Chapter XII

The Requirements of Methodologies for Developing Web Applications

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Abstract

The Internet has had a significant impact on the process of developing information systems. However, there has been little research that has examined specifically the role of development methodologies in this new era. Although there are many new forces driving systems development many other issues are extensions of problems that have been there for some years. This study identifies the main requirements of methodologies for developing e-commerce applications. A number of e-commerce application development approaches are examined and a methodology is proposed which attempts to address a number of issues identified within the literature. The Internet Commerce Development Methodology (ICDM) considers evolutionary development of systems, provides a business and strategic focus and includes a management structure in addition to covering the engineering aspects of e-commerce application development. The methodology is evaluated by three focus groups. The results of the evaluations are used to highlight the factors that practitioners identify as important attributes of...
systems development methodologies for developing Web applications. These include emphasising a business focus, the consideration of organisational culture and management structures, and the importance of an external focus. Practitioners would ideally like methodologies to be relevant to their industry and provide detailed approaches for changing organisational culture. Many traditional systems development methodologies are perceived as being inadequate for dealing with the development of e-commerce systems. The research work proposes that there is a need for an overarching development framework where other more sub-system specific approaches can be integrated. However, any such framework should consider the strategic business drivers of the system, the evolutionary nature of systems, effective management structures, and the development of a conducive organisational culture.

**Introduction**

The popular assumption is that processes, methods, and techniques used for applications development have changed radically as the focus of applications has moved from the traditional information systems domain to the WWW (Howcroft & Carroll, 2000; Davies, 2000). In this research, we examine the requirements of development methodologies in the Web era. An Internet commerce development methodology is proposed which addresses many of these issues (ICDM). This is evaluated with three focus groups. From this we suggest a set of basic requirements that electronic commerce development approaches should address to be effective.

**Methodologies for Web Applications Development**

The Internet and the Web have had a profound impact on the business world. The changing business landscape has also impacted on the requirements of systems development approaches. As a developer it is important to be aware of these aspects so that the appropriate methods, design approaches and tools are employed in the development process. In this section of the chapter, the characteristics of electronic commerce applications are discussed with the implications for the development process and several e-commerce methodologies are analysed.

**Characteristics of E-Commerce Applications**

Web-based applications are frequently multi-functional systems. The multi-functionality of many systems forces organisations to transcend traditional functional boundaries. To meet the customers’ needs, systems must be developed with a customer focus. This