# Business Intelligence

Pertemuan 5

Universitas Bunda Mulia

# Kompetensi Khusus :

Mahasiswa dapat menjelaskan peranan teknologi informasi dalam pengambilan keputusan dan peranan bisnis intelijen untuk menganalisis data

**Materi/Outline :**

1. Managers and Decision Making
2. What is business intelligence?
3. Business Intelligence Applications for Data Analysis

# 1. Managers and Decision Making

# 1.1 Managers and Decision Making

- **Management** is a process by which an organization achieves its goals through the use of resources (people, money, materials, and information).
- These resources are considered to be Inputs. Achieving the organization's goals is the output of the process.
- Managers oversee this process in an attempt to optimize it.
- A manager's success often is measured by the ratio between the inputs and outputs for which he or she is responsible.
- This ratio is an indication of the organization's **productivity**.

# 1.2 Manager's Job and Decision Making

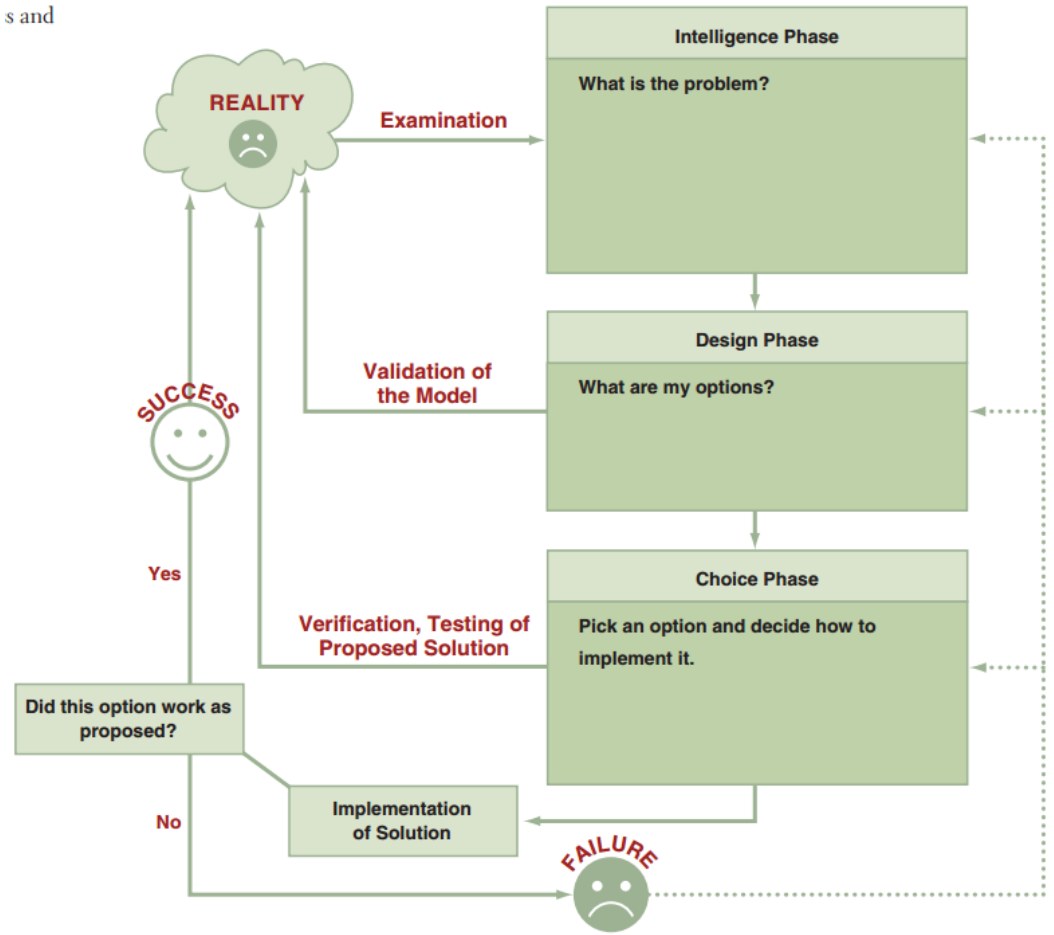
- Managers do many things, depending on their position in the organization, the type and size of the organization, the organization's policies and culture, and the personalities of the managers themselves.

# 1.2 Manager's Job and Decision Making (Lanj)

- Despite these variations, however, all mangers perfom three basic roles (Mintzberg, 1973)

1. Interpersonal roles: Figurehead, Leader, Liaison
2. Informational roles : Monitoring, Disseminator, Spokesperson, Analyzer
3. Decisional roles: Entrepreneur, disturbance handler, resource allocator, negotiator.

# 1.3Process and Phases in Decision Making



# 1.4. Why Managers Need IT Support

- Making good decisions is very difficult without solid information. Information is vital for each phase and activity in the decision-making process.

# 1.5 Trends Decision Making

1. The *number of alternatives* is constantly *increasing*, due to innovations in technology, improved communications, the development of global markets, and the use of the Internet and e-business.
2. A key to good decision making is to explore and compare many relevant alternatives.
3. Most decisions must be made *under time pressure*. It often is not possible to manually process information fast enough to be effective

# 1.5 Trends Decision Making (Lant)

4. Due to increased uncertainty in the decision environment, decisions are becoming more complex. It is usually necessary to *conduct a sophisticated analysis* in order to make a good decision.
5. It is often necessary to rapidly access remote information, consult with experts, or conduct a group decision-making session, all without incurring major expenses.
6. Decision makers, as well as the information they need to access, can be situated in different locations.

# 1.6 Framework for Computerized Decision Analysis

| | Operational Control | Management Control | Strategic Planning | IS Support |
|---|---|---|---|---|
| **Structured** | Accounts receivable, order entry 1 | Budget analysis, short-term forecasting, personnel reports, make-or-buy analysis 2 | 3 | MIS, statistical models (management science, financial, etc.) |
| **Semistructured** | Production scheduling, inventory control 4 | Credit evaluation, budget preparation, plant layout, project scheduling, reward systems design 5 | Building a new plant, mergers and acquisitions, planning (product, quality assurance, compensation, etc.) 6 | Decision support systems, business intelligence |
| **Unstructured** | 7 | Negotiating, recruiting an executive, buying hardware, lobbying 8 | New technology development, product R&D, social responsibility planning 9 | Decision support systems, expert systems, enterprise resource planning, neural networks, business intelligence, big data |

# 2. What is Business Intelligence?

# 2.1 Business Intelligence?

- **Business Intelligence (BI)** refers to technologies, applications and practices for the collection, integration, analysis, and presentation of business information. The purpose of Business Intelligence is to support better business decision making. Essentially, Business Intelligence systems are data-driven Decision Support Systems (DSS).
- **Business Intelligence** is sometimes used interchangeably with briefing books, report and query tools and executive information systems.

# 2.2 Scope of Business Intelligence

- In this Section we will examine three specific BI targets that represent different levels of change:

1. The development of one or a few related BI applications
2. The development of infrastructure to support enterprise wide BI
3. Support for organizational transformation

# Activity 1

1. Discuss the breadth of support provided by BI applications to organizational employees.
2. Identify and discuss the three basic targets of BI

# 3. Business Intelligence Applications for Data Analysis

# 3.1 Business Intelligence Applications for Data Analysis

- A good strategy to study the ways in which organizations use business intelligence applications is to consider how the users analyze data, how they present the results of their analyses, and how managers and executives (who can also be users) implement these results.
- Data are stored in a data warehouse or data mart. The user community analyzes these data employing a variety of BI applications.

# 3.1 Business Intelligence Applications for Data Analysis (Lanj)

- The results of these analyses can be presented to users via other BI applications. Finally, managers and executives put the overall results to good use.
- A variety of BI applications for analyzing data are available. They include multidimensional analysis (also called *online analytical processing*, or *OLAP*), data mining, and decision support systems.

# 3.2 Multidimensional Analysis or Online Analytical Processing

- Some BI applications include **online analytical processing**, also referred to as **multidimensional analysis** capabilities.
- OLAP involves “slicing and dicing” data stored in a dimensional format, drilling down in the data to greater detail, and aggregating the data.

# 3.3 Data Mining

- **Data mining** refers to the process of searching for valuable business information in a large database, data warehouse, or data mart.
- Data mining can perform two basic operations:

(1) Predicting trends and behaviors, and

(2) Identifying previously unknown patterns.

# 3.3 Data Mining (Lanj)

- BI applications typically provide users with a view of what has happened; data mining helps to explain *why* it is happening, and it predicts what will happen in the future.
- Data mining can also identify previously hidden patterns in a single step. For example, it can analyze retail sales data to discover seemingly unrelated products that people often purchase together.
- The classic example is beer and diapers. Data mining found that young men tend to buy beer and diapers at the same time when shopping at convenience stores.

# 3.4 Advantage Data Mining In Business

- Retailing and sales
- Banking
- Manufacturing and production
- Insurance
- Police work
- Weather
- Higher education
- Social good
- Healthcare
- Marketing
- Politics

# 3.5 DSS (Decision Support Systems)

- **Decision support systems (DSSs)** combine *models* and data to analyze semi structured problems and some unstructured problems that involve extensive user involvement.
- **Models** are simplified representations, or abstractions, of reality.
- **DSSs** enable business managers and analysts to access data interactively, to manipulate these data, and to conduct appropriate analyses.

# 3.6 3 Types DSS Analysis

- **Sensitivity Analysis :** is the study of the impact that changes in one or more parts of a decision-making model have on other parts. Most sensitivity analyses examine the impact that changes in input variables have on output variables.

# 3.6 3 Types DSS Analysis (Lanj)

- **What-If Analysis :** A model builder must make predictions and assumptions regarding the
input data, many of which are based on the assessment of uncertain futures. The results depend on the accuracy of these assumptions, which can be highly subjective.
- What-if analysis attempts to predict the impact of a change in the assumptions (input data) on the proposed solution.

# 3.6 3 Types DSS Analysis (Lanj)

- *Goal-seeking analysis* represents a “backward” solution approach. It attempts to calculate the value of the inputs necessary to achieve a desired level of output.
- For example, let’s say that an initial BI analysis predicted a profit of $2 million. Management might want to know what sales volume would be necessary to generate a profit of $3 million.
- To find out they would perform a goal seeking analysis.

# Summary

- When making a decision, either organizational or personal, the decision maker goes
  through a three-step process: intelligence, design, and choice.
  When the choice is made,
  the decision is implemented.
- There are three major ways that organizations use BI:

# Summary

- The development of one or a few related BI applications. This BI target often is a point solution for a departmental need, such as campaign management in marketing. A data mart usually is created to store necessary data.
- The development of infrastructure to support enterprise wide BI. This target supports current and future BI needs. A critical component is an enterprise data warehouse.
- Support for organizational transformation. With this target, BI is used to fundamentally change how a company competes in the marketplace. BI supports a new business model and enables the business strategy

# Summary

- Users have a variety of BI applications available to help them analyze data. These applications include multidimensional analysis, data mining, and decision support systems.
- Multidimensional data analysis, also called *online analytical processing*, involves “slicing and dicing” data stored in a dimensional format, drilling down to greater data detail, and aggregating data.

# Terimakasih