



## **Chapter VIII**

# **Use of Decision Support Systems in Small Businesses**

Yanqing Duan and Russell Kinman  
University of Luton, UK

Mark Xu  
University of Portsmouth, UK

## **INTRODUCTION**

The research outlined in this chapter is concerned with current practice in relation to decision support systems (DSSs) in small businesses. The purpose of this research (based on a survey approach) was to identify managers' needs for computer-based support, and to explore if and how computer-based DSS could be better developed and utilized to meet these needs. Factors that hamper the utilization of DSS in small firms are also discussed.

There have been different measures of what small business is, and different views on what a DSS ought to be. For the purposes of the research, the DSS and small business are defined as follows:

### **Decision Support System (DSS)**

Early DSSs were developed in parallel with Management Information System (MIS) in the 1970s. An MIS is developed to primarily generate management information from operational systems, while DSSs as defined by Gorry and Scott Morton (1971) are information systems that focus on supporting people in the unstructured and semi-structured decision-making process. A typical DSS consists of four main components: the database, the model base, the user interface and the users. Central to the DSS are the models

and analytical tools that assist managers in solving decision problems. The most common models include: the optimization model (where mathematical models are used to calculate optimal solutions); the “what if?” model, and goal-seeking scenarios (where mathematical models of decision problems are manipulated by varying inputs and observing changes in the outputs). Concomitant with advances in the technology of computing, most DSSs provide easy access to data and flexible control models with a friendly user interface design. Some DSSs also incorporate a variety of analytical tools and report / graphic generators. The main purpose of DSSs is not to replace managers’ ability to make decisions, but to improve the effectiveness of their decision-making.

DSS in practice can hardly be separated from other types of computer-based systems, as it is often integrated with those systems, for example, operational databases, spreadsheets, report generators, and executive support systems. Thus the boundary of DSS has now been extended, and DSS broadly refers to any computer-based information system that affects or potentially affects how managers make decisions. This includes data- and model-oriented systems, reporting systems, executive support systems, expert systems and group decision support systems. In light of this view, DSS in this research is defined broadly to encompass any decision-making activity that is supported by computers. These activities include: planning and scheduling (capacity planning, production planning, materials planning, personnel planning and capital budgeting); controlling (inventory control, production control), analysis and forecasting (job estimating, cost analysis, labor productivity analysis, sales/market analysis, sales/profit forecasting), as well as R & D of new products.

## **Small Business**

The success and continued growth of small- and medium-sized enterprises (SMEs) are critically important to local and national prosperity, but their problems are not always accorded the same importance as those of larger organizations. Compared to the research devoted to large organizations on the use of information systems, SMEs have attracted much less attention. It is also the case that the problems inherent in providing support for small business management are more commonly studied from a social or economic viewpoint. Very few studies indeed have addressed decision support needs in the context of the use of information technology.

There is a common tendency to apply experience and techniques gained from large organizations directly to small businesses, without recognizing the differing decision support needs of the small business. Managers of small businesses have often been disappointed with software packages because of the inability of these to adapt well to their needs (Heikkila et al., 1991). There

14 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage: [www.igi-global.com/chapter/use-decision-support-systems-small/25872](http://www.igi-global.com/chapter/use-decision-support-systems-small/25872)

## Related Content

---

### Improving Access to Finance to Unlock SME Growth Potential in Emerging Markets: South Korea Example

Gifty Edwin-Akakpo, Alfred Akakpo and Said Ali (2024). *Drivers of SME Growth and Sustainability in Emerging Markets* (pp. 54-67).

[www.irma-international.org/chapter/improving-access-to-finance-to-unlock-sme-growth-potential-in-emerging-markets/342500](http://www.irma-international.org/chapter/improving-access-to-finance-to-unlock-sme-growth-potential-in-emerging-markets/342500)

### Managing Generational Handover in Family Business: A Multistakeholders' Perspective Focusing on HR Role

Barbara Barabaschi, Franca Cantoni and Roberta Virtuani (2021). *Designing and Implementing HR Management Systems in Family Businesses* (pp. 244-263).

[www.irma-international.org/chapter/managing-generational-handover-in-family-business/268981](http://www.irma-international.org/chapter/managing-generational-handover-in-family-business/268981)

### High-Growth SMEs: A Specific Research Object

Mohamed El Hakioui and Abdenbi Louitri (2020). *Start-Ups and SMEs: Concepts, Methodologies, Tools, and Applications* (pp. 48-60).

[www.irma-international.org/chapter/high-growth-smes/245443](http://www.irma-international.org/chapter/high-growth-smes/245443)

### E-Parking: An Electronic Parking Service Using Wireless Networks

Gongjun Yan, Stephan Olariu, Weiming Yang and Danda B. Rawat (2011). *Innovations in SMEs and Conducting E-Business: Technologies, Trends and Solutions* (pp. 116-131).

[www.irma-international.org/chapter/parking-electronic-parking-service-using/54172](http://www.irma-international.org/chapter/parking-electronic-parking-service-using/54172)

### An Integrative Framework on the Psychological Variables Explaining the Consumers' Use of E-Commerce-Based Recommendation Systems

Francisco J. Martínez-López, Juan Carlos Gázquez-Abad, Inma Rodríguez-Ardura and Claudia C. Cabal-Cruz (2011). *E-Business Issues, Challenges and Opportunities for SMEs: Driving Competitiveness* (pp. 350-364).

[www.irma-international.org/chapter/integrative-framework-psychological-variables-explaining/46835](http://www.irma-international.org/chapter/integrative-framework-psychological-variables-explaining/46835)