

Management Information Systems

Lecture 3: Information Systems & Decision Making

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MAIN POINTS

1. Decision making for managers at each of the three primary organization levels
 - Types of IS

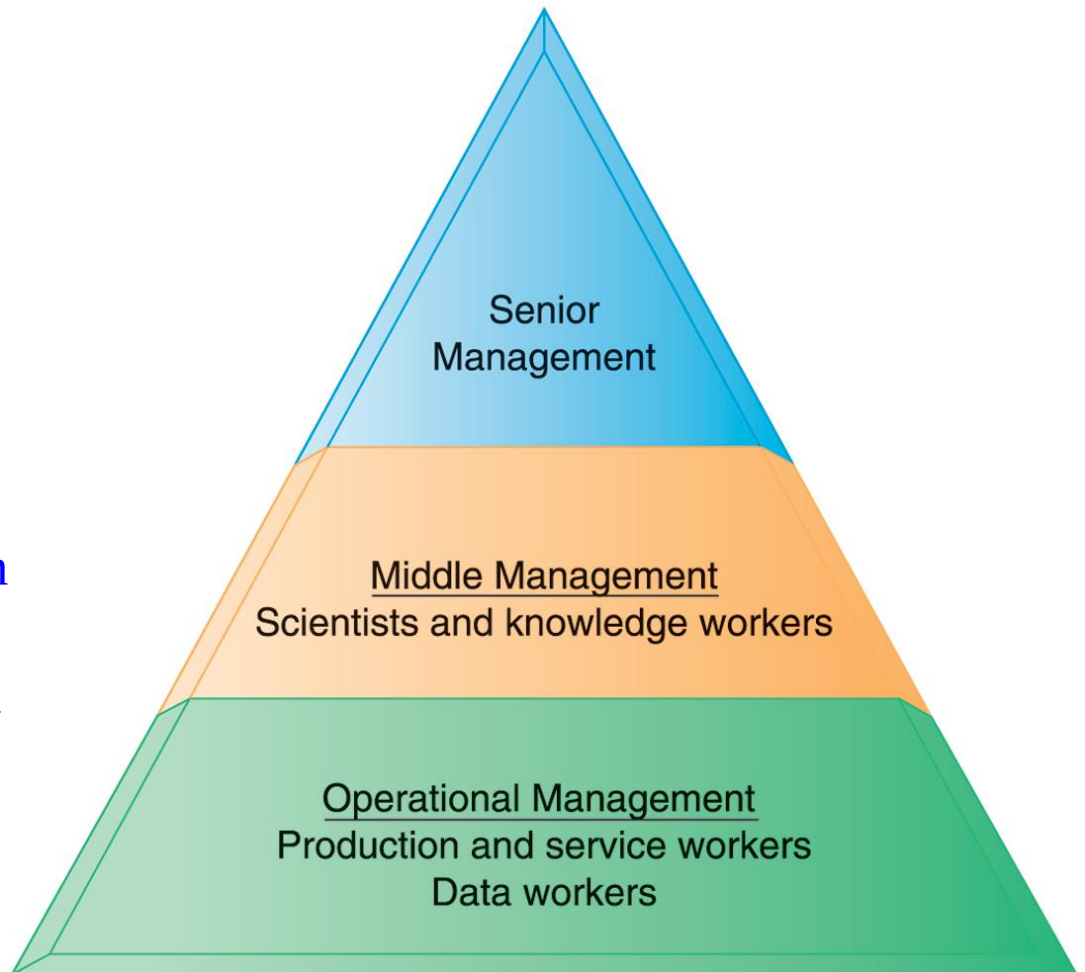
What are the major types of IS in a business? What role do they play?

Levels in a Firm

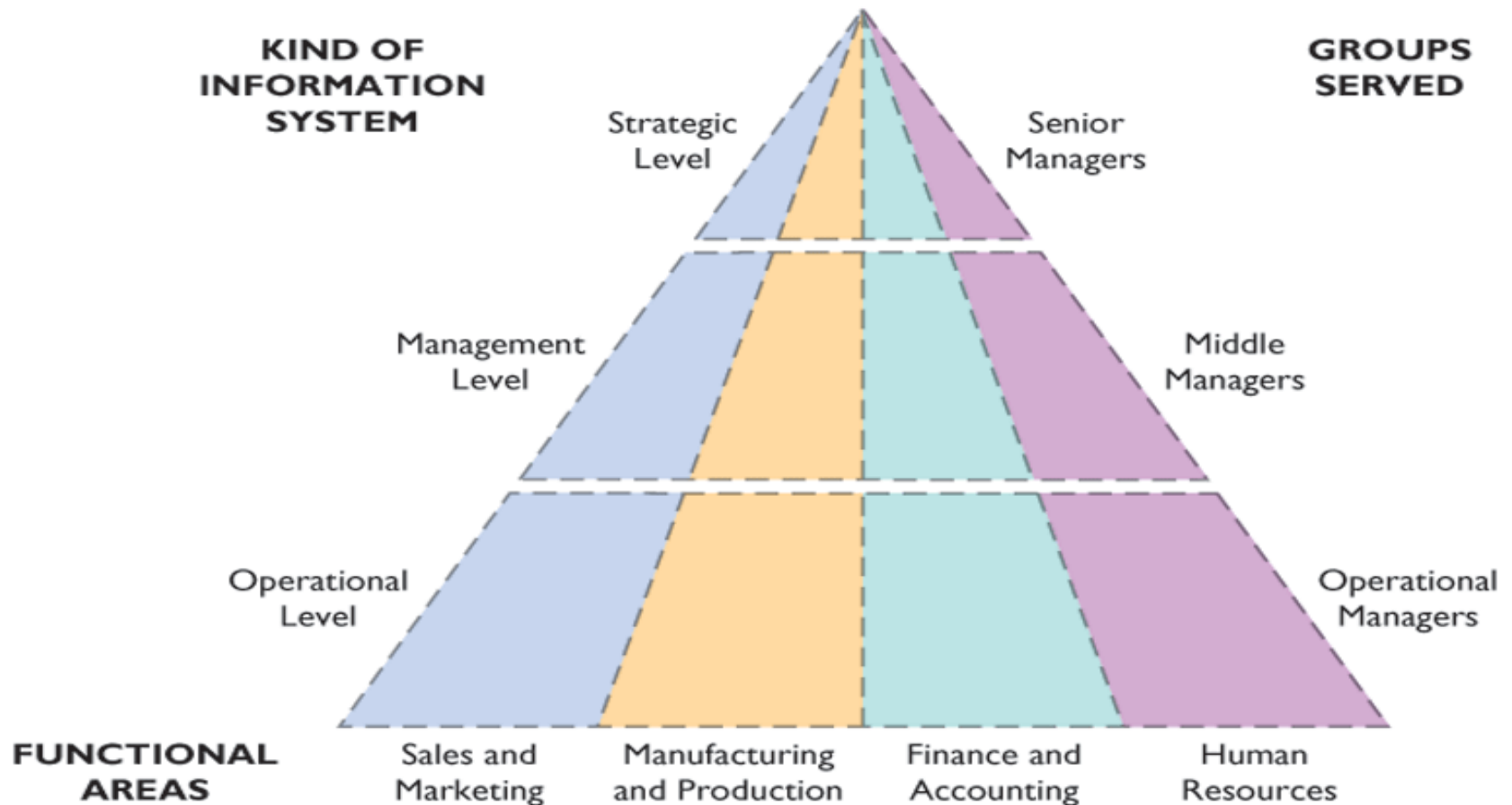
Business organizations are hierarchies consisting of **three principal levels**:

- senior management,
- middle management, and -
- operational management.

Information systems serve each of these levels. Scientists and knowledge workers often work with middle management.



Major Types of Systems in Organizations



Examples of Functional Business Processes

- **Manufacturing and production**
 - Assembling the product
- **Sales and marketing**
 - Identifying customers
- **Finance and accounting**
 - Creating financial statements
- **Human resources**
 - Hiring employees

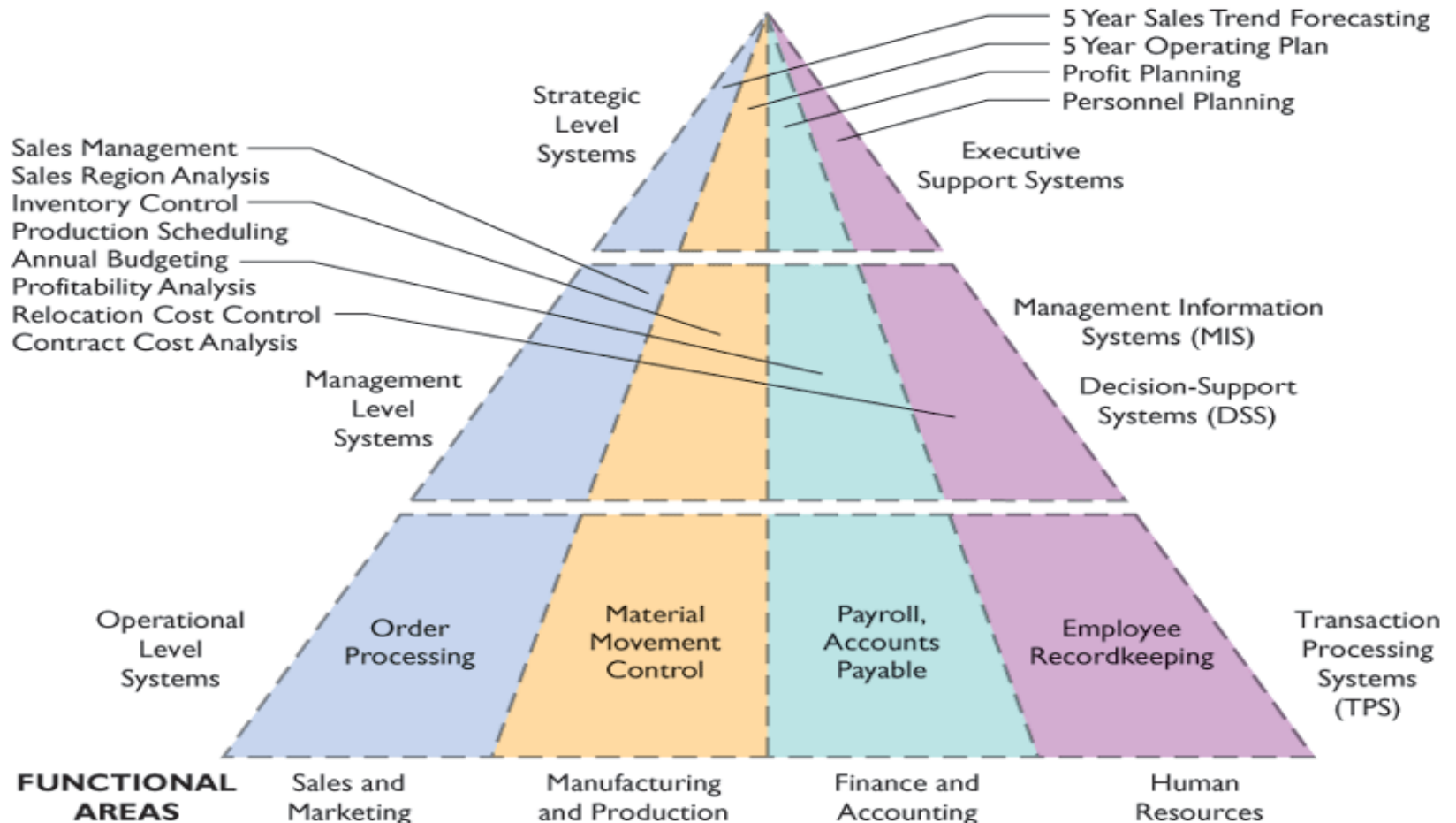
Major Types of Systems in Organizations

1. Operational-level systems
2. Management-level systems
3. Strategic-level systems

Major Types of Systems in Organizations

1. Transaction Processing Systems (TPS)
2. Management Information Systems (MIS)
3. Decision-Support Systems (DSS)
4. Executive-Support Systems (ESS)

The Four Major Types of Information Systems

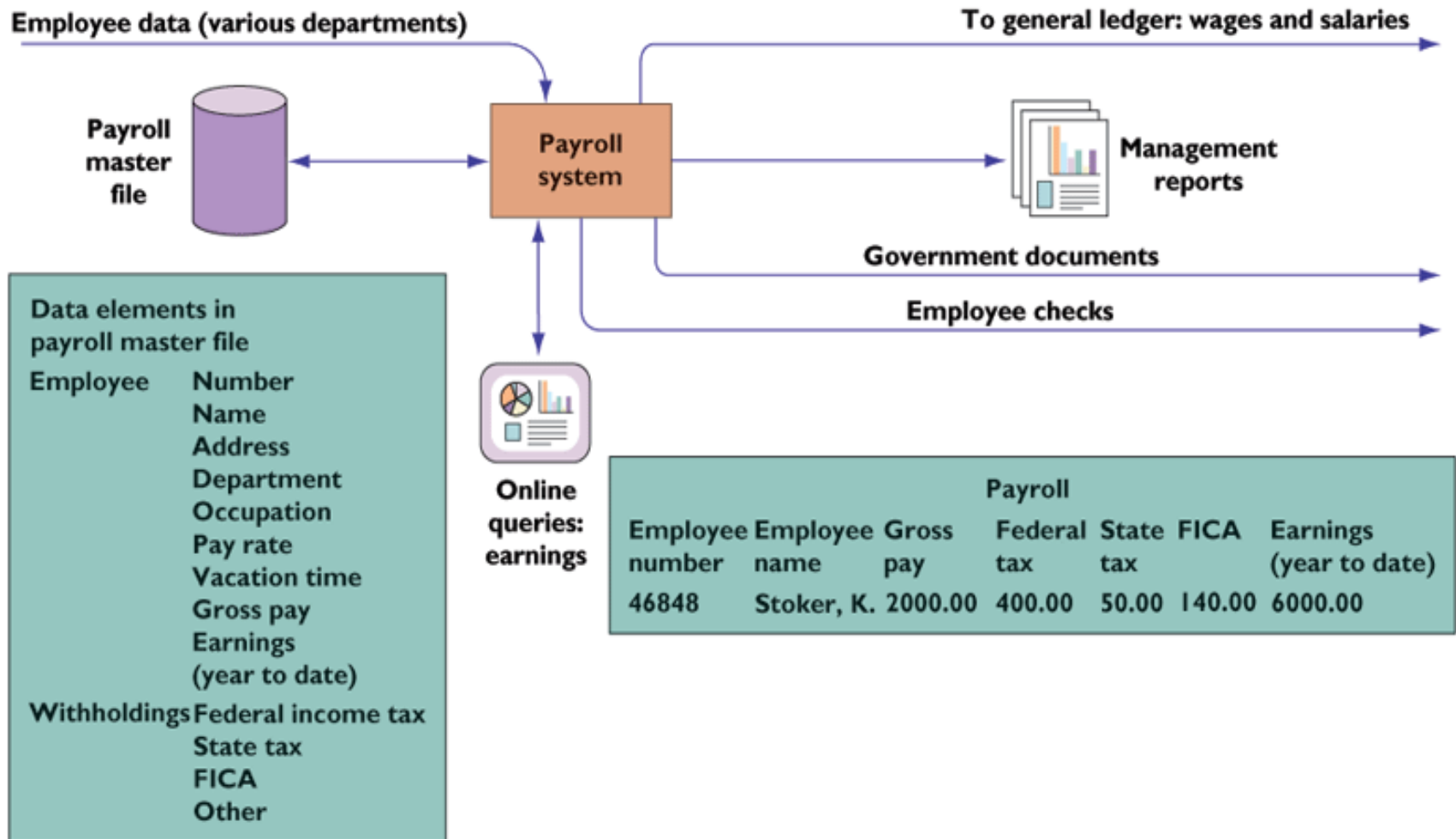


Transaction Processing Systems (TPS)

Transaction Processing Systems (TPS)

- Serve *operational managers and staff*
- Perform and record *daily routine* transactions necessary to conduct business
 - Examples: *sales order entry, payroll, shipping*
- Allow managers to *monitor status of operations and relations with external environment*
- Serve *predefined, structured goals and decision making*

A Symbolic Representation for a Payroll TPS



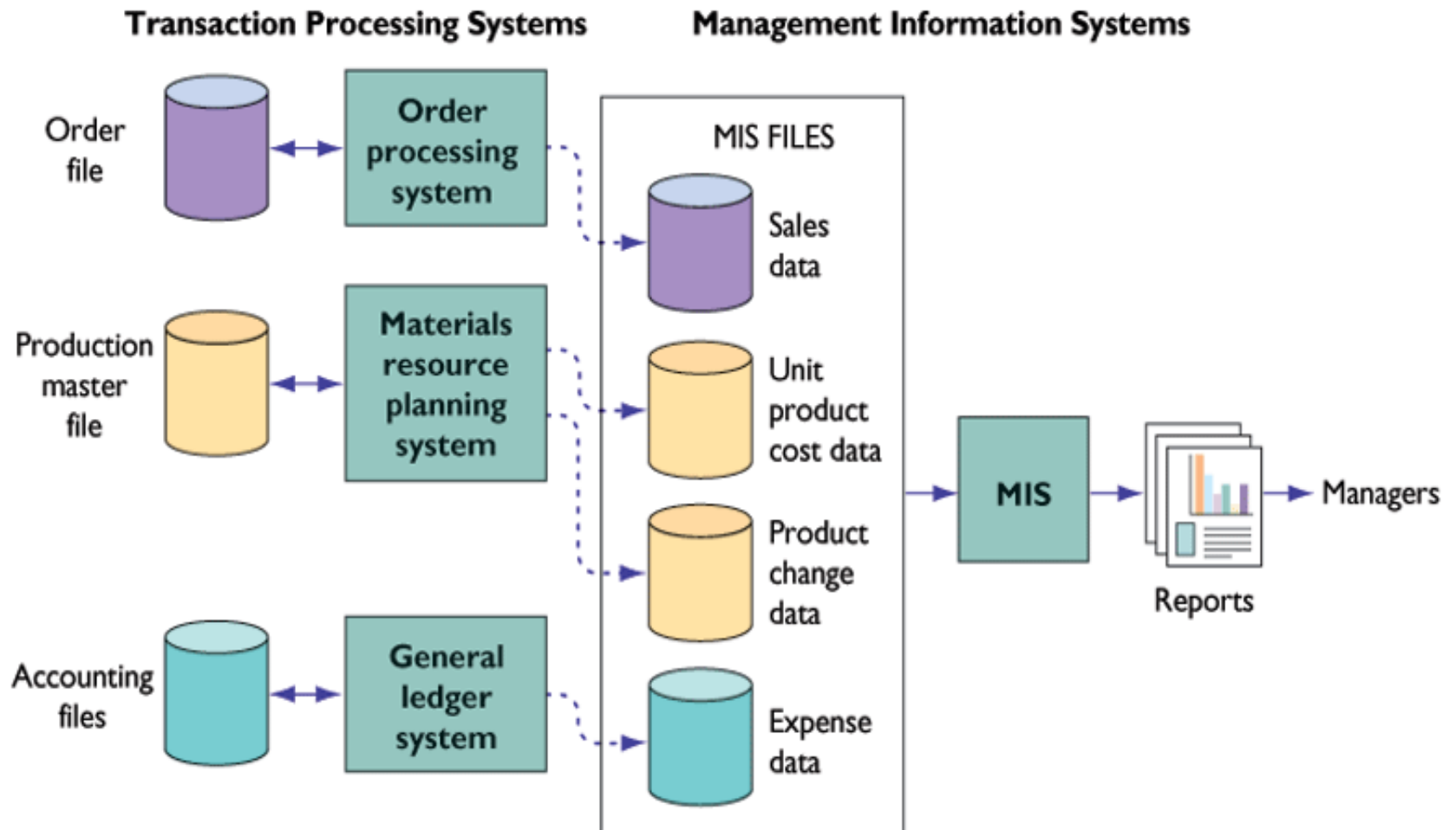
Management Information Systems (MIS)

Management Information Systems

- Serve *middle management*
- Provide *reports on firm's current performance, based on data from TPS*
- Provide *answers to routine questions with predefined procedure* for answering them
- Typically have *little analytic capability*

How MIS obtain data from the TPS

Major Types of Systems in Organizations



A Sample Report produced by the MIS

Consolidated Consumer Products Corporation Sales by Product and Sales Region: 2013

PRODUCT CODE	PRODUCT DESCRIPTION	SALES REGION	ACTUAL SALES	PLANNED	ACTUAL versus PLANNED
4469	Carpet Cleaner	Northeast	4,066,700	4,800,000	0.85
		South	3,778,112	3,750,000	1.01
		Midwest	4,867,001	4,600,000	1.06
		West	4,003,440	4,400,000	0.91
	TOTAL		16,715,253	17,550,000	0.95
5674	Room Freshener	Northeast	3,676,700	3,900,000	0.94
		South	5,608,112	4,700,000	1.19
		Midwest	4,711,001	4,200,000	1.12
		West	4,563,440	4,900,000	0.93
	TOTAL		18,559,253	17,700,000	1.05

Decision Support Systems (DSS)

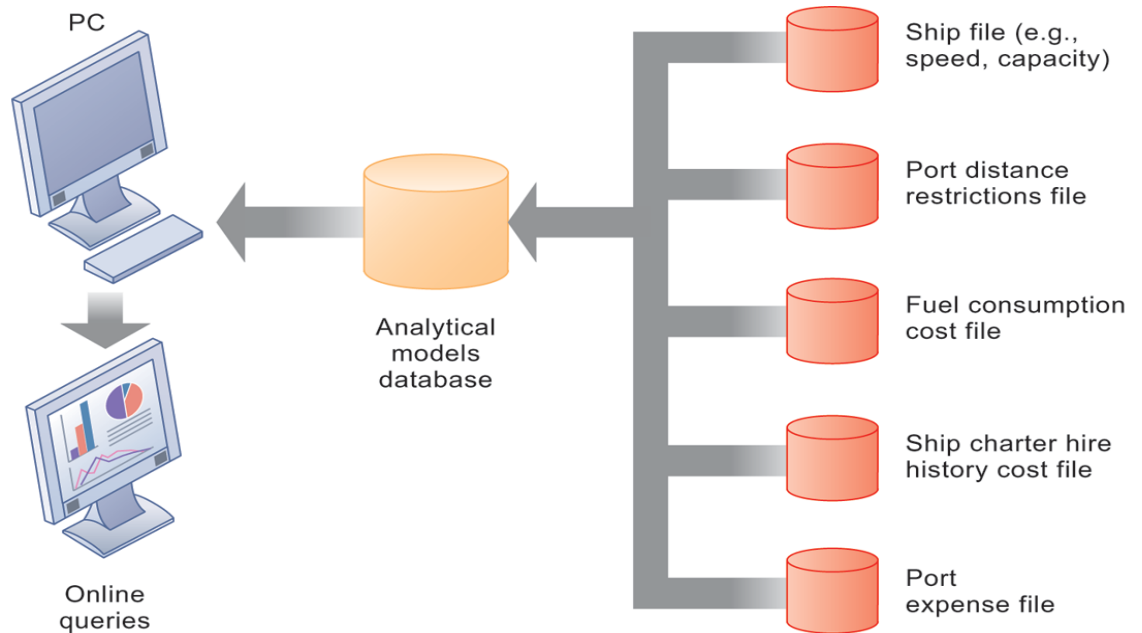
Decision Support Systems

- Serve *middle management*
- Support *non-routine decision making*
 - Example: *What is the impact on production schedule if December sales doubled?*
- *May use external information as well TPS / MIS data*
- *Model driven DSS (Analytical Model)*
 - Voyage-estimating systems
- *Data driven DSS*
 - Intrawest's marketing analysis systems

Decision Support Systems

Voyage-Estimating Decision Support System

*what
vessels to send to
particular destinations
the
optimal loading
pattern for cargo
the optimal rate at
which vessels should
travel*



This DSS operates on a powerful PC. It is used daily by managers who must develop bids on shipping contracts.

Executive Support Systems (ESS)

Executive Support Systems

- Support *senior management*
- Address *non-routine decisions*
 - Requiring *judgment, evaluation, and insight*
- Incorporate *data about external events* (e.g. new tax laws or competitors) as well as *summarized information from internal MIS and DSS*
- Example: *Digital dashboard with real-time view of firm's financial performance: working capital, accounts receivable, accounts payable, cash flow, and inventory*

Executive

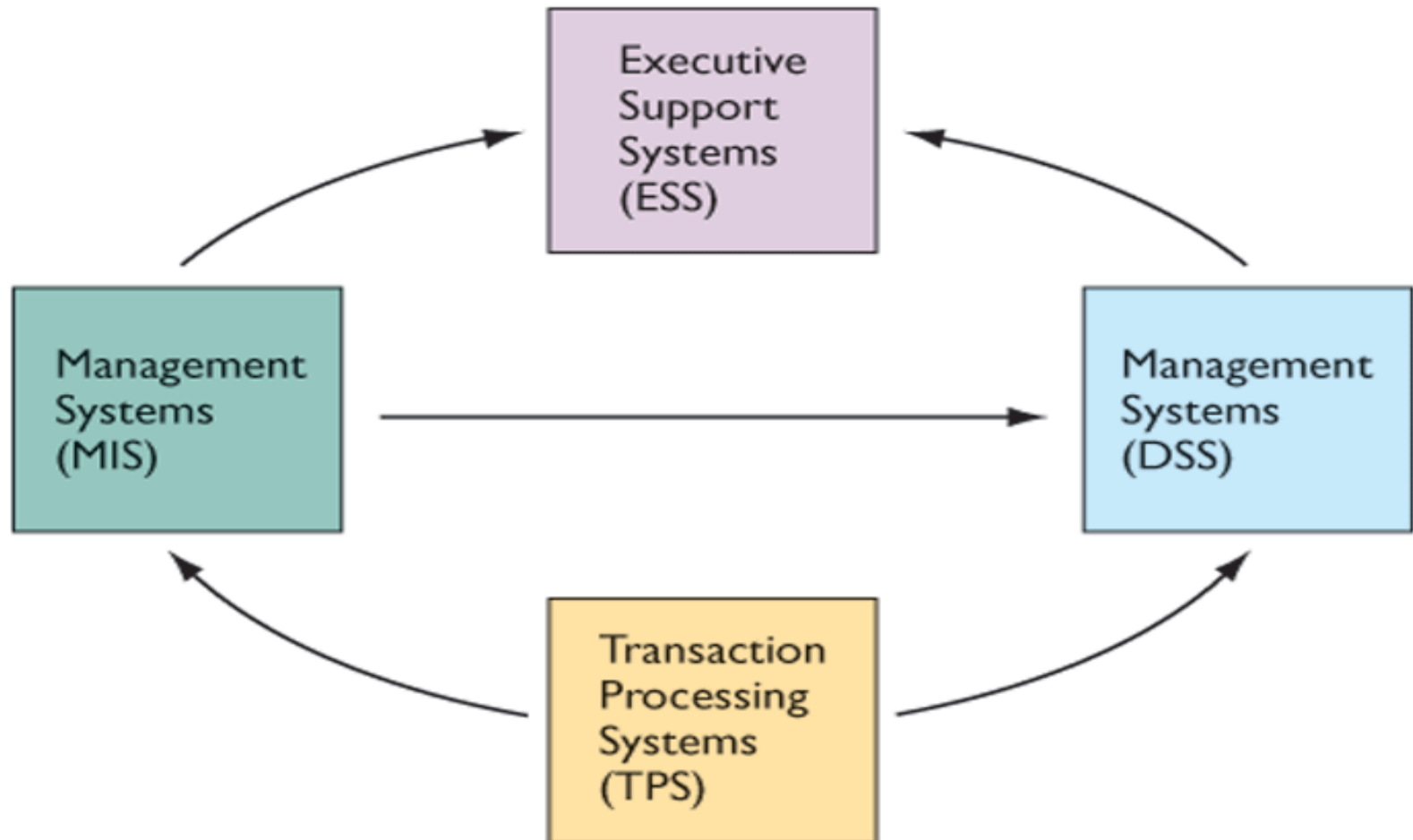
- **Executive Support System (ESS)** – A *specialized DSS* that supports senior level executives within the organization
 - **Visualization** (Produces *graphical displays of patterns* and *complex relationships* in large amounts of data)
 - **Digital dashboard** (*Tracks KPIs and CSFs* by compiling information from multiple sources and tailoring it to meet user needs)



Decision Levels

Decision Level	Description	Example	Type of Information
Strategic	Competitive advantage, become a market leader. Long-term outlook.	New product that will change the industry.	External events, rivals, sales, costs quality, trends.
Management/ Tactical	Improving operations without restructuring the company.	New tools to cut costs or improve efficiency.	Expenses, schedules, sales, models, forecasts.
Operations	Day-to-day actions to keep the company functioning.	Scheduling employees, ordering supplies.	Transactions, accounting, human resource management, inventory.

Interrelationships among systems
Major Types of Systems in Organizations



Task

- Read chapter 2 (Text Book) and related material

Main References

- Baltzan, P. (2016) *Business Driven Information Systems*. Global Edition, 5th ed McGraw-Hill/NY. ISBN 978-1-259-25176-4
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- Chaffey, D. (2011) *E-Business and E-Commerce Management: Strategy, Implementation and Practice*, 5/E. Financial Times.