 6. CONCLUSION

In practice the implementation of web services in this sector turns out to be in an early phase. The healthcare insurance companies are still "thinking about it" or are in an "experimenting with it" phase. Therefore, many of the expected benefits have not yet been achieved or are not measurable yet. To attain a better view of the true benefits a similar research should be conducted when web service implementations have become more common and have reached an enterprise-wide stage.

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