Experiencing MIS

Fifth Canadian Edition

Chapter 2

Business Processes and Decision Making

Q2-1: How Did This Stuff Get Here?

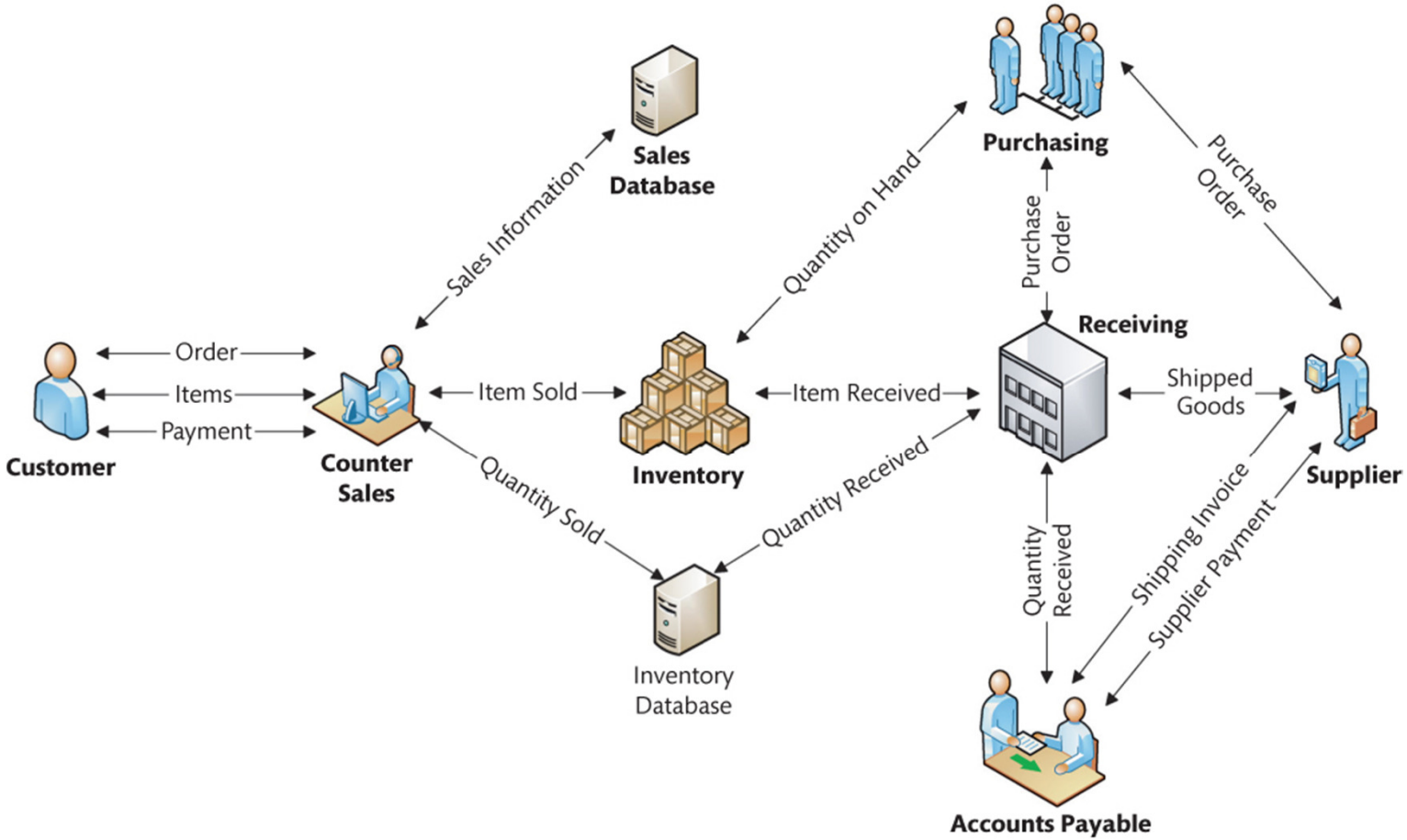
- Business processes must work together
- Each business must
  - Obtain payment
  - Cover costs
  - Make profit
- A cup of coffee at the Tim Hortons
  - Ordering
  - Receiving
  - Storing
  - Paying

Q2-2: What Is a Business Process? (1 of 3)

- A **business process** is a series of activities, tasks or steps designed to produce a product or service
- Sometimes referred to as a **business system**
- Example:

Inventory management processes → manufacturing processes → sales processes → customer support processes

Figure 2-1
Model of a Sales and Inventory-management Business Process



Q2-2: What Is a Business Process? (2 of 3)

- Sales and inventory elements (see Fig 2-1) are often considered part of the "supply chain"
- Managing inventory is a business process, with the goal of ensuring enough inventory to fulfill customer requests, but not to much so that goods could spoil
- inventory management balances demands of customers with inventory purchased

Q2-2: What Is a Business Process? (3 of 3)

- Purchasing is an activity in inventory management
- how does a Tim Hortons manager know how much to purchase?
  - **Inventory management system**
  - Data base collects information (quantity ordered, quantity on hand)
  - When stock gets low, inventory management system alerts manager to re-order ("reorder point")
  - Purchase Order is created and sent to supplier
  - Supplier receives and ships

Q2-3: What Are the Components of a Business Process?

- A business process consists of:
  - Activities
  - Resources
  - Facilities
  - Information

Activities

- Activities transform resources and information of one type into resources and information of another type
- Follow rules and procedures
- Can be manual, automated, or combination
- Example:
  - Payment (activity) transforms quantity received (information) and shipping invoice (information) into supplier payment (resource)

Resources

- items of value
- Can be external to organization
- Examples:
  - Cash
  - Workers
  - Customers
  - Suppliers

Facilities

- structures used within the business process
- Resources can be stored within facilities
- Examples:
  - Factories
  - Equipment
  - Inventories
  - Databases

Information

- Activities use information to determine how to transform the inputs received into the outputs produced
- Information created in processes is a key focus on this book.
- Business processes **create** information
- **Business Process Modeling Notation** is a standard used to document a business process.

What Is Information? (1 of 2)

- Knowledge derived from data
  - Data: recorded facts or figures
  - How much you earn per hour in your industry = *data*
  - The average hourly wage in your industry = *information*
- Data presented in a meaningful context

What Is Information? (2 of 2)

- Processed data
  - Processed by summing, ordering, averaging, grouping, comparing, or other similar operations (that is, we *do* something to data to produce information)
- A difference that makes a difference
  - If you get new information and it does not make a difference to your decision, is what you received really information?

Characteristics of Good Information (1 of 2)

- **Accurate**
  - Based on correct and complete data, processed correctly
  - Crucial for management
  - Seemingly accurate data can be incorrect: Cross-check information to ensure accuracy
- **Timely**
  - Produced in time for intended use
- **Relevant**
  - To the context
  - To the subject

Characteristics of Good Information (2 of 2)

- **Just Barely Sufficient**
  - Sufficient for purpose for which generated
  - Do not need additional, extraneous information
  - Knowing what information to ignore is difficult
- **Worth Its Cost**
  - Relationship between cost and value
  - Information systems cost money to develop, maintain, and use
  - Must be worth the cost

Q2-5: What Is the Role of Information in Business Processes?

- Business process of moving actual goods and providing services to real people
  - Data and information are always created
  - For any physical flow, there is potential to capture a flow of information
  - For any flows of service, there is potential flow of data and information
- Business processes generate information
  - Brings together important items of data in a context
- Information is useful to manage business processes

Business Process Management (BPM)

- A field of management that promotes the development of effective and efficient processes through continuous improvement and innovation
- Methods of BPM
  - Total Quality Management (TQM)
  - Six Sigma
  - Lean Production
- Information about the process helps to better manage the process itself

Q2-6: How Do Information Systems Support Business Processes?

- Used by activities in a business process
  - Several activities may use one system
  - Activity may have own system
  - Activity may use several systems
- Analysts and designers determine relationship of activities to information systems
  - Relationship determined during systems analysis

What Does It Mean to Automate a Process Activity? (1 of 2)

- Recall the five components of an IS, introduced in Chapter 1
  - Hardware, software, data, procedures, people
- The outermost components hardware and people, are both actors; they can *take actions*

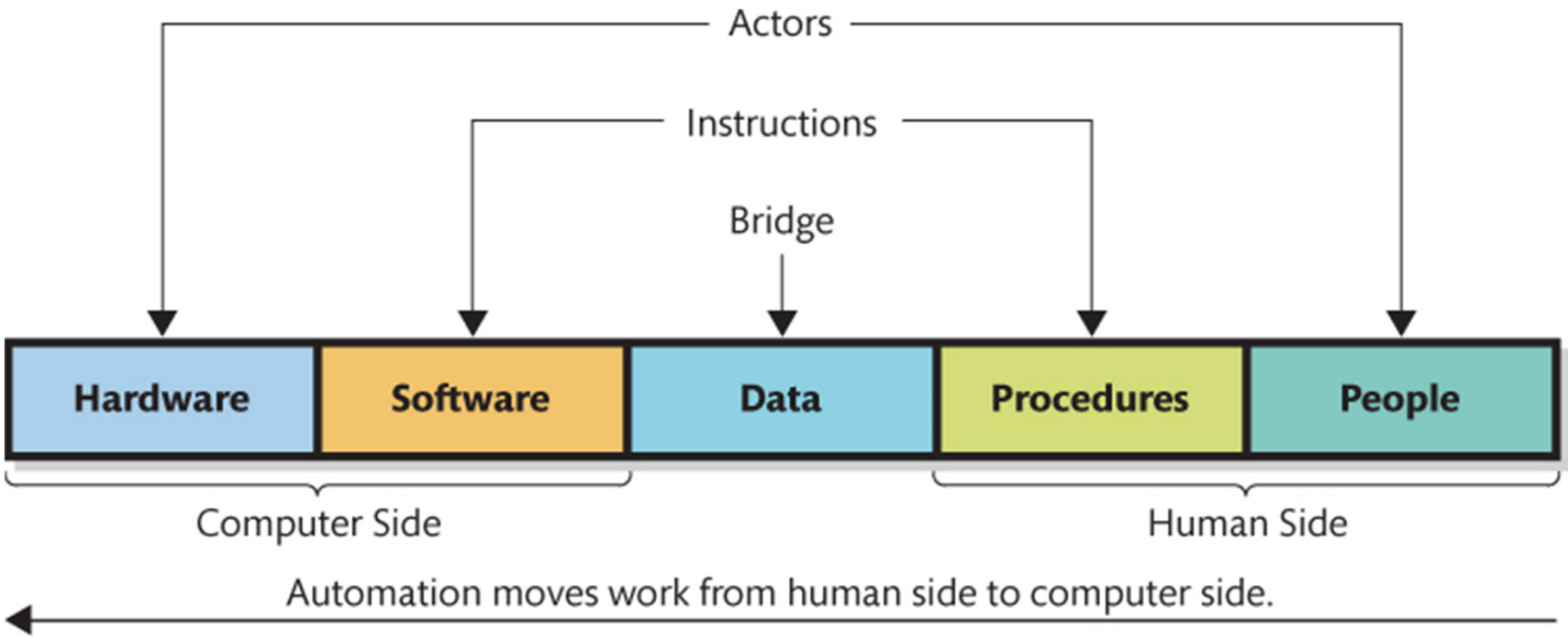
What Does It Mean to Automate a Process Activity? (2 of 2)

- The software and procedure components are both *sets of instructions*: software is instructions for hardware, and procedures are instructions for people
- Finally, data is the *bridge* between the computer side on the left and the human side on the right

Automation of Process Activity

- Automation of processes
  - Transfer work done by people to computers
  - People follow procedures
  - Computers follow software instructions
- Moving work from human side to computer side

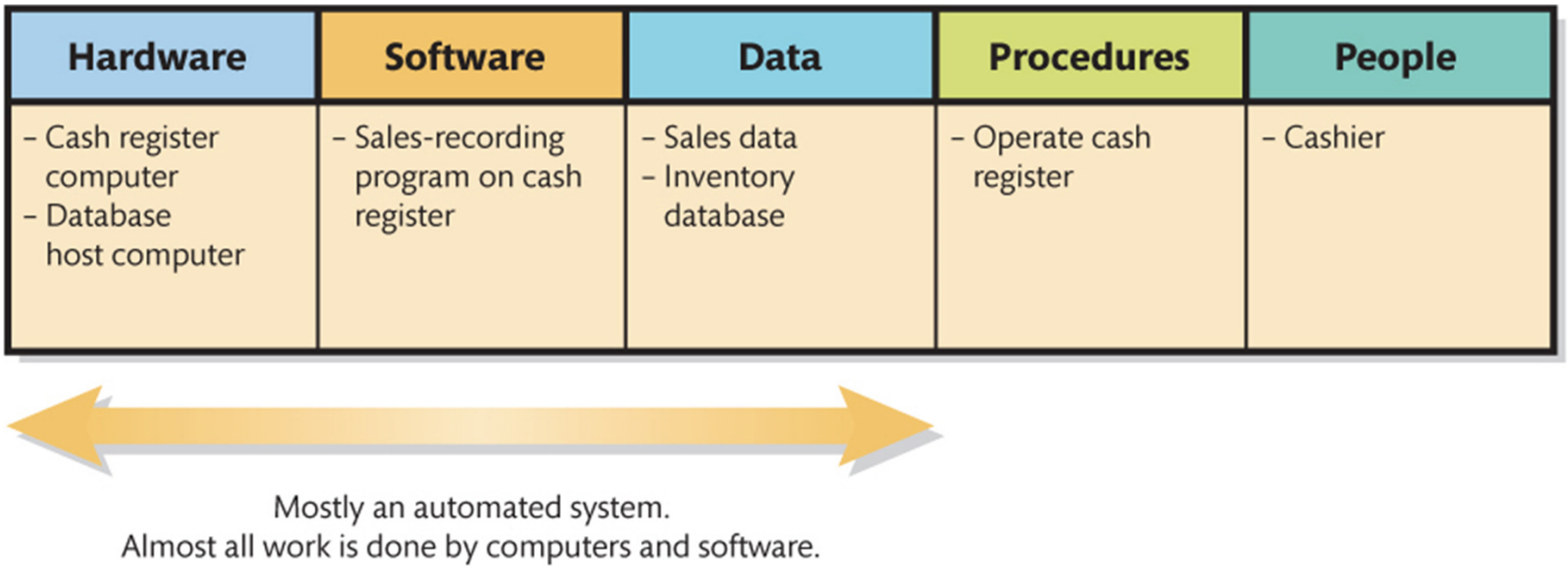
Figure 2-4
Characteristics of the Five Components



An Information System to Support Counter Sales

- Fully automated
  - Cashiers do not require extensive training
  - Cashiers are trained only in how to use cash register
  - Cashiers do not work directly with programs on computer
- Computer in cash register communicates with computer that hosts Inventory Database
- Programs record sales and makes changes

Figure 2-5
Sales Recording Information System Used by Counter Sales in Figure 2-1



Information System to Support Payment

- Payment receives *Quantity Received* and *Shipping Invoice* and produces *Supplier Payment*
- Mostly manual
  - Accounts Payable Clerk reads documents and issues payment or investigates discrepancies
  - Processing exceptions complicated
    - Programming expensive
    - Probably not effective

Figure 2-6
Information System to Support Payment

Hardware	Software	Data	Procedures	People
– Personal computer	– Adobe Acrobat Reader – Email	– Quantity Received – Shipping Invoice	– Reconcile receipt document with invoice. – Issue payment authorization, if appropriate. – Process exceptions	– Accounts payable

Mostly a manual system.
Little work is done by computers and software.
Most work is done by Accounts Payable clerk.

An Information System to Support Purchasing

- Purchasing clerk computer runs program that queries database and identifies stock levels and generates Purchase Order
- Designers balanced work between automation and manual activity
  - Searching database is repetitive
    - Automated process
  - Selecting suppliers is complicated
    - Manual process

Figure 2-7
Information System to Support Purchasing

Hardware	Software	Data	Procedures	People
– Personal computer – Database host computer	– Inventory application program – Purchasing program	– Inventory database	– Issue Purchase Order according to inventory management practices and guidelines	– Purchasing clerk

Balance between computer and human work.

Q2-7: How Do Information Systems Support Decision Making?

- Data are an important part of any information system
- Data can be transformed into information
- Information is an important starting point for decision making in many organizations
- IS support decision making by providing the information—the raw material—for many decisions
- Decision making in organization is varied and complex

Decisions Vary by Level

Decisions occur at three levels in organizations

1. **Operational** decisions concern day-to-day activities
   - Supported by transaction processing systems (TPS)
2. **Managerial** decisions concern the allocation and utilization of resources
   - Supported by management information systems (MIS)
3. **Strategic** decisions concern broader-scope, organizational issues

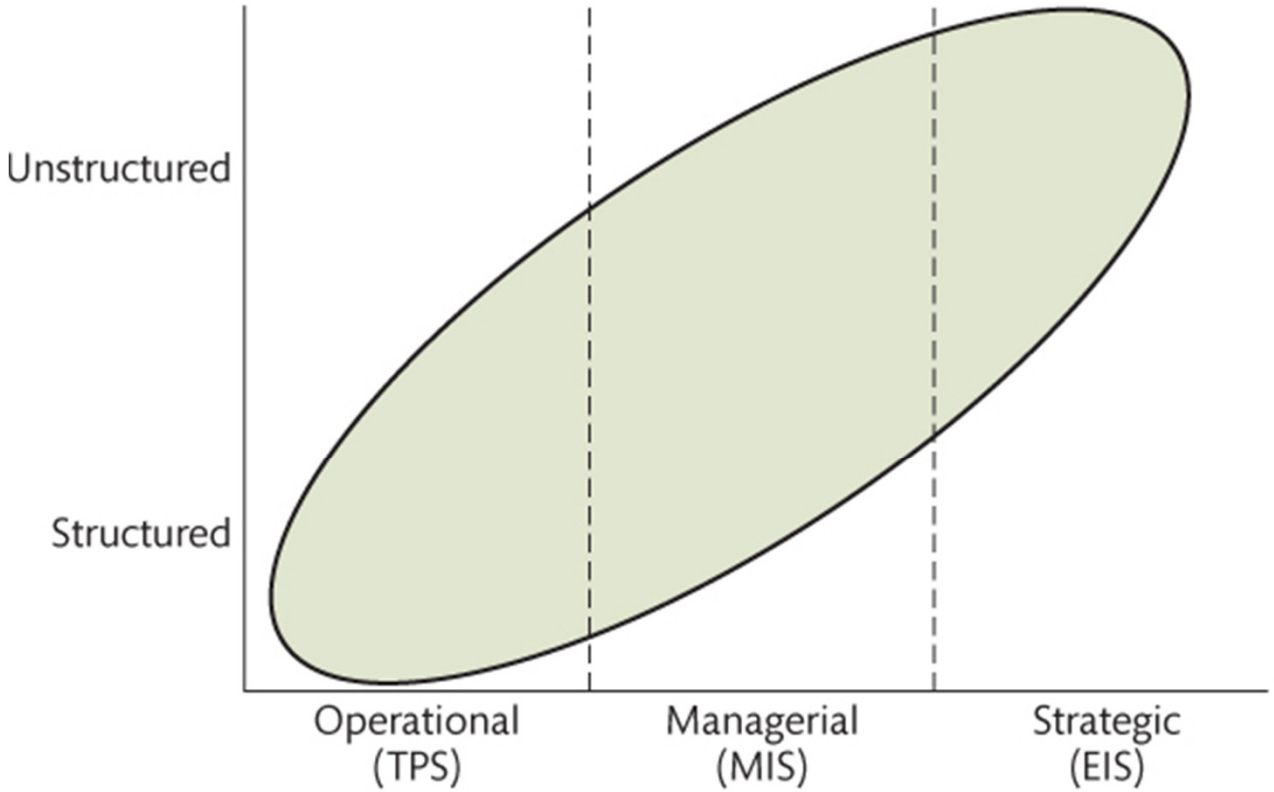
Decisions Vary by Structure

Decision processes:

1. **structured decision** has an understood and accepted method for making the decision
2. **unstructured decision** does not have an agreed-on decision-making method

- Note: terms structured and unstructured refer to the decision process/method, not to the underlying subject/problem
  - Example of Structured - weather forecasting
  - Example of Unstructured – weather itself

Figure 2-9
Relationship of Decision Level and Decision Making Process



Supporting Decision Making

- Decisions at **operational level** usually **structured**
- Decisions at **strategic level** usually **unstructured**
- Typical steps in decision making process:
  - Intelligence gathering
  - Formulation of alternatives
  - Choice
  - Implementation
  - Review
- Each decision making step needs a different type of IS

Intelligence Gathering

- **Decision makers**
  - Determine what is to be decided?
  - Determine what are the decision criteria?
  - Obtain relevant data
- **Examples of possible information systems**
  - Communications applications (email, presentations)
  - Query and reporting systems
  - Data analysis applications

Alternatives Formulation

- Decision makers lay out various **alternatives**
  - What are the choices?
- Decision makers **analyze** the alternatives
- Examples of possible information systems
  - Communications applications

Choice

- Decision makers **analyze** the alternative choices
- Decision makers **select** one choice

- Examples of possible information systems
  - Spreadsheets
  - Financial modelling
  - Other modelling

Implementation

- Decision makers **implement** the decision
- Make it so!

- Examples of possible information systems
  - Communications applications

Review

- Organization **reviews** the results of the decision
- May lead to another **decision** and another **iteration** through the decision process

- Examples of possible information systems
  - Communications applications
  - Query and reporting systems
  - Spreadsheets and other analysis

Q2-8: What Is Your Role?

- You are part of every IS you use
- Remember the five components of IS
- Most important component of IS - people
  - Must be able to use information system
  - Quality of your thinking