THE ROLE OF WEB SERVICES IN FINANCIAL ORGANISATIONS: RESULTS FROM A SURVEY

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ABSTRACT
The paper presents the results of a survey on the current and future role of web services technologies in banking and financial services organizations. The survey asked financial experts to express their views about the importance of web services for banks in the next five to ten years. In addition, the paper presents the results of interviews with two international banks about their current utilization of web services applications as well as about their future plans to deploy web services. The paper attempts to draw conclusions as to what banks perceive to be the main strengths and limitations of web services, and their future role in the financial services industry.

KEYWORDS
Web services, banking technology, financial services

1. INTRODUCTION
This paper presents results from a survey conducted as part of the Fin-Tech project sponsored by the European Union’s Framework 5 Research Programme. The main objective of the Fin-Tech (2003) project is to facilitate forward-looking research on technologies for software and systems in the Financial services area (Banking, Brokerage, and Asset management sectors) with a specific focus on Service engineering and related technologies. The project brings together technologists & business experts in order to study the state-of-the-art of technologies supporting open software architectures/standards, review and present emerging ones, promote their adoption in the Financial services/Banking industry, record trends to prepare stakeholders to face future business/technological changes and eventually prepare a Research roadmap for future work in the areas of service engineering and related technologies.

The Fin-Tech project investigates a variety of banking areas and information technologies, however this paper will focus on its findings about an emerging set of technologies collectively known as web services and their applicability to the banking/financial services industry. Web services are software functions exposed on the Internet and made available to other software applications in a programmatic manner. Web services are essentially a set of standards and protocols that enable the seamless sharing and integration of data beyond corporate firewalls. Applications that implement the web services standards Universal Description, Discovery and Integration (UDDI), Web Services Description Language (WSDL), and Simple Object Access Protocol (SOAP) can interoperate regardless of the platform (Tsalgatidou and Pitoura, 2002). Web service applications take islands of data with different database structures stored in unrelated IT systems and convert it into packets of information that flow freely across traditional IT boundaries, in effect enabling a loose affiliation of companies that share information and resources on an as-needed basis. This enables end-users to get the information they need, when they need it.
With Web services, traditional silos of information locked within companies with unrelated business processes, can now be shared among customers, vendors and industry partners, creating both value-chain efficiencies as well as new business opportunities. Information can move more intelligently between people and organizations, unhindered by conventional proprietary IT systems, yet with respect for permission and usage rights assigned by owners.

Already, outside of financial institutions, Web services are connecting enterprises together to give customers a richer service experience and to enable partnerships that are mutually beneficial to the participating companies.

This paper reports on a study on the current and future role of web services in banks and financial organizations. The paper consists of three more sections. Section 2 presents the results of a survey amongst financial business and IT experts about the future role and importance of web services in banks. Section 3 presents findings from interviews with staff from two major banks about their current use of web services, their planned future usage and an evaluation of web services strengths and limitations. Finally Section 4 compares the findings from this study with those from other similar studies and concludes with an assessment of web technologies in a banking/financial context.

2. SURVEY RESULTS

The survey was conducted during late 2002/early 2003 and involved more than 20 banking/financial organization experts in financial industry business, information technology or both. The experts represented major banking/financial organizations from Italy, Greece, the Netherlands and the UK. The survey investigated several banking business areas, their current level of support from information technology and their needs and future expectations; however this paper will only consider that part of the survey that concerns web services.

The survey participants were asked to express their opinion about what will be, in the next 5-10 years, the level of application of web services technologies in the Financial Services Industry, by rating it between 1 (“very low”) and 5 (“very high”). Out of the 20 participants that responded to this question 10% gave a weight of “3”, 40% a weight of “4” and 50% a weight of “5” (see Table 1). Interestingly, none of the participants think that web services will have very low/low application, while the vast majority (90%) of them actually think that web services will have a high or very high applicability.

In addition to the above ‘closed’ question, the participants were posed with an open type question of how they expect web services technologies to evolve in the next five to ten years and what actual role they expect them to have in a financial organization. Here in contrast with the closed question, there are fewer consensuses as to the evolved futures and characteristics of web technologies and their future position in a financial organization. Some of the obtained answers are listed below.

- “Web services will act as a middleware layer among the different middleware used locally by each entity. The normal way of interaction between different organizations will be through web services.”
- “…of paramount importance for financial value chain integration”
- “…many technical challenges should be met, however this technology advances very fast due to industry support”
- “…safety, trust, user friendliness and performance”

Comments such as the above indicate that the experts see web services as the new middleware for the financial value chain, and as the normal means of interaction between the value chain participants i.e. the
banks themselves, brokers and other intermediaries and of course the customers. The experts identify several limitations of today’s technologies (such as trust, safety, user friendliness and performance), but at the same time they acknowledge that such limitations may be overcome very soon, as the web service developments gather momentum...

3. CASE STUDIES

The previous section presented the views of experts on the current status and future potential of web services for financial organizations. To further validate the feedback from the experts we carried out telephone interviews with staff from two major international banks that will remain anonymous for reasons of confidentiality. The interviews were structured and covered a number of questions about:

- Whether the bank is currently using web services
- The current types of usage of web services in the bank
- Ongoing web services projects
- Development tools they use to design and build web services
- How they decide what web services to implement, how they collect the requirements and so on.
- Whether web services are deployed in internal applications or offered also to customers/business partners
- What are (according to the banks’ opinions) the main technological limitations in web services technologies and tools today

3.1 Bank A

The bank currently uses web services. The bank’s private banking group whose staff were interviewed, uses various web services for example to give clients access to stock information, technical research and other real time data. The group offers these services to both its retail and corporate clients. One service offered to the clients is market watch to enable users to gain access to stock market data, news, equities, funds, commodities, futures, research and technical research. This is part of the bank’s strategy to offer additional services to high value clients. These services are not offered across the whole credit group but only to the private banking group and to locally based (i.e. in the same country as the bank) clients. The reason being is that is too difficult and expensive to implement and maintain the web services across the whole group.

Regarding current web service projects, the bank is going through a consolidation phase in which it is trying to improve their existing services by improving the quality of the services and the tools available. They are not building lots of new services because that does not make sense. The main service they are currently working on is their online banking system. This is a project that will integrate stock market data and news with existing applications to provide a more integrated service. This is going to be available within the next 2/3 years. The bank is also working on maintenance and enhancement project on their existing web services.

In order to decide what web services to implement, the bank looks at the requests of clients by involving the marketing department. They also benchmark other banks web services applications including parent banks and subsidiaries.

For internal projects, the bank looks at ideas from employees in the front office. Such ideas are forwarded to the e-solutions department where it is ultimately decided which projects will go ahead.

The bank thinks that from a technical perspective, security and infrastructure are currently the main problems, while, from a commercial perspective, the main obstacle is proving that the web services will yield a return on investment.

As the business model of the bank is primarily ‘offline’, the Internet and web services are seen as an additional channel for distribution, information, transactions and marketing.

3.2 Bank B

Bank B believes that Web services are going to be “the big thing” in 2003 and are trying to adopt web services across the business. They are trying to expose services rather than having to reuse code and sub
routines. They are moving from an application centric model to a services centric model as the tools and standards become available. Business opportunities and the need for interoperability drives the business and brings things together which were hard to integrate. They are now moving to web services because they have that added flexibility and offer more choices which allows them to do what is right for the customer.

Using web services gives the bank a lot of choices for choosing a technology partner and negotiating the best terms. Another point is that the bank can incrementally update the services to add more functionality rather than having to develop an application in one big step which could result in the failure.

Integration has so far been a problem. It takes up a lot of time and money so they also want to use web services to integrate existing applications and convert their existing applications to web services. Integrating existing application allows them to extract functionality or information from one application and reuse it in another completely different application. Doing this however is not free; it takes up time and uses up the banks budget but still enables the bank to develop prototypes quicker. The bank believes that web services are still a maturing technology and there is still a lot to come from them in the near future.

4. CONCLUSIONS

The study presented in this paper has revealed a rather promising future for web services in banks/financial organizations. The study appears to confirm other findings reported in (Garber, 2002) (Massaro, 2002) and in other industry surveys that Web services are gradually starting to penetrate the banking/financial industry IT market. As reported in (Marlin, 2002) up to 70 percent of all financial institutions are currently experimenting with web services. The reasons for their relatively slow adoption by the industry are many-fold, both technical and business related: The overall slowdown in the world economies and its impact on IT spending has inevitably affected the rate of adoption of web services technologies. Very few people however question the potential of Web services as a catalyst technology for the integration of the financial value chain. It is fair to say that web services projects today are rather un-ambitious, limited to relatively simple information provision both internally and to the bank’s customers. This is happening of course mainly because of the banks’ skepticism caused by the lack of robust secure and reliable web service technologies. Once such obstacles are overcome, we should expect more ambitious applications of web services to emerge. Indeed, web services have the potential to ultimately change the way customers conduct their business and how banks deliver their services.

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