

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

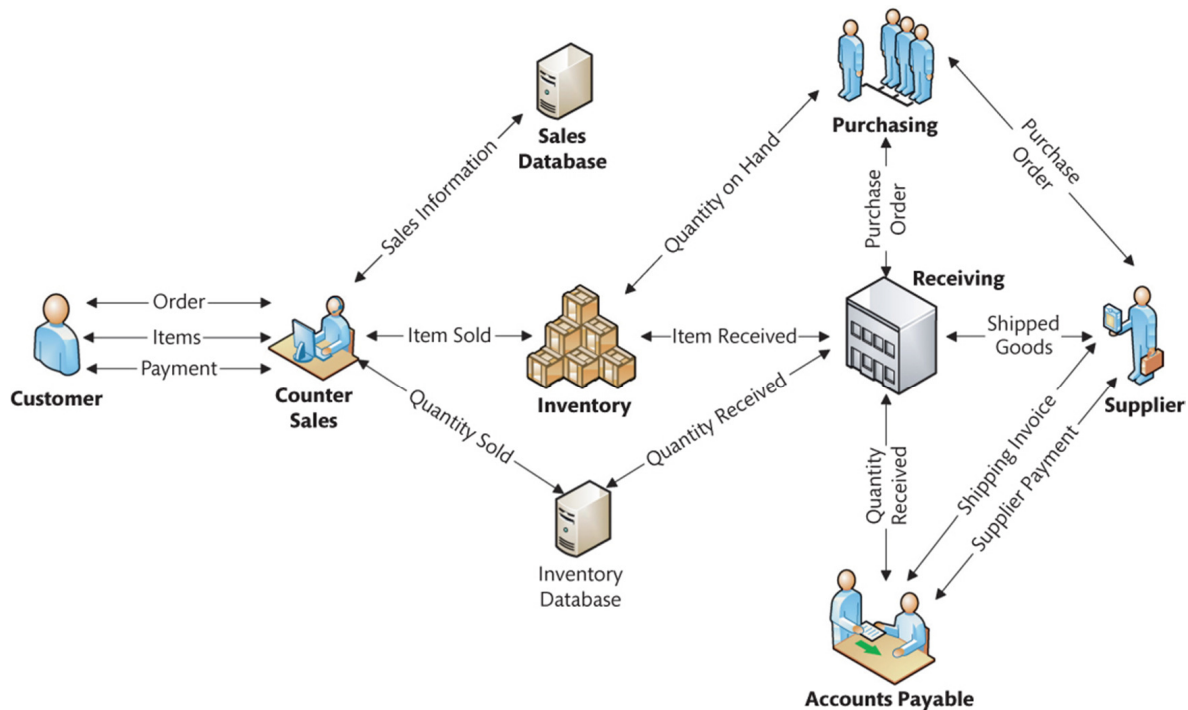
Q2-2: What Is a Business Process? (1 of 3)

- 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



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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)

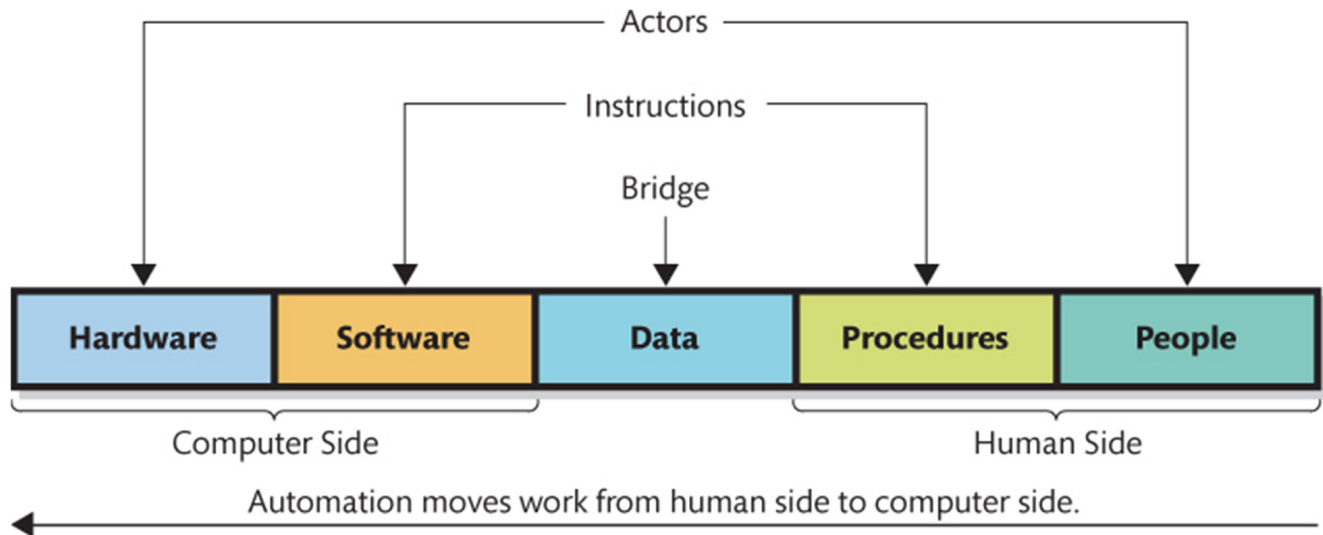
- The software and procedure components are both *sets of instructions*: software is instructions for hardware, and procedures are instructions for people
- Finally, data is the *bridge* between the computer side on the left and the human side on the right

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



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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

Hardware	Software	Data	Procedures	People
<ul style="list-style-type: none">- Cash register computer- Database host computer	<ul style="list-style-type: none">- Sales-recording program on cash register	<ul style="list-style-type: none">- Sales data- Inventory database	<ul style="list-style-type: none">- Operate cash register	<ul style="list-style-type: none">- Cashier



Mostly an automated system.
Almost all work is done by computers and software.

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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
<ul style="list-style-type: none">- Personal computer	<ul style="list-style-type: none">- Adobe Acrobat Reader- Email	<ul style="list-style-type: none">- Quantity Received- Shipping Invoice	<ul style="list-style-type: none">- Reconcile receipt document with invoice.- Issue payment authorization, if appropriate.- Process exceptions	<ul style="list-style-type: none">- 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
<ul style="list-style-type: none">- Personal computer- Database host computer	<ul style="list-style-type: none">- Inventory application program- Purchasing program	<ul style="list-style-type: none">- Inventory database	<ul style="list-style-type: none">- Issue Purchase Order according to inventory management practices and guidelines	<ul style="list-style-type: none">- Purchasing clerk



Balance between computer and human work.

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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

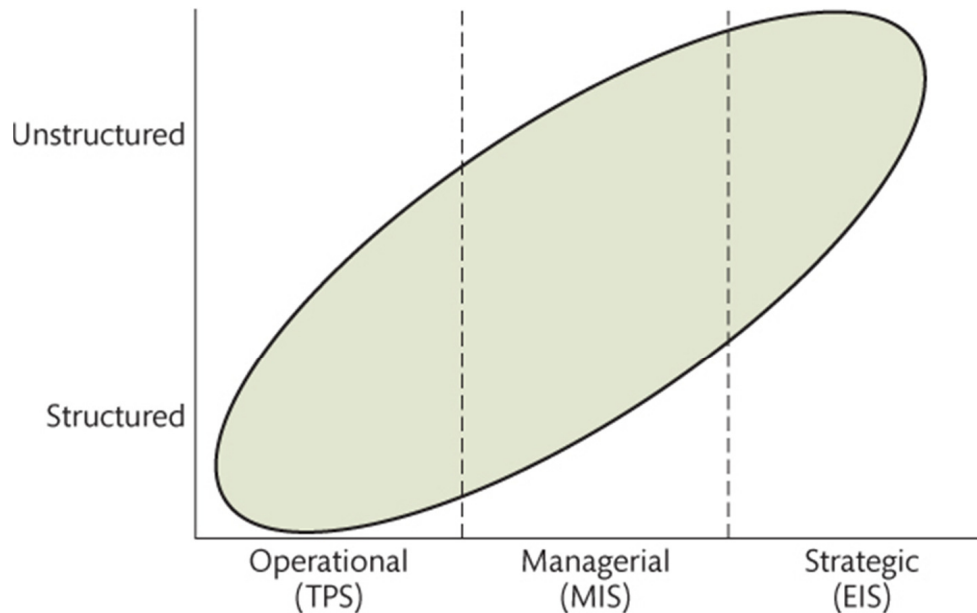
Decisions Vary by Structure

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



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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