ACS-1803 Introduction to Information Systems

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Management Information Systems Frameworks

Lecture Outline 3

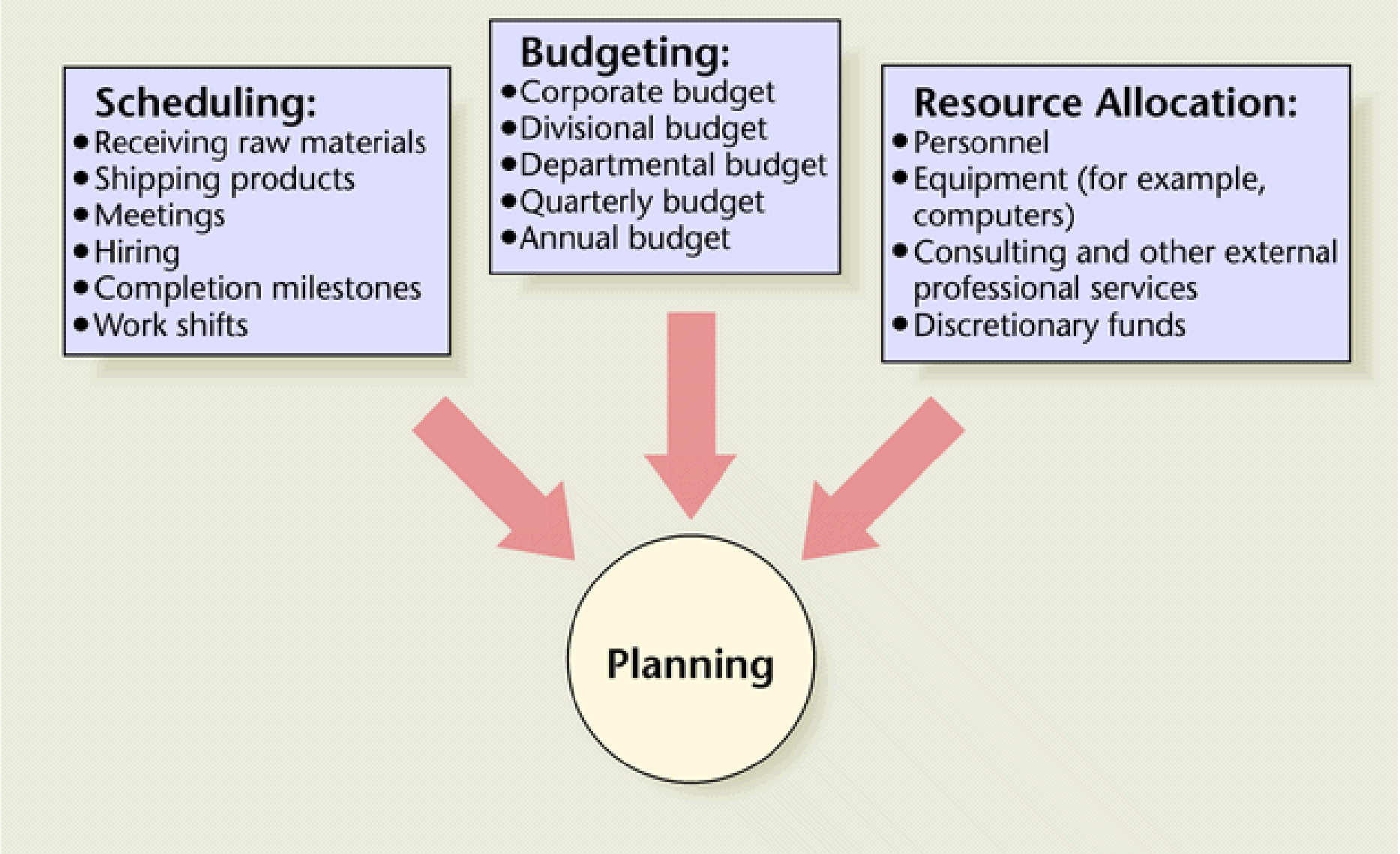
Learning Objectives

- Describe the characteristics that differentiate the operational, managerial, and executive levels of an organization
- Explain the characteristics of the three information systems designed to support each unique level of an organization: Transaction Processing Systems (TPS), Management Information Systems (MIS), and Executive Information Systems (EIS)
- Understand the nature of Functional Area systems as a system that spans organizational boundaries

The Nature of Managerial Work

- Management
  - the process of directing tasks and directing resources to achieve organizational goals
  - management functions: planning, organizing, directing, motivating, controlling…
- Planning: done at different Levels
  - Long-term mission and vision
  - Strategic goals
  - Tactical objectives
- Most important planning activities
  - Scheduling
  - Budgeting
  - Resource allocation

The Nature of Managerial Work



The Nature of Managerial Work

- Control
  - Managers control activities by comparing plans to results.

- Reviewing project resources and updating milestones
- Tracking receiving times of raw materials
- Tracking shipping dates
- Periodically comparing actual expenditures with budgetary figures
- Periodically examining exception reports
- Discussing project progress
- Periodically examining project progress reports
- Periodically examining performance ratios (for example, revenue-per-employee, inventory turnover)

The Nature of Managerial Work

- Decision Making
  - Both planning and control call for decision making

- The higher the level of management:
  - The less routine the manager's activities
  - The more open the options
  - The more decision-making involved

The Nature of Managerial Work

- Managers need to make decisions, often under uncertainty; each level of management has different information needs.

- There is often a need for efficiency and effectiveness
  - efficiency:
    - doing things right: with minimum input
  - effectiveness:
    - doing right things, to satisfy main org. goal

- Example: *Killing mosquito with sledge hammer –effective, but not efficient*

Reporting Activity: Management by Exception

- Management focuses on acting on situations in which actual results differ significantly from planned results

10 percent Exception Report

Plant: 3706 Cockpit Wiring
Period: 1/1/2000–3/31/2000

ITEM	BUDGET AMOUNT	ACTUAL AMOUNT	DEVIATION
Wages	$12,236,000	$10,236,876.34	(-16.4%)
Telephone	$4,700	$5,202.87	10.7%
Office Supply	$2,500	$3,002.00	12.8%

Decision-Making Levels

- Three main levels of decision-making in an organization:
  - Operational
  - Tactical
  - Executive (strategic)

- Each level processes information differently
  - Different types of decisions are made
  - Different information needs
    - Format, presentation, medium, frequency, amount, output

The Organizational Pyramid

The Organizational Pyramid

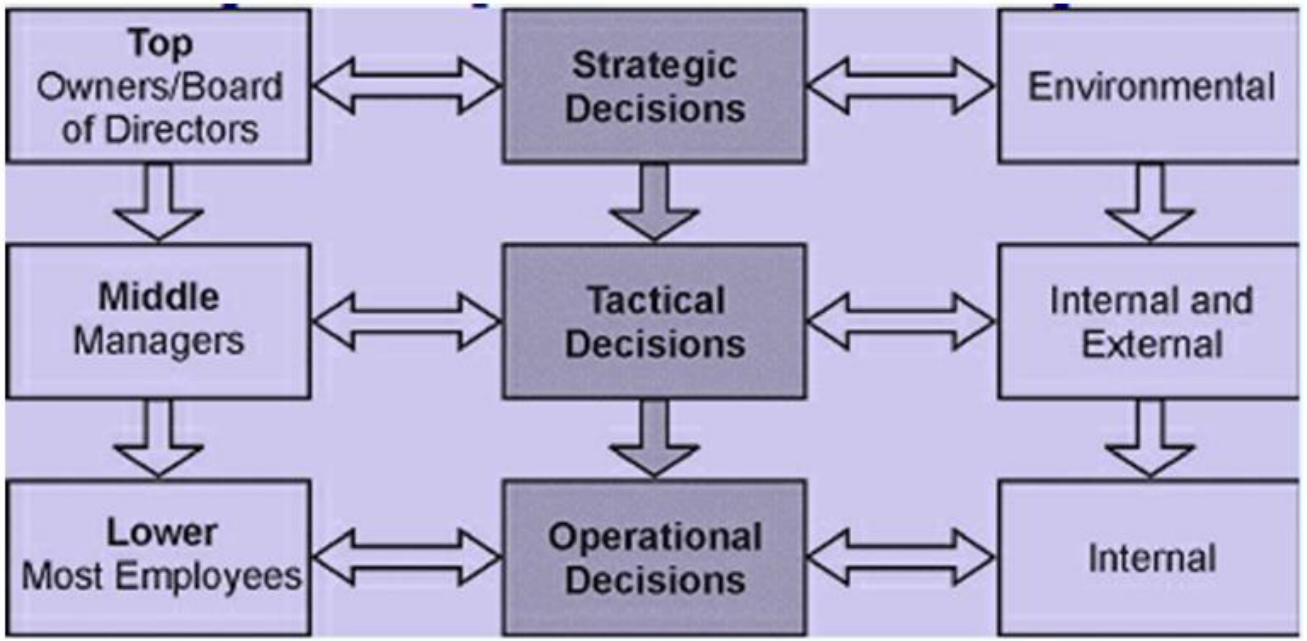
- Senior (Executive) Managers:
  - Strategic/ Executive Information Systems
  - Make long-term decisions about products / services to produce [control direction]
- Middle (Tactical) Managers:
  - Tactical/ Management Information Systems
  - Carry out programs and plans of senior managers [control activity]
  - Budgeting, monthly scheduling, personnel plans
- Operational (Transaction Processing) Managers:
  - Operational/ Transaction Processing Systems (TPS)
  - Monitor firm's daily activities [control resources]
  - Daily scheduling, inventory handling.

Decisions at different levels

- **Strategic Decisions:** Decisions that consider the entire organization and represent major changes for it. The goal of making strategic decisions is to implement policy that aims to move the organization toward its long-term goals.
- **Tactical Decisions:** They relate to the implementation of strategic decisions. Risk level of these decisions is still low but larger than operational decisions. They are directed towards developing divisional plans, structuring workflows, establishing distribution channels, acquisition of resources.
- **Operational Decisions:** Occur on a daily basis. Often these decisions are repetitive in nature and can be implemented quickly and tend to cary little risk.

Considerations about managerial work

- To make decisions, each level of management has different information needs.



- *How much information detail does a Senior/Middle/Operational manager Need?*

New Realities in Business

- More organizations are becoming information-based
- More network-based, rather than hierarchical organizations
- People drawn into process teams to accomplish projects
- Companies are beginning to pay more attention to customers and their preferences
- Instead of mass production, we have more customization
  - Information technology (hardware and application software) makes customization possible on a larger scale

New Realities in Business

- Customer service is more critical
- Innovative approaches to competition based on increasing IT capability
- World-wide communication enable businesses to operate in global markets [programmers in India work with project leaders in USA on large software development projects]
- Business process re-engineering
- Radical redesign of how businesses carry out certain activities
- IT is a critical factor in changing business processes

A View of the Future

- More organizations will function as networks of specialists
- What constitutes "work" will require more high-ordered thinking and constant learning, and less of a "9 to 5“ mentality
- Critical thinking and innovation will be essential [will produce critical and innovative information systems]
- More and more organizations are becoming information-based
  - e.g., insurance, banking, IT Services, not as much factory work
- Information technology continues to play an influential (central) role in business

Levels of the Organization

Basic Systems Architecture Model

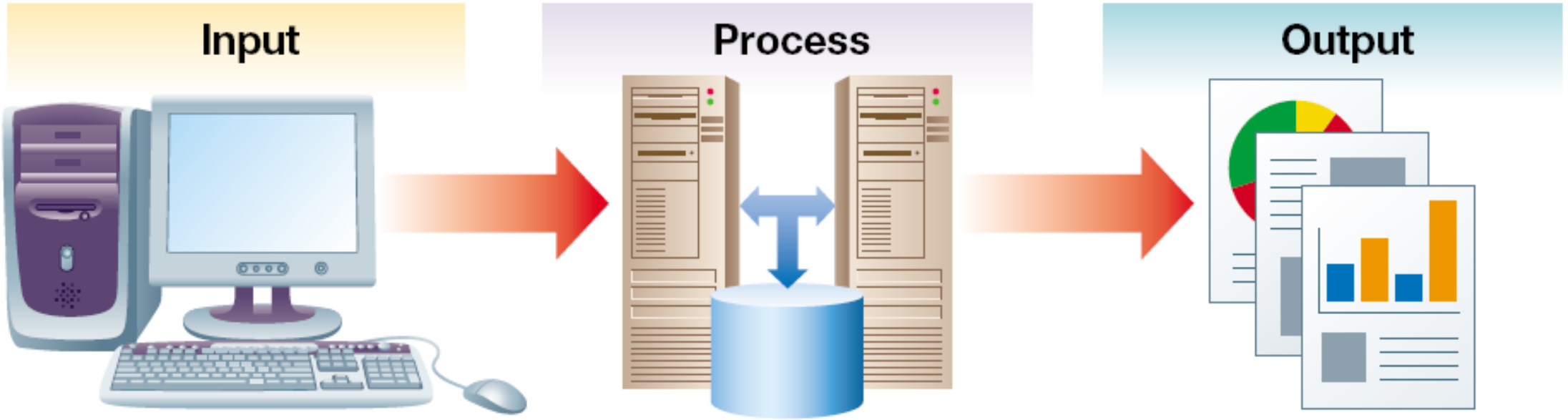
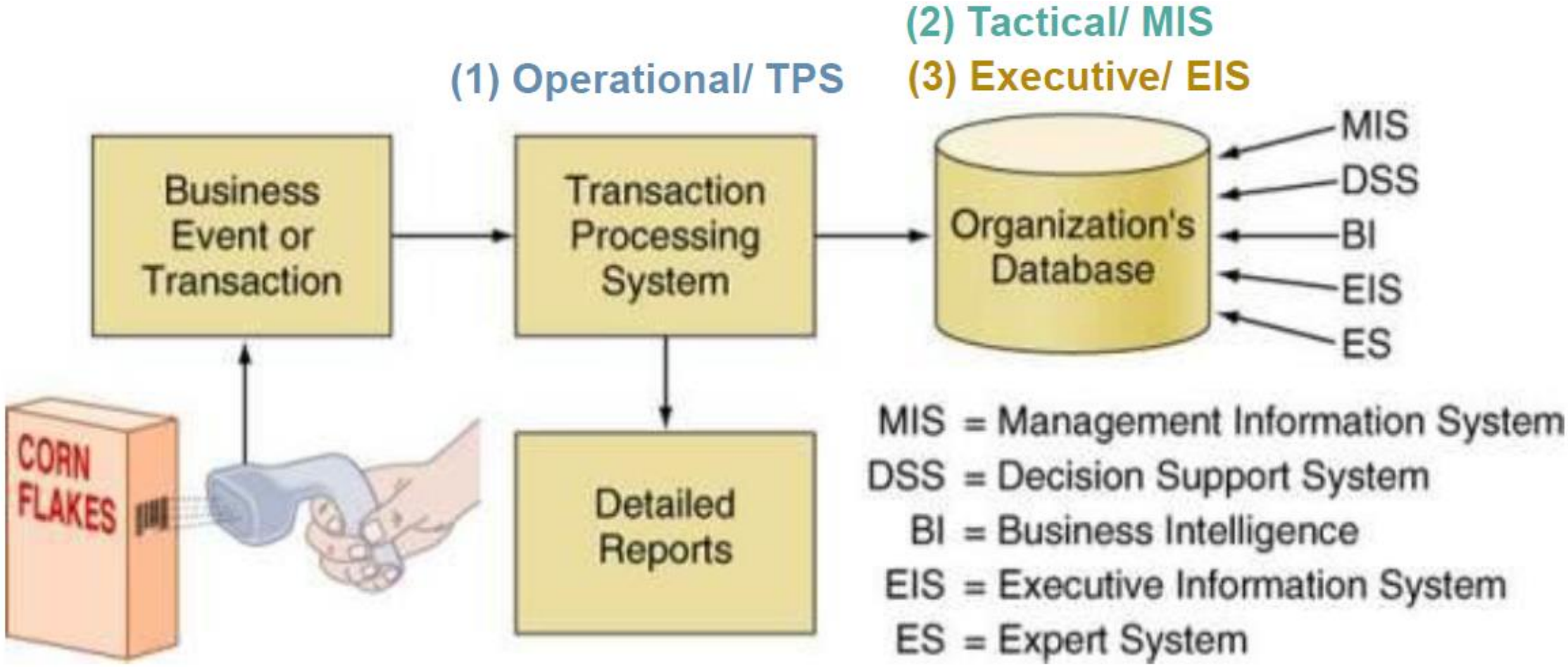


Figure 6.6 ➥ The basic systems model can be used to describe all types of information systems.

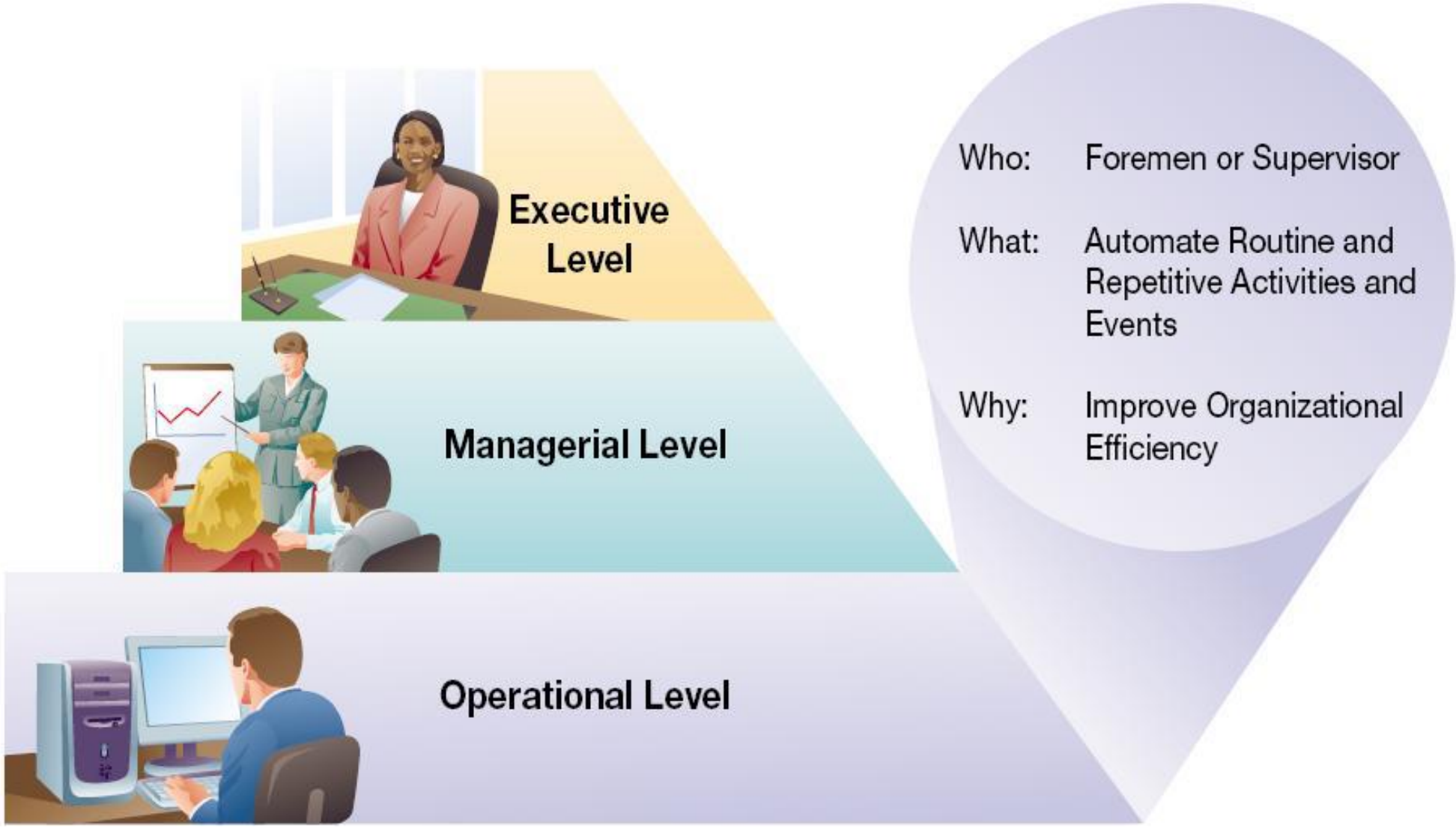
Three Organizational Systems



Transaction Processing Systems

Systems at the Operational level

Who, What, Why: Organizational Level

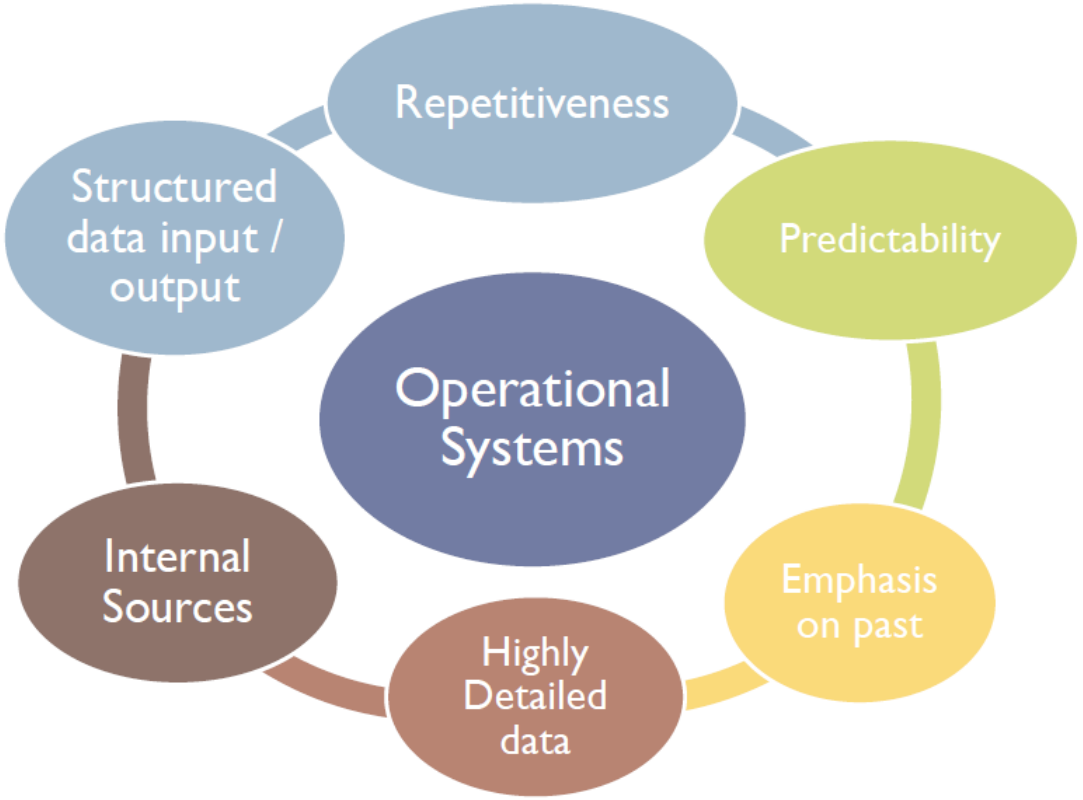


Transaction Processing Systems

- Transaction processing systems (TPSs):
  - Capture and process detailed data necessary to update the organization's records about fundamental business operations
  - Include order entry, inventory control, payroll, accounts payable, accounts receivable, general ledger, etc.

- A TPS provides valuable input to:
  - Management information systems
  - Decision support systems
  - Knowledge management systems

A framework for information Systems



- Operational systems are often used by clerical workers and low level management

Transactions

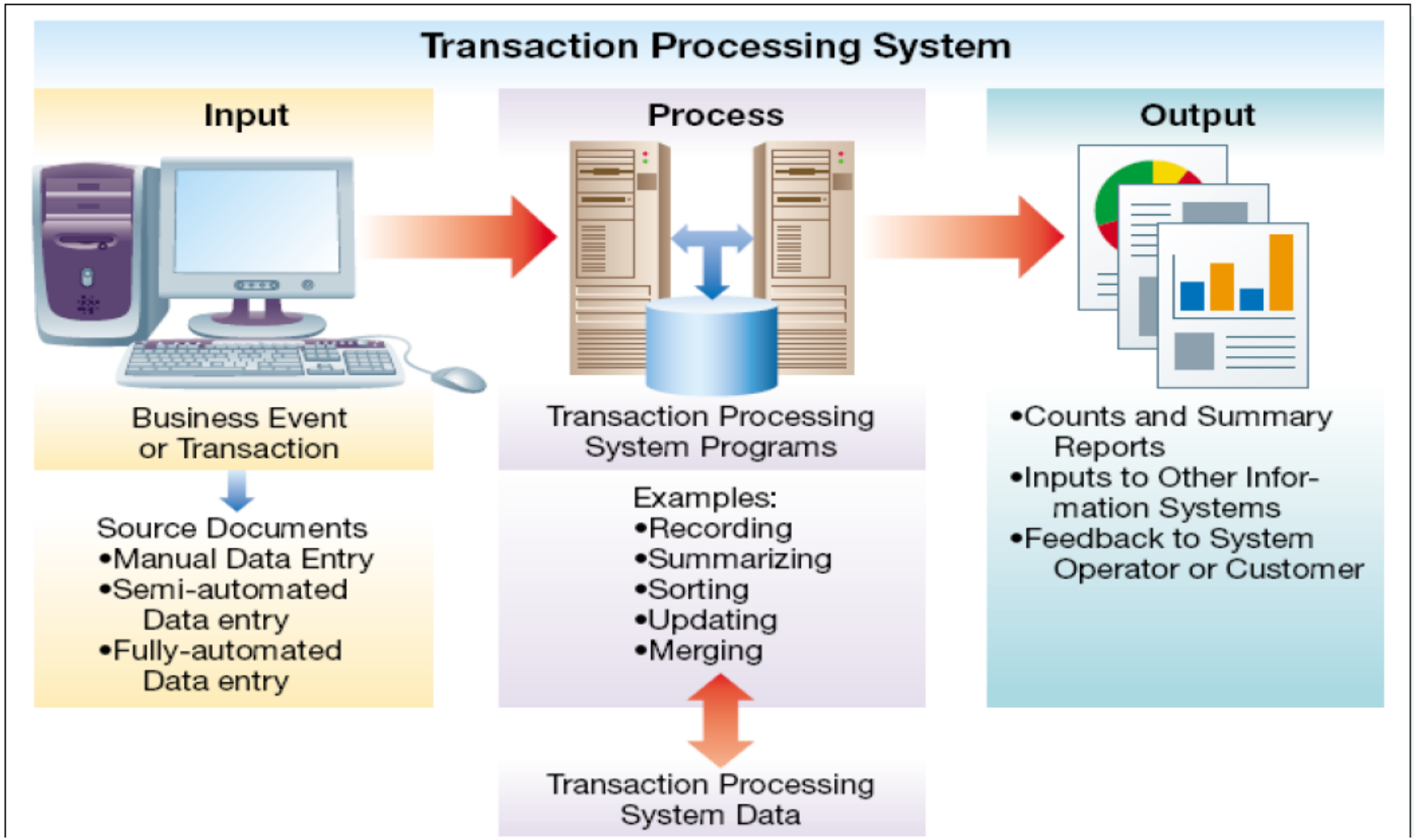
- An economic event that initiates the accounting process of recording it in a **company's** accounting system.
- Financial transactions: an agreement, communication, or movement carried out between a buyer and a seller to exchange a payment
- Computer Transaction: a sequence of information exchange and related work (such as database updating)
- Accounting: Event that effects a change in the asset, liability, or net worth account. Transactions are recorded first in a journal and posted to a ledger.
- Generic Definition: A single event that Changes something

Transactions

- Transactions include:
  - Customer Orders
  - Receipts
  - Invoices
  - Payments
- Transaction Processing Activities include:
  - Collection
  - Editing
  - Manipulation
  - Storage

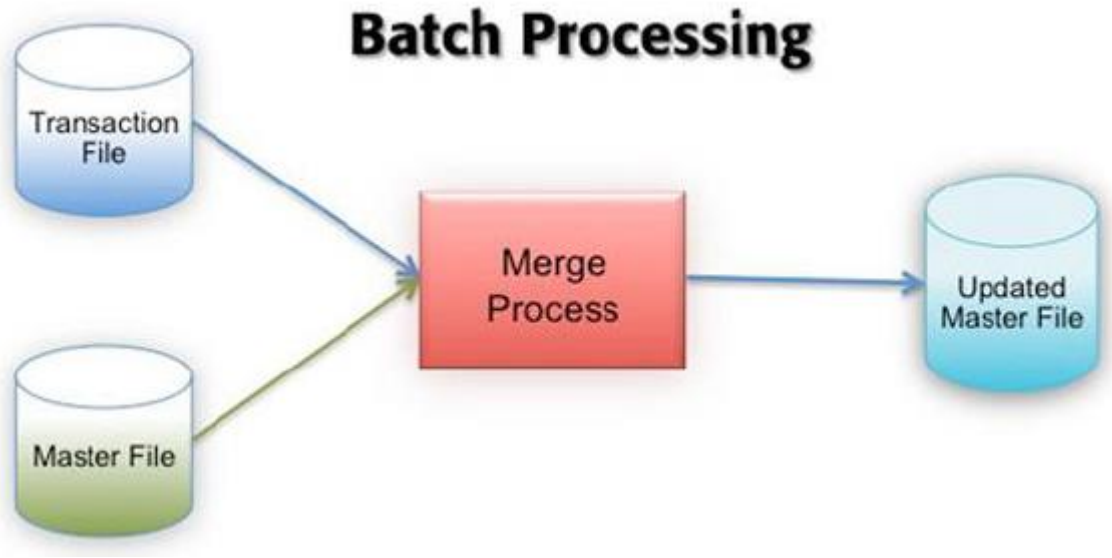
- Consider: Many transaction that can occur in retail business setting.

System Architecture: Transaction Processing System

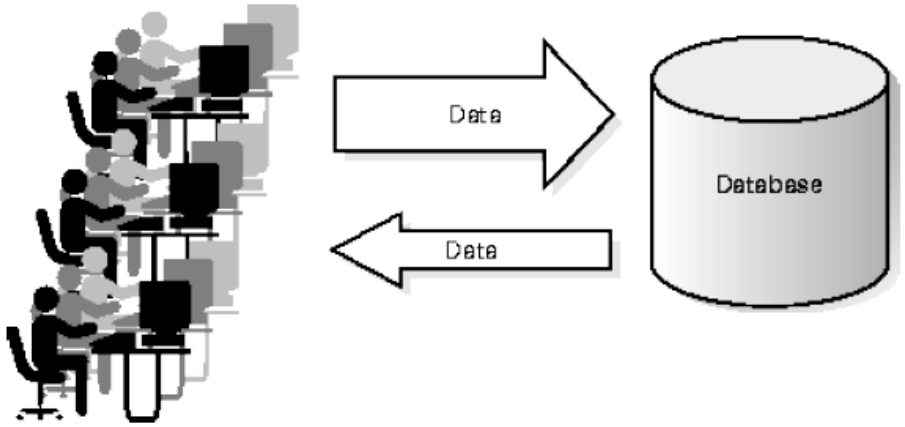


Traditional Transaction Processing Methods

- Batch:
  - Transactions are accumulated over time, and prepared for entry or processing as a single unit or a batch

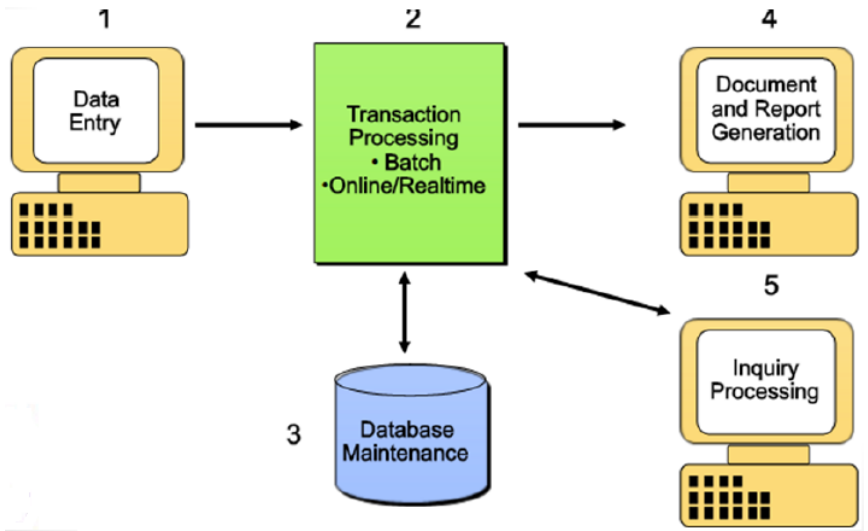


- Online (Real time):
  - Transactions input into the system as they occur.



Transaction Processing

- TPS
  - Capture and process the detailed data necessary to update current records about operations
  - E.g. Order Entry, inventory Control, payroll, accounts payable, accounts receivable, etc…



Transaction Processing Methods and Objectives

- Organizations expect their TPSs to:
  - Capture, process, and update databases
  - Ensure that the data is processed accurately and completely
  - Avoid processing fraudulent transactions
  - Produce timely user responses and reports
  - Reduce clerical and other labor requirements
  - Help improve customer service
  - Achieve competitive advantage

Transaction Processing Methods and Objectives

- A TPS includes:
  - Order processing systems
    - Processing flow begins with receipt of customer order, then finished product inventory is checked to see if sufficient inventory is on hand to fill the order
    - Product pick list is printed at the warehouse and inventory is adjusted
    - Customer invoice is create and copy included in the customer shipment
  - Accounting systems
    - Must track the flow of data related to all the cash flows that affect the organization
  - Purchasing systems
    - Systems that support the purchasing business function
    - Inventory control, purchase order processing, receiving, and accounts payable

Transaction Processing Activities

- The transaction processing cycle
  - Data collection
  - Data editing
  - Data correction
  - Data manipulation
  - Data storage
  - Document production

FIGURE 5.9
Transaction processing activities
A transaction processing cycle includes data collection, data editing, data correction, data processing, data storage, and document production.

Data Collection

- Capturing and gathering all data necessary to complete the processing of transactions
- Data collection can be:
  - **Manual:** typed-in by hand
  - **Semi-automated:** Use of special Data entry devices
  - **Fully-automated:** computer of the buyer "talks" directly to computer of the seller involves capturing data at its source and recording its accurately in a timely fashion with minimal manual effort and in an electronic or digital form so that it is directly entered into the computer

Data Editing

- Data editing
  - Checking data for validity and completeness to detect any problems
- Examples
  - Quantity and cost data must be numeric
  - Names must be alphabetic
  - Code associated with an individual transaction are edited against a database containing valid codes

Data Correction

- Systems should provide error messages that alert those responsible for editing the data
  - Error messages should specify the problems so proper corrections can be made
- Data correction involves re-entering data that was not typed or scanned properly

Data Processing

- Performing calculations and other data transformations related to business transactions including:
  - Classifying data
  - Sorting data into categories
  - Performing calculations
  - Summarizing results
  - Storing data in the organization's database for further processing

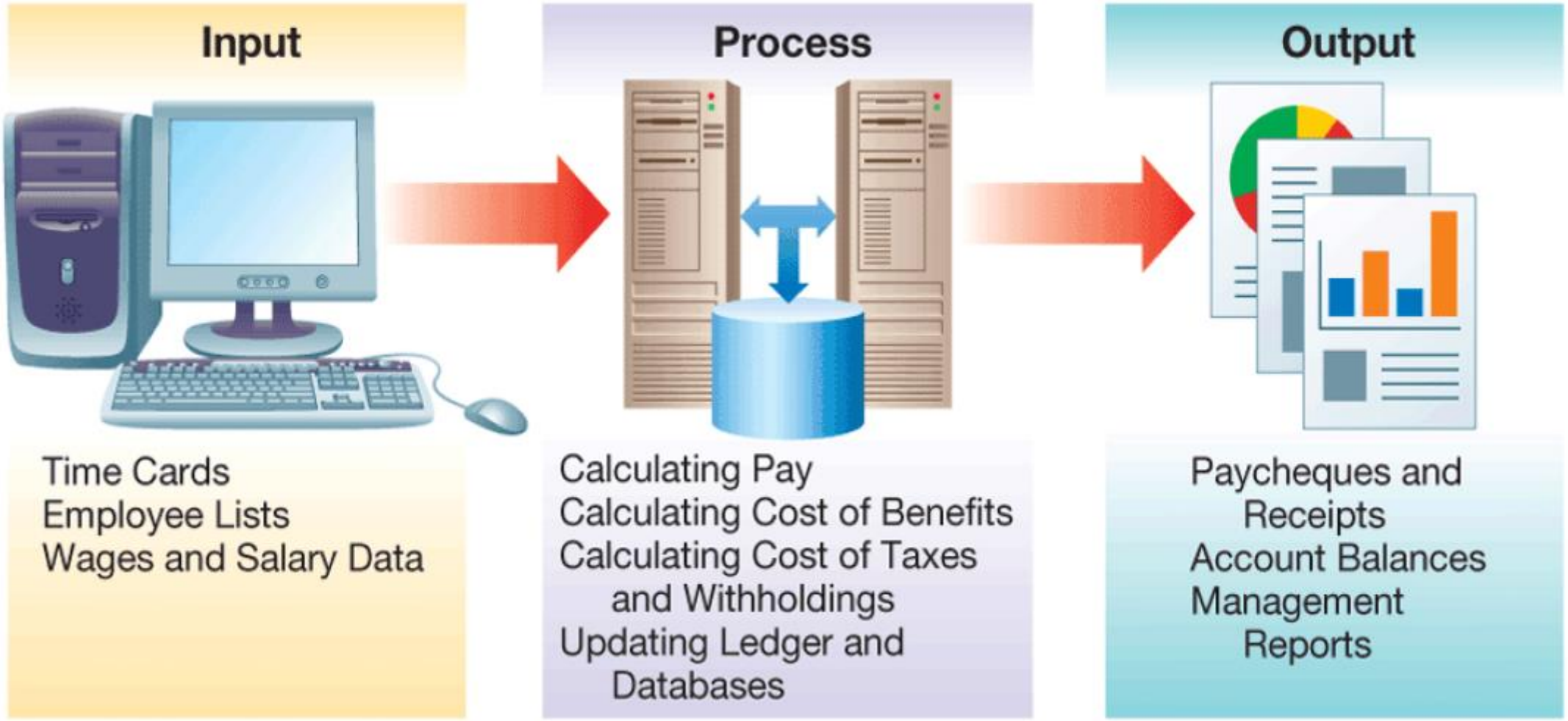
Data Storage

- Data Storage
  - Involves updating one or more databases with new transitions
  - After being updated, this data can be further processed and manipulated by other systems

Document Production

- Document Production involves generating output records, documents and reports
  - Hard-copy paper reports
  - Displays on computer screens (soft copy)
- Results from one TPS can be input to another system
- Most TPSs provide other useful management information, such as:
  - Printed or on-screen reports that help managers and employees perform various activities
  - Reports showing current inventory
  - Reports required by local, state, and federal agencies

TPS Example: Payroll System



TPS Example: Point-of-Sale Systems

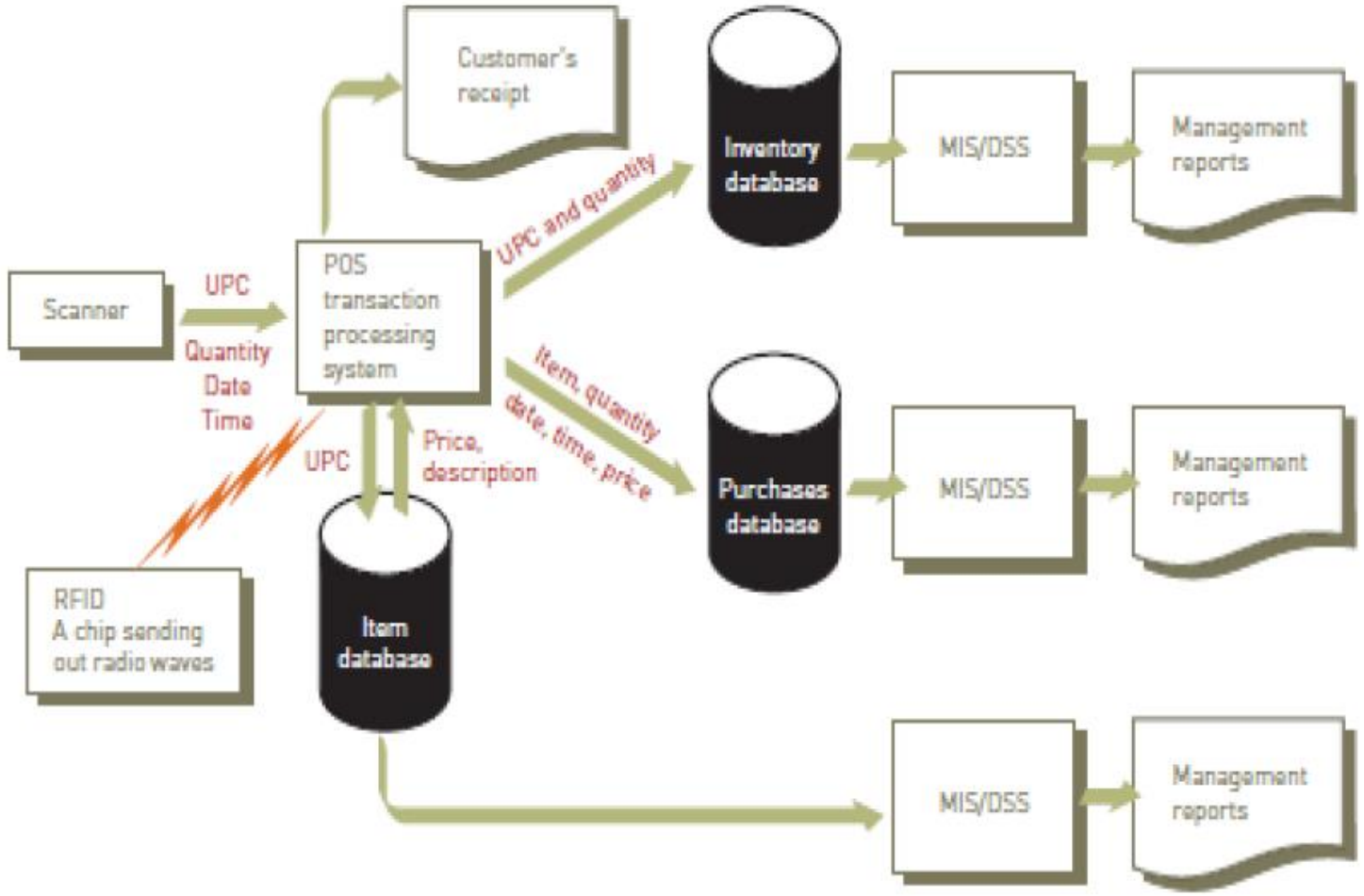
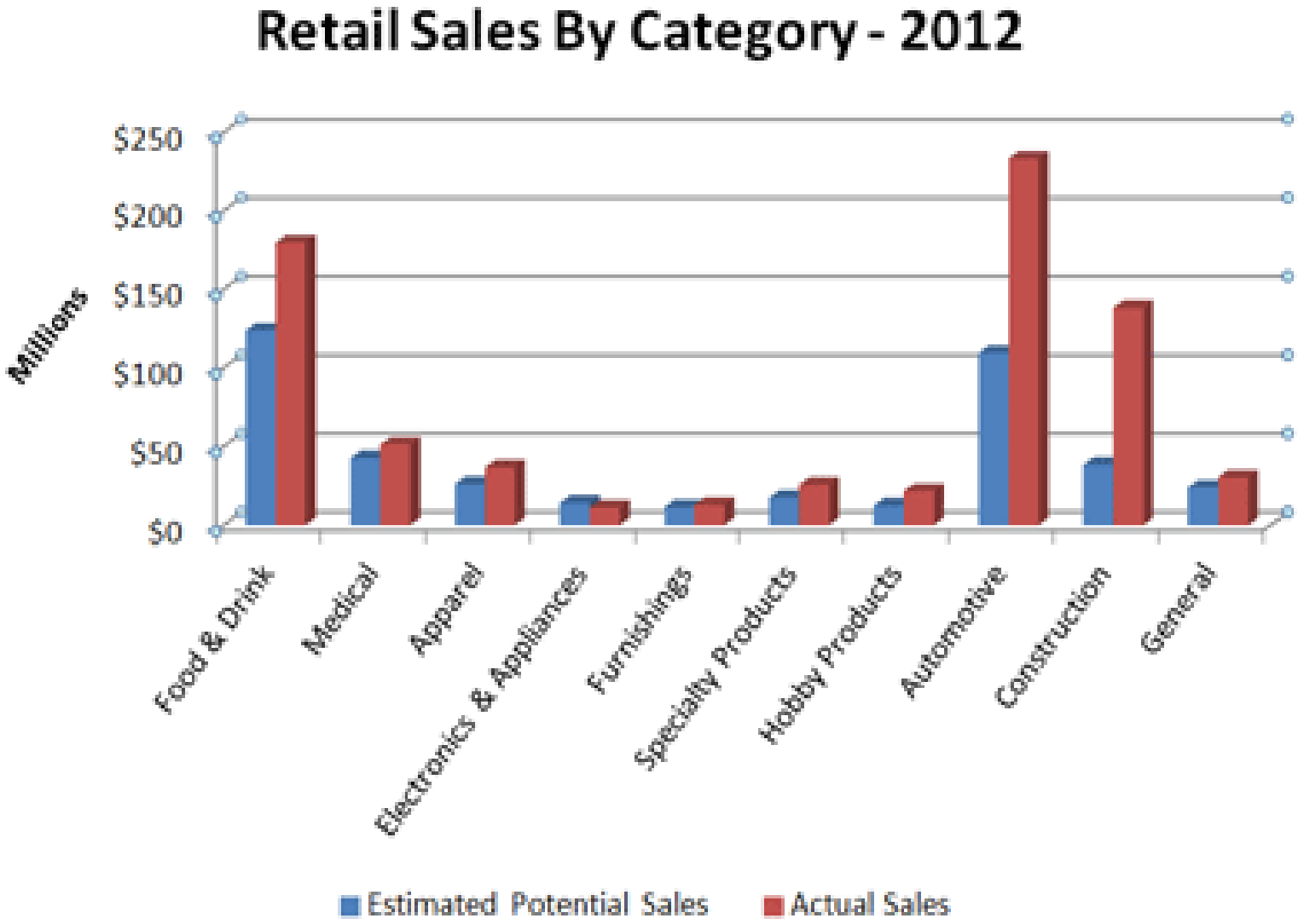


FIGURE 5.10

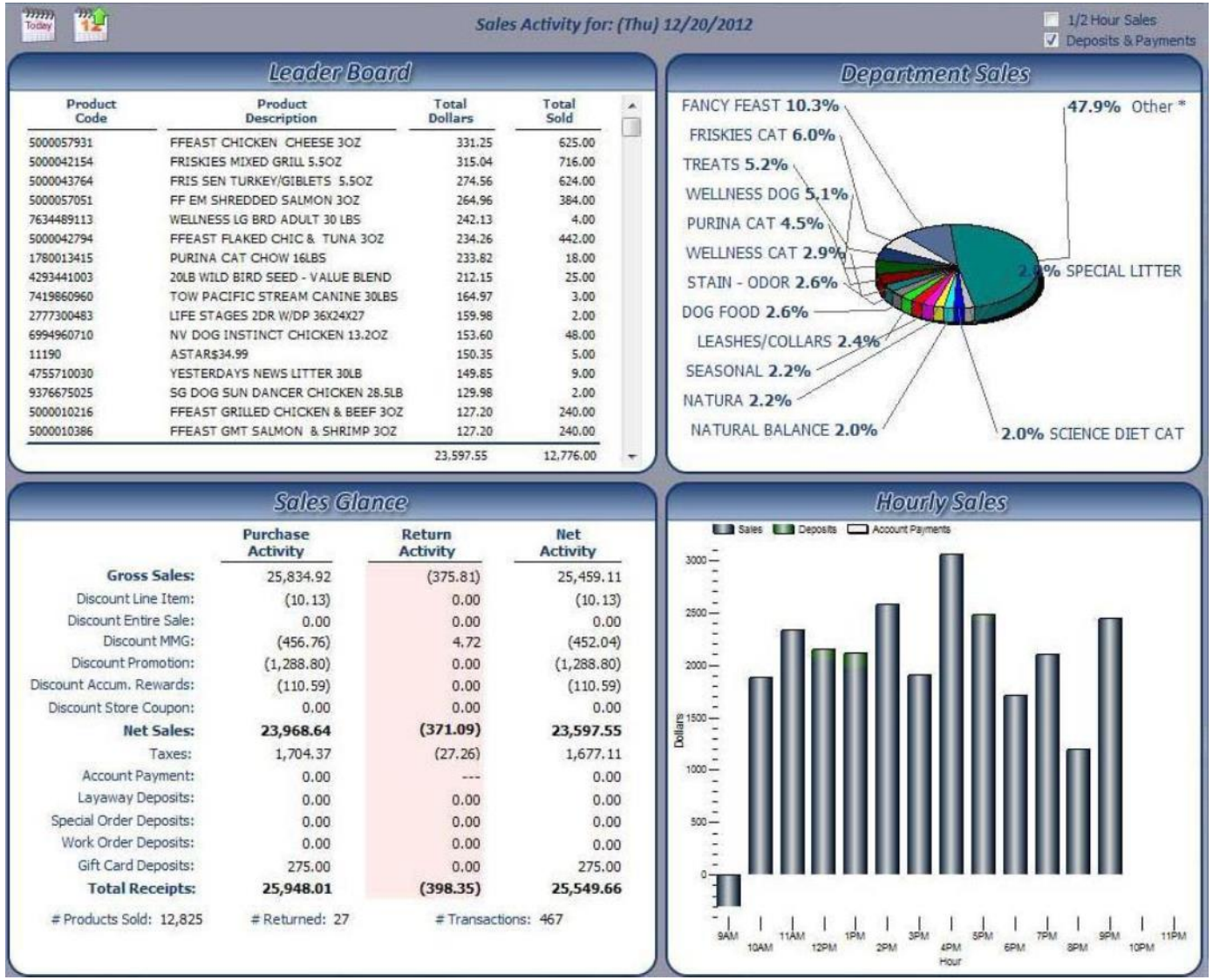
Point-of-sale transaction processing system

The purchase of items at the check-out stand updates a store's inventory database and its database of purchases.

Operational/ TPS Report Example (1)



Operational/ TPS Report Example (2)



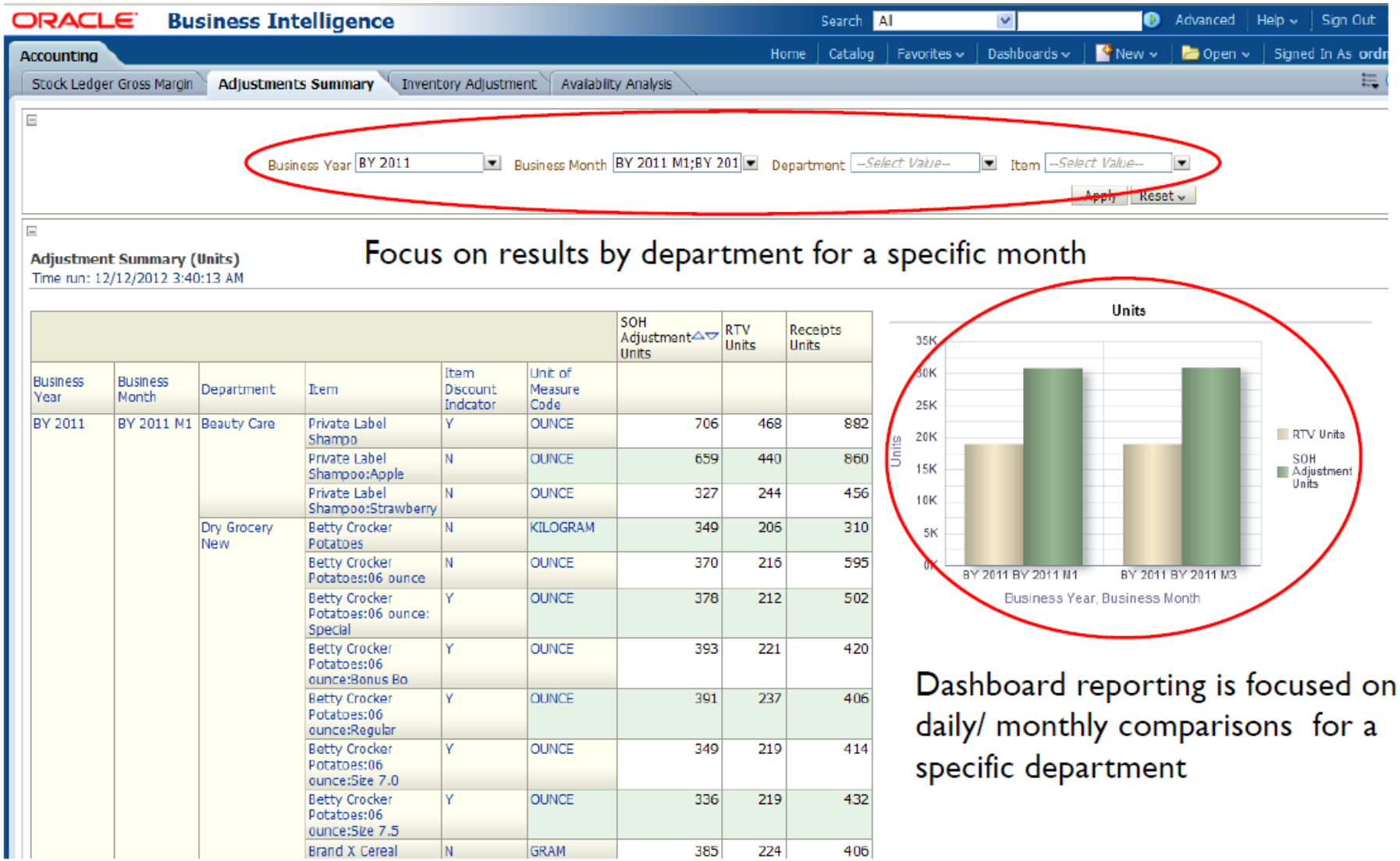
Focus on results by:

- Product
- Department
- Sales ($)

For a specific time:

- Real time
- Hourly/ daily
- Monthly

Operational/ TPS Report Example (3)



Business Year	Business Month	Department	Item	Item Discount Indcator	Unit of Measure Code	SOH Adjustment Units	RTV Units	Receipts Units
BY 2011	BY 2011 M1	Beauty Care	Private Label Shampo	Y	OUNCE	706	468	882
			Private Label Shampoo:Apple	N	OUNCE	659	440	860
			Private Label Shampoo:Strawberry	N	OUNCE	327	244	456
		Dry Grocery New	Betty Crocker Potatoes	N	KILOGRAM	349	206	310
			Betty Crocker Potatoes:06 ounce	N	OUNCE	370	216	595
			Betty Crocker Potatoes:06 ounce: Special	Y	OUNCE	378	212	502
			Betty Crocker Potatoes:06 ounce:Bonus Bo	Y	OUNCE	393	221	420
			Betty Crocker Potatoes:06 ounce:Regular	Y	OUNCE	391	237	406
			Betty Crocker Potatoes:06 ounce:Size 7.0	Y	OUNCE	349	219	414
			Betty Crocker Potatoes:06 ounce:Size 7.5	Y	OUNCE	336	219	432
			Brand X Cereal	N	GRAM	385	224	406

Dashboard reporting is focused on daily/ monthly comparisons for a specific department

Operational/ TPS Report Example (4)

Management Information Systems

Systems at the Tactical/Managerial level

Who, What, Why: Managerial Level

Management Information Systems (MIS)

- Computerized database of information organized and programmed in such a way that it produces regular reports on operations for management in a company.
- The main purpose is to give managers feedback about performance
- Information displayed by the MIS typically shows “actual” data, and it allows comparison against “planned” results thus it measures progress against goals.
- The MIS receives data from company units and functions.

Management Information Systems (MIS)

- MISs perform the following functions:
  - Provide reports with fixed and standard formats
  - Produce hard-copy and soft-copy reports
  - Allow users to develop custom reports
  - Require user requests for reports developed by systems personnel

Management Information Systems (MIS)

- Purpose of an MIS:
  - To help an organization achieve its goals by providing managers with insight into the regular operations of the organization
  - Provide the right information to the right person in the right format at the right time
- Tactical information systems differ from operational – not to support the execution of operational tasks, but help the manager control operations

Tactical Systems(MIS)

- In operational systems, transaction data are captured and stored (in a database);
- In Tactical/ Management Information Systems, transaction data are summarized, aggregated, and analyzed for additional insight for middle managers
  - (remember the characteristics of information at the Tactical level)
  - Generate a variety of reports:
  - Summary reports: totals, averages, key data
  - Total regular and overtime hours worked for each plant for the week, by job classification {what resource will this info. help to control?}

Transaction Processing vs. Management Information Systems

- TPS
  - Capture and process the detailed data necessary to update current records about operations
  - E.g. Order Entry, inventory Control, payroll, accounts payable, accounts receivable, etc…
- MIS
  - Provide insight for managers into regular operations of the organization so they can control, organize, and plan more effectively.
  - Right info to the right person at the right time
  - Information typically provided in reports

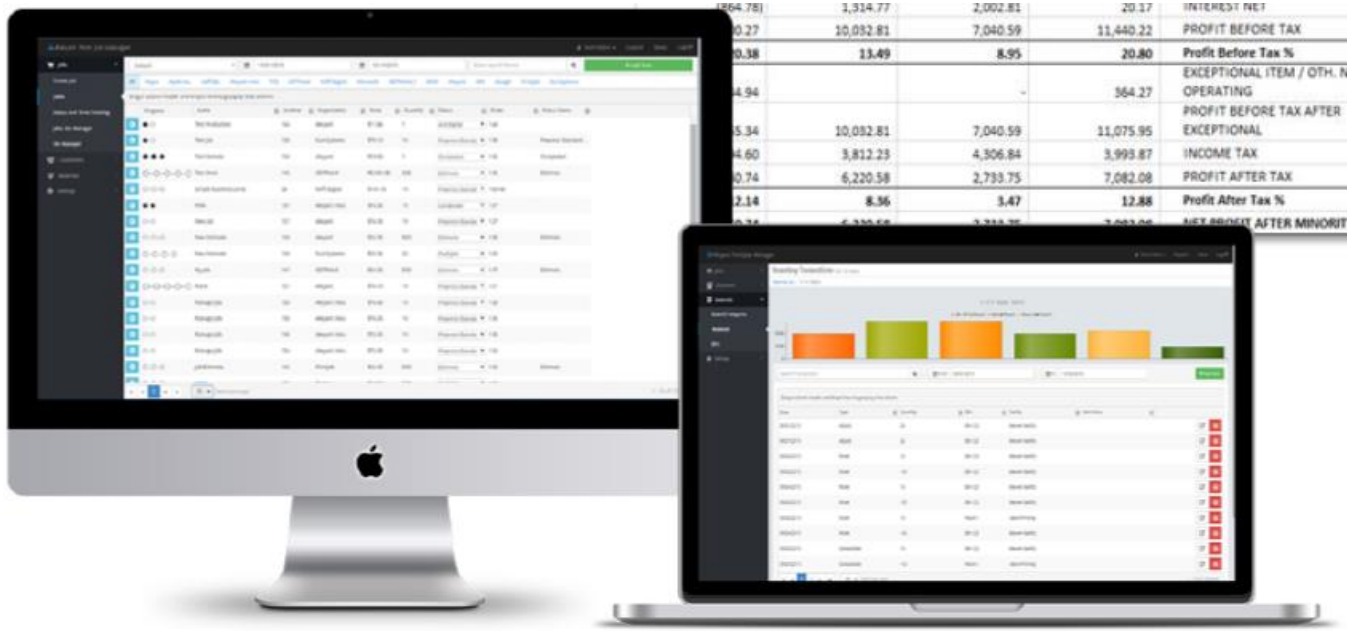
Tactical vs Operational Info. System

- Tactical information systems differ from operational information systems in the:
  - The amount of detail produced as output
  - The comparative nature of the information
  - The rigidity of the structure of the information
  - Regularity with which information is produced (e.g. ad hoc)

MIS Output

BUDGET VS ACTUAL Reporting as at 30-Sep-2016 (Amounts scaled to '000000)

ACTUAL FOR THE MONTH	AOP FOR THE MONTH	FORECAST FOR THE MONTH	LAST YEAR FOR THE MONTH		ACTUAL YTD	AOP YTD	LAST YEAR YTD
USD	USD	USD	USD	MIS REPORT	USD	USD	USD
67,223.48	74,386.79	78,687.35	55,000.76	SALES	324,461.80	387,666.86	275,127.48
(16.91)			(7.10)	Other Operating Income	(22.51)		(26.24)
17,471.22	18,927.28	22,687.32	15,526.24	Cost of Sales	75,979.96	91,977.55	87,886.63
7,534.09	7,577.62	8,963.66	6,187.40	Selling Variable	34,703.38	41,787.35	32,571.76
(654.83)	2,011.18	2,692.28	558.52	Production Variable	9,387.45	11,607.42	5,053.60
42,889.91	45,870.71	44,344.10	32,735.70	GROSS CONTRIBUTION	204,413.52	242,294.54	149,641.73
0.64	0.62	0.56	0.60	GROSS CONTRIBUTION%	0.63	0.63	0.54
2,548.87	2,966.45	2,462.71	1,081.69	ATL-ADVERTISING	12,405.11	16,009.50	7,010.43
2,112.61	2,800.49	2,992.49	1,372.12	BTL - SALES PROMOTION	9,130.20	15,985.95	9,558.60
4,661.48	5,766.94	5,455.20	2,453.81	A&P	21,535.31	31,995.45	16,569.03
38,228.42	40,103.77	38,888.89	30,281.89	NET CONTRIBUTION	182,878.21	210,299.09	133,072.71
56.87	**53.91**	**49.42**	**55.06**	**Net Contribution %**	**56.36**	**54.25**	**48.37**
17,906.11	20,394.00	20,040.54	13,174.96	MANPOWER COST	102,196.38	118,359.34	75,533.18
4,718.30	5,609.23	6,739.07	3,902.68	General Administration	30,089.41	35,631.30	24,660.20
2,126.68	1,987.08	2,397.06	1,367.94	Selling & Distribution	13,349.43	11,023.44	7,265.61
24,751.10	27,990.31	29,176.67	18,445.58	TOTAL FIXED COSTS	145,635.22	165,014.08	107,459.00
13,477.33	12,113.46	9,712.22	11,836.31	OPERATIONAL EBIDTA	37,242.99	45,285.01	25,613.71
13,477.33	12,113.46	9,712.22	11,836.31	EBIDTA	37,242.99	45,285.01	25,613.71
20.05	16.28	12.34	21.52	EBIDTA %	11.48	11.68	9.31
641.83	765.89	668.82	375.92	DEPRECIATION	3,691.24	3,989.00	2,232.60
12,835.49	11,347.57	9,043.40	11,460.39	EBIT	33,551.75	41,296.01	23,381.11
70.47				INTEREST INCOME	406.66		
(794.31)	1,314.77	2,002.81	20.17	INTEREST EXPENSE	347.97	7,713.17	2,658.72
(764.78)	1,314.77	2,002.81	20.17	INTEREST NET	(58.68)	7,713.17	2,658.72
0.27	10,032.81	7,040.59	11,440.22	PROFIT BEFORE TAX	33,610.43	33,582.84	20,722.39
0.38	**13.49**	**8.95**	**20.80**	**Profit Before Tax %**	**10.36**	**8.66**	**7.53**
4.94			364.27	EXCEPTIONAL ITEM / OTH. NON-OPERATING	18,364.06	20,080.31	20,262.17
5.34	10,032.81	7,040.59	11,075.95	PROFIT BEFORE TAX AFTER EXCEPTIONAL	15,246.37	13,502.53	460.22
4.60	3,812.23	4,306.84	3,993.87	INCOME TAX	8,484.00	5,653.69	609.90
0.74	6,220.58	2,733.75	7,082.08	PROFIT AFTER TAX	6,762.37	7,848.84	(149.67)
2.14	**8.56**	**3.47**	**12.88**	**Profit After Tax %**	**2.08**	**2.02**	**0.05**
				NET PROFIT AFTER MINORITY	**6,762.37**	**7,848.84**	**(149.67)**



System Description: Tactical/ Management Information Systems

- **Tactical Information Systems or Management Information Systems (MISs)** are used by **managerial employees** to support recurring decision making in managing a function or the entire business

- **Supported Activities**
  - **Scheduled Reporting** - the system produces automatically based on a **predetermined schedule**. Some include:
    - **Key Indicator** – High-level summaries to monitor performance (e.g. Monthly Sales Report)
    - **Exception** – Highlights situations where data is out of normal range (e.g. Monthly Late Shipments)
    - **Drill Down** – Provides lower-level detail aggregated in a summary report (printed only if needed)
  - ***Ad Hoc* Reporting – unscheduled** reports that are usually custom built to answer a specific question (e.g. sales data by person report to identify issues)

Reporting Activity: Drill-down (MIS)

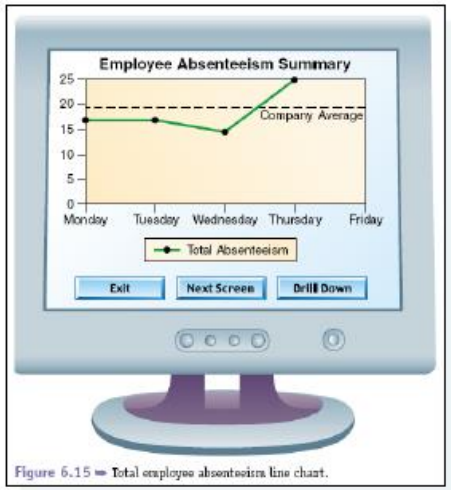


Figure 6.15 ➥ Total employee absenteeism line chart.

First Level
Graphical Summary

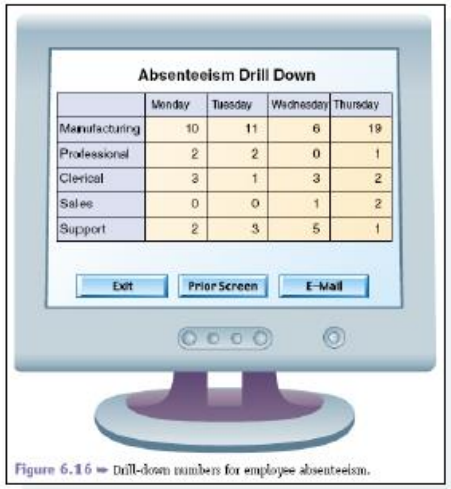
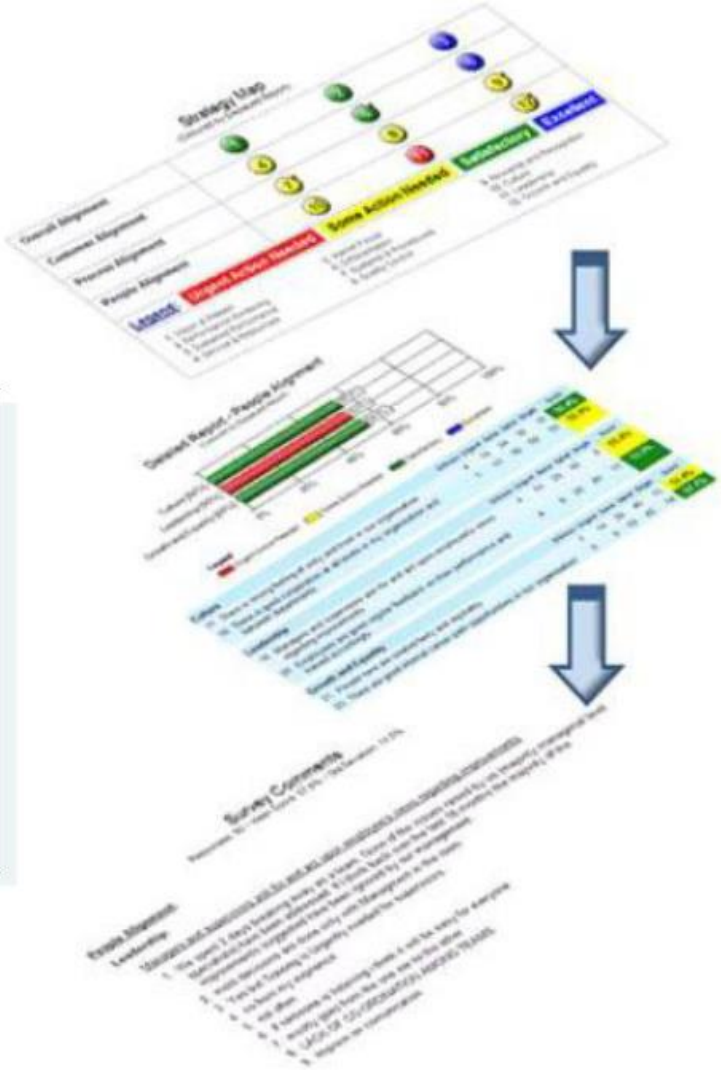
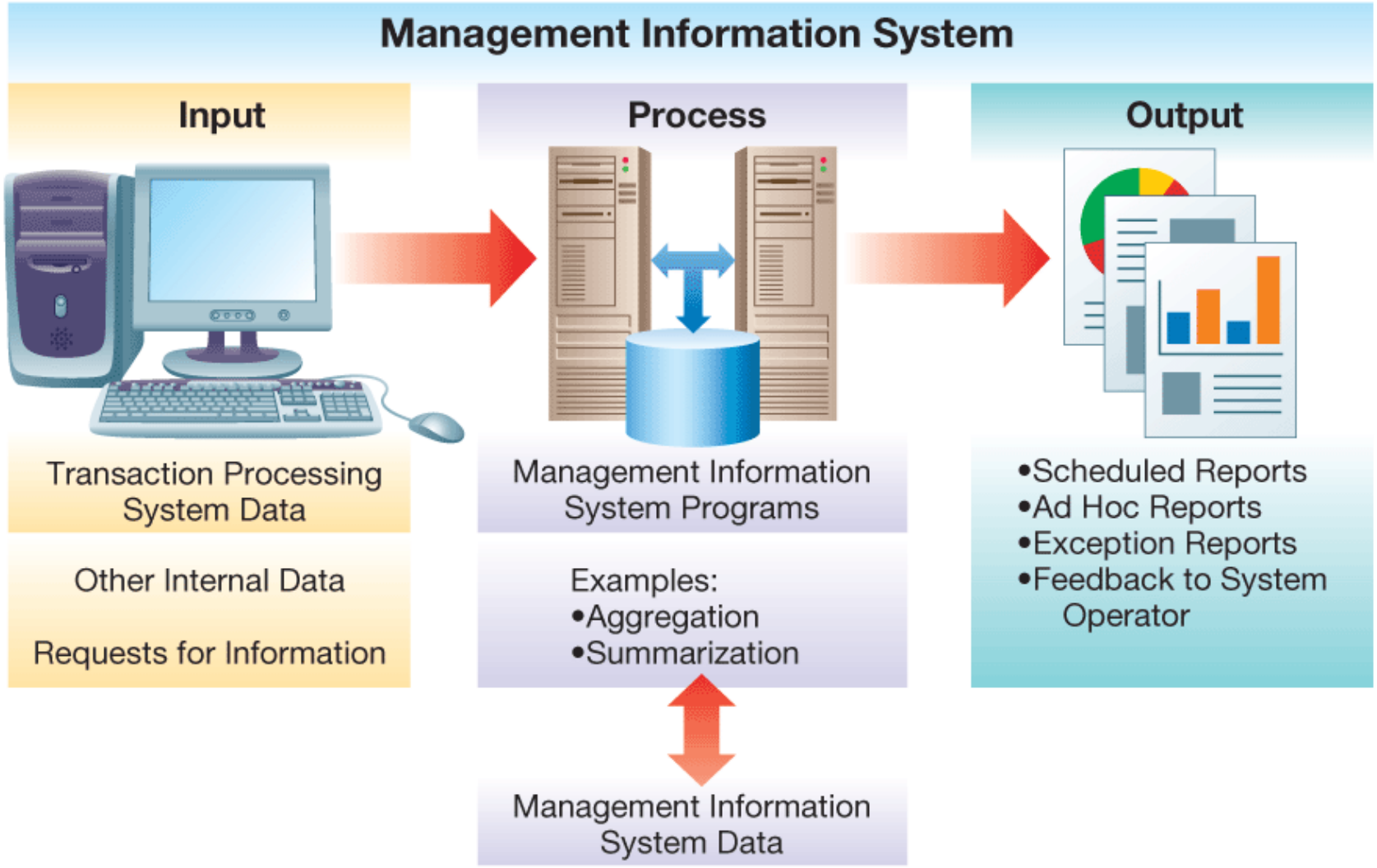


Figure 6.16 ➥ Drill-down numbers for employee absenteeism.

Second Level
Data Drill Down



System Architecture: Management Information System



Framework for Tactical / Management Information Systems (MIS)

- Tactical MIS
  - Provide insight for managers into regular operations of the organization so they can control, organize, and plan more effectively.
  - Right info to the right person at the right time
  - Information typically provided in reports

Tactical / Management Information Systems (MIS)

- One important Characteristic of Tactical Information Systems is that some of the information produced by such systems comes not from internal, but external sources (on-line subscriptions?)

- Compare overdue account information of our company with that of the entire industry

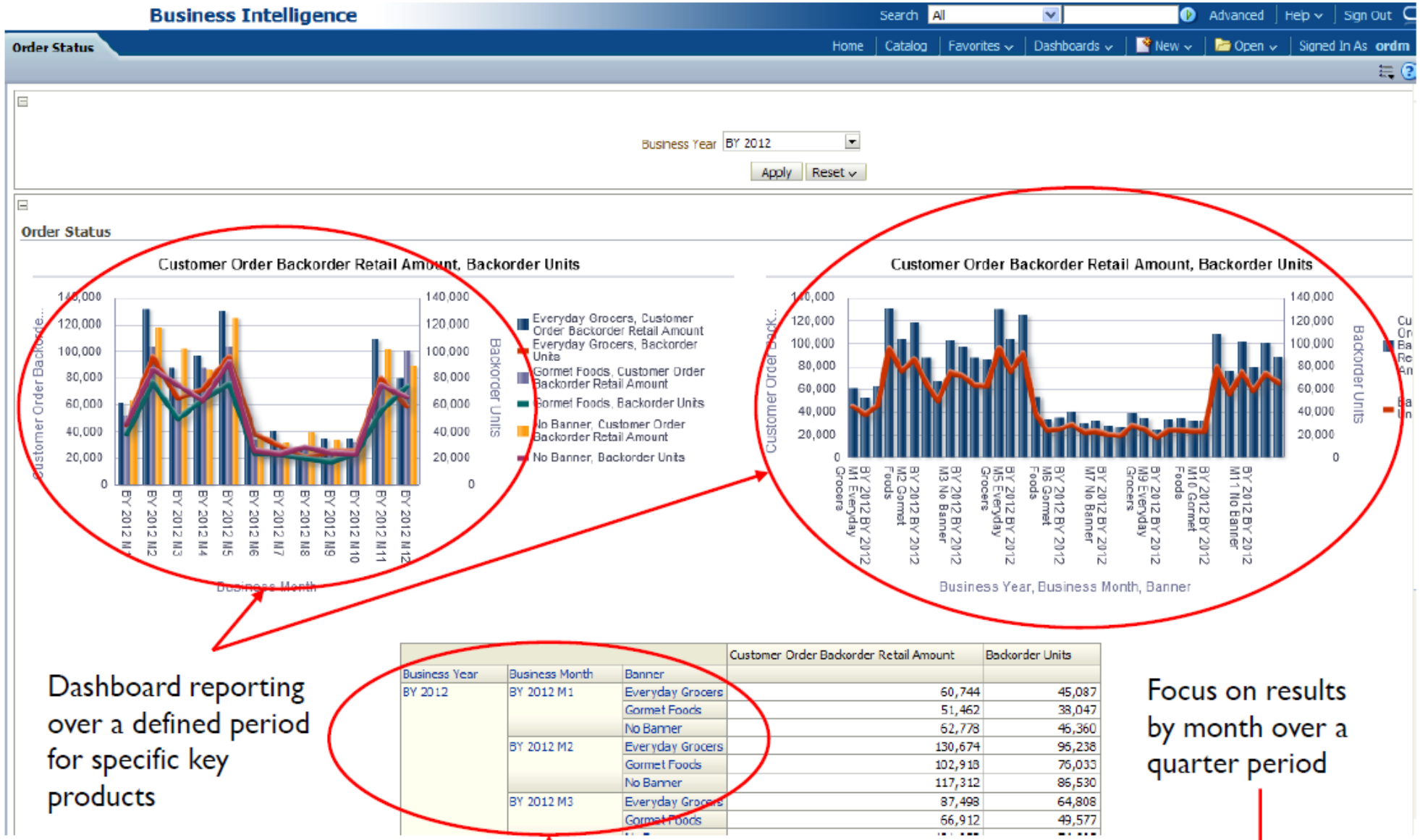
Tactical / MIS Report Examples

- Key Indicator Reports: High-level summaries to monitor performance
  - Example: list of weekly sales $, by salesperson, by product and by sales region {such information would be difficult to produce without a computer}
- Exception reports: warn managers when results from a particular operation exceed or do not meet an organizational standard
  - Example: List of all plants that have logged more overtime hours than expected for the week
  - Example: List of all sales personnel whose sales fall in the top and bottom 10% of the organization

Tactical/ MIS Report Examples

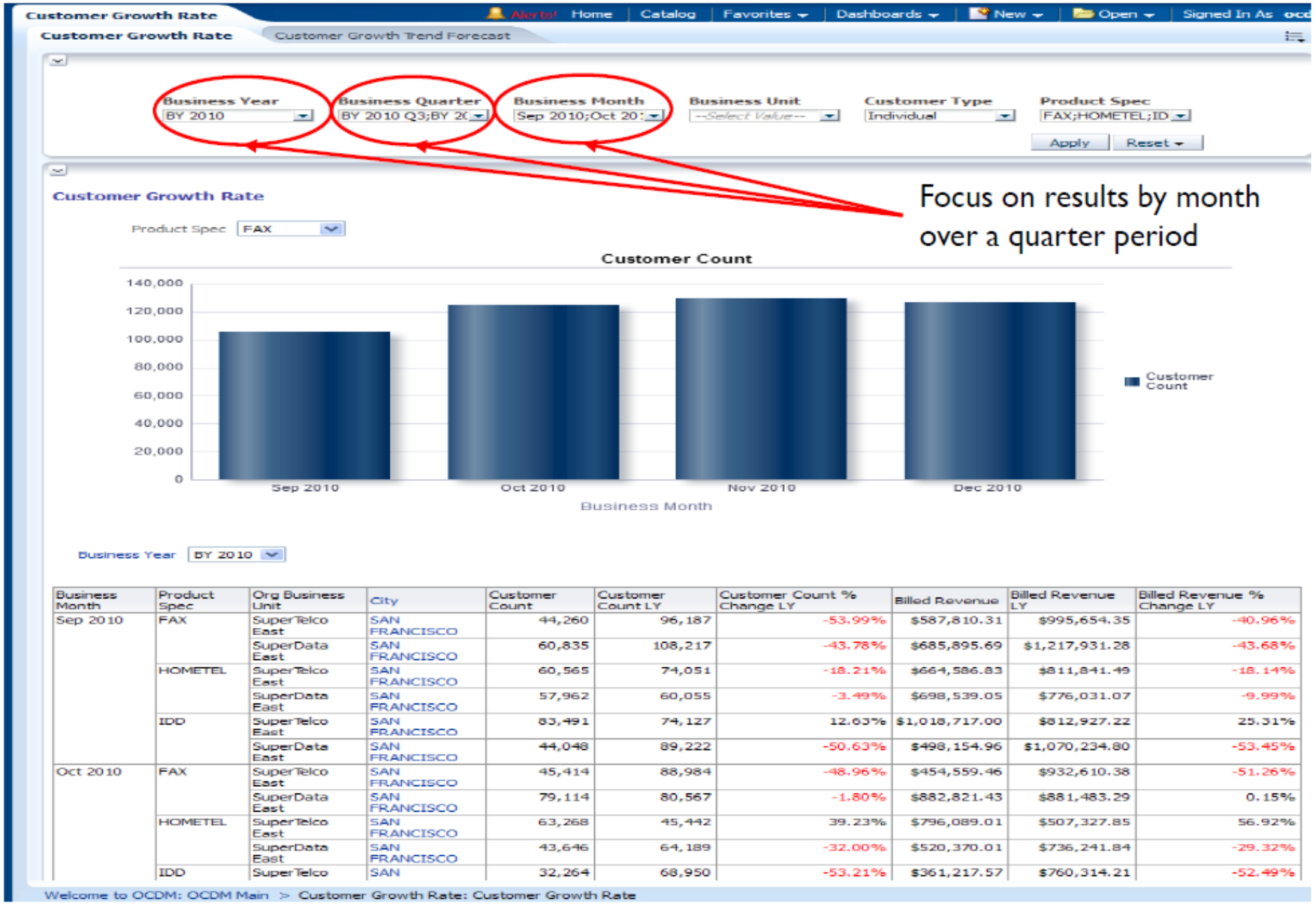
- ad hoc reports: "spur-of-the-moment"; unplanned
  - needed by manager to solve a unique problem
  - E.g. a list of the total number of employees absent during the week, arranged by plant and by job title, along with the hours or days missed
- If an exception report has shown high overtime earnings at some plants, then a manager might ask for a report showing the production record of each plant for the week; to help investigate why there was an overtime problem.

Tactical/ MIS Report Example (1)



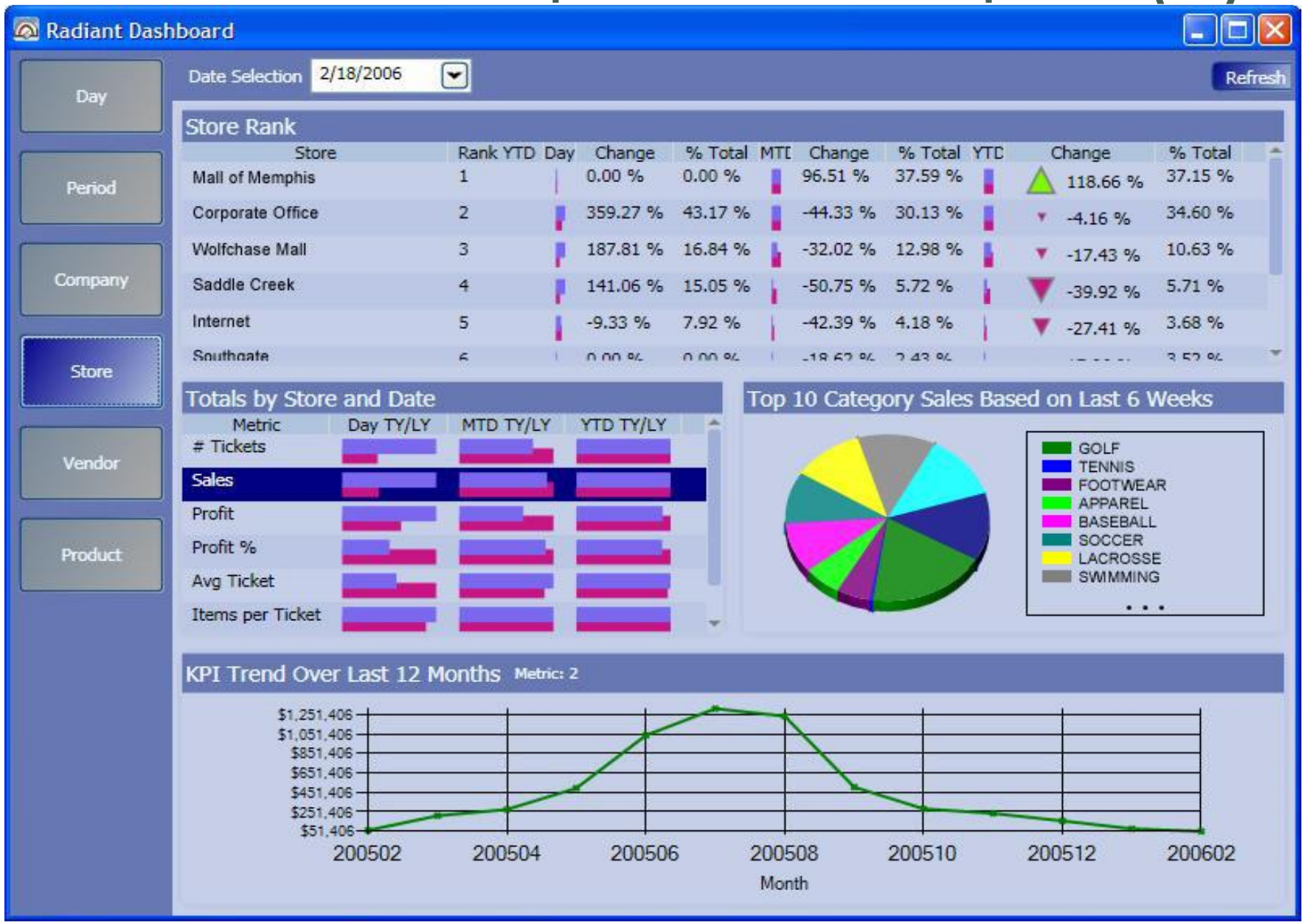
Business Year	Business Month	Banner	Customer Order Backorder Retail Amount	Backorder Units
BY 2012	BY 2012 M1	Everyday Grocers	60,744	45,087
		Gormet Foods	51,462	38,047
		No Banner	62,778	46,360
	BY 2012 M2	Everyday Grocers	130,674	96,238
		Gormet Foods	102,918	76,033
		No Banner	117,312	86,530
	BY 2012 M3	Everyday Grocers	87,498	64,808
		Gormet Foods	66,912	49,577

Tactical/ MIS Report Example (2)



Business Month	Product Spec	Org Business Unit	City	Customer Count	Customer Count LY	Customer Count % Change LY	Billed Revenue	Billed Revenue LY	Billed Revenue % Change LY
Sep 2010	FAX	SuperTelco East	SAN FRANCISCO	44,260	96,187	-53.99%	$587,810.31	$995,654.35	-40.96%
		SuperData East	SAN FRANCISCO	60,835	108,217	-43.78%	$685,895.69	$1,217,931.28	-43.68%
	HOMETEL	SuperTelco East	SAN FRANCISCO	60,565	74,051	-18.21%	$664,586.83	$811,841.49	-18.14%
		SuperData East	SAN FRANCISCO	57,962	60,055	-3.49%	$698,539.05	$776,031.07	-9.99%
	IDD	SuperTelco East	SAN FRANCISCO	83,491	74,127	12.63%	$1,018,717.00	$812,927.22	25.31%
		SuperData East	SAN FRANCISCO	44,048	89,222	-50.63%	$498,154.96	$1,070,234.80	-53.45%
Oct 2010	FAX	SuperTelco East	SAN FRANCISCO	45,414	88,984	-48.96%	$454,559.46	$932,610.38	-51.26%
		SuperData East	SAN FRANCISCO	79,114	80,567	-1.80%	$882,821.43	$881,483.29	0.15%
	HOMETEL	SuperTelco East	SAN FRANCISCO	63,268	45,442	39.23%	$796,089.01	$507,327.85	56.92%
		SuperData East	SAN FRANCISCO	43,646	64,189	-32.00%	$520,370.01	$736,241.84	-29.32%
	IDD	SuperTelco	SAN	32,264	68,950	-53.21%	$361,217.57	$760,314.21	-52.49%

Tactical/ MIS Report Example (3)



Executive Support Systems

Systems at the Strategic level

Who, What, Why: Executive Level

Framework for Strategic/ Executive Information Systems (EIS)

- Strategic Systems/ Executive Information Systems
- Provide top managers with information that assists them in making long-range planning decisions for the organization
- Used to set long-term organizational goals
- Middle managers then need to allocate resources to meet these organizational goals
- Produced regularly, but more often on ad hoc basis
- Executive-level reports provide **Summarized** data

Executive Support Systems

- Executive support system (ESS):
  - Includes hardware, software, data, procedures, and people used to assist senior-level executives
  - Also called an executive information system (EIS)
  - ESS provide and overview of an entire organization's performance
    - Or any aspects of the organization that executives consider important
- ESS provides support for:
  - Defining overall vision
  - Strategic planning
  - Strategic organizing and staffing
  - Strategic control
  - Crisis management

Framework for Strategic/ Executive Information Systems (EIS)

- One important characteristic of Strategic. Executive Information Systems is that a significant portion of the information produced by such systems comes not from internal, but external sources (market intelligence)
- Compare key performance information of our company with that of the entire industry

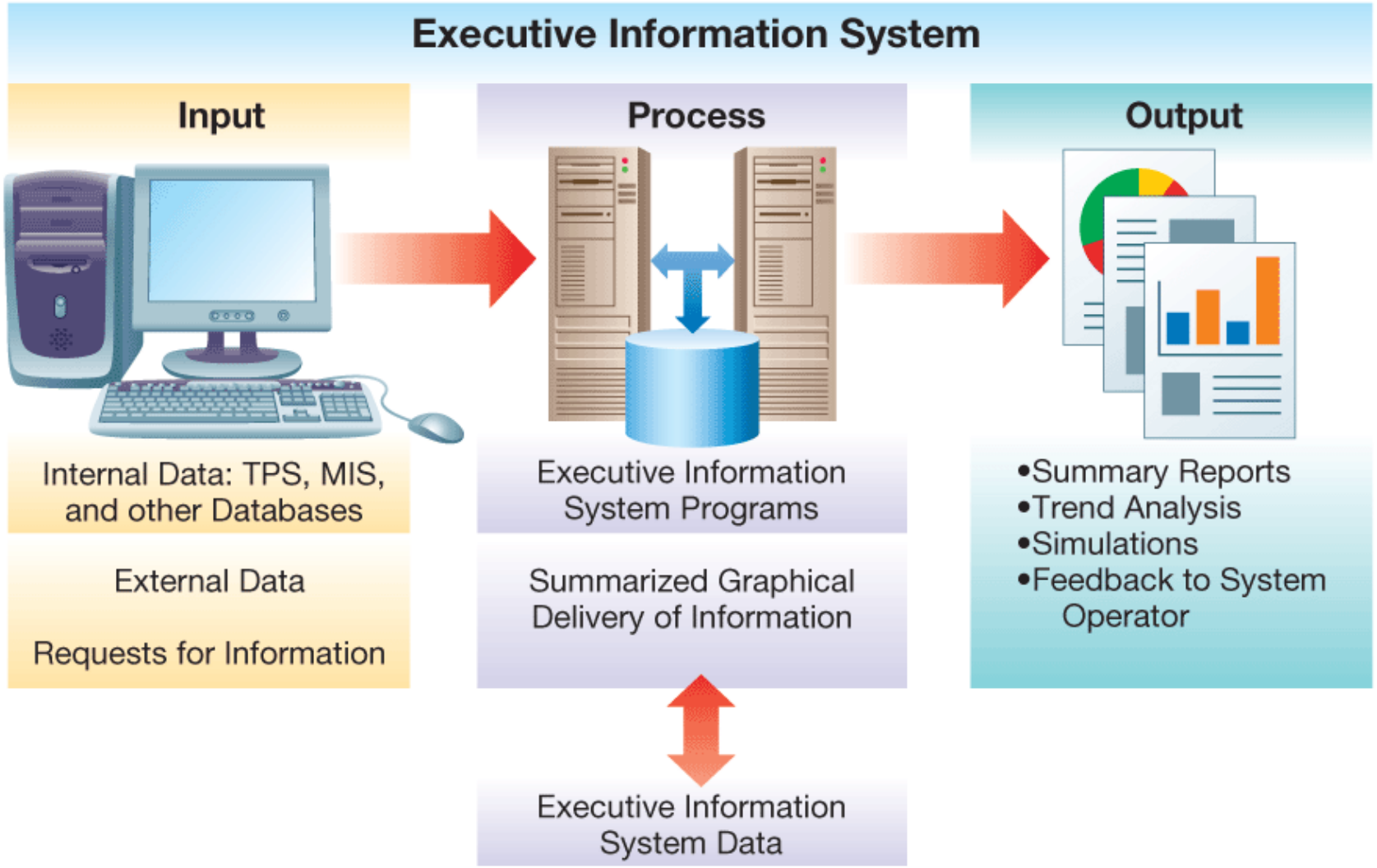
System Description: Strategic/ Executive Information Systems

- **Strategic Systems,** also called **Executive Information Systems (EIS) or Executive Support Systems (ESS)** or, are special purpose information systems to support executive decision-making
- **System Details** These systems use **graphical user interfaces** to display consolidated information and can deliver both:
  - **Soft Data** - textual news stories or non-analytical data (unstructured)
  - **Hard Data** – facts, numbers, calculations, etc. (structured)
- **Supported Activities**
  - The activities supported by these kinds of systems include:
    - **Executive Decision Making**
    - **Long-range Strategic Planning**
    - **Monitoring of Internal and External Events**
    - **Crisis Management**
    - **Staffing and Labour Relations**

Executive Information Systems (EIS)

- Questions:
  - What kind of tactical information would be useful to a branch manager of Coca-Cola or Pepsi distributorship?
  - What kind of strategic information would be useful to the president of a four-year liberal arts college?

System Architecture: Executive Information Systems (EIS)



Inputs to MIS and ESS information Systems

- Internal data sources:
  - TPS and related databases
  - Data warehouses and data marts
  - Specific functional areas throughout the firm

- External data sources:
  - Customers, suppliers, competitors, and stockholders whose data is not already captured by TPS and ERP systems
  - Internet

MIS/ESS Outputs

- Reports:
  - Formatted result of database queries and contains useful data for decision-making and analysis.
  - Scheduled reports:
    - Produced periodically, such as daily, weekly, or monthly
  - Demand reports:
    - Developed to provide certain information upon request

MIS/ESS Outputs (cont.)

- Exception reports:
  - Automatically produced when a situation is unusual or requires management action
  - Trigger points should be set carefully
  - E.g. list of all plants that have logged more overtime hours then expected for the week
  - E.g. list of all sales personnel whose sales fall in the top and bottom 10% of the organization

Daily Sales Exception Report – ORDERS OVER 10,000 Prepared: 08/10/xx						
Order #	Customer ID	Sales Rep ID	Ship Date	Quantity	Item #	Amount
P12453	C89321	CAR	08/12/06	144	P1234	13,214
P12453	C89321	CAR	08/12/06	288	P3214	15,660
P12453	C03214	GWA	08/13/06	12	P4902	11,224
…	…	…	…	…	…	…
…	…	…	…	…	…	…

MIS / ESS outputs – Ad-Hoc Reports

- Ad hoc report: "spur-of-the-moment"; unplanned
  - Needed by manager to solve a unique problem
  - E.g. a list of the total number of employees absent during the week, arranged by plant and by job title, along with the hours or days missed.
- If an exception report has shown high overtime earnings at some plants, then a manager might ask for a report showing the production record of each plant for the week; to help investigate why there was an overtime problem.

Reporting Activity: Drill-down (EIS)

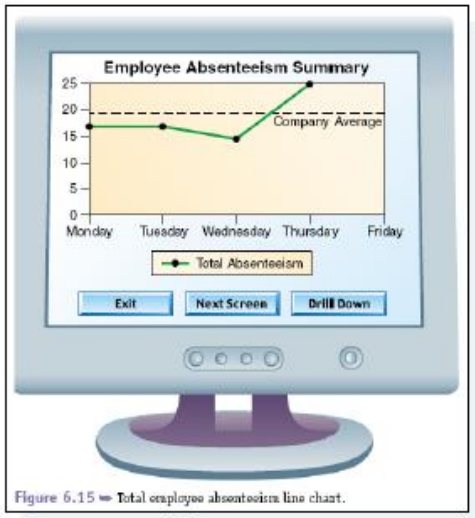


Figure 6.15 ➡ Total employee absenteeism line chart.

First Level
Graphical Summary

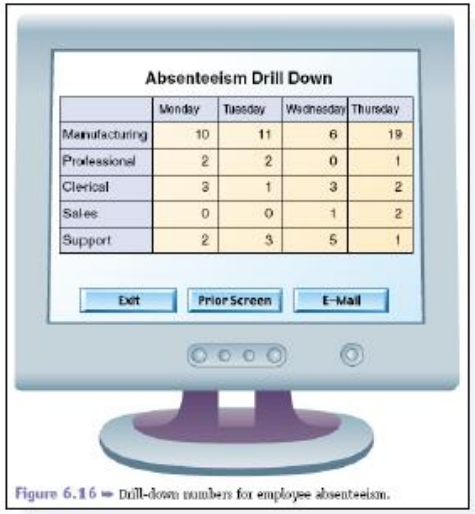
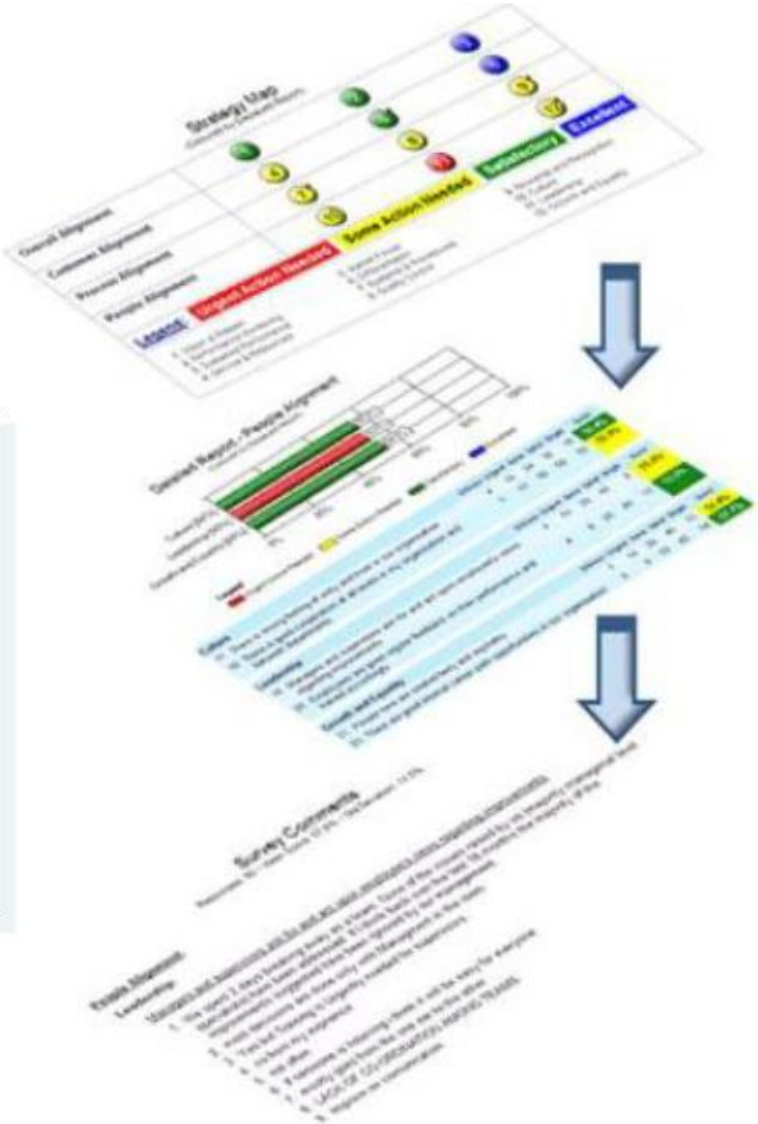


Figure 6.16 ➡ Drill-down numbers for employee absenteeism.

Second Level
Data Drill Down



Key Performance Indicators

- Metrics that track progress in executing strategies to attain organizational objectives and goals
  - These metrics are also called key performance indicators (KPIs) and consist of a direction, measure, target, and time frame
- Examples of well-defined KPIs:
  - For a university. Increase (direction) the five-year graduation rate for incoming freshman (measure) to at least 80 percent (target) starting with the graduating class of 2022 (time frame)
  - For customer service department. Increase (direction) the number of customer phone calls answered within the first four rings (measure) to at least 90 percent (target) within the next three months (time frame)
  - For an HR organization. Reduce (direction) the number of voluntary resignations and terminations for performance (measure) to 6 percent or less (target) for the 2018 fiscal year and subsequent years (time frame)

Key Indicator Report

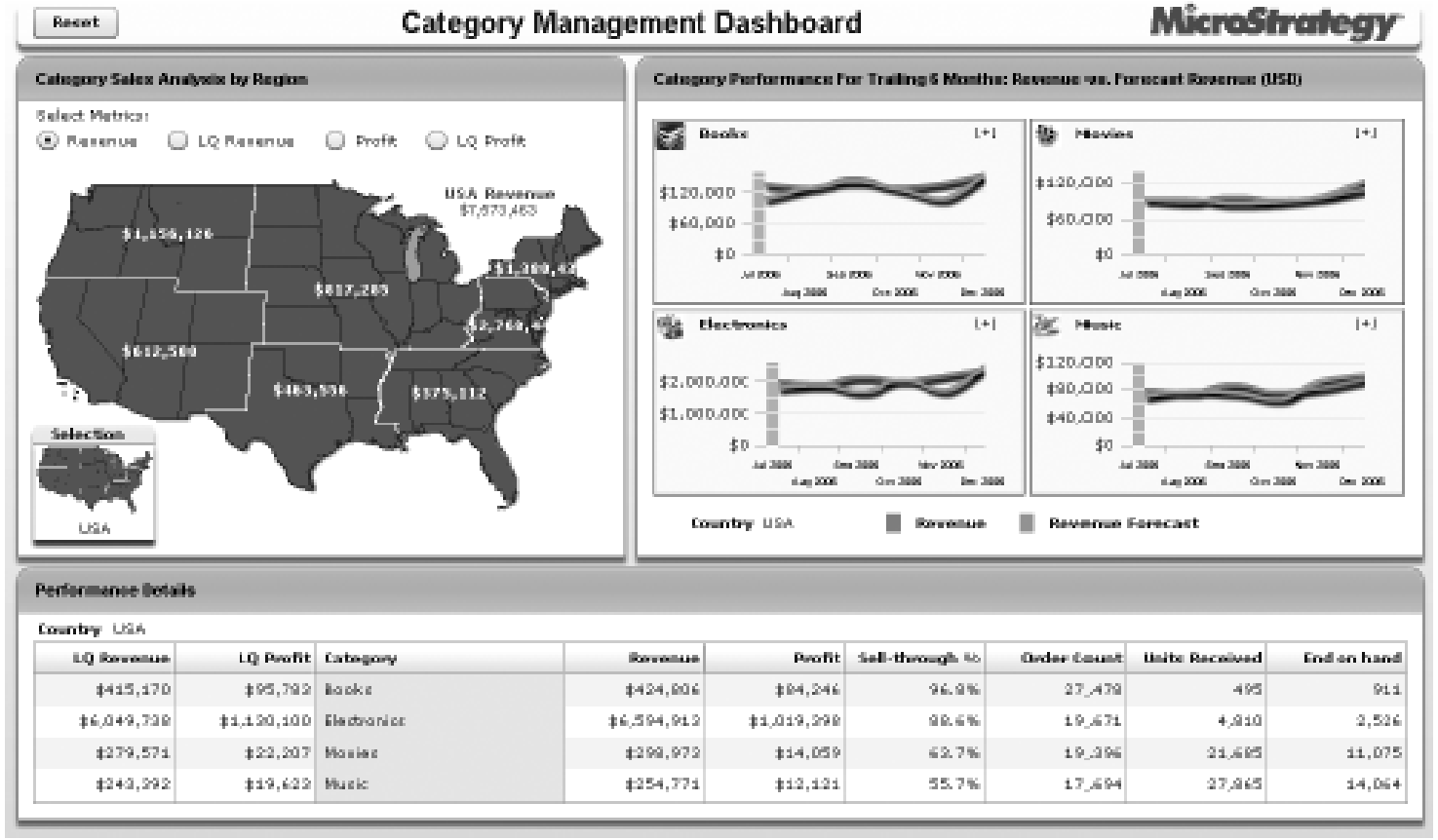
- Key Indicator: Also known as Performance indicator or key performance indicator (KPI).
- A Type of performance measurement to evaluate the success of an organization or of a particular activity in which it engages.

Daily Sales - Key Indicator Report			
	This Month	Last Month	Last Year
Total Orders Month to Date	1,808	1,694	1,014
Forecasted Sales for the Month	2,406	2,224	2,608

Dashboards

- Dashboard – Mostly for ESS
  - Presents a set of KPIs about the state of a process at a specific point in time
  - Provide rapid access to information in an easy-to-interpret and concise manner
  - Provide users at every level of the organization the information they need to make improved decisions
- Operational dashboards can be designed to draw data in real time from various sources
  - Including corporate databases and spreadsheets
- Widely used BI software comes from many different vendors, including:
  - Hewlett Packard, IBM, Information Builders, Microsoft, Oracle, and SAP

Dashboard Reporting



LQ Revenue	LQ Profit	Category	Revenue	Profit	Sell-through %	Order Count	Units Received	End on hand
$415,170	$95,782	Books	$424,606	$94,246	96.9%	27,478	495	911
$6,049,739	$1,130,100	Electronics	$6,594,912	$1,019,298	98.6%	19,671	4,210	2,526
$279,571	$22,207	Movies	$298,972	$14,059	63.7%	19,396	21,695	11,075
$243,292	$19,622	Music	$254,771	$12,121	55.7%	17,694	27,865	14,064

FIGURE 6.8

Category management dashboard for total U.S. region

This dashboard summarizes a number of sales measures.

Source: *www.microstrategy.com/us/analytics/technology*.

Dashboard Reporting

- Results are aggregated for the organization and presented in a graphical format or "executive dashboard" for quick viewing and timely decision making.

Dashboard Reporting

Owner

Andy Grant	Brandon Armstrong
Frank Cohen	George Cohen
James Bond	John Smith

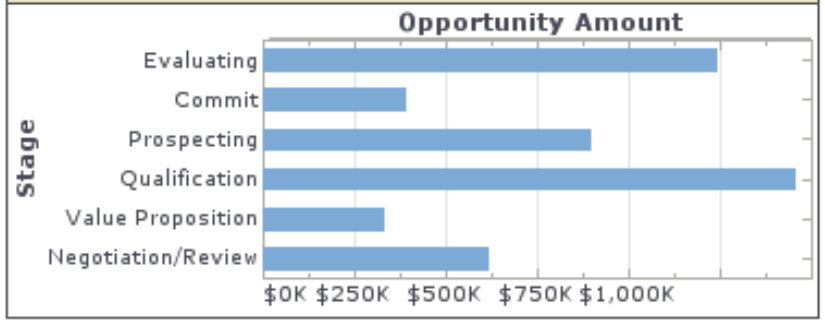
Exceptions

Exception	Count
Leads Inactive For 30 Days	0
Opportunities Past Close Date	56
Opportunities Inactive For 30 Days	59

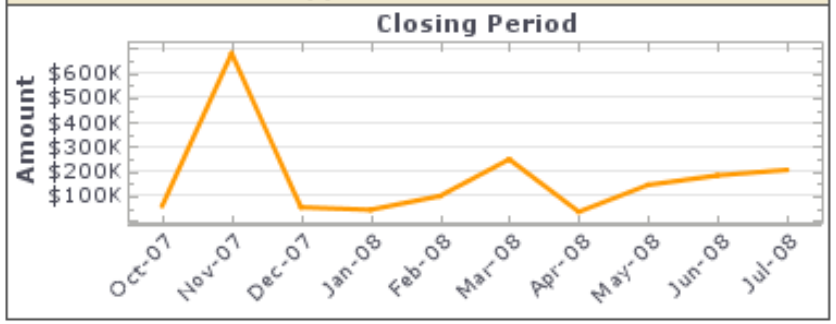
Top Opportunities

ID	Name	Account	Amount
0067000000Dr	Commun Europ	Commun Europe	$250,000.00
0067000000Dr	SpringShield -	SpringShield	$249,480.00
0068000000Lx	GenAsi esign -	GenAsi esign	$207,000.00
0067000000Dr	EquAll rated - I	EquAll rated	$159,000.00
0067000000Dr	Aspied - Gener	Aspied	$150,000.00
0067000000Dr	EquAll rated - I	EquAll rated	$119,326.00
0067000000Dr	Foratas - Gene	Foratas	$110,349.00

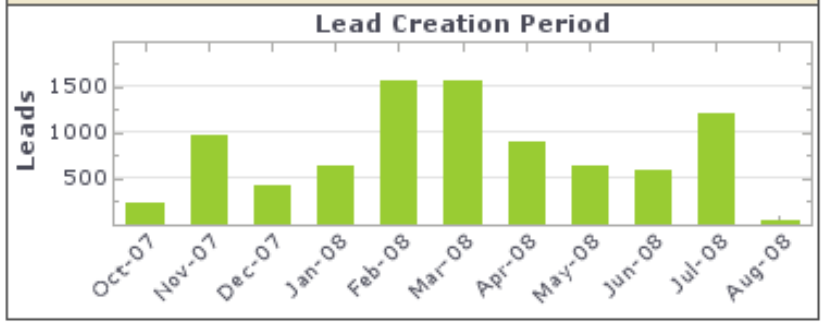
Current Pipeline



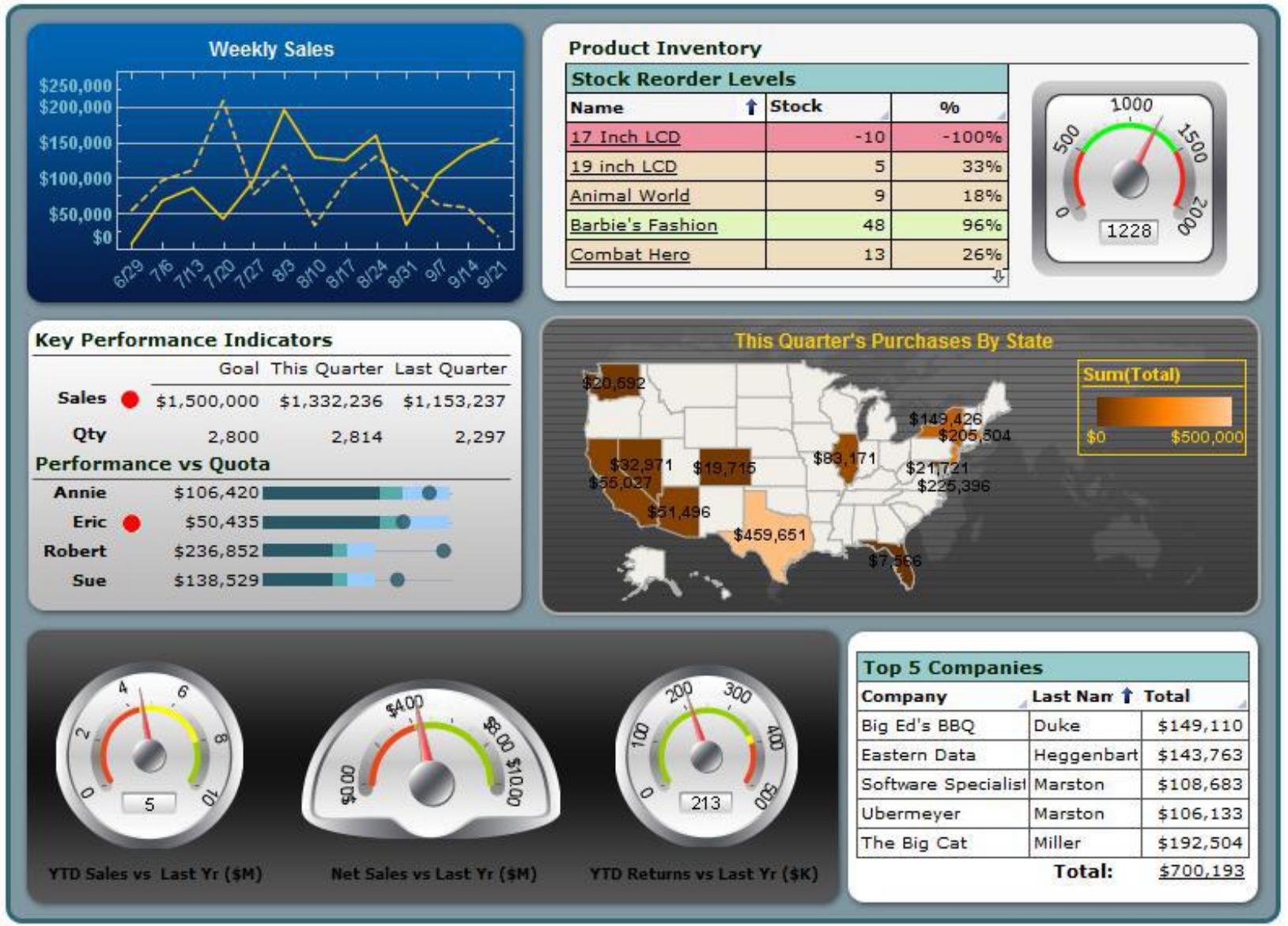
Opportunities Won



Leads Created



Strategic/ EIS Report Example



Review Levels of the Organization

Review 1: Categorize Each Decision as Strategic, Tactical, or Operational

Rejecting credit for a company with an overdue account

(Operational)

Analyzing sales by product line within each geographic region, this year to date vs. last year to date

(Tactical)

Using a simulation model to forecast profitability of a new product, using projected sales data, competitive industry statistics, and economic trends

(Strategic)

Comparing planned vs. actual expenses for department staff

(Tactical)

Allocating salespeople's time to the highest potential market prospects

(Tactical)

Review 2: Categorize Each Decision as Strategic, Tactical, or Operational

- Closing down a business unit to stop production of a particular line of clothing after analysing sales by product line within each geographic region, this year to date vs. last year to date

  (Tactical)
- Deciding to begin production of a new product after using simulation model to forecast profitability of it, using projected sales data, competitive industry statistics, and economic trends

  (Strategic)
- Reduce the number of sales people after comparing planned vs. actual sales for department staff

  (Tactical)
- Opening a new plan in a new market with great potential.

  (Strategic)

The Organizational Pyramid - Summary

Executive Level

Strategic planning and responses to **strategic issues** occur here. Executive **decisions** are usually **unstructured** and are made using **consolidated internal** and **external** information

Managerial Level

Monitoring and **controlling** of operational activities and **executive information support** occur here. Managerial **decisions** are usually **semistructured** and are made using **procedures** and ***ad hoc*** tools

Operational Level

Day-to-day business processes and interactions with customers occur here. Operational **decisions** are usually **structured** and are made using established **policies and procedures**

Management Information Systems Frameworks

End of Lecture 3