

# Chapter IX

## Web Engineering in Small Jordanian Web Development Firms: An XP Based Process Model

**Haroon Altarawneh**

*Albalqa' Applied Univesity, Jordan*

**Asim El-Shiekh**

*The Arab Academy for Banking and Financial Sciences, Jordan*

### ABSTRACT

*Small firms do not have the managerial experience, the financial resources and the methodological know-how to manage web-based applications projects the way large firms do. Many small firms are unaware of existing software process assessment models and standards. There's often the assumption that assessments conformant to these models and standards can be expensive and time consuming, and therefore difficult to perform in small companies. This chapter proposes a theoretical model for small Web project development and its special features in the context small Web firms, which are capable of being "tailor able" to the particular stage of organizational development of small Web firms . The process model derived form Web engineering best practices, real case studies from Jordanian Web firms and agile development methodologies (extreme programming) . This chapter also contains results from tow surveys: a questionnaire to Web developers and interview with Web mangers in Jordan. The results reflect the Web industry situation in small Jordanian firms, and the major problems they face. Most of small Web projects in Jordan run over time and budget, due to the ad hoc development and the weakness of Web project management. The results showed that there is a weakness in applying Web engineering practices in small Jordanian Web development firms.*

## INTRODUCTION

“Web Engineering is the application of systematic, disciplined and quantifiable approaches to development, operation, and maintenance of Web-based applications”( Deshpande Y and et al 2002 ). It is a response to the early, chaotic development of Web sites and applications as well as recognition of a divide between Web developers and conventional software developers (Murugesan, S et al 1999, Pressman 1998 ). Viewed broadly, Web Engineering is both a conscious and pro-active approach and a growing collection of theoretical and empirical research. Web engineering is the process used to create high-quality Web-based systems and applications that deliver a complex array of content and functionality to a broad population of end-users (bouchaib bahli and dany di tullio 2003 ). Web Engineering is concerned with the establishment and use of sound scientific, engineering and management principles and disciplined and systematic approaches to the successful development, deployment and maintenance of high quality Web-based systems and applications (Web Engineering Home Page 2003).

Web-based applications are becoming so popular in our daily life in the sense that it would not go a single day without we use them. These applications range from simple to sophisticated ones, where millions of dollars in revenue are generated. Developing, testing and quality assuring these applications become a challenging task ( Abdesselam Redouane 2002 ). Although the development of Web-based applications made many improvements, there is still a lack of an established software engineering methodology for constructing Web-based applications. Consequently, much of the development is carried out without a true understanding of analysis and design issue.

The development of Web applications (E-commerce systems, Web portals, etc.) is subject to different conditions than that of conventional software systems (Said Hadjerrouit 2001 ). Such

idiosyncrasies include: usability, rapid development lifecycle and short time to market. Web based systems and applications deliver a complex array of content and functionality to a broad population of end users. They require new approaches to design and development but present the same issues and challenges as traditional information systems. Therefore, the same software engineering techniques are still necessary but the process should take these differences into account.

Web-based applications differ from other applications from both the product and process point of view. As products, they differ from traditional systems in the following ways:

1. Web based applications are distributed and component based.
2. High reliability
3. High Usability
4. Security

Web applications also differ from traditional applications from the process point of view: there are more Technologies (HTML, XML, network protocols, multimedia, and Java and script languages) and thus, many Roles (authors, developers, graphic designers, legal issues etc.) that have to be managed. In addition, the shorter time to market, shorter product life cycles and continuous maintenance are much more pronounced in the case of Web applications as compared to traditional ones(D. Rodriguez et al 2002 ).

## WEB PROJECTS DEVELOPMENT

The history of Web development is relatively short. Initially, many Web applications were small and simple with little thought given to planning or design before constructing the site, and few have been tested properly. Today, many applications are large-scale and involve sophisticated interaction with visitors and databases; such sites are often regarded as mission critical. In parallel with this

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