

# Decision Support System: Overview, Different Types and Elements

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## Abstract

Decision support system is especially conducts with computing elements which mainly depicts successful report of a company. This system allow to the application of technological development and software application to maintain ethical ways of business practices. The major types of DSS are document driven DSS, model driven DSS, communication driven DSS, data driven DSS and knowledge driven DSS. These types are mainly impact on business practices which finally creates systematic effect on advance production. Graphical interfaces and artificial intelligence are major aspects in this decision making procedure. In the following part of the study, the challenges of using a decision support system in a business has been illustrated in an extensive manner. There are several types of challenges which are crucial before using DSS in a business. For a decision maker, that individual should follow and be aware of technology implementation within a business for a certain manner. Also, required elements of the decision support system have been discussed with the help of proper insights. Also, the study has served with discussion and conclusion to the following topic.

## Keywords

Business Practices, Decision Maker, Decision Making, Decision Support System, DSS Elements.

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## INTRODUCTION

Decision-making capabilities are improved with the help of a computer programming application which is indicated as a decision support system. This decision support system particularly analyses large amounts of data sources which showcase possible options available in the organisation [1]. There are some examples of decision support which are a combination of raw data, personal knowledge and application of better business models. There are huge advantages in application of “decision support systems” which are maintained by organisational data sources, and this includes data warehouses, electronic records, revenue projection and sale projection. There are some components in this Decision support system (DSS), such as data management, knowledge management, model management and management of user interface [2]. These components mainly provide technical security of company data or confidential information.

Large data of any company can be managed with the help of this DSS process which records successful records of a company. There are various types of DSS such as: document driven DSS, model driven DSS, communication driven DSS, data driven DSS and knowledge driven DSS [3]. There are huge positive approaches that give a better approach which make technological touch in each process to maintain potentiality. This shows an interactive computer system which is mainly based on using an expert or application of Artificial intelligence. In this concern, business groups and executives should be active and able to show skilled operation in the decision making system. Communication driven systems aim to target an internal team with partners which can proceed with the help of online collaboration and

technological usage with web or client servers.

Data-driven is mainly aimed at working out with managers and with product services and suppliers. This drive provides answers in the better activities on the way to huge measurements and data warehouses. The main frame system with the help of web is linked with the help of an existing database. Board base user group is targeted against major applications of documentation driven DSS [4]. This precedes common technological applications which can be set up through client or server systems. In addition, model driven can be done with the help of various applications of reliable business models with creating process meetings between managers and other members. This is particularly done with the help of utilization of software that stands for client or server processes on the web. Moreover, a proper business model is technically done with the help of a computing system.

## MATERIALS AND METHODS

The secondary data are based on the elements, type and an overview of decision support systems that can be collected from the authentic sites. There is a main reason for the secondary data collection process which leads to a proper time of submission without any delay and this also gains letter knowledge on DSS. Secondary data collection particularly sources from authentic peer-reviewed journals, books, magazines, articles which provide several numbers of knowledge and information based on related topics [5]. On the other hand, there is better effectiveness in application secondary data collection and this helps in gagging vast knowledge about individual components, types and description decision making systems. This present study is

developed on the basis of cross-sectional design, inductive approach and interpretivism research philosophy. The present case on categories, elements and decision support system can be done from peer-reviewed journals published after 2019. The reliability and validity in this study is maintained with following inclusion and exclusion criteria:

**Table 1:** Inclusion and exclusion criteria

Inclusion criteria	Exclusion criteria
The researcher should take information based on the Decision support system.	The researcher should not take information based on other computing systems.
The researcher should collect secondary data from relevant peer-reviewed journals which are published after 2019.	The researcher should collect secondary data from relevant peer-reviewed journals which are not published before 2019.

The ethical consideration in secondary qualitative analysis can be done on the basis of marinating data collection. This is mainly justified with the help of collection of integral information about DSS from authentic sites.

**RESULTS**

**Concept of decision support system**

Decision support system is computed as an information system which gives a supportive activity in decision making process in organisation. Interactive computer based works and subsystems help to major personnel in the major application of technologies that would be granted for proper computing systems [6]. Artificial intelligence has a better chance on decision making processes as this assists graphical working skill to have secured data and ethical business development. The application of decision making systems has better effect in business processes and this maintains speed of data creation, there is lower scope of having error and this is also cost-effective [7]. More advantages have gained with the decision making process in an organisation due to application of automation technology.

There is a huge number of numbers and data compilation required in the major processes of organisational development. The DSS process is used in the business processes for supporting judgment, course of action and determination of business practices [8]. The decision making factor of humans can accelerate with graphical presentation which is faster than common speed. This can make production with active automation and advanced technological usages. In this concern, the DSS software system is considered to be an application of analytical models along with mathematical practices [9]. The advanced model creates a prediction on output results base do input condition which should be combined to form technologically advanced production.

**Types of decision support system and elaboration of the types**

Decisions support system (DSS) is categorised as various types which are described as below:

*Data driven DSS*

Data driven DSS is a computing system which can be based on the idea and skill of personnel to support an internal database system. A data driven DSS usually makes use of data mining technology to make trends and patterns of future situations [10]. Data inventory can be made on the basis of data driven DSS and this helps in easy access to sales and other business processes. Criminal activities can be detected with the prediction of ethical practices and this can clarify fraudulent activities with the application of advanced technological activities.

*Model driven DSS*

Model driven is computerized techniques which can maintain accounting and financial activities that are able to accelerate decision making process. Product demanding forecast, credit and lending of decision, marketing decision, resource allocation, marketing decision, project planning and investment decisions are some processes of model driven DSS [11]. This type of decision making is not data intensive, rather this is used as a parameter in the decision makers which lead the variety with huge integration based on web application. There are various situations which are especially handled with the assistance of model driven design making such as: budgeting decision, production forecasting, lending decision and planning of new project [12]. Model driven process in DSS is mainly done on the basis of two categories such as: dynamic and static analysis.



**Figure 1:** Different situations to use model driven DSS

*Communication driven and group DSS*

A communication driven and group situations activity uses a variety of tools which can create advantageous conditions based on better connection within team members and managers. The communication driven DSS specifically

uses communication tools such as: instant email, message and video chat [13]. This driven decision making is mainly done on the basis of collaboration between managers and staff that can develop proper relationships between members and managers. In the case of a better relationship, task between one and another person easily happen which provide clear justification that maintains efficiency and effectiveness in business practices. This can maintain potential activity within major business development.

*Knowledge driven DSS*

Knowledge driven DSS is the most vital system that includes a knowledge based procedure which is continuously updated and managed with a knowledge management system. Knowledge driven DSS involves information based on business processes and major knowledge of staff [14]. This can be raised with the application of various mentoring programs in which leaders should be better responsible and aware about working culture. In this way there is highest growth in the business process. All the users should know about the detailed process of business.

*Document driven DSS*

Information management systems are considered as the document driven DSS and there is a better chance in retrieving data with this system. Document driven processes include policies and procedures that meet proper record of the company [15]. The knowledge base driven in DSS is preceded with the help of interface, inference engine and knowledge base which can meet better effect in the way of maintaining integral part of business. Moreover, clear documentation allows a better approach on usage of GPS routing, ERP dashboards and clinical decision support system.

DSS software can be effectively maintained with proper skill of staff and managers that can easily meet major goals of the organisation. This can properly develop planning facilities and even feasibility in management. DSS mainly concerns the strategic planning, budgeting forecasting, insights and analysis of any data which perform an effective activity to get profitable growth in major business. This system is also important to track Key performance indicators (KPI) for proper investigation of employees [17]. Strategic planning is mainly required with setting up of all goals which an organisation proceeds to plan. This is unified with a common establishment of working direction that can meet establishment of ethical business practices.

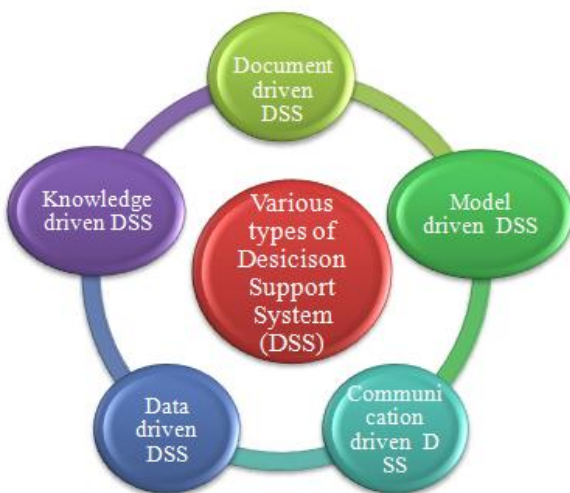
*Features of decision support system (DSS)*

The decision support system is intended for the usage of decision making objectives such as: advanced planning procedure, application of reliable business model and supportive growth in the business processes. The DSS process can be done on the basis of various processes which naturally form decision making supportive activity. Organisational intended usage, allowance of interaction with natural manners and detection of various problems are some major features of DSS [18]. Adaptability, ease of development, efficiency and major effectiveness are some other features of decision support systems.

This can adapt new practice on the basis of, major skills and development and ability of decision makers. In this way, organisations can use some tools, new business models and artificial intelligence. Modeling and inter logistics approach in large data planning mainly done with the help of various applications of this decision. In this way there is a major advantage with technological adornment and higher collaboration between team members and managers. Model management system is a decision making process which is mainly used to develop effective quality of property which maintains proper decision in major procurement. There is a major application of user interface which includes a better navigational system.

In terms of making profit in any sort of business, there might be several types of challenges that can be raised in using the decision making support system in a business. Besides several kinds of limitations and regulations, decision support systems also have some drawbacks. The first challenge which has been raised in the implementations of decision support systems is overloading of insights. DSS has been implemented within the business to support human intelligence over years. However, the decision support systems stop the process of decision making by promoting bias which has been simply cured in the process of decision making and also, offers effective information within easy consumable bites [19]. The major concept is to portray all sorts of hardware insights in the patterns of graphical interpretation and picture and texts within the clean chit of the decision support system.

Depending excessively on the decision support system and establishing an unusual amount of faith in it is not a healthy



**Figure 2:** Types of Decision support system (DSS)

*Importance of decision support system in business*

Informed decision making is particularly informed based on the decision support system. The decision support system allows more informative decision making facilities activity in dealing with efficiency improvement [16]. The application of

sign. Several types of uncertainties and drawbacks have been related to the concept of decision support system. There are several types of drawbacks while incorporating the decision support systems in a certain type of business. The first and foremost uncertainty which has been considered as the drawback of using decision support systems is difficulty in quantifying all data in an organized manner [20]. A decision support system has been majorly dependent on the quantifiable data which has been immensely used in the statistical interpretation and numerology in an effective manner. It is more likely impossible to examine intangible or indefinable data in an effective way. In reality, there are few values which cannot be immensely specific and described in a numerical form. Even after quantifying some of the factors by applying a decision support system, the ultimate result must be fully accepted by the decision makers. The uncertainty has been considered as an unstructured or partially structured in-depth circumstance and examines the regulation and assumption within an extended form.

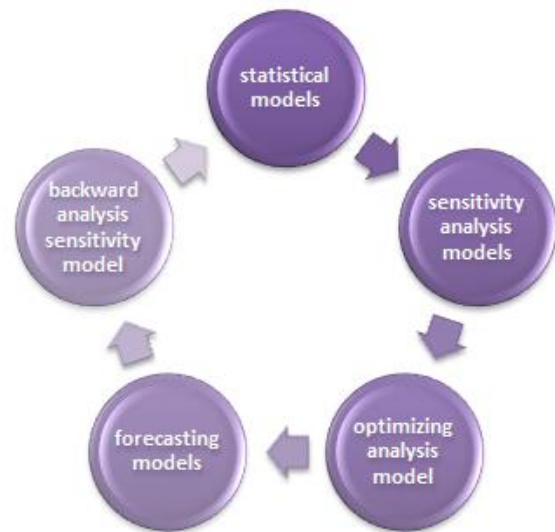
However, DSS might give the quantification about some aspects; the decision makers must implement their own judgment while creating an ultimate decision in a certain way. Also, another uncertainty of using a decision support system is the unawareness of all sorts of predictions. In any sort of business, all types of decisions have been taken and made by the higher executives of the company [21]. Thus, as a decision maker, an individual might not be able to predict any decision support system which has been accepted while examining data for a particular issue. Making decisions by not accepting unregulated aspects might appear as hazardous issues to the business. Also, a decision maker should consider that a decision support system is only an example of a computerized supporting instrument. Therefore, as a decision maker, that individual should consider the instructed circumstances as the limitations and speculations of the business. Hence, the unaware assumption can create uncertainty while using a decision support system within a business.

Later on, another uncertainty of using decision support systems within a certain business is failure of business design which can disrupt the flow of business process in the existing marketplace. Certainly decision support systems have been designed to the particular requirements of decision makers of business towards gaining profit with the help of the business. In case a decision maker is not aware of how to implement the decision support systems in the execution process of a business, it would appear as an immensely hectic form to design a system that matches the requirements of the decision maker [22]. Also, by using a vague and irrelevant decision support system, the required outcomes would appear as a vague result for the business in a certain manner. Such types of circumstances might arise because of systems design failure or systems design malfunction.

Furthermore, an uncertainty of implementing a decision support system arises at the time of collecting all the needed data for a business. As a decision maker for a business, an

individual has realized that it is not possible to capture all of the data in a mechanical way. When little data is difficult to capture, some of the data which has been already recorded have not been recorded for the business. Hence, it can be stated that the data which has been portrayed by DSS are not totally authentic to serve insights about a topic [23]. Also, for the use of decision support systems, the uncertainty can be raised as the lack of technical knowledge among the users to explore technology implementation in a certain way. However, DSS has become more easy to use over the years and several decision makers still find it complex for the lack of technological knowledge. Further, excessive use of the decision support system can create an excessive amount of dependency on the users to make a negative impact on the technological implementation in a certain manner.

Later on, there are few crucial types of elements of decision support systems which are based on the usage criteria of the support system. There are major components of decision support elements which have been commonly used in any sort of business and the components are as follows- statistical models, sensitivity analysis models, optimizing analysis model, forecasting models and backward analysis sensitivity model [24]. All types of elements are commonly used in a business while making decisions to survive in the existing marketplace in an effective manner.



**Figure 3:** Elements of Decision support system

These are the types of the element of decision support system and apart from these five elements; there are another three types of element which have been used majorly in any sort of business in an effective manner. Three elements are as follows- instinct judgements and perspectives. All of the following aspects have been used in a business in an effective manner. Instinctual elements are core components of decision making to set a proper goal for a decision maker in an effective manner. Basically, this following component is related with the psychological aspects of a decision maker to set a proper type of decision for business in an effective manner. Also, it is important to make judgment before

making any sort of decision for a business and hence, the judgment is an important element of decision support systems for business in a successive manner. Judgment is an important aspect for a decision maker to undertake any sort of hustle for a certain type of business in a successive manner. Later on, for a business, a crucial factor is the perspectives about the business in the existing marketplace.

### DISCUSSION

The entire study is based on the decision support system and its overview, different types, and elements in business for a decision maker in an effective manner. The main focus of the study has been around the decision making process and the aspects of decision makers while undertaking a business to make an excessive amount of profit in the existing marketplace in a certain manner. At the beginning of the following study, few themes have been developed by deepening on the nature and positivity of the following study. The subject matter of this following study has been met with the help of proper insights which are related with the decision support system and its importance to a business and growth of a business in the existing marketplace.

At the beginning of the following study, the concept of decision support system has been drawn within a proper manner. Also, the concept has been aligned with the data driven decision support system in a particular business which is related with the existing marketplace in the present situation of a business marketplace. In this section of the study, the concept of decision support system has been served within a proper manner which consists of several sorts of insights. Further in the following section of the study, the study of decision support systems has been illustrated in a proper manner. All the types are mainly used in a certain type of business procedure of an existing marketplace and types are as follows- data driven DSS, model driven DSS, communication driven DSS, knowledge driven DSS and documents driven DSS. These types are majorly used in any sorts of business fields in an effective manner. Also, the required features of decision support systems have been respected in a certain manner.

Further, the importance of decision support systems in business has been depicted and the procedure has been illustrated firmly in a proactive order of business procedure. Also, the importance has been discussed in the major fields of decision making for a business in the existing manner. Also, the importance has been majorly in the fields of a business to explore the need of decision making in a certain manner. Later on, the drawbacks of using the decision support systems in business has been respected and discussed within a proper manner in the following study and the challenges have been showcased in the discussion part of the study. Certainly there are several types of drawbacks that have been developed and shown in the following manner. Lastly, crucial elements of the decision making process have been served in a proper manner.

### CONCLUSION

The main subject matter of the following study is dependent on the concept of decision support system and the overview, types and elements of DSS for a certain type of business in the existing marketplace. At the initiation phase of the study, the subject matter has been introduced within the help of valid and authentic insights which are related directly with the following topic of discussion. In other words, the study has been started with an introductory phase of this subject matter of DSS and its importance in a business. The following section of introduction, the following topic has been served with the help of proper insight which is dependent on the subject matter directly. Later on, the material and methods have been selected and evaluated for these studies which are actually required to evaluate the subject matter in a proper manner. For the following study, the secondary data has been taken and evaluated by following and maintaining the norms of qualitative approach. Also, cross sectional research design and inductive approach have been selected and implemented to bring betterment in the execution procedure of the subject matter.

After the execution, there are several crucial factors which have been depicted in the study and the factors are related with the subject matter of DSS and its importance ratio to execute a business in a proper manner. Apart from the importance of DSS, several kinds of types, elements and challenges of using DSS in a business have been reported with proper insights and authentic resources which are related with the following subject matter. Finally, the study has been concluded with a proper manner of execution.

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