Information Systems

Chapter 10

Computing Essentials 2013

© 2013 The McGraw-Hill Companies, Inc. All rights reserved.

Competencies (Page 1 of 2)

- Explain the functional view of an organization and describe each function.
- Describe the management levels and the informational needs for each level in an organization.
- Discuss how information flows within an organization.
- Discuss computer-based information systems.



Competencies (Page 2 of 2)

- Distinguish among a transaction processing system, a management information system, a decision support system, and an executive support system.
- Distinguish between office automation systems and knowledge work systems.
- Explain the difference between data workers and knowledge workers.

Introduction

- An information system is a collection of people, procedures, software, hardware, and data
 - They all work together to provide information essential to running an organization
 - Computers are used in organizations to keep records of events
- Competent end users need to understand how the information flows as it moves through an organization



Organizational Information Flow

- Information flows vertically and horizontally throughout an organization
- Information systems support the natural flow of information within an organization's structure
- <u>5 Functional Areas</u>
- Management Levels
- Information Flow



Five Functions of an Organization

- Accounting
- Marketing
- Human Resources
- Production
- Research

Human resources finds and hires people and handles matters such as sick leave and retirement benefits. In addition, it is concerned with evaluation, compensation, and professional development.

Accounting tracks all financial activity. At HealthWise, this

department records bills

transactions with sporting

and other financial

goods stores, It also

statements, including

financial performance.

budgets and forecasts of

produces financial

Functional perspective

Research conducts basic research and relates new discoveries to the firm's current or new products department. Research people at HealthWise explore new ideas from exercise physiologists about muscle development. They use this knowledge to design new physical fitness machines.

Marketing handles

planning, pricing, promoting, selling, and distributing goods and services to customers. At HealthWise, they even get involved with creating a customer newsletter that is distributed via the corporate Web page. Production takes in raw materials and people work to turn out finished goods (or services). It may be a manufacturing activity or—in the case of a retail store—an operations activity. At HealthWise, this department purchases steel and aluminum to be used in weight-lifting and exercise machines.



Management Levels

Management is usually divided into three levels: Top, Middle, and Supervisors



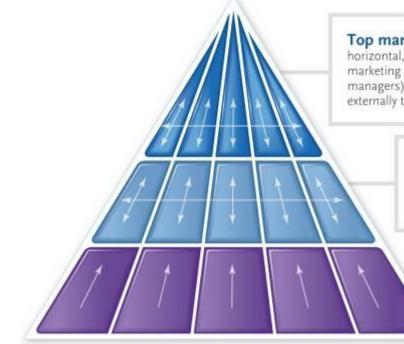
Information Flow (Page 1 of 2)

- Each level of management has different information needs
- The information flows to support these needs
 - Top management
 - Vertical, horizontal, and external
 - Middle management
 - Vertical and horizontal
 - Supervisor
 - Primarily vertical



Information Flow (Page 2 of 2)

Information flow



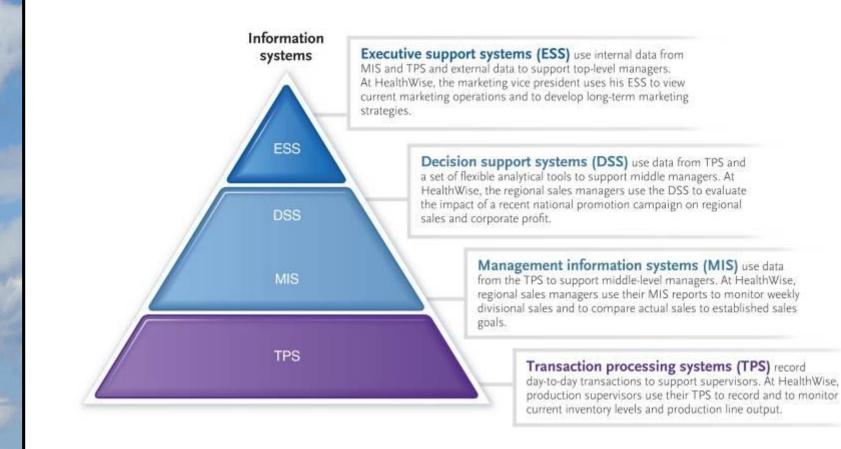
Top managerial-level information flow is vertical, horizontal, and external. At HealthWise, the vice president of marketing communicates vertically (with regional sales managers), horizontally (with other vice presidents), and externally to obtain data to forecast sales.

> Middle managerial-level information flow is vertical and horizontal. At HealthWise, regional sales managers communicate vertically (with district sales managers and the vice president of marketing) and horizontally with other middle-level managers.

> > Supervisory-level information flow is primarily vertical. At HealthWise, production supervisors monitor worker activities to ensure smooth production. They provide daily status reports to middle-level production managers.

<u>Return</u>

Computer-Based Information Systems



Transaction Processing Systems (TPS)

- Records day-to-day transactions in a database
- Also called data processing systems (DPS)
- One of the most essential uses of a TPS is in <u>Accounting</u>

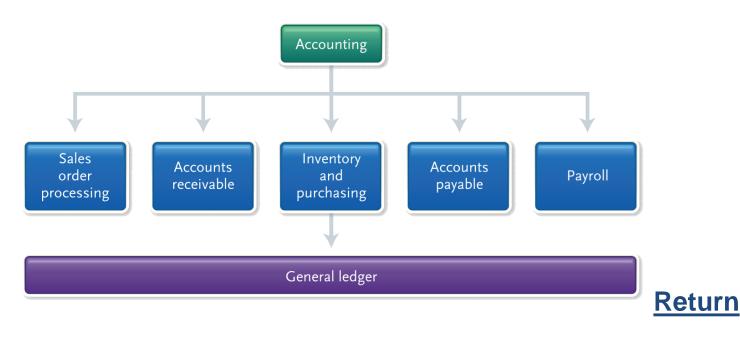


Computing Essentials 2013

 $\ensuremath{\mathbb{C}}$ 2013 The McGraw-Hill Companies, Inc. All rights reserved.

TPS for Accounting

- Sales order processing
- Accounts receivable
- Inventory and purchasing



Management Information Systems (MIS)

- Produces standardized reports to support decision-making by middle managers
- Integrates data and summarizes details from databases in a structured form
- Produces predetermined reports
 - Periodic reports
 - Exception reports
 - Demand reports

	HealthWise Group Regional Sales Report				
Region	Actual Sales	Target	Difference		
Central	\$166,430	\$175,000	(\$8,570)		
Northern	137,228	130,000	7,228		
Southern	137,772	135,000	2,772		
Eastern	152,289	155,000	(2,711)		
Western	167,017	160,000	7,017		

Decision Support Systems (DSS)

- Flexible tool for analyzing data for decisionmaking purposes
- Enables managers to get answers to unexpected and generally non-recurring problems
 - Reports do not have a fixed format
- Microsoft Access is often used to provide an easy front-end interface for performing SQL decision support queries

¥ 000	1983 - 198 ● 7 9 = = = = Δ - ⊇ - ⊞ - == 198	" (#. (#. 1)) (#. (1)) (%) (#. (#. 1)) (#. (1)) (%) (#. (#. 1)) (#. (#. 1)) (%) (#. (#. 1)) (#. (#. 1)) (%) (#. (#. 1)) (%) (#. (#. 1)) (#. (#. (#. 1)) (%) (#. (#. 1)) (#. (#. 1)	and Server A. S. Trackers and Server 27 Spectrang 28 Strackers	H YO A
Sales	1 - 1 Anton] - D Balles Queen			
III tare faire	Territory	Month *	Sales -	Quota *
S Inter Guerr	East	May	\$35,000.00	\$44,000.00
	East	June	\$43,000.00	\$44,889.00
	East	July .	\$45,782.00	\$53,994.00
	East	August	\$35,982.00	\$39,853.00
	Mideast	May	\$23,478.00	\$45,787.00
	Midnast	June	\$43,985.00	\$48,764.00
	Mideast	July	\$39,488.00	\$49,884.00
	Mideast	August.	\$23,894.00	\$38,732.00
	West	April	\$23,477.00	\$23,757.00
	West	June	\$23,474.00	\$23,487.00
	West	July	\$23,074.00	\$23,487.00
	Midwest	March	\$23,478.00	\$38,748.00
	Midwest	May	\$23,847.00	\$23,874.00
	Midwest	August	\$23,485.00	\$24,499.00

Parts of a DSS

User

- A decision-maker, like yourself
- System software
 - Operating system
 - Easy to learn and use
- Data
 - Internal data
 - External data
- Decision models



DSS Decision Models

Strategic models

- Assists top level management in long-range planning
- Tactical models
 - Assists middle-management control the work
 - Financial and sales promotion planning
- Operational models
 - Assists lower-level managers accomplish the daily activities and objectives

Executive Support Systems (ESS)

- Designed for top management
- Sophisticated software for presenting, summarizing, and analyzing data, but specifically designed to be easy-to-use
- Provides immediate access to a company's key performance indicators



Other Information Systems

- Information workers
 - Data workers
 - Knowledge workers
- Office automation systems (OASs)
 - Supports data workers
 - Project management programs
 - Videoconferencing systems
- Knowledge work systems (KWSs)
 - Use specialized systems, such as CAD/CAM



Careers In IT

- Information systems managers oversee the work of programmers, computer specialist, systems analysts, and other computer professionals
- Employers look for individuals with strong technical backgrounds, with a Master's degree
 - Strong leadership and communications skills
- Information systems managers can expect to earn from \$79,000 to \$129,500 annually



A Look to the Future

- Information overload
 - May have a negative effect
 - E-mail is one of the major sources of overload



- How to handle e-mail
 - Be selective
 - Remove
 - Protect
 - Be brief
 - Stop spam
 - Don't respond

Open-Ended Questions (Page 1 of 2)

- Name and discuss the five common functions of most organizations.
- Discuss the roles of the three kinds of management in a corporation.
- What are the four most common computerbased information systems?

Open-Ended Questions (Page 2 of 2)

- Describe the different reports and their roles in managerial decision making.
- What is the difference between an office automation system and a knowledge work system?