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Information Systems ISM 3011

Spring 2004
Unit 9B

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Information and Decision Support Systems

Chapter 10

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Decision Making and Problem Solving



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Decision Making as a Component of Problem Solving

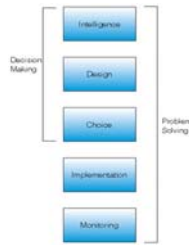


FIGURE 10-1
How Decision Making Relates to
Problem Solving
The three stages of decision
making—intelligence, design,
and choice—are augmented by
implementation and monitoring to
result in problem solving.

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Programmed versus Non-programmed Decisions

- Programmed decisions
 - Structured situations with well defined relationships
 - Quantifiable
 - Management information system
 - Easy to computerize
- Non-programmed decisions
 - Rules and relationships not defined
 - Problem is not routine
 - Not easily quantifiable

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Problem Solving Approaches

- **Optimization:** find the best solution
- **Satisficing:** find a good solution
- **Heuristics:** rules of thumb

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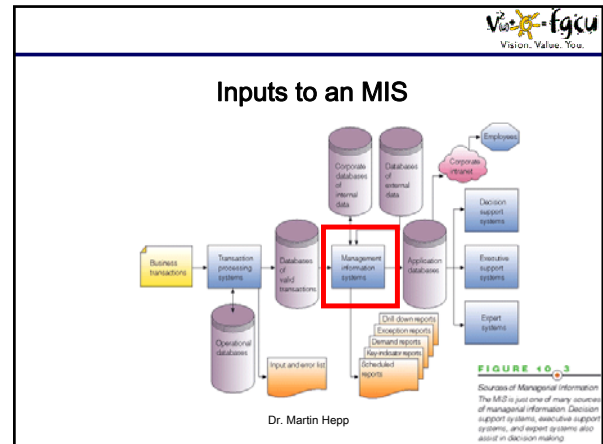
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An Overview of Management Information Systems



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Output of an MIS: Five types of reports

- Scheduled reports
- Key-indicator reports
- Demand reports,
- Exception reports,
- and drill-down reports.

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Scheduled Reports

- Repeatedly generated at a predefined time, e.g. at the end of each week.
- Examples:
 - Weekly payroll summary
 - Monthly sales

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Key-Indicator Reports

- Summarize important numbers, which reflect the overall situation.
- Examples:
 - Sales volume
 - Average margin
 - Percentage of returns, etc.

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Demand Reports

- Generated once the specific information is needed.
- Example: List of past sales to a key customer prior to visiting him

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Output of an MIS

- Exception reports list exceptional events.
- Hybrid report types are possible, e.g. a scheduled key-indicator report.

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Outputs of an MIS

(a) Scheduled Detail Report

Order #	Customer ID	Subsegment ID	Planned Ship Date	Quantity	Item #	Amount
P10453	C092301	C092	08/15/01	1.44	P11234	\$12,345
P10453	C092301	C092	08/15/01	1.44	P11234	\$12,345
P10453	C092301	C092	08/15/01	1.44	P11234	\$12,345
P10453	C092301	C092	08/15/01	1.44	P11234	\$12,345
P10453	C092301	C092	08/15/01	1.44	P11234	\$12,345

(b) Key-Indicator Report

Item	Month	Year	Year
Total Orders	10,000	11,000	12,000
Forecasted Orders for the Month	10,000	11,000	12,000

(c) Demand Report

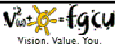
Subsegment ID	Amount
C092	\$12,345
C092	\$12,345
C092	\$12,345

(d) Exception Report

Order #	Customer ID	Subsegment ID	Planned Ship Date	Quantity	Item #	Amount
P10453	C092301	C092	08/15/01	1.44	P11234	\$12,345
P10453	C092301	C092	08/15/01	1.44	P11234	\$12,345
P10453	C092301	C092	08/15/01	1.44	P11234	\$12,345

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FIGURE 10-4
Reports Generated by an MIS
The five types of reports are (a) scheduled, (b) key indicator, (c) demand, (d) exception, and (e) drill-down.
Source: George W. Reardon, Information Systems for Managers, 3rd ed. © Paul, 1999, Thomson Learning, Inc. Reprinted with permission from Course Technology.



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ERP, TPS, MIS: Fuzzy Borders


TPS / Order Processing

MIS / Sales Reports

Core ERP

Comprehensive ERP Suite: mySAP ERP etc.

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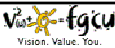
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“Reports”

- Bad, but common: Printout
- Better: Machine-readable message, which can be used as input for another computer system

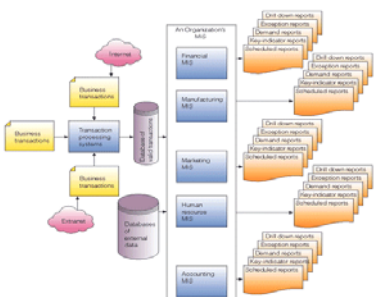
Bill of Materials
5 pcs ABC
2 pcs XYZ

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Functional Aspects of an MIS



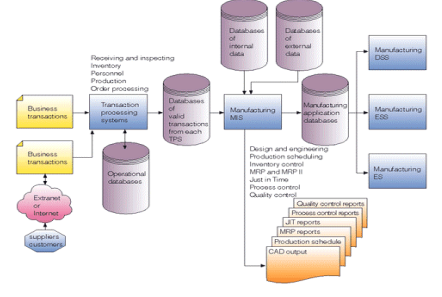
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FIGURE 10-5
The MIS is an integrated collection of functional information systems, each supporting particular functional goals.



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Overview of a Manufacturing MIS



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Master Production Scheduling and Inventory Control

When and how much to order?

- Economic Order Quantity (EOQ)
- Reorder Point (ROP)
- Material Requirements Planning (MRP)




FIGURE 10.9
A master production schedule for computer disks and CDs indicates the quantity of each to be produced each week in thousands.

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MRP – Material Requirements Planning

- Determines the amount of parts needed.
- Demand between products can be interrelated.

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MRP – Input

- Master Production Schedule (MPS)
- Bill of Material (BOM): lists the component part numbers for each part
- Inventory status data

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MRPII – Manufacturing Resource Planning

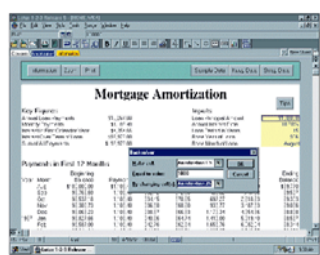
- Includes requires workstation time, employees, and other resources.
- Capacity restrictions are included in the planning process.

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Characteristics of a DSS

FIGURE 10.14
With a spreadsheet program, a manager can enter a goal, and the spreadsheet will determine the needed input to achieve the goal.
(Source: Course of Letail Development Corporation.)



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Thank you!

The slides will be available on the internet at
<http://ruby.fgcu.edu/courses/mhepp/>
(-> CRN10033)

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