

## Adoption of Decision Support Systems to Supplement Organizational Decision Making

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**Abstract:** Decision support system is used to assist and refine managerial decision making. Any Business or organization consists of Marketing, R & D, Financial Management and planning. These interrelated resources must have a coherent and effective combination for a sustainable organization growth. For all these resources to integrate effectively management decision making plays a very important role. At present, the process of decision making in most local organizations, is done without any aid of technology, and based solely on the experience of the decision maker. This study focuses on the effectiveness of decision support systems in assisting the process of decision making for organization.

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**Key Words:** Decision Making, DSS; Decision Support Systems

### 1. Introduction

In the modern era technologies play a vital role in simplifying and often easing out day to day managerial activities by helping the organizational decision making. An information system that helps organizational decision making is considered a decision support system. It helps solving problems by supporting different business models.

Decision support system focuses on the following:

- inventories of information assets (including legacy and relational data sources, cubes, data warehouses, and data marts),
- comparative sales figures across time, and;
- projected revenue based on sales assumptions

Such systems can be build on any knowledge domain with real practical applications. The DSSs have numerous benefits including; improved personal efficiency and speedy decision making; increasing organizational control.

Modern technology has simplified and benefited every part of our work lives and has helped us perform things that were unthinkable in the past. The DSS is no exception; as it is a vital part of any organization's decision making portfolio, and implementing it properly helps the organization's top management make effective and informed decisions that aid the organization in the long run to succeed in achieving its mission and goals.

### 2. Literature Review

Decision support systems effectively support future planning that can be implemented at many intervals. Bonczek et al. (1980), refers to Decision Support Systems as a computer-based system consisting of:

1. Language system - communication between the user and DSS components
2. Knowledge system, and;
3. Problem-processing system--the link between the above two components

Various forms of DSS exists including model driven, communication based, data oriented, document focused and knowledge base. Knowledge is accumulated over time and plays a crucial role in the decision making process. DSSs may be designed in various ways to incorporate all the possible factors under consideration which, in real life, make the system very complicated.

Keen (1980) expressed DSS as applicable "to situations where a 'final' system can be developed only through an adaptive process of learning and evolution". Figure1 shows the a typical DSS which consists of human decision making and computer systems.

DSS is not just a system of hardware and software which is a popular misconception.

According Simon(1960), "*An unstructured (or semi-structured) decision cannot be programmed because of its precise nature and structure that is elusive and complex*". The objective if the DSS is to support and facilitate the human decision making process rather than replacing it completely.

DSS is distinguished from a Management Information System (MIS) with respect to effectiveness focus opposed to efficiency in decision processes (facilitating decision processes).

Supporting all phases of the decision makes an important performance objective of DSS (Sprague and Carlson 1982).

Figure 2 shows the main research areas which are the focus of DSS.

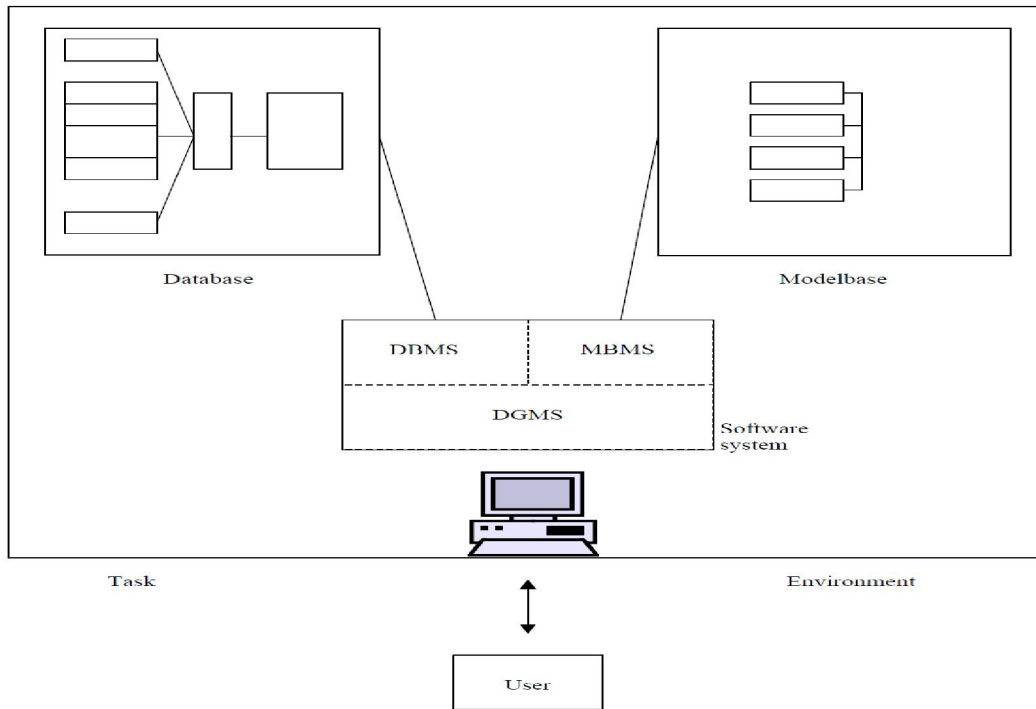


Figure 1 DSS Components (Sprague and Carlson, 1982)

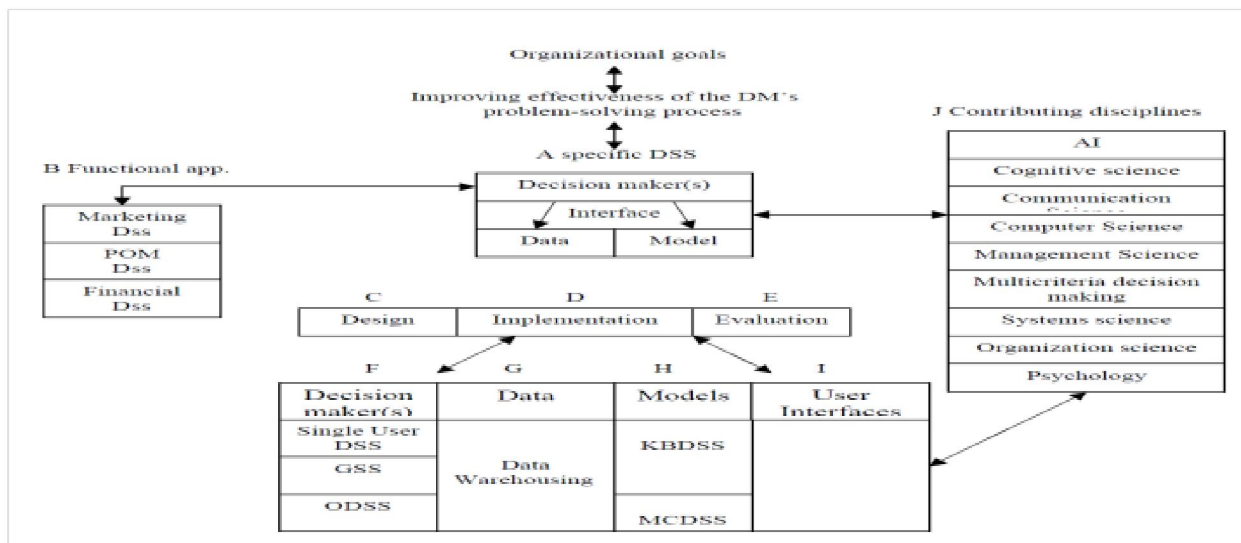


Figure 2 DSS Applications and Disciplines (Sean, 2001)

### 3. Research Methodology

The aimed to measure the extent to which DSSs help in the organizational decision making and the impact of DSS in the organizational working environment with implications for Pakistan, notorious for its lack of use of technology. The hypothesis was therefore to find out whether the Decision Support System would benefit decision making in an organization especially in Pakistan.

The target population included individuals working in different organizations and at various levels of career path. It was assumed that the sample would understand decision making thoroughly and would be able to answer the questionnaire. The sample size was 20 to get in depth inputs on understanding of DSSs from the sample and made a suitable size. The chosen sample belonged to a diverse working background having a working knowledge of how decisions were undertaken

in their respective organizations. A qualitative assessment was conducted using a self administered questionnaire consisting of a mix of both open and closed ended questions. The open ended questions were included to extract comments and personal opinions from the subjects, while the close ended questions were included to assess various statements regarding the DSS implementation in their organizations. The research instrument was composed of 15 questions with ten closed ended type and the remaining five open ended type. Some close ended were based on a five point Likert-type scale. The aim here was to measure the DSS knowledge and implementation among different organizations. The scale required the respondents to provide a mark of 1 for strong disagreement with a particular statement to a mark of 5 strong agreement, while other close ended questions were based on Multiple Choices out of which the respondents chose responses. Open ended questions required the respondents to describe their experiences of using DSS if implemented. In cases of non DSS usage the reasons were inquired including working environment and costs

etc. The aim was to gather information on the awareness of DSS in Pakistani work culture, its implementation and the benefits that could be derived through proper implementation of DSSs. The questionnaire was distributed electronically using e-mail asking respondents to fill in the questionnaire and mail it back.

The research took on an exploratory paradigm; DSS in Pakistan is a relatively new concept and has less awareness in organizations. The research aimed to achieve ways to increase awareness levels of decision support technology and its implementation in Pakistan.

**4. Results**

The purpose of the study was an identification of the differences in decision making activities with and without DSSs, an assessment of DSSs’ general awareness levels in Pakistan and implementation in organizations. Responses from twenty respondents were condensed into ten random responses with a 1-10 scale measuring agreement to various identified domains. The results are shown in Figures 3 and 4.

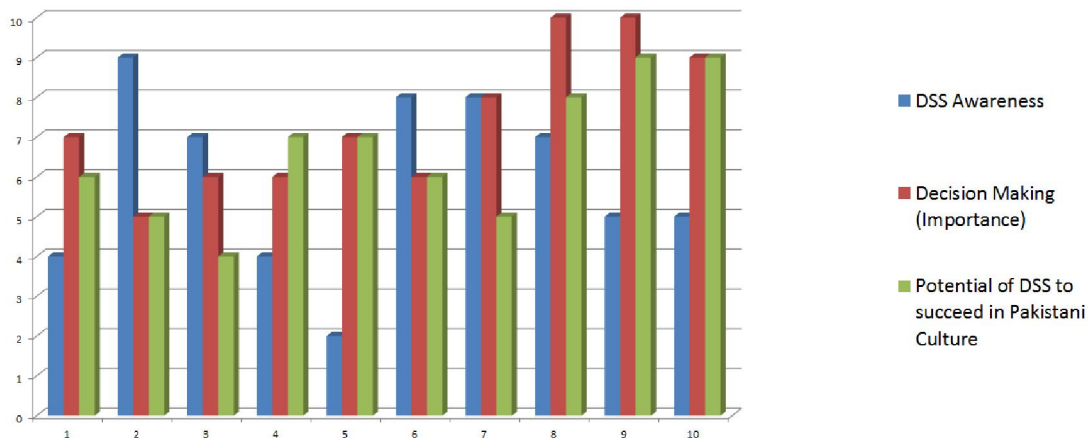


FIGURE 3: COMPARISON OF VARIOUS DSS FACTORS

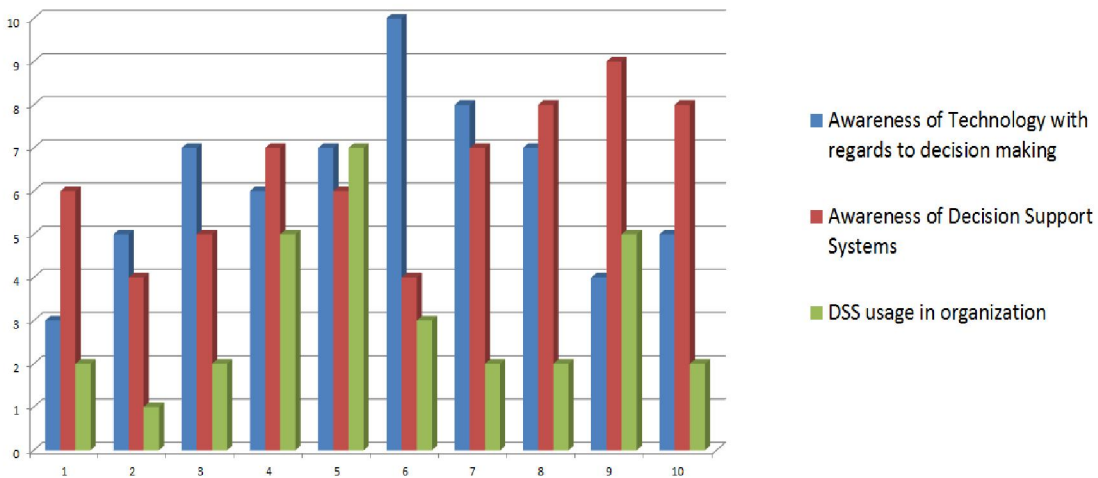


FIGURE 4: COMPARISON OF VARIOUS DSS FACTORS

## 5. Conclusion and Recommendations

The most important factor in the DSS implementation is awareness of Decision support technology. From the survey, it could be reflected that awareness of technology and decision support systems is not present at desired levels in Pakistani work environment both private and public. Awareness is a vital step in its successful implementation, for that fact that lesser knowledge of a technology can in no way lead to full scale implementation. Organizations using DSS are very few in Pakistan and most are not ready to accept this new technology for decision making. The behavior results from companies not having sufficient knowledge about the working and results of decision support technology. The potential for success of the DSS in Pakistan is directly proportional to its knowledge, awareness, technical training and directly measurable decisional consequences leading to effectiveness and efficiency.

It may be assumed that experts in a domain are not subject to judgmental biases and approach optimality in decision making. Empirical evidence shows that experts are more accurate than novices within an area of expertise; however, experts also are vulnerable to the same judgmental biases as novices and demonstrate apparent errors and inconsistencies in judgment. Seminars and awareness workshops may be arranged to highlight the basics, costs, and benefits of using DECISION SUPPORT technology to help creating its awareness and promoting its use in Pakistan. Decision support systems over the last few years have gained much popularity due to its powerful integration of scientific methods which helps taking complex decision. DSS are very helpful when a decision is based on precision and accuracy. These systems minimize human deficiencies by effectively taking complex decisions with accuracy. Decision support systems have many attractive features which are very likely to succeed in the long run. DSS will never replace human analytical capabilities but will be very useful tools in aiding and supporting such capabilities. For an effective implementation of such systems user interface should be the focus of the developers as it plays very vital role in determining how accurate the decision process is and measures its effectiveness.

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