**Chapter 9 Summary**

**9.1 DECISION-MAKING CONCEPTS**

**Understanding Decision-Making Concepts:**

Decision Definition:

* **Decision:** A choice among two or more options, guided by a clear decision statement.
* **Decision Statement:** Defines the decision as narrowly as possible, agreed upon by all parties involved.

Decision-Making System:

* **Components:** Involves both technology and people; information flows in and out of the system.



* **Phases:**
  1. **Intelligence Phase:** Recognizing the need for a decision and establishing criteria.
  2. **Design Phase:** Formulating alternative choices based on established criteria.
  3. **Choice Phase:** Selecting the best alternative using predefined criteria.
* **Iterative Process:** Decision making involves revisiting phases and considering new information or criteria.

Decision Structure:

* **Structured Decisions:** Clearly defined and routine, can be carried out by computers, often involving specific rules and guidelines.
* **Unstructured Decisions:** Complex and lack specific guidelines, require human judgment and intuition.
* **Semi-Structured Decisions:** Fall between structured and unstructured, involving a mix of specific guidelines and human judgment.

Decision Scope:

* **Strategic Decisions:** Made by top management, involve long-term commitments, and affect the entire organization.
* **Tactical (Managerial Control) Decisions:** Made by managers, impact specific departments or areas, can be changed occasionally without altering the overall strategy.
* **Operational Decisions:** Routine decisions made during normal operations, have limited impact, made by lower-level managers or non-management employees.

**Putting the Concepts Together:**

* **Decision Structure vs. Decision Scope:**
  + **Structured and Strategic:** Often strategic decisions are less structured.
  + **Structured and Tactical:** Managerial control decisions are usually structured.
  + **Structured and Operational:** Operational decisions are structured but have limited scope.
  + **Semi-Structured Decisions:** Fall between structured and unstructured, requiring a mix of human judgment and specific guidelines.

Understanding the nature of decisions—whether they are structured or unstructured and fall within strategic, tactical, or operational scopes—helps in determining the appropriate information systems and tools required to support each type of decision-making process. This knowledge enables efficient and effective decision making within organizations.

**9.2 MODEL DRIVEN DECISIONS**

**Model-Driven Decisions:**

**Creating Models:**

* **Structured Decisions:** When decisions have structure, information systems can predict outcomes of different choices.
* **Creating Models:** Using tools like spreadsheets, one can create models to analyse various scenarios and assess their impact on decisions.
* **Assumptions:** Models often involve assumptions about future events, which may not always be accurate.
* **Variable Testing:** Trying out different values for critical variables in models helps assess the sensitivity of decisions to changes.

**Simulation Studies:**

* **Complex Systems:** Simulation is used for complex systems where predicting outcomes through mathematical formulas is not feasible.
* **Example:** Simulating a barbershop scenario to optimize staffing levels and customer satisfaction.
* **State Variables:** Determining system state variables and events that change the system state.
* **Simulation Process:** Involves running scenarios and observing outputs, calibrating the model to match real-world situations.
* **Business Analyst's Tool:** Simulation is a valuable tool for business analysts to model complex situations and assess various strategies.

**Artificial Intelligence (AI):**

**AI Applications:**

* **Assisted Intelligence:** Involves tasks like robotic assembly line operations to improve operational efficiency.
* **Augmented Intelligence:** AI interacts with humans, provides insights, learns from interactions, and offers recommendations to decision makers.
* **Autonomous Intelligence:** Allows systems to make decisions independently, raising concerns about potential errors and ethical implications.

**Expert Systems vs. Machine Learning:**

* **Expert Systems:** Early AI approach, rules derived from human experts coded into systems.
* **Machine Learning:** Current trend, utilizes vast computational power to handle large datasets, often using neural networks.
* **Neural Networks:** Modelled after biological systems, consist of interconnected "neurons," used in deep learning for complex tasks.

**Limitations and Considerations:**

* **Training Data:** Adequate training data is essential for machine learning systems, as they rely heavily on large datasets.
* **Error Handling:** AI systems, while powerful, are not perfect and can make errors, requiring continuous monitoring and adjustment.

Understanding the capabilities and limitations of model-driven decisions, simulations, and AI applications is crucial for making informed business choices and leveraging technology effectively in decision-making processes.

**9.3 DATA-DRIVEN DECISIONS**

**Overview:** Data-driven decisions involve utilizing data to inform and improve decision-making processes within an organization. This approach is often facilitated by tools such as Business Intelligence (BI), data warehouses, data mining, and predictive analytics.

**Business Intelligence (BI):**

* BI involves interpreting business data to make better decisions.
* It is often used with data warehouses, which store historical data for analysis.
* Data warehouses are structured databases used for decision-making.
* Data warehouses can be large, with companies like eBay and Facebook having warehouses in petabytes.

**Online Analytical Processing (OLAP):**

* OLAP is a data analysis method where users ask questions and drill down into data until the analysis is complete.
* It helps in identifying trends, patterns, and relationships in data.

**Data Mining:**

* Data mining involves finding patterns and correlations in large datasets.
* It helps uncover hidden insights and is used in various fields like finance, marketing, and healthcare.

**Predictive Analytics:**

* Predictive analytics combines historical data with business modeling to predict future outcomes.
* It aids in forecasting and decision-making by simulating different scenarios based on historical patterns.

**Examples:**

* Target used data mining to identify pregnant customers and send them relevant offers before the due date.
* United Orthopedic Group used predictive analytics to identify potential customer defections and reduce customer churn.

**Conclusion:** Data-driven decision-making is crucial for organizations, enabling them to gain insights, optimize processes, and enhance overall efficiency. Utilizing tools like BI, OLAP, data mining, and predictive analytics empowers businesses to make informed decisions and stay competitive.

**9.4 GROUP DECISIONS**

Many business decisions are made by groups, leveraging the benefits of information sharing, diverse strengths of different group members, and reduced personal bias. Group decision-making improves decision quality, increases buy-in from those implementing decisions, trains new decision-makers, and enhances consistency through organizational memory.

Groups utilize various information systems, either separately or combined, to achieve these benefits. Group support software focuses on facilitating joint decision-making processes, distinguishing itself from other software used by groups.

**GROUP SUPPORT SOFTWARE FOR THE DECISION-MAKING PROCESS**

Consider a group evaluating bids for a new corporate jet, assessing factors like cost, speed, and supplier reliability. Traditionally, this process involved heated debates. Group support software aids in reaching a consensus efficiently. It enables members to suggest percentages, computes averages, and supports methods like Delphi to foster agreement. The software also facilitates brainstorming by allowing members to input ideas into a shared database, accelerating the creative process. Group members can then rate ideas and use the software to categorize and analyze them effectively.

**GROUP SUPPORT SOFTWARE FOR GROUP COMMUNICATION**

Various communication software types aid groups in decision-making. Decision rooms, once prevalent, are now less common due to remote meeting tools. Telepresence meeting rooms, becoming popular as costs decrease, offer versatile communication solutions beyond decision-making.

**CONCERNS WITH GROUP DECISION MAKING**

Despite its advantages, group decision-making has challenges:

1. **Slowness:** Group discussions and conflict resolution can slow down the decision-making process, even online. Although buy-in might compensate for lost time, it's not always guaranteed.
2. **Groupthink:** Groups may avoid disagreement, leading to decisions that nobody truly supports, as members fear being the first to dissent.
3. **Group Polarization:** Groups might tend towards extreme decisions due to reduced individual responsibility.

Understanding the available information system support for group decision-making is crucial in professional settings, enhancing your ability to make informed decisions efficiently.

**9.5 DASHBOARDS**

A dashboard, as defined by Stephen Few, is a visual display of essential information consolidated on a single screen, allowing users to monitor key metrics at a glance. It serves as an approach to presentation, applicable across various organizations and managerial levels. Dashboards provide a unified view of crucial data, aligning teams around key performance indicators (KPIs) vital to achieving organizational objectives.

**KEY PERFORMANCE INDICATORS (KPIs)**

KPIs represent measurable values indicating the organization's performance against specific objectives. Examples include lead generation rates, sales cycle progression, production volumes, defect rates, room occupancy, and revenue from various sources. A well-defined set of KPIs ensures that success is attainable when met and unattainable when not.

**EFFECTIVE DASHBOARDS**

For a dashboard to be effective, consensus on the displayed metrics within the organization is crucial. The process of creating a dashboard can facilitate this agreement, enhancing collaboration and focus. Dashboards are typically created using enterprise software packages (ERP, CRM) or business intelligence (BI) software. BI tools offer robust dashboard capabilities, presenting data from various sources and enabling informed decision-making.

**IMPLEMENTATION AND USE**

Most large organizations benefit from dashboards, especially when personal oversight of all aspects is not feasible for senior management. If your organization lacks a dashboard, consider exploring affordable options within existing software solutions. BI software or specialized dashboard tools can bridge gaps in data representation, providing cost-effective solutions without the need for extensive in-house development.