

Chapter 43

Extending and Applying Web 2.0 and Beyond for Environmental Intelligence

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ABSTRACT

This chapter aims to apply the intelligence used in businesses decision making to an organization's environmental management strategy so as to support its green credentials. While the World Wide Web (WWW or Web for short) has had an impact on every aspect of human life, its current and upcoming versions, dubbed Web 2.0 and beyond, need to be considered in the context of environmental management. The use of decision making technologies and processes in this area of an organization is what we call "environmental intelligence" (EI). This EI can be used by businesses in order to discharge one of their significant corporate responsibilities—that of managing their activities that affect the environment including waste reduction, green house gas reduction, recycling, minimizing unnecessary human and material movements, and so on. Furthermore, the use of EI, it is envisaged, will also help organizations create local and industrial benchmarks, standards, audits, and grading that will help a large cross section of businesses to comply with the environmental requirements. The architecture of such enterprise intelligent systems needs to incorporate technologies like executable services, blogs, and wikis in addition to the standard communication and execution requirements of the Web. This chapter describes the literature review and the initial output of the research being carried out by the authors which, we hope, will eventually result in an environmentally intelligent Web-based business strategic system (EIWBSS).

INTRODUCTION

This chapter aims to investigate, extend and apply the Web 2.0 technologies to help organizations

discharge their environmental responsibilities. The result of this investigation and extension is an environmentally intelligent Web based business strategy system (EIWBSS). The World Wide Web revolution spans every area of business and personal lives – primarily because of its ability to provide commu-

DOI: 10.4018/978-1-60566-384-5.ch043

nications between parties. However, increasingly, the Web has evolved beyond communication to *execution* of applications and programs. This ability of the Web to execute applications has led to the concept of hosting and consuming services. A hosted service or web service is a piece of business logic, located somewhere on the Internet, that is accessible for execution and provision of service through standardized Internet protocols (Chappel & Jewell, 2002). These hosted services have led to what is known as services oriented architectures (SOA) and which has opened up numerous opportunities for businesses to collaborate globally. However, technologies often generate far-reaching environmental influences; some of them are even unanticipated and remain unrecognized (Sarkis & Park, 2008). There is a need to recognize these environmental influences and balance them against the value provided by the use of the technologies. A significant opportunity for the use of the Internet and associated service-orientation is to help organizations in their effort to become environmentally responsible green organizations. The framework to achieve this is the environmentally intelligent Web based business strategy system (EIWBSS). In this approach, described in this chapter, web services form the basis of structural architecture and functional procedures of an organization that help it become aware of environmental factors. An EIWBSS further enables the organizations to judiciously use the web services, within the Web 2.0 technologies domain, in creating and modifying their business processes, utilizing their information silos by connecting them, and providing real time reporting features to decision makers – all with the specific goal of achieving environmental responsibilities. Such EIWBSS will have a significant influence on people and processes and would change the attitude and the working style of the organization's employees and customers (Unhelkar & Dickens, 2008).

WEB 2.0 AND RELATED TECHNOLOGIES

Web 2.0, a phrase coined by O'Reilly Media in 2004, refers to a perceived second-generation of Web-based services that emphasize online collaboration and sharing among users (Sen, 2008). Essentially, Web 2.0 is an umbrella term for a group of technologies that have advanced web usage and turned the web into a development platform for the enterprise. Specifically, these technologies include: RSS (Really Simple Syndication) and ATOM feeds, Web services, JavaScript and AJAX (Asynchronous JavaScript and XML), Folksonomies, Mashups, Programming Frameworks, Blogs, Wikis, and so on (Ferguson, 2007). JavaScript and AJAX can be used to add user interfaces to web based tools that can be used by clients. Thus, these scripts can enrich the corporate reports by making them interactive (O'Reilly, 2005). The sites may also have social-networking aspects (O'Reilly, 2006 ; Lee, 2006). A significant chunk of Web 2.0 technologies are primarily made up of service offerings over the Internet those are also executable. The use of these technologies in an information systems architecture results in service oriented architecture (SOA). An SOA is a style of organizing and utilizing distributed capabilities of software services that may be offered by different organizations through their software systems (Schmidt, 2008).

Web 2.0 can be referred as the perceived transition of the web to a full-fledged computing platform. As stated by (O'Reilly, 2006), "Web 2.0 is the business revolution in the computer industry caused by the move to the Internet as platform, and an attempt to understand the rules for success on that new platform." In fact, Web 2.0 is more about the people using the web and creating 'things' on it rather than merely communicating. Web 2.0 emphasizes on usability and shareability. The characteristics of Web 2.0 are rich user experience, user participation, dynamic content, metadata, web standards and scalability

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