Intelligent Decision Support System

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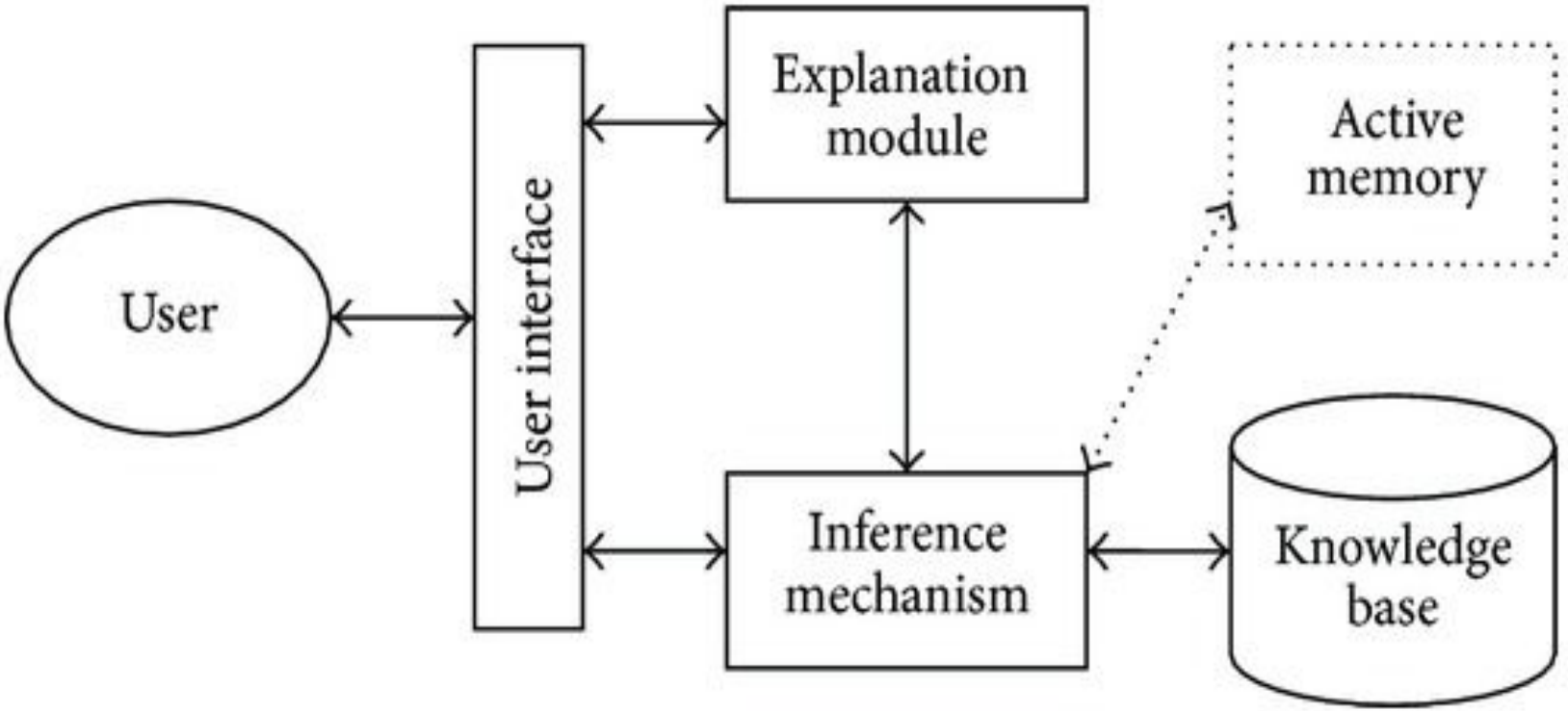
Introduction

- Decision making is a fundamental human process at the center of our interaction with the world
- We know that people make both good decisions and poor decisions
- researchers debate the most effective way to assist (or support) people in arriving to a “good” decision

Decision Support Systems (DSS)

- A decision support system (DSS) is a computerized program used to support determinations, judgments, and courses of action in an organization or a business.
- A DSS sifts through and analyzes massive amounts of data, compiling comprehensive information that can be used to solve problems and in decision-making.

Structure of DSS



Examples of Situations in which DSSs may be used:

- Help medical personnel in a hospital setting to consider various develop diagnoses and treatment plans.
- Help engineers to analyze, and compare solution options.
- Help military planners to generate alternative plans of military .

IDSS

- When artificial intelligence (AI) techniques are utilized in the development of DSS , the resulting system is referred to as an intelligent decision support system (IDSS).
- An intelligent decision support system (IDSS) is a decision support system that makes extensive use of artificial intelligence (AI) techniques. Use of AI techniques in management information systems

Definition

- The use of Artificial Intelligence tools and models provides direct access to expertise, and their flexibility makes them capable of supporting learning and decision making processes. There integration with numerical and/or statistical models in a single system provides higher accuracy, reliability and utility.

Structure of IDSS

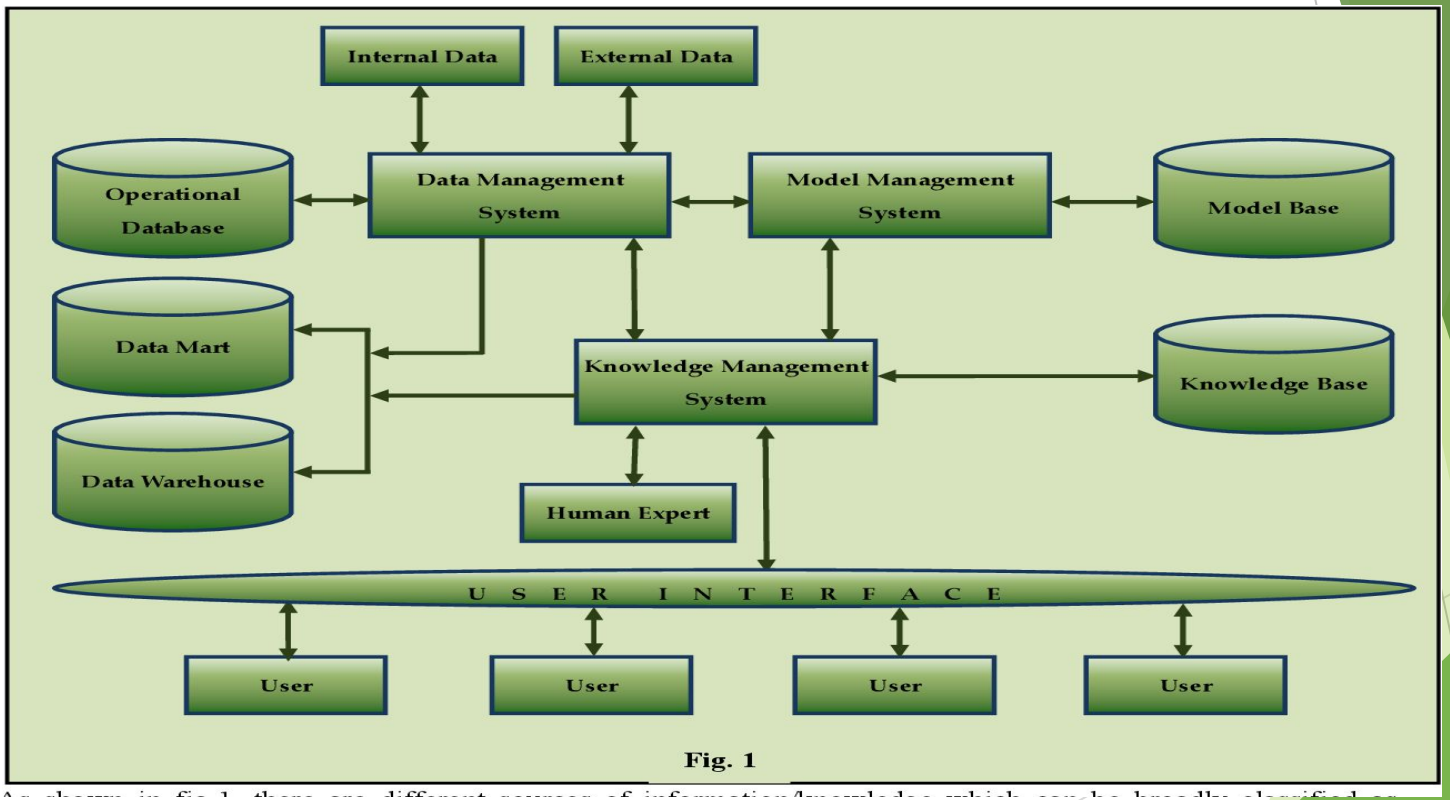


Fig. 1

Intelligent Decision Support Systems (IDSS) Typology

- IDSS in static domains

  Industrial process design systems
- IDSS in dynamic domains

  Wastewater Treatment Plant Supervisory System
- IDSS in dynamic domains with real-time

  constraints or possible catastrophic consequences

  Automatic Supervisory System in a medical Intensive

  Cure Unit

  Environmental Emergency management systems

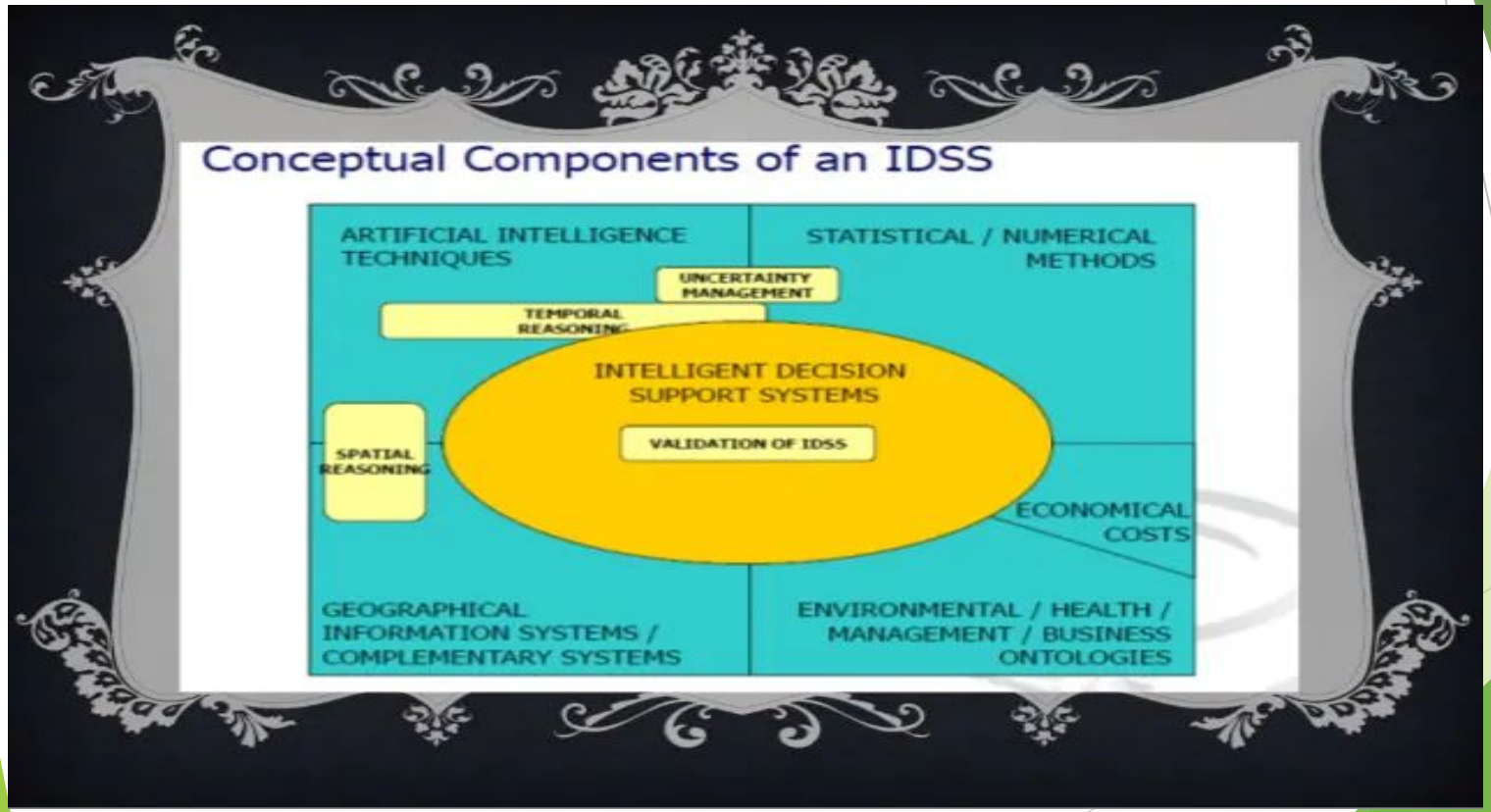
  On-line: Emergency coordination systems

  Off-line: Training systems for emergency management

IDSS Requirements

- Type of decision problem (policy, operations, resource allocation, etc.)
- Domain and scope of the decision problem
- Data and knowledge availability
- Organizational and structural boundaries
- Decision-making process
- Impact on and synergy with the existing systems
- Expected consequences of decision execution
- Profiles of decision-makers (users of the system)
- External constraints and contexts
- Objectives of the IDSS

Conceptual Components of an IDSS



Kinds of Support provided by an IDSS

- Identify the need for decisions
- Identify specific problems that require attention
- Solve or assist in solving problems
- Help compensate for cognitive limitations of human
- decision makers
- Provide assistance in the form of advice, analysis, or evaluation
- Enhance user creativity, imagination, or insight
- Facilitate interactions in multi- participant decision maker
- settings

Thank you for your undivided attention

Any Questions?