



Chapter XVII

Evaluating the Factors Affecting Decision Support System Usage by Strategic Decision Makers in Egypt: Using a Structural Equation Modelling Approach

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ABSTRACT

This chapter draws on a survey of CEO and IT managers in local authorities in Egypt to explain the key factors affecting their use of DSS in making strategic decisions. This chapter proposes and tests a Structural Equation Model (SEM) that extends the generally accepted Technology Acceptance Model to assess relationships between an extensive range of constructs and their relation with DSS usage via Perceived Ease of Use and Perceived Usefulness. The SEM approach has enabled the development of a framework that will support a sustainable approach towards the adoption and use of DSS in developing Middle Eastern countries.

INTRODUCTION

This chapter draws on a survey of CEO and IT managers in local authorities in Egypt to explain the key factors affecting their use of DSS in making strategic decisions. A Structural Equation Model (SEM) that extends the generally accepted Technology Acceptance Model is proposed and tested to assess the relationships between an extensive range of constructs and their relation with DSS usage via Perceived Ease of Use (PEU) and Perceived Usefulness (PU). The SEM approach has enabled the development of a framework that will support a sustainable approach towards the adoption and use of DSS in developing Middle East countries. This framework in particular highlights the need for a far greater understanding of cultural diversity at both a national and organizational level in implementing strategic computer-based systems.

BACKGROUND

The unprecedented growth of Information Technology (IT) has inspired IT practitioners, researchers, developers, and innovators to seek new, more sophisticated, and more effective acceptance and usage methods (Agarwal and Prasad, 1998a; Moore and Benbasat, 1991; Taylor and Todd, 1995). Interest in the subject has been manifested in the abundance of R&D based projects undertaken to identify the factors that lead to successful adoption and use of IT in general and Decision Support Systems in particular (DSS) (Agarwal and Prasad, 1998a; Agarwal and Prasad, 1998b; Davis, 1989; Rose and Straub, 1998; Thompson and Rose, 1994). The last two decades have generated a multi-disciplinary research body that expands over the field of technology, Human Computer Interaction (HCI) and social psychology to shed light on user acceptance of technology (Agarwal and Prasad, 1998a; Agarwal and Prasad, 1998b; Davis, 1989; Rogers, 1995). Resulting from the research findings, many models have been developed to predict the relationship between user perception and technology acceptance and use. The Technology Acceptance Model (TAM), initially developed in 1986 by Fred Davis, has been used extensively and is respected in the industry (Davis, 1989; Moore and Benbasat, 1991; Taylor and Todd, 1995; Thompson, Higgins, and Howell, 1991).

Computing technology and information systems represent substantial investments for organizations; investments on which they hope to realize a return in areas such as making effective Strategic Decision Making (SDM) and improving efficiency. Simply acquiring the technology is insufficient. In order to obtain the anticipated benefits, it must be used in context of its end users. The most expensive shortcoming of DSS is that it is not typically used in making effective strategic decisions. However, if all the different variables that could affect this usage were considered in their specific environment, then CEO and other users would be more likely to apply the technology in all the different stages of SDM. There are many factors affecting the utilization of IT in supporting effective SDM. These factors range from the systems themselves, the organizations that use the systems, the decision-makers and the overall environment. Yet, recent studies of technology acceptance and usage have only been concentrated in the technologically developed world. Certainly, of the large number of IT acceptance and usage studies covered in recent literature reviews, few if any took place in the developing world (Rose and Straub, 1998; Thompson and Rose, 1994). The developing countries clearly have their own unique characteristics; research in these countries is indeed

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