

# AEC 851

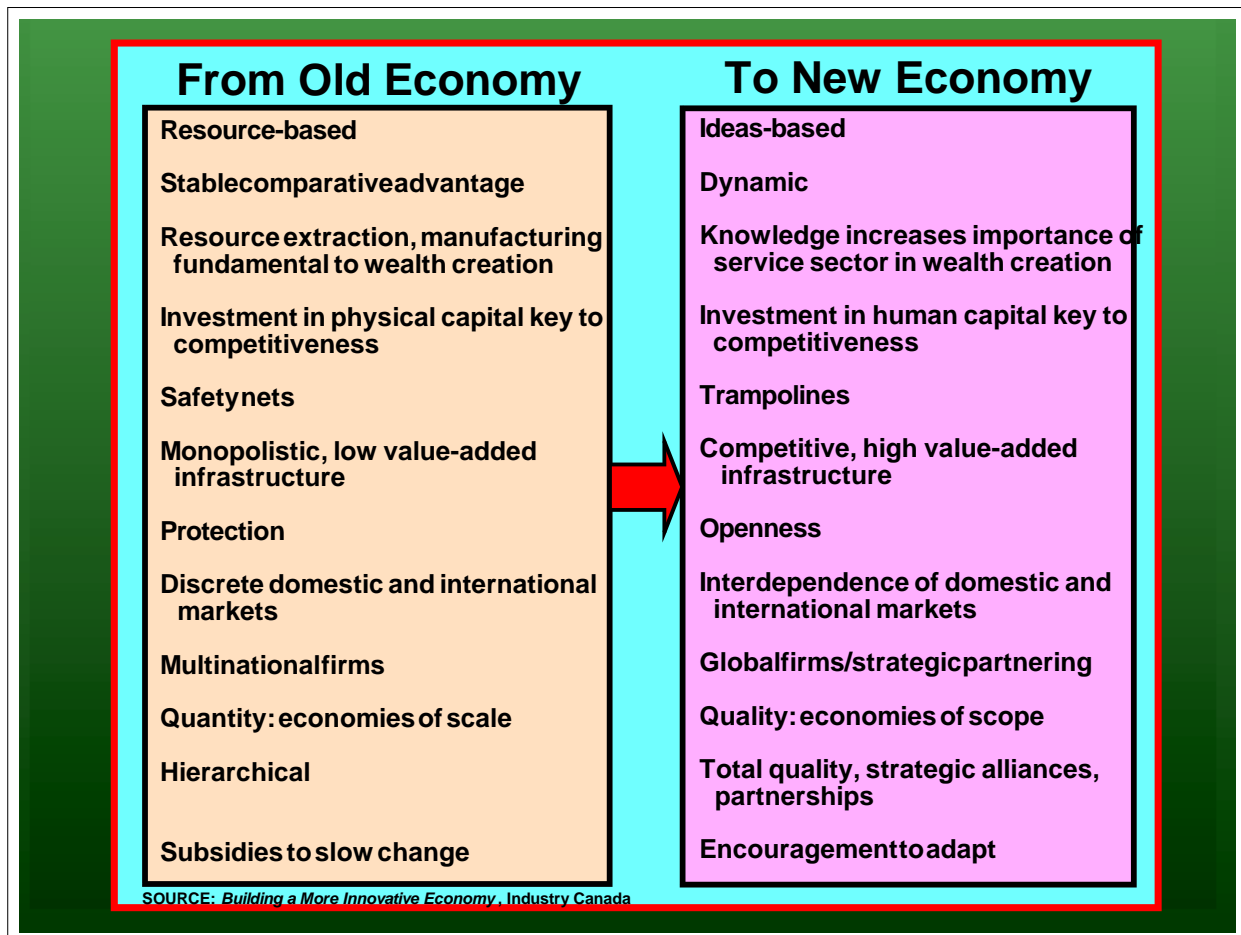
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## INFORMATION SYSTEMS FOR DECISION MAKING

### INFORMATION SYSTEMS AND OPERATIONS MANAGEMENT

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- P Operations management is heavily dependent upon strong and effective information systems**
  - ▶ Analytical models used to address decisions
  - ▶ Data to drive the analytical models
- P It reflects the greatest grow in business investment in the past decade**
  - ▶ Nearly 40% of the capital investments by businesses is related to information technology (IT)
- P Information systems have gone through several phases of development**
  - ▶ In early phases, main emphasis was on improving the efficiency of transaction processing, today they are highly sophisticated systems to help managers make decisions
- P They are a critical part of the “New Economy”**



## TYPES OF INFORMATION SYSTEMS

### P Transaction Processing Systems (TPS)

- ▶ Pure data processing
  - Goal is to reduce processing cost and increase accuracy
  - Example: payroll, general ledger, billing, etc.
- ▶ Sometimes referred to as Electron Data Processing (EDP)

### P Management Information Systems (MIS)

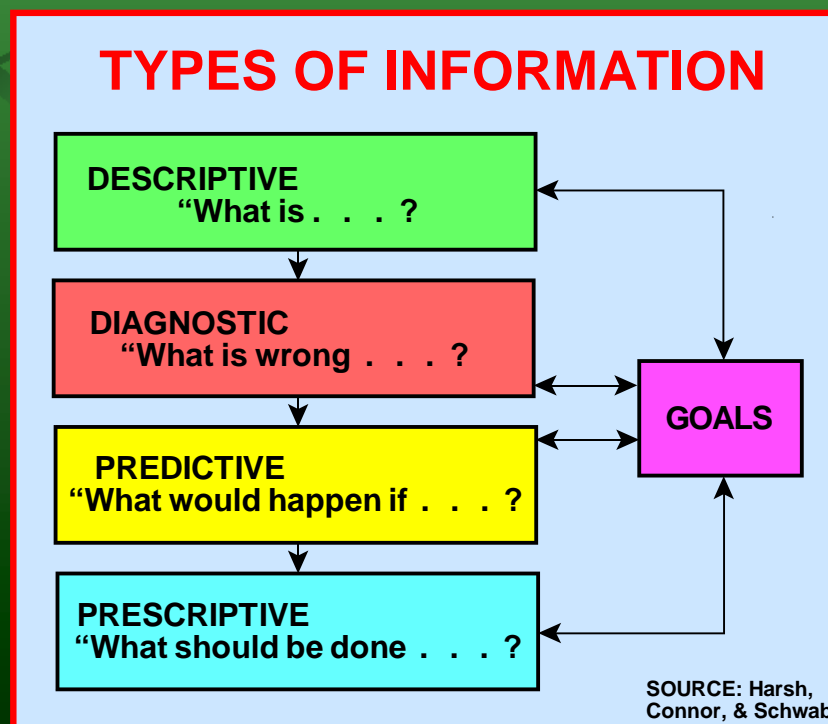
- ▶ First efforts to give managers digitally based information for decision making
  - Predefined aggregations and reporting capability
  - Lacked flexibility
  - Examples: accounting summaries, delinquent accounts, production flows, sales statistics, etc.
  - Recently, some attempts have been made to increase flexibility (e.g., can design own report form)

## (Types of Information Systems Continued)

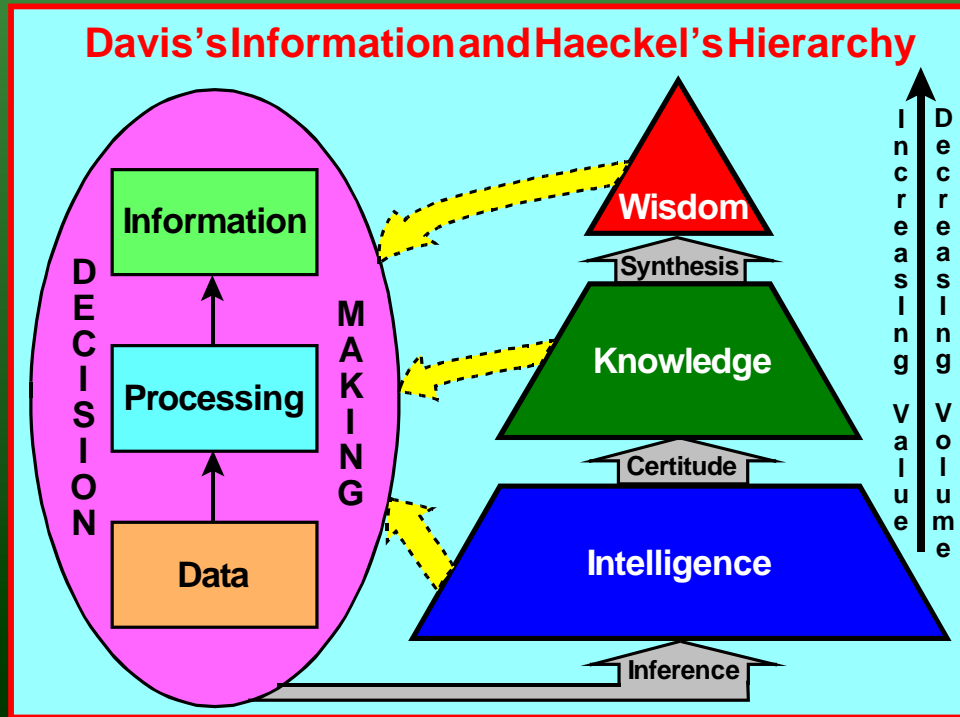
### P Decision Support Systems:

- ▶ Extensively integrated systems with flexible data processing and support from decision models
  - Becoming common in larger companies
    - SAP is a very comprehensive system used by many firms
- ▶ Concepts are being applied to smaller firms
- ▶ Also has been given other names (e.g., Executive Support Systems, and Management Support System, Process Oriented Information Systems)

## INFORMATION SYSTEMS CONCEPTS

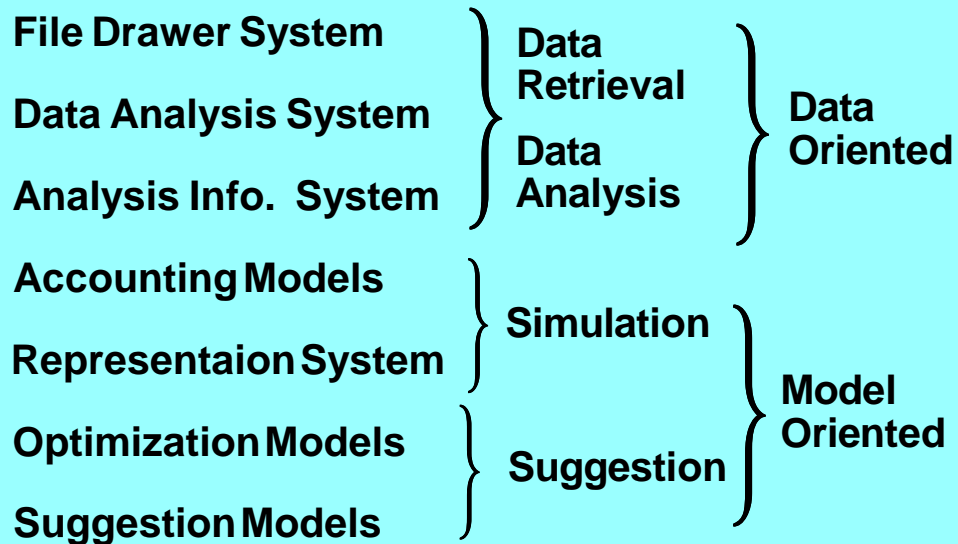


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### DATA ORIENTED vs. MODEL ORIENTED



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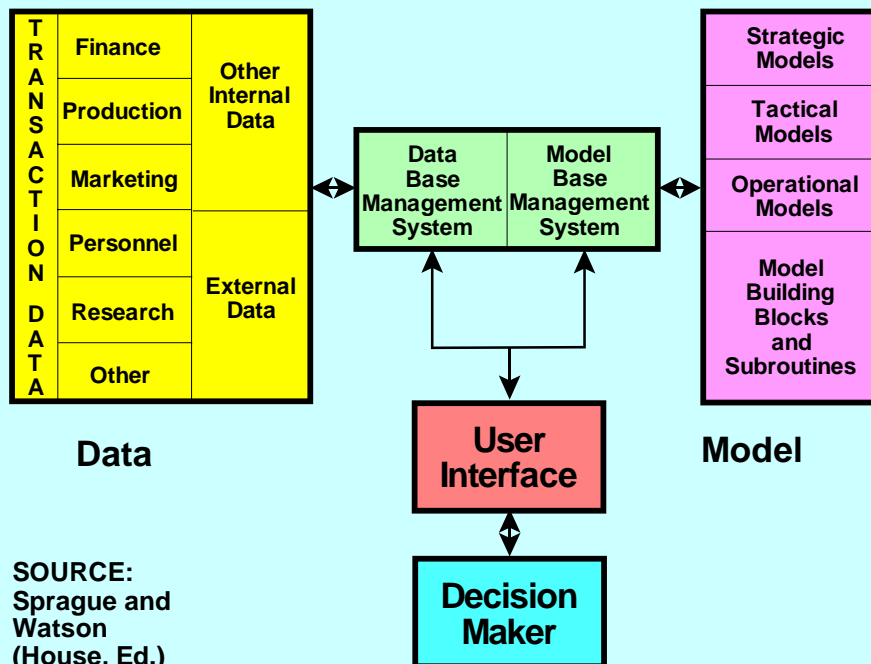
### FRAMEWORK FOR INFORMATION SYSTEMS

	Management Activity			
Type of Decision	Operation Control	Management Control	Strategic Planning	Support Needed
Structured	Temperature or Light Control	Selecting Pesticide Program	Choosing Product Mix	Clerical or Mngt. Sci. Models
Semi-Structured	Restructure Business Debt	Set Production Goals	Expanding the Business	Decision Support Systems
Un-Structured	Hiring Business Employees	Delegation of Business Duties	Forming Business Alliances	Human Intuition

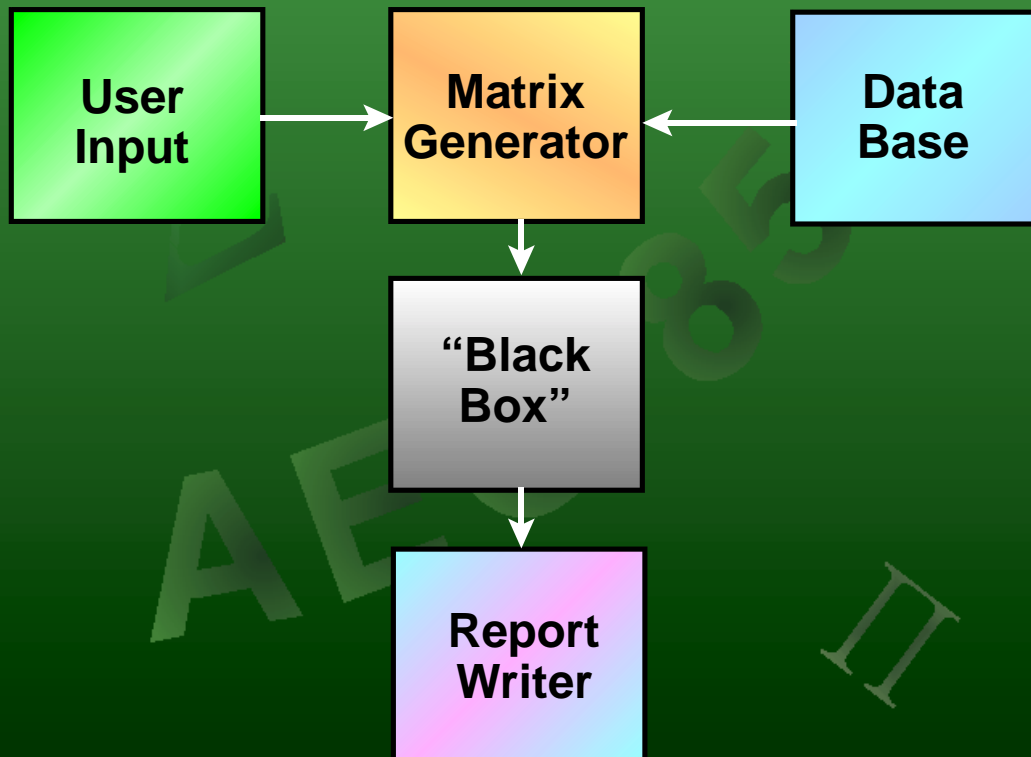
SOURCE: Adapted from Morton

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### COMPONENTS OF A MODERN DECISION SUPPORT SYSTEM



# MODEL DESIGN APPROACH



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## VALUE OF INFORMATION

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*"In general, the value of information is the value of the change in decision behavior caused by the information, less the cost of the information"*

-- G. Davis & M. Olson (1985)

# TIME TO DEVELOP A COMPUTER MODEL (Income Tax Management Model)

Activity	% of Time
Planning and Design	10
Programming and Testing	17
Writing the User's Manual	51
Control Structure for User Interface	19
Project Administration	3
<b>TOTAL</b>	<b>100</b>

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### THE LOGIC OF STRATEGY SELECTION

