



End-User Perceptions of the Benefits and Risks of End-User Web Development

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ABSTRACT

The development of applications by end users has become an integral part of organizational information provision. It has been established that there are both benefits and risks associated with end-user development, particularly in the areas of spreadsheets and databases. Web development tools are enabling a new kind of end-user development. The fact that Web page creation may impact, not only locally but also globally, significantly raises the importance of this type of end-user application development. This article reports on the extent of Web page development amongst end users and investigates their perceptions of the benefits and risks of end-user Web development relative to those associated with spreadsheet development and explores approaches to reducing the risks.

Keywords: benefits and risks; end-user computing; spreadsheets; user development; World Wide Web

INTRODUCTION

End-user computing now dominates organizational use of information technology worldwide. Its growth has been driven by increasingly inexpensive hardware, increasingly powerful and easy to use software, and user demand for control of information resources (McLean, Kappelman & Thompson, 1993; Shayo, Guthrie & Igbaria, 1999). Organizations also rely heavily on applications developed by

end users. These applications support a wide range of information provision and decision making activities and contribute to business processing in a wide range of tasks (Rittenberg, Senn & Bariff, 1990). Increasingly, the ability to develop small applications forms part of the job requirements for many positions (Jawahar & Elango, 2001). The study reported on in this article explores the expansion end-user developers are experiencing as they add

the role of Web page developer to their repertoire of end-user development skills, and investigates end-user perceptions of the benefits and risks of end-user Web development relative to those of end-user spreadsheet development.

Although a wide range of tools is available for use by end-user developers, the most commonly used software tools have been spreadsheets (Rittenberg et al., 1990). The majority (88%) of the 34 organizations participating in Taylor, Moynihan, and Wood-Harper's (1998) study used spreadsheets for end-user development whereas only 35% used query languages and 12% used databases. Recently Web development tools have started to be used by end-user developers (Govindarajulu, 2003; Nelson & Todd, 1999; O'Brien, 2002; Ouellette, 1999), and it is anticipated that this use will increase rapidly in years to come (Goupil, 2000). Very little is known, however, about how end users acquire the skills necessary for successful development or about how and why they develop Web applications.

A substantial body of research has investigated the benefits and risks of development by end users and explored the factors that influence them (e.g., Alavi & Weiss, 1985-1986; Amoroso & Cheney, 1992; Benson, 1983; Brancheau & Brown, 1993; Davis, 1988; O'Donnell & March, 1987; Rivard & Huff, 1984, 1985). The benefits that have been claimed include improved decision making, improved productivity, and increased satisfaction of end users (Amoroso & Cheney, 1992). The risks that have been identified include mismatches between tools and applications (Alavi & Weiss, 1985-1986; Davis, 1988; O'Donnell & March, 1987), lack of testing (Alavi & Weiss, 1985-1986; Davis, 1988; O'Donnell & March, 1987), inability to identify correct and complete information

requirements (Davis, 1988) and failure to back up data (Benson, 1983). The proposed benefits of user development of applications can be attributed to users having a better understanding of the problem to be solved by the application, and the proposed risks to users having less understanding of the process of system development than do information technology professionals.

While problems with traditional end-user developed applications can have a large impact on organizational decision making, it has largely been believed that the possible negative impacts are limited to local effects, for example, workgroup or department (Nelson & Todd, 1999). Web development tools, however, are now enabling end users to develop applications that are accessible to vast numbers of people from all over the world (Nelson & Todd, 1999). This brings with it greater potential benefits and risks. These benefits and risks may affect business processes, customers, suppliers, and other organizations more than ever before. The study reported on in this article considers end-user perceptions of both the benefits and risks of end-user Web development and compares them to their perceptions of the benefits and risks of end-user spreadsheet development. This comparison will provide insight into areas where end-user developers are gaining new advantages due to their Web development practices, and into areas of risk that may require future attention from those responsible for end-user Web development.

Strategies for reducing the risks associated with end-user development have been presented in the literature and there is some evidence to suggest that employing them is effective. For example, Alavi, Nelson, and Weiss (1987-1988) presented a comprehensive framework of controls for addressing risks at different stages of the

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