

# UNIT 11- ENHANCING MANAGEMENT DECISION MAKING FOR THE DIGITAL FIRM

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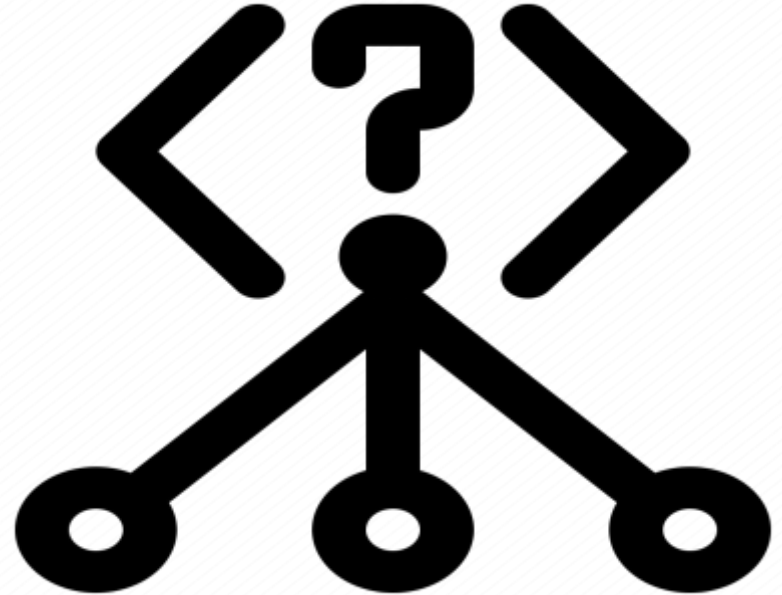
# Enhancing Management Decision Making For The Digital Firm: • Decision Support System (DSS)

# Introduction to Decision Support Systems (DSS)

Decision Support Systems are interactive software-based systems that help in decision-making.

DSS combines data, sophisticated analytical models, and user-friendly software into a single powerful tool.

They are designed to support complex decision-making and problem-solving processes.



# Importance of DSS in Digital Firms

In the fast-paced digital environment, timely decisions are crucial for success.

DSS enhances the ability to analyze vast amounts of data quickly and accurately.

They provide critical insights that can lead to improved business strategies and outcomes.



# Components of a Decision Support System

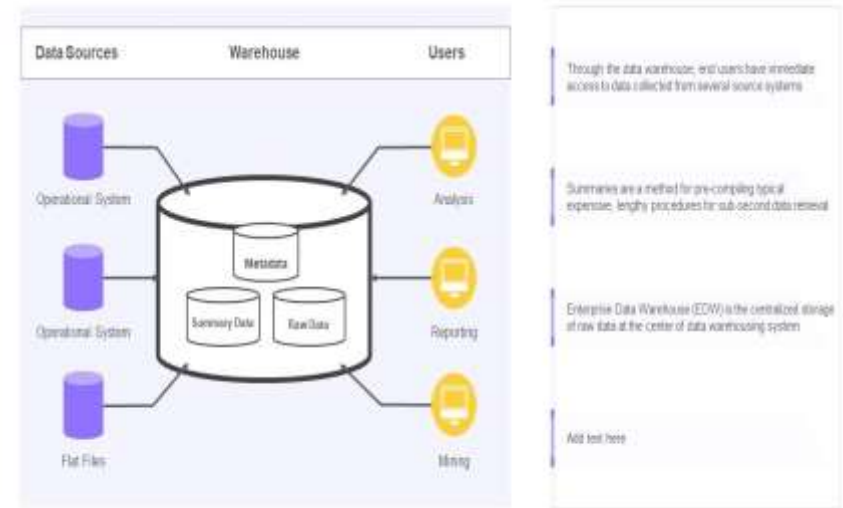
A DSS typically consists of components such as a **database**, **model base**, and **user interface**.

The database stores relevant data from various sources, ensuring comprehensive analysis.

The model base includes mathematical and analytical models to interpret the data effectively.

## Basic Architecture of Data Warehouse

This slide depicts the basic architecture of a data warehouse and how information is processed and accessed in this architecture through metadata, raw data, and summary data.



This slide is 100% editable. Adapt it to your needs and capture your audience's attention.

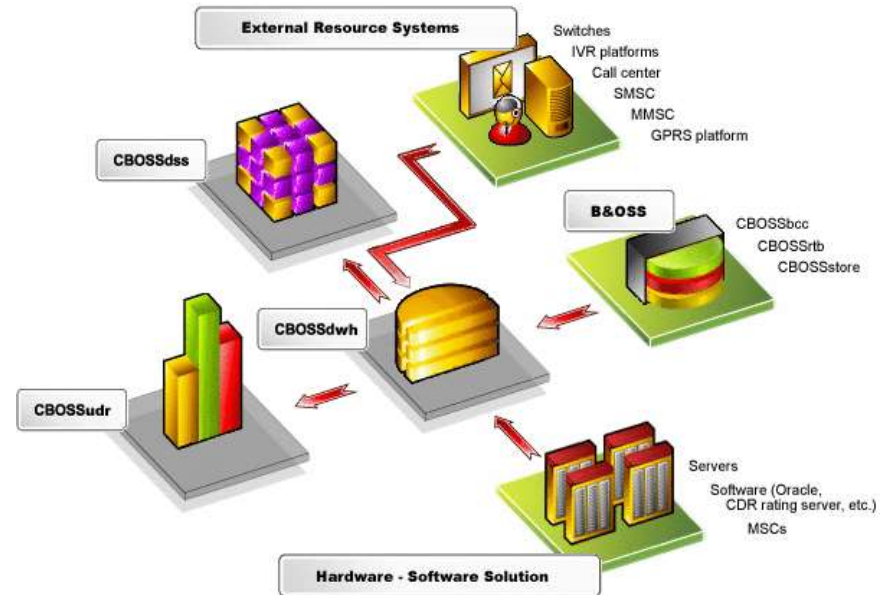


# Types of Decision Support Systems

There are several types of DSS, including data-driven, model-driven, and knowledge-driven systems.

Data-driven DSS focus on analyzing large volumes of data from various sources.

Model-driven DSS use mathematical models to simulate scenarios and predict outcomes.



# Benefits of Implementing DSS

DSS improves the efficiency and effectiveness of decision-making processes.

They enhance collaboration among team members by providing a shared platform for analysis.

The systems can lead to better resource allocation and increased operational efficiency.

## Optimizing Decision Making in Manufacturing: An Analysis of the Effectiveness of a DSS Using the Weighted Product Method

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### Abstract

This study examined if a WP-based decision support system (DSS) improved manufacturing organization decision-making and performance. The DSS decreased manufacturing costs by 30%, increased market demand by 10%, and increased profits by 20%. According to the six-month research experience. Additionally, DSS customer satisfaction rose 33%. A regression analysis showed that the DSS reduced production costs, increased market demand, and increased profits. The investigation also found that system users were much happier throughout this time. This research suggests that creating a decision support system (DSS) with the WP approach may improve manufacturing organization decision-making and performance. The study found that the DSS can improve organization performance. However, this research only applies to the manufacturing industry and cannot be generalized to other sectors.

**Keywords:** decision support system, weighted product method, decision-making process, regression analysis, performance improvement

### 1. Introduction

Decision support systems (DSS) are designed to aid individuals and organizations in making better decisions by providing information and tools that support the decision-making process (Epitafino et al., 2013; Bhandari et al., 2017; Koutantziou, 2014; Sarantis & Sifalou, 2013). One popular method used in DSSs is the Weighted Product (WP) method (Muhos, 2012; Wilbur, 2018; Prowis, 2014; Zoi et al., 2017), which is a multi-criteria decision-making technique. The WP method is particularly useful in situations where multiple criteria must be considered in making a decision.

In this study, we will be examining the use of a DSS utilizing the WP method in a case study of a manufacturing company. The company produces multiple products and must make decisions on which products to manufacture and how many to produce. The WP method is used to consider multiple factors (Efendiati & Kramich, 2014) such as production cost, market demand, and profit potential in making these decisions.

This research will examine the WP approach's DSS efficacy in the company's aid approach (Christi et al., 2020; Said & Handayani, 2019). The study examines how well the DSS has improved the company's decision-making and performance. This study's findings may aid other industrial firms and groups with similar decision-making challenges.

This industrial company's difficulties in assessing many considerations and trade-offs while making production decisions is a source of concern. Evidently, the company's standard decision-making techniques are insufficient to handle the intricacy of these judgments. This can result in suboptimal manufacturing decisions that have a negative influence on the performance of the organization.

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# Challenges in Implementing DSS

Integrating DSS into existing systems can be complex and resource-intensive.

Ensuring data quality and relevance is critical for the accuracy of decisions made.

User resistance and the need for training can pose significant hurdles during implementation.



# Real-World Applications of DSS

Companies use DSS for financial forecasting, market analysis, and risk management.

In **healthcare**, DSS assists in patient diagnosis and treatment planning.

**Retailers** use DSS to optimize inventory management and enhance customer experience.

## FINANCIAL FORECASTING TECHNIQUES

**FINANCIAL FORECASTING** refers to foreseeing future trends to estimate future aspects of a business, around which strategies and business decisions are formulated and planned.

### QUANTITATIVE FIN. FORECASTING

In the quantitative methods, the forecasters use past observations to generate forecasts.

Some of the quantitative methods are:

- ❖ Casual Methods
- ❖ Simple Linear and Multiple Regression
- ❖ Days Sales Technique
- ❖ Percentage of Sales Technique
- ❖ Time-series methods
- ❖ Financial Statements
- ❖ Projected Cash Flow and Fund Flow Stat
- ❖ Projected Income Stat. & Balance Sheet

### QUALITATIVE FIN. FORECASTING

The qualitative methods use the non-quantifiable or non-measurable data for forecasting purpose.

Some of the qualitative methods are:

- ❖ Executive Opinions
- ❖ Market research
- ❖ Delphi method
- ❖ Reference Class Forecasting
- ❖ Scenario Writing
- ❖ Sales Force Polling

# Future Trends in DSS

The integration of artificial intelligence and machine learning is transforming DSS capabilities.

Predictive analytics will enable more proactive decision-making processes.

Enhanced user interfaces and real-time data access will make DSS more accessible and intuitive.

The screenshot displays a DSS interface for a script named 'compute\_historical\_data\_cleaned'. The script has 4 steps and processed 30,000 rows with 9 cells. The 'Script output' section shows 30,000 rows and 11 cells. The main data table contains 12 rows of data with columns: Store, DayOfWeek, Date, Date\_parsed, Date\_parsed\_year, Date\_parsed\_month, Date\_parsed\_day, and since\_Date\_parsed\_days. The first row is highlighted in green.

Store	DayOfWeek	Date	Date_parsed	Date_parsed_year	Date_parsed_month	Date_parsed_day	since_Date_parsed_days
1	5	2015-07-31	2015-07-31T00:00:00.000Z	2015	7	31	
2	5	2015-07-31	2015-07-31T00:00:00.000Z	2015	7	31	
3	5	2015-07-31	2015-07-31T00:00:00.000Z	2015	7	31	
4	5	2015-07-31	2015-07-31T00:00:00.000Z	2015	7	31	
5	5	2015-07-31	2015-07-31T00:00:00.000Z	2015	7	31	
6	5	2015-07-31	2015-07-31T00:00:00.000Z	2015	7	31	
7	5	2015-07-31	2015-07-31T00:00:00.000Z	2015	7	31	
8	5	2015-07-31	2015-07-31T00:00:00.000Z	2015	7	31	
9	5	2015-07-31	2015-07-31T00:00:00.000Z	2015	7	31	
10	5	2015-07-31	2015-07-31T00:00:00.000Z	2015	7	31	
11	5	2015-07-31	2015-07-31T00:00:00.000Z	2015	7	31	
12	5	2015-07-31	2015-07-31T00:00:00.000Z	2015	7	31	

# Case Study: Successful DSS Implementation

A leading retail chain implemented a DSS that improved their inventory management by **30%**.

The system provided real-time data analytics, enabling faster restocking and reduced waste.

Employee satisfaction increased as the system facilitated better decision-making and reduced stress.



# Conclusion and Key Takeaways

Decision Support Systems are vital tools for enhancing management decision-making in digital firms.

Their ability to analyze data and provide actionable insights is crucial for competitive advantage.

Embracing DSS can lead to improved efficiency, better resource allocation, and informed strategic planning.



- **Group Decision-Support Systems (GDSS) •  
Executive Support In The Enterprise In  
Digital Firm**

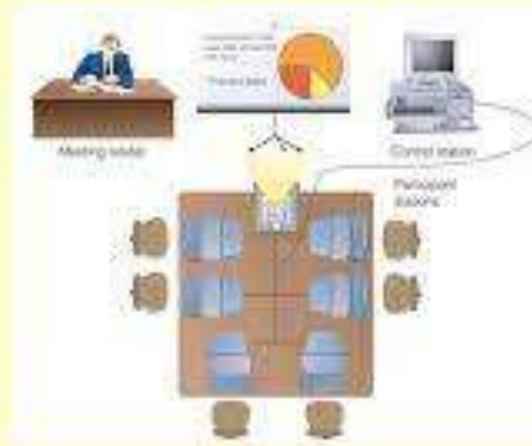
# Introduction to Group Decision-Support Systems (GDSS)

Group Decision-Support Systems are interactive systems that facilitate decision-making in groups.

They leverage technology to enhance **collaboration, communication, and problem-solving** among multiple participants.

GDSS can significantly improve the quality of decisions made in complex organizational environments.

## The Group Decision Support System (GDSS) - Decision Room

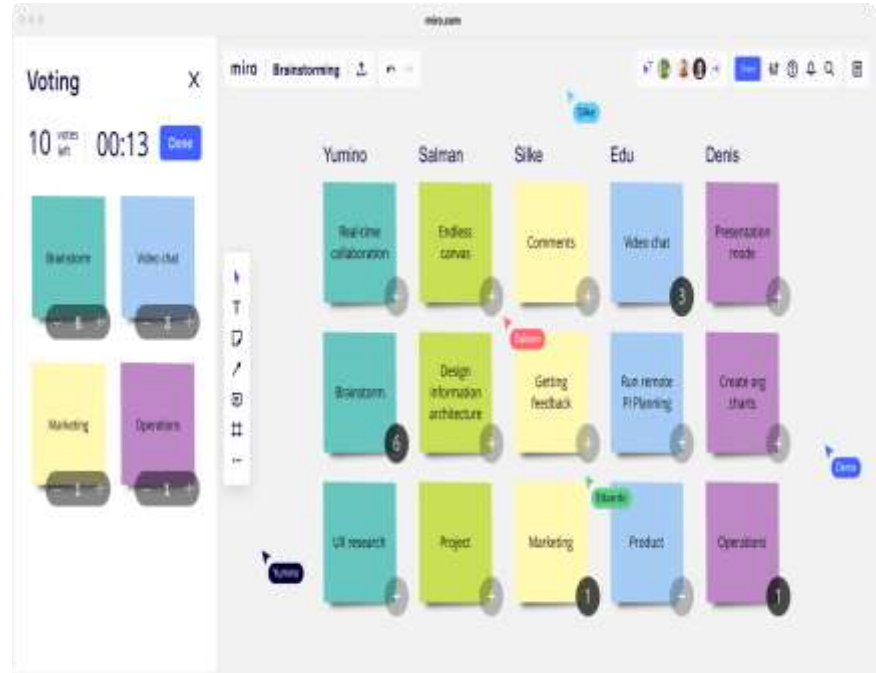


# Key Features of GDSS

GDSS typically includes tools for **brainstorming, voting, and consensus-building**.

They often incorporate advanced technologies such as **data visualization and real-time feedback**.

The systems are designed to minimize the impact of bias and enhance objective decision-making.



# Benefits of GDSS

GDSS improves the efficiency of decision-making processes by streamlining communication.

They foster a more inclusive environment by allowing all group members to contribute equally.

Enhanced decision quality is achieved through structured methodologies and analytical tools provided by GDSS.

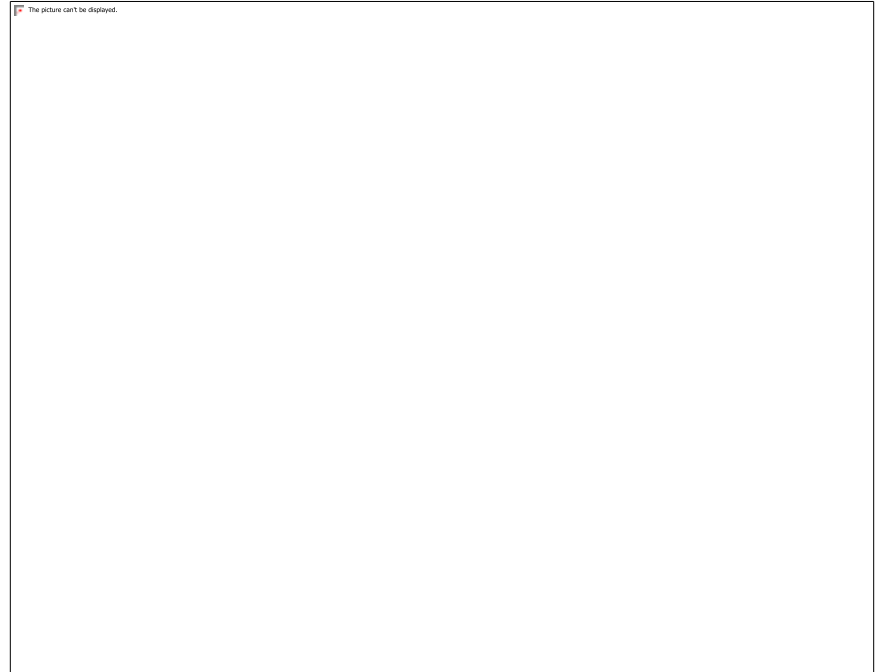


# Challenges in Implementing GDSS

Resistance to change can hinder the adoption of GDSS within organizations.

Technical issues, such as software integration and user training, may pose significant challenges.

Ensuring user engagement and participation is crucial for the success of GDSS implementation.



# Introduction to Executive Support Systems (ESS)

Executive Support Systems are tailored for senior management to aid in decision-making at strategic levels.

They provide high-level data analysis, reporting, and visualization tools to support executives.

ESS are critical in helping leaders monitor organizational performance and align strategic goals.

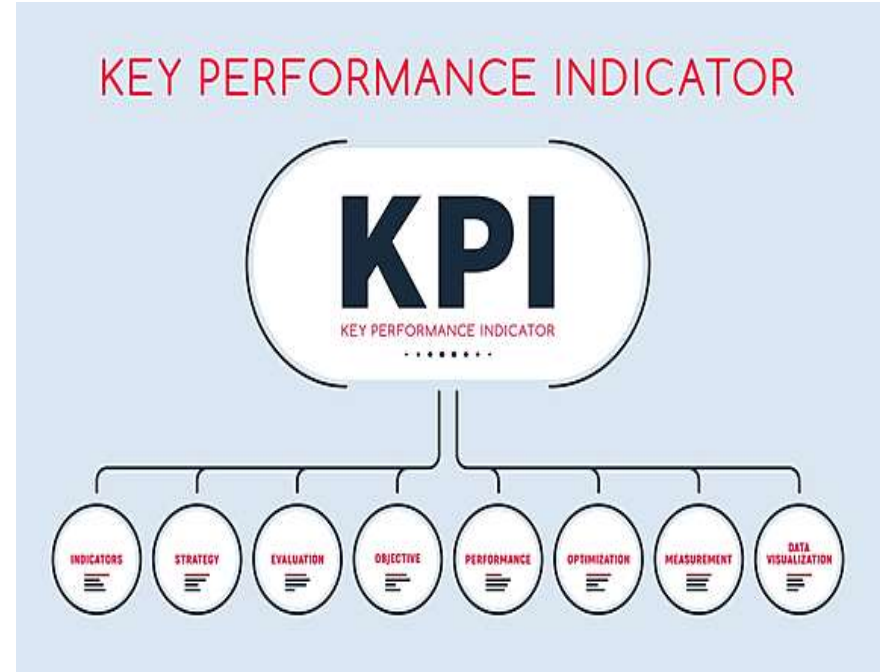


# Key Features of ESS

ESS typically include dashboards that present key performance indicators (KPIs) in real-time.

They often integrate data from various sources, providing a comprehensive view of organizational health.

Advanced analytics and forecasting tools are common to support proactive decision-making.



# Benefits of ESS

ESS enable executives to make informed decisions quickly by accessing relevant data effortlessly.

They enhance strategic planning by providing insights into market trends and business performance.

Improved communication and collaboration among top management are fostered through ESS functionalities.



# Challenges in Implementing ESS

High costs associated with deploying and maintaining Executive Support Systems can be a barrier.

Ensuring data quality and accuracy is essential, as poor data can lead to misguided decisions.

User adoption and training are critical for maximizing the benefits of ESS within the organization.

KnowBe4  
Humanerror. Conquered.

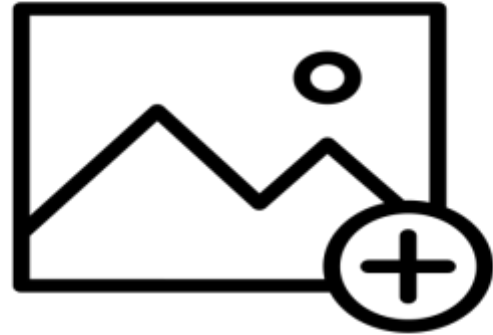


# The Role of GDSS and ESS in a Digital Firm

Both GDSS and ESS are vital in driving digital transformation and fostering data-driven cultures.

They facilitate agile decision-making processes that can adapt to rapidly changing business environments.

Together, these systems empower organizations to leverage collective intelligence and strategic foresight.



# Conclusion and Future Trends

The integration of AI and machine learning in GDSS and ESS is set to revolutionize decision-making.

Future systems will likely focus on enhancing user experience and personalization for better engagement.

As organizations increasingly rely on data, the importance of effective GDSS and ESS will continue to grow.

## 2023 Emerging AI and Machine Learning Trends

