IS and E-business

Lecture 1 - EIS

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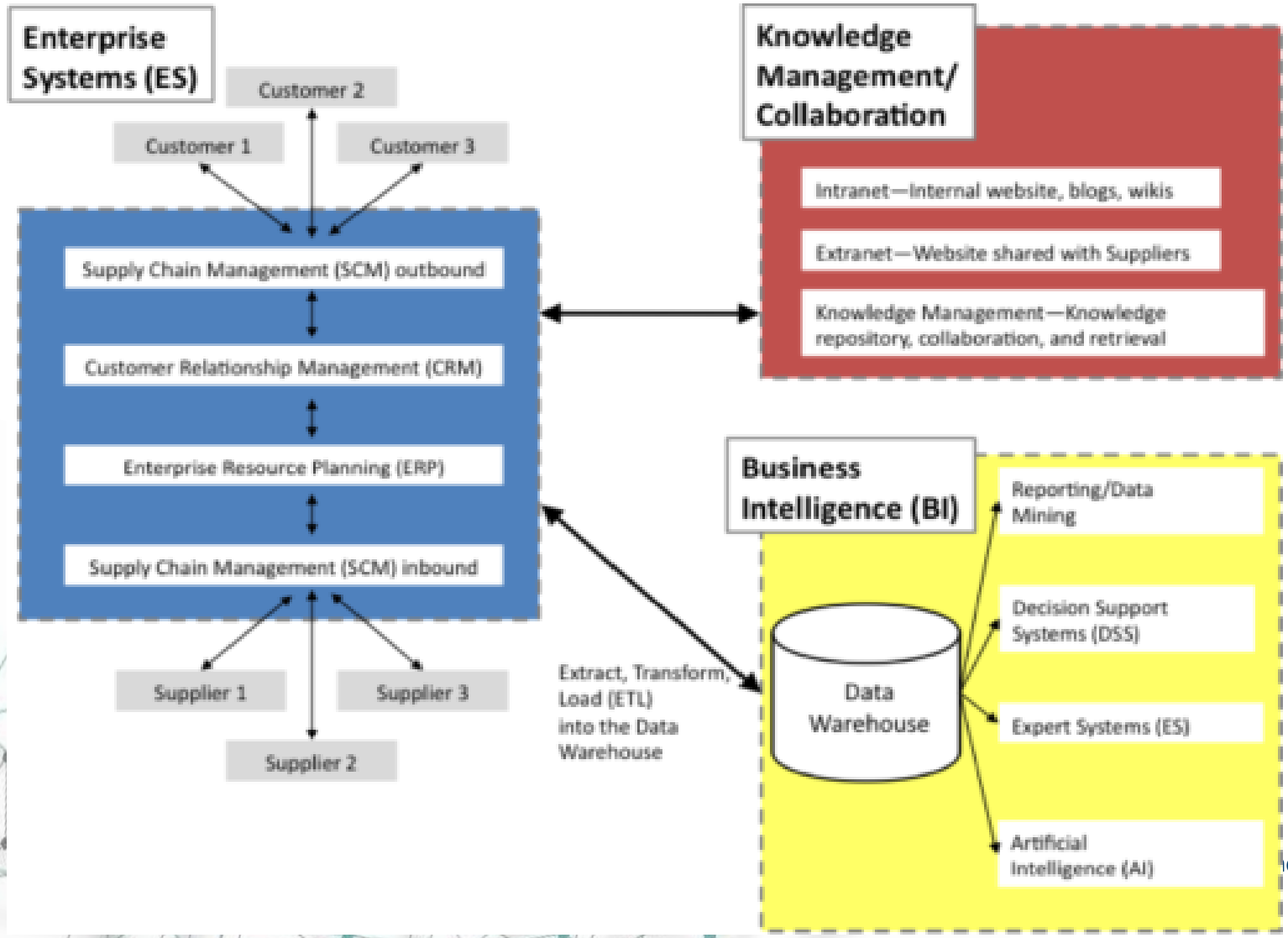
Introduction



Introduction

- Information system (IS):

a **set** of **interrelated components** that **collect, manipulate,** and **disseminate** data and **information** and provide feedback to meet an objective

- Information system feedback can help organizations:
  - Achieve their goals
  - Increase revenues and reduce costs

Data, Information, and Knowledge

- **Data**: raw facts
- **Information**: **collection of facts organized** in such a way that they have value beyond the facts themselves - One of an organization's most valuable resources
- **Knowledge**: **awareness** and understanding of a set of information and the ways it can be made **useful** to support a task
- **Process**: set of **logically related tasks** performed to achieve a defined outcome

WHAT IS DATA?

- **Data** can be defined as **"a collection of facts from which conclusions may be drawn"**

- Put in another way, **data** are **distinct pieces of factual information used as a basis for reasoning; a "given" or fact; a number, a statement, or a picture, discussion, or calculation**

- **Data is the raw material – the input – of information**

WHAT IS INFORMATION?

- The word *information* is derived from Latin ***informare*** which means "**give form to**".
- Information can thus be defined as data that has been processed, manipulated and organised in a way suitable for *human interpretation* and that adds to the *knowledge* of the person receiving it
- Information is usually compiled in response to a specific need and often with the purpose of revealing trends or patterns

WHAT IS KNOWLEDGE?

- **Knowledge** is "a fluid mix of experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information.“

- Knowledge can further be described as the **awareness and understanding of interconnected details, facts, truths or information gained through experience or learning**, which, in isolation, are of lesser value.

- In other words, knowledge is about what one knows and understands

WHAT IS KNOWLEDGE…cont?

- **Knowledge** can be categorised as either **unstructured or structured or explicit or tacit.**
- **What one knows one knows is explicit knowledge.**
- **Knowledge that is unstructured and understood, but not clearly expressed is implicit knowledge.**
- **If the knowledge is organised and easy to share then it is called structured knowledge.**
- **To convert implicit knowledge into explicit knowledge, it must be extracted and formatted**

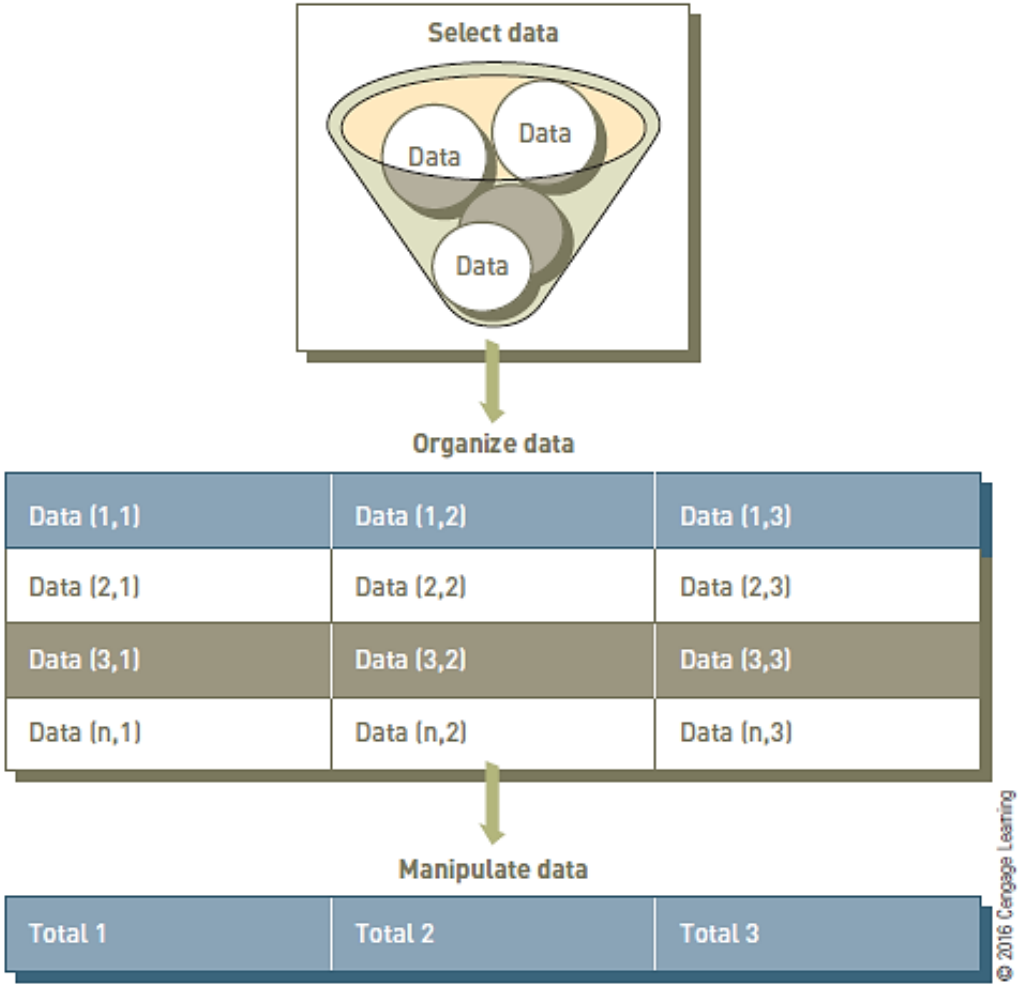
WHY DO PEOPLE NEED INFORMATION?

- **Decision-making**
- **Problem-solving**
- **Entertainment**
- **Enlightenment**

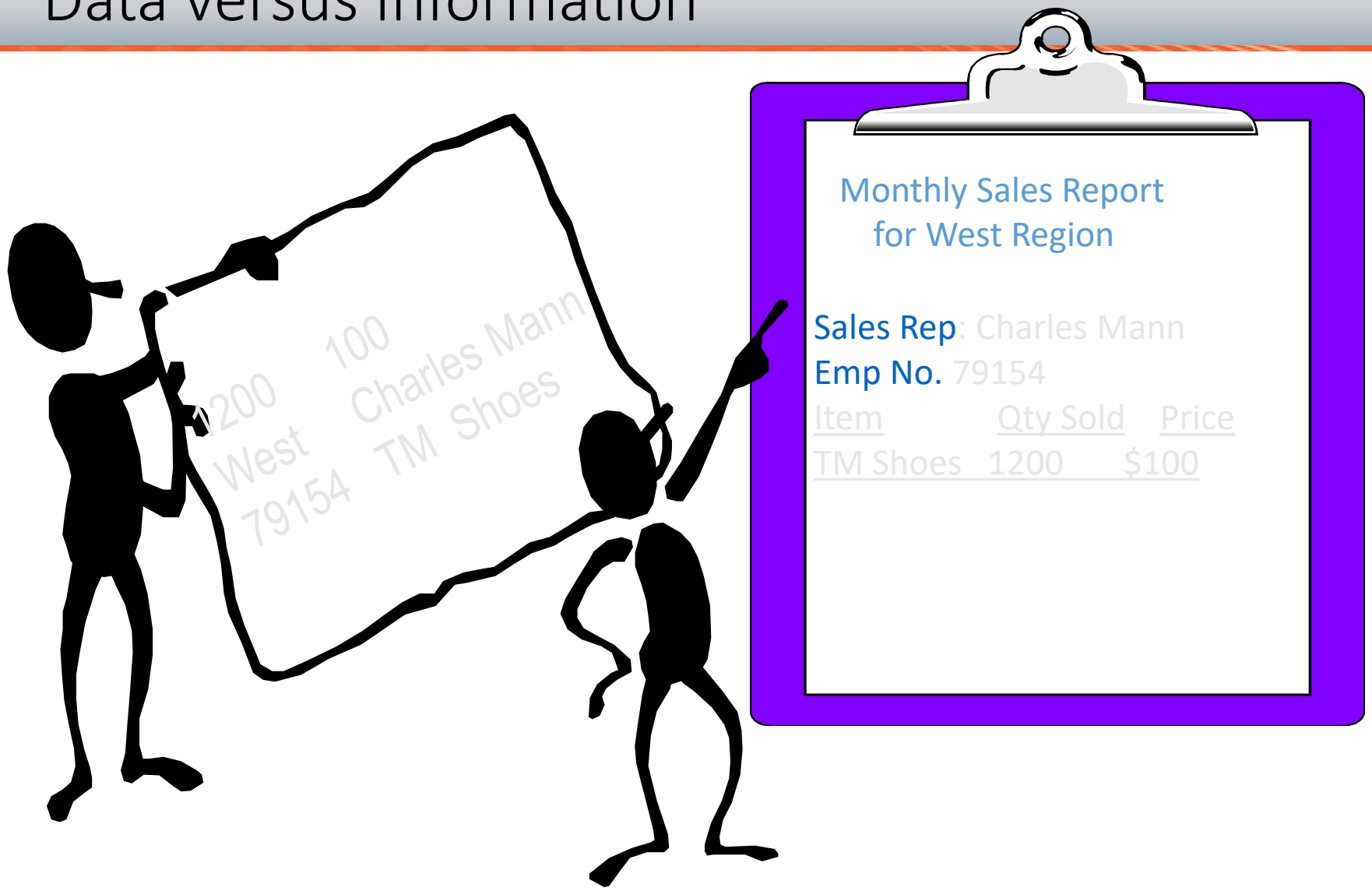
Table 1.1 Types of Data

Data	Represented By
Alphanumeric data	Numbers, letters, and other characters
Audio data	Sounds, noises, or tones
Image data	Graphic images and pictures
Video data	Moving images or pictures

Process of Transforming Data into Information



Data versus Information



Attributes of Information Quality

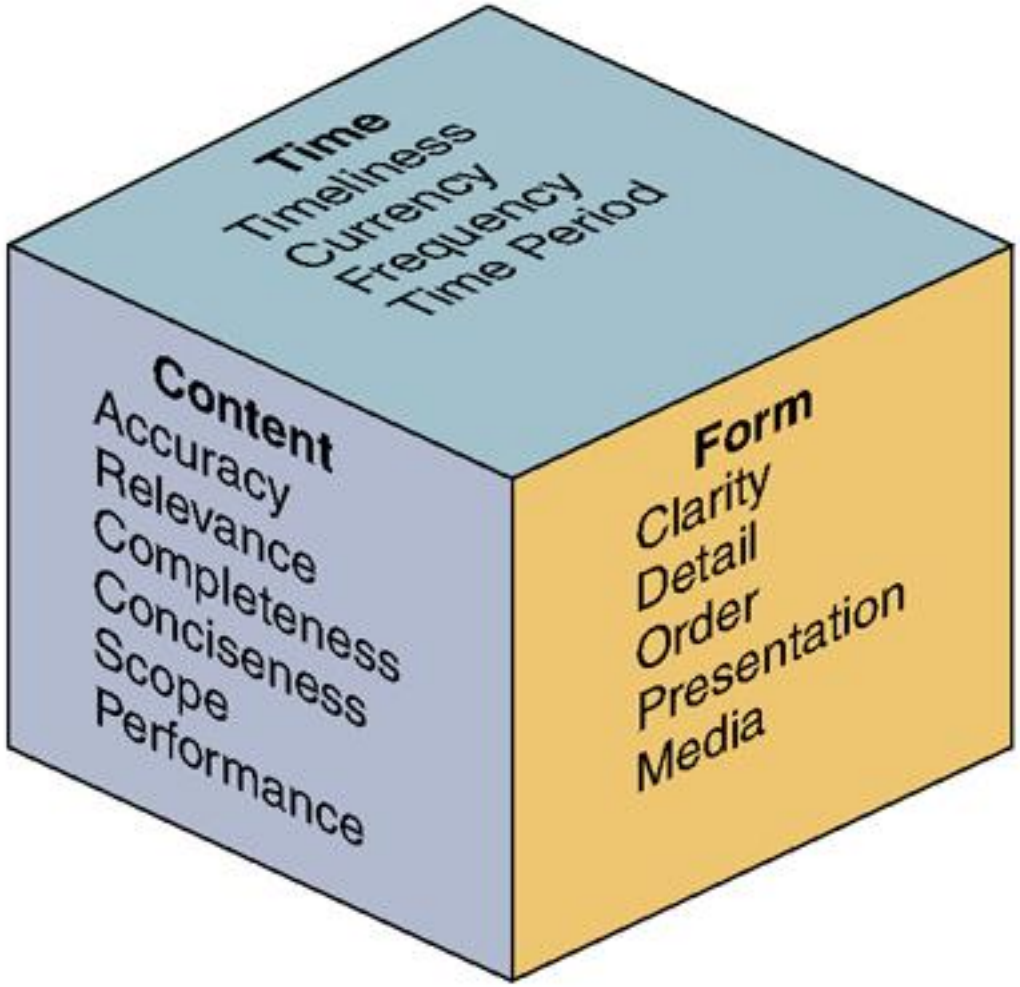


Table 1.2 Characteristics of Valuable Information

Characteristics	Definitions
Accessible	Information should be **easily accessible** by authorized users so they can obtain it in the **right format** and at the **right tim**e to meet their needs.
Accurate	Accurate **information is error free**. In some cases, inaccurate information is generated because inaccurate data is fed into the transformation process. This is commonly called garbage in, garbage out (GIGO).
Complete	Complete information contains **all the important facts.** For example, an investment report that does not include all important costs is not complete.
Economical	Information should also be relatively **economical to produce**. Decision makers must always **balance the value of information with the cost of producing it**.
Flexible	Flexible information can be **used for a variety of purposes**. For example, information on how much inventory is on hand for a particular part can be used by a sales representative in closing a sale, by a production manager to determine whether more inventory is needed, and by a financial executive to determine the total value the company has invested in inventory.
Relevant	Relevant information is **important to the decision maker**. Information showing that lumber prices might drop might not be relevant to a computer chip manufacturer.

Table 1.2 Characteristics of Valuable Information (cont'd.)

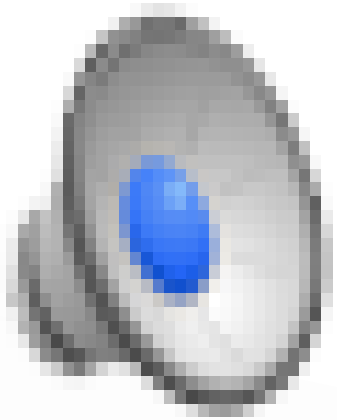
Characteristics	Definitions
Reliable	Reliable information can **be trusted by users**. In many cases, the reliability of the information depends on the **reliability of the data-collection method**. In other instances, reliability depends on the **source of the information**. A rumor from an unknown source that oil prices might go up might not be reliable.
Secure	Information should be **secure from access by unauthorized** users.
Simple	Information should be **simple**, not complex. Sophisticated and detailed information might not be needed. In fact, **too much information** can **cause information overload**, whereby a decision maker has too much information and is unable to determine what is really important.
Timely	Timely information is **delivered when it is needed**. Knowing last week's weather conditions will not help when trying to decide what coat to wear today.
Verifiable	Information should be verifiable. This means that you **can check it to make sure it is correct**, perhaps by checking many sources for the same information.

The Characteristics of Valuable Information

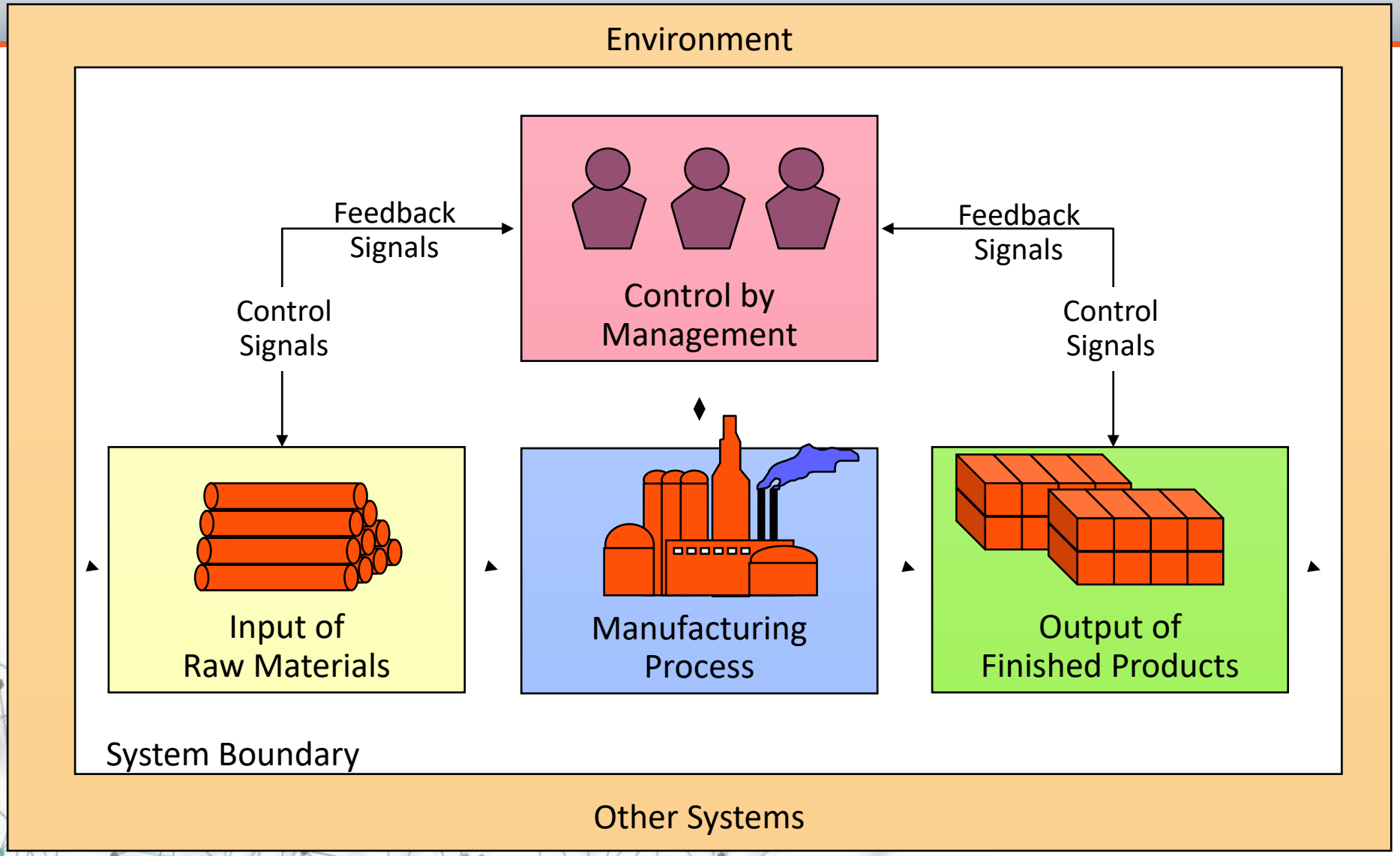
- The **value of information** is directly linked to **how it helps** decision makers achieve their organization's goals

- **Accuracy** (precisão) and **completeness** (integridade) are critical for data used in accounting for the management of company assets, e.g., cash, inventory, and equipment

Data – Google data center

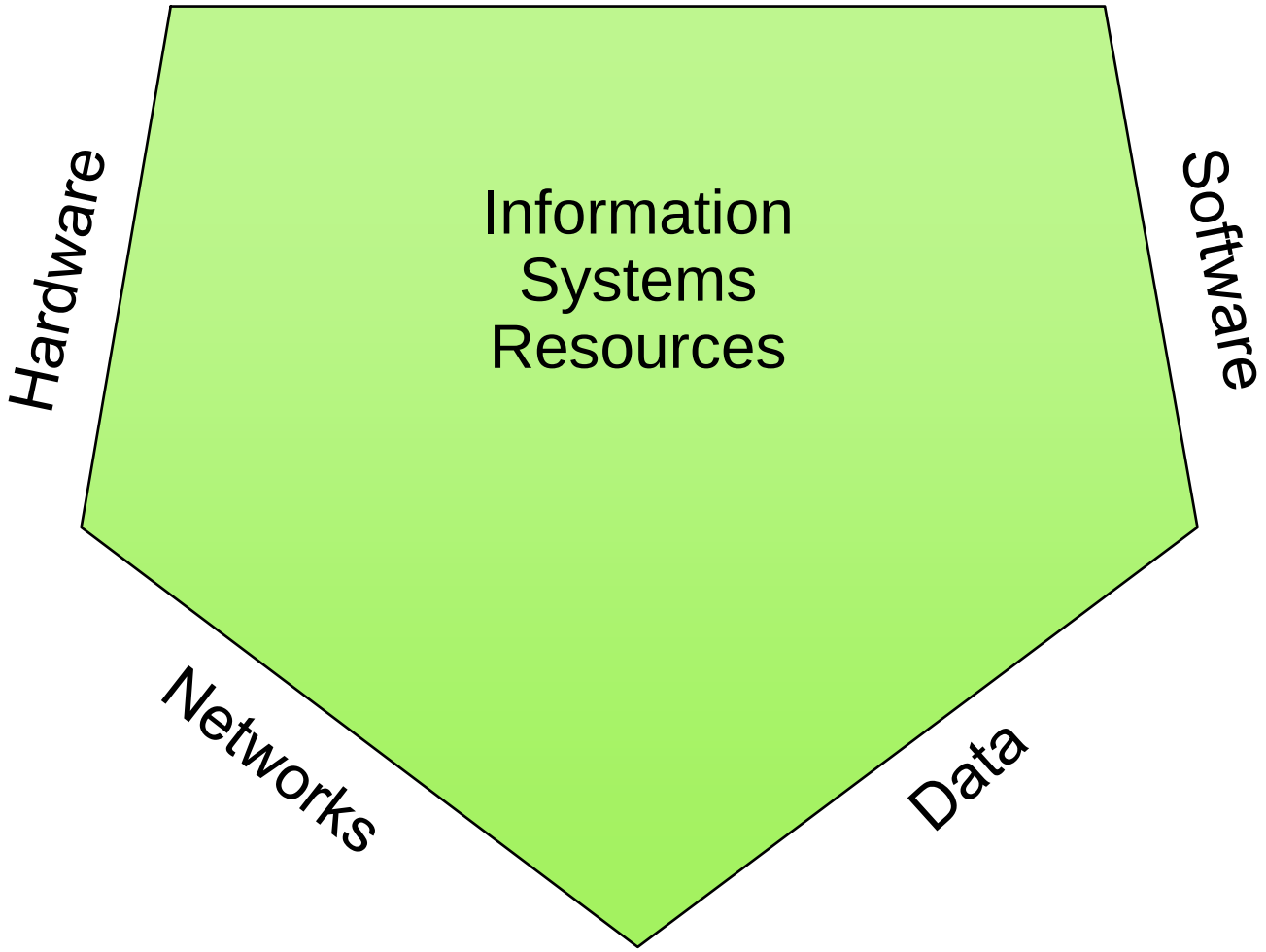


What is a System?

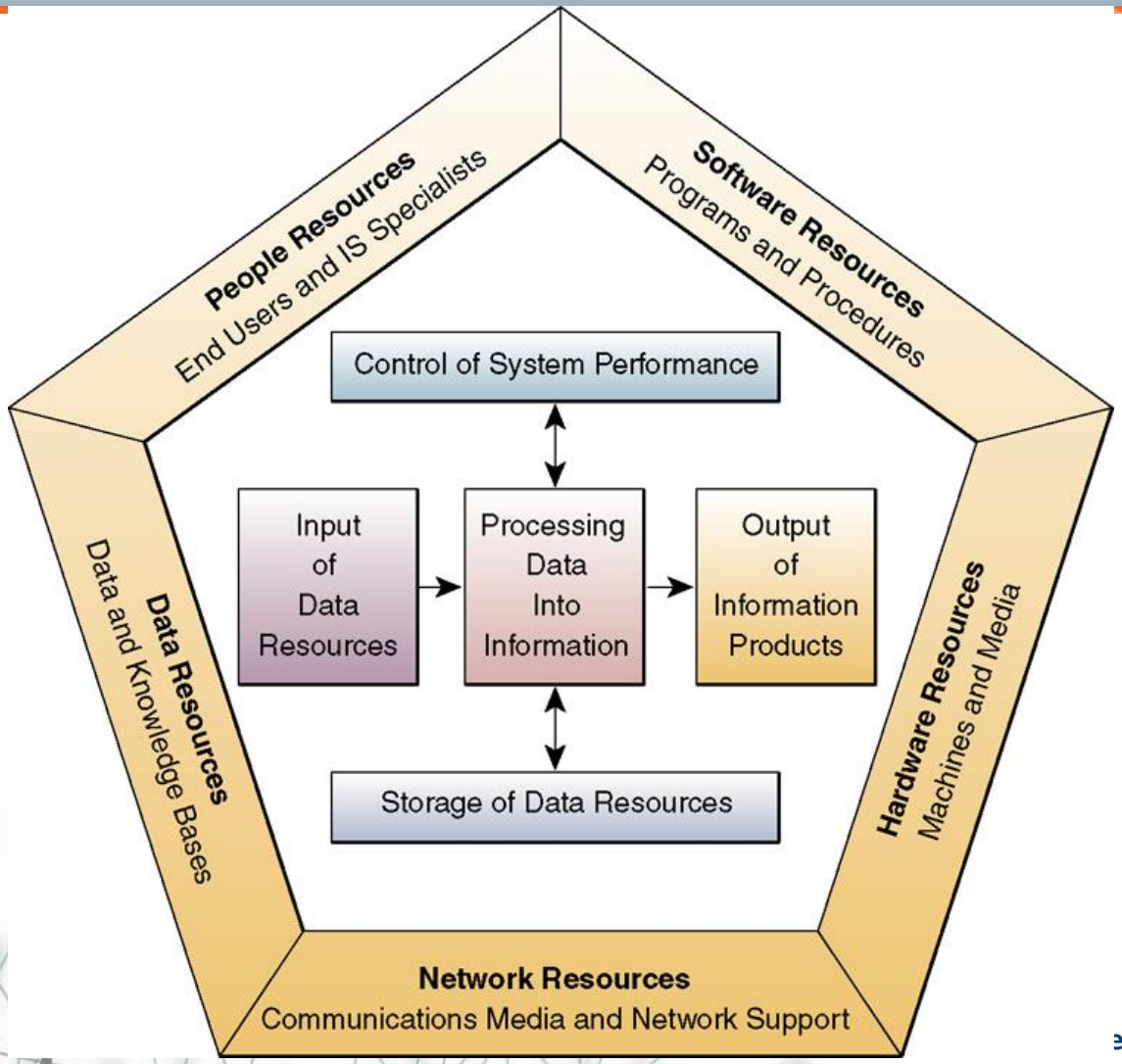


Components of an Information System

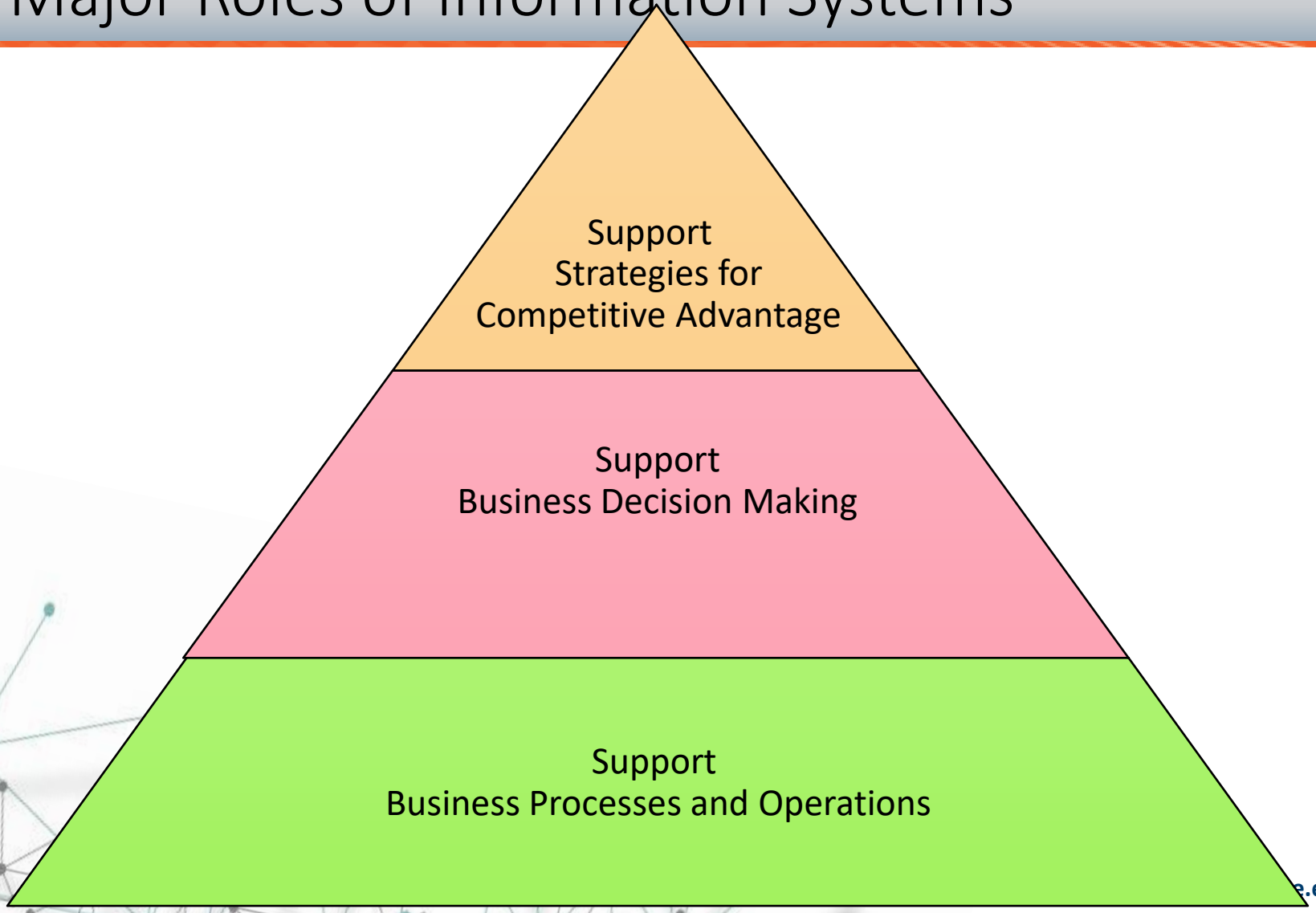
People



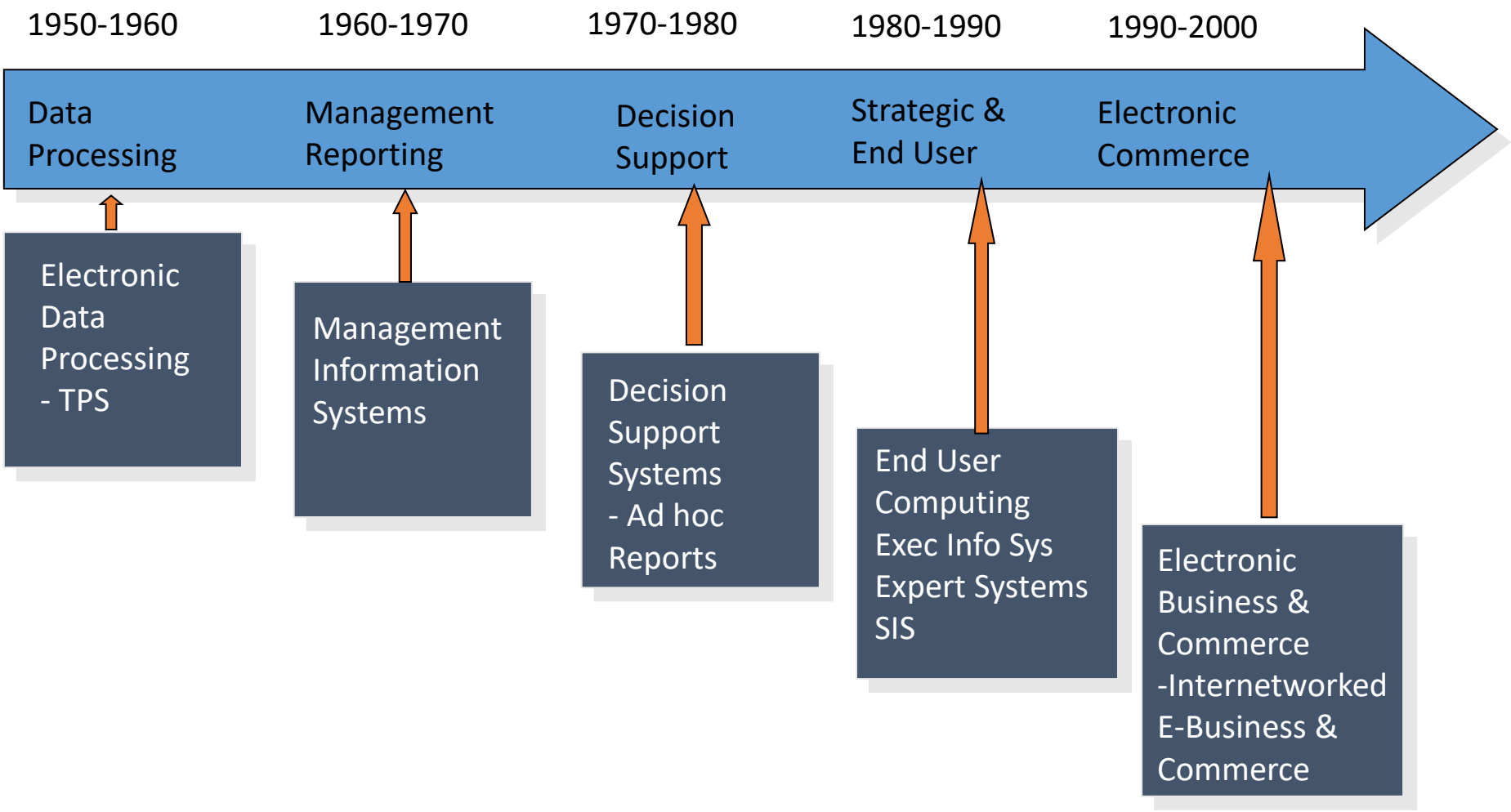
Components of an Information System



Major Roles of Information Systems



History of the role of Information Systems



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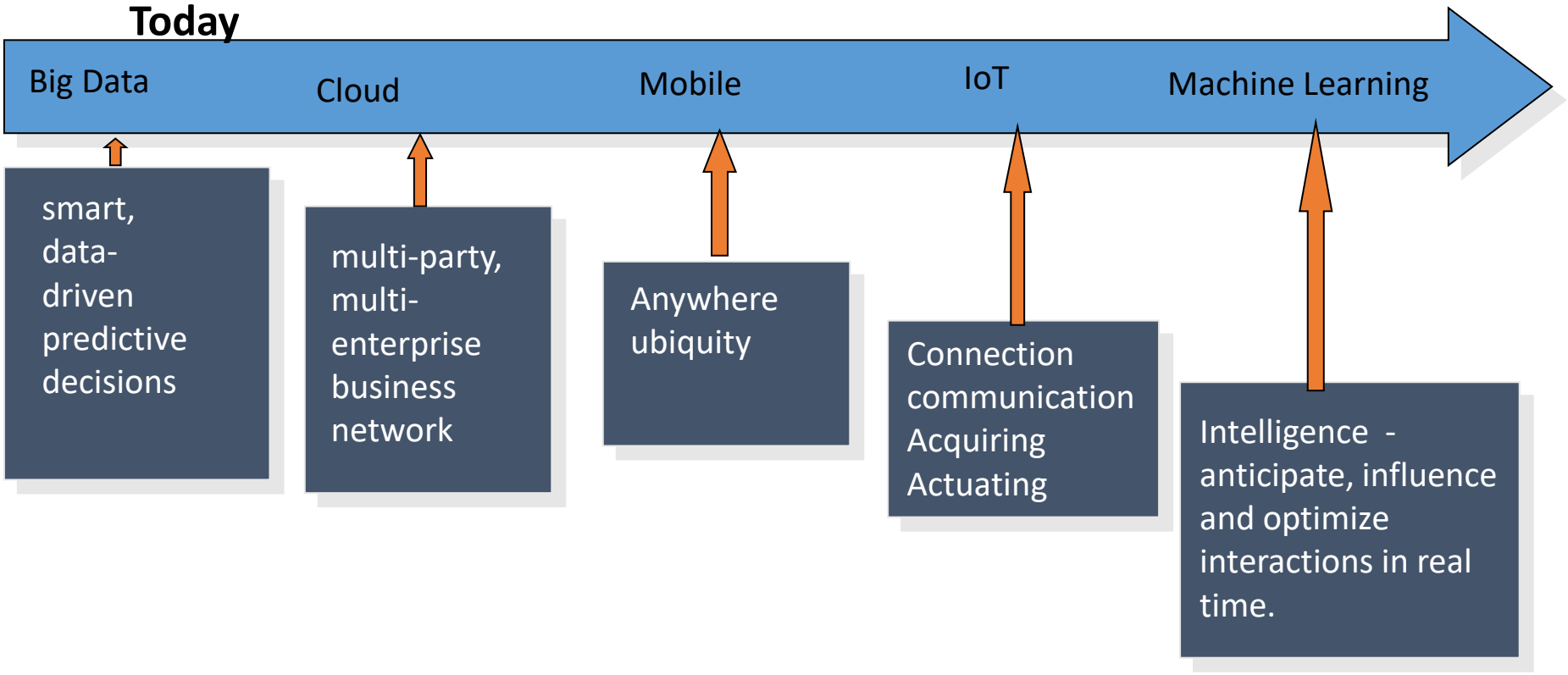
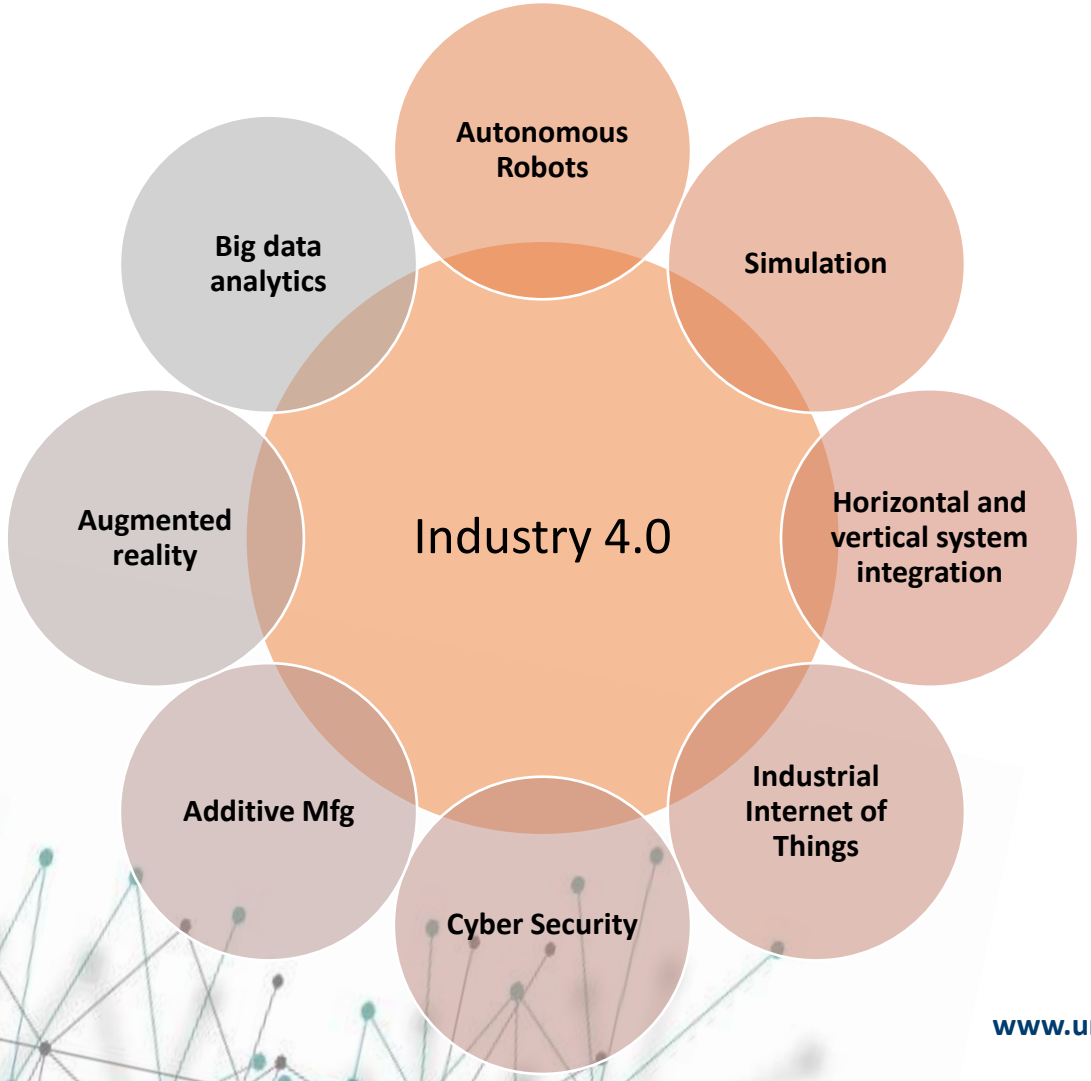


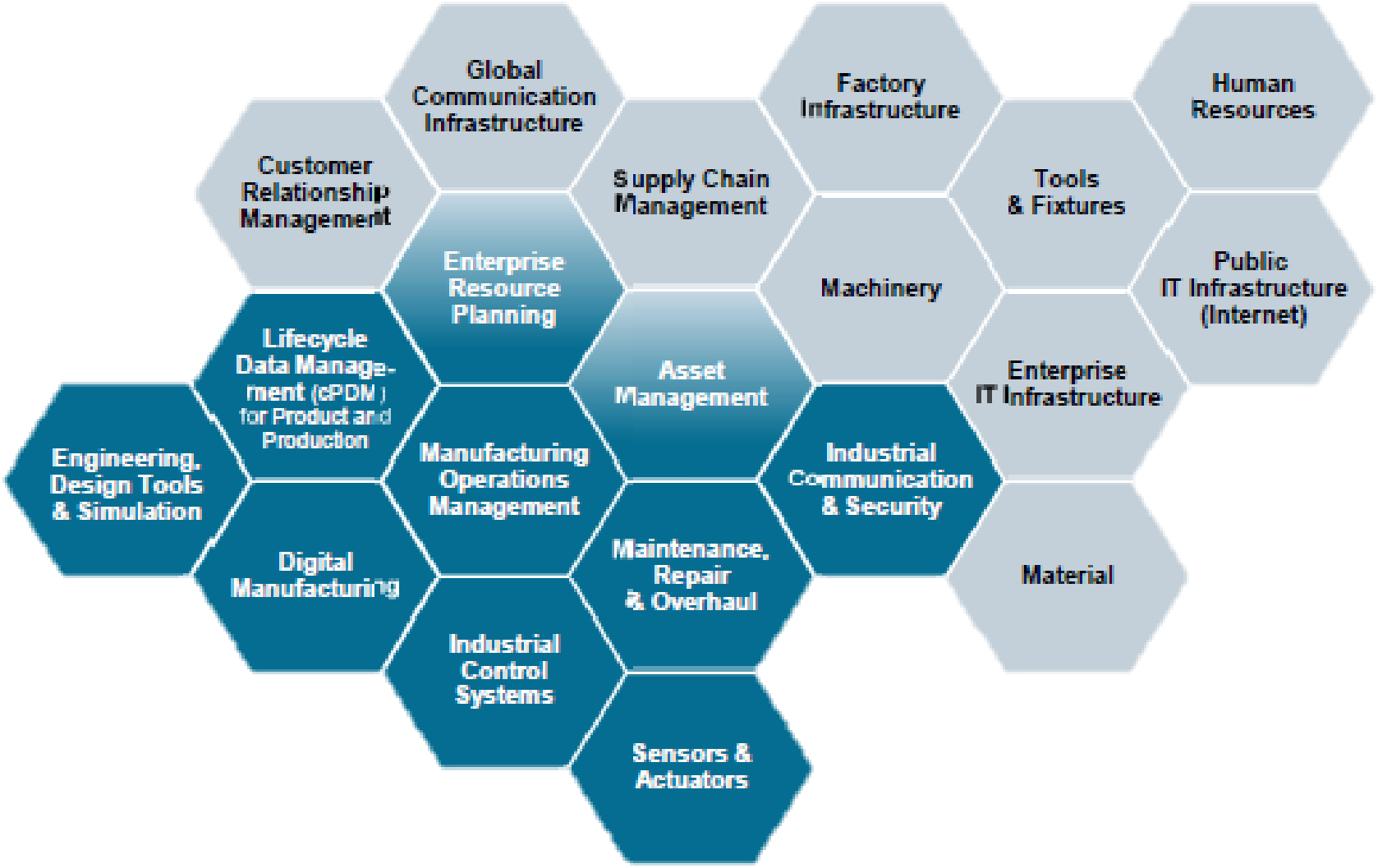
profoundly reshaping how enterprise software is developed, delivered and consumed.

Enterprise systems are giving way to business networks, systems of record are taking a back seat to systems of engagement, and rigid commercial off-the-shelf (COTS) software is being replaced by tailored modular solutions.

Building blocks of Industry 4.0

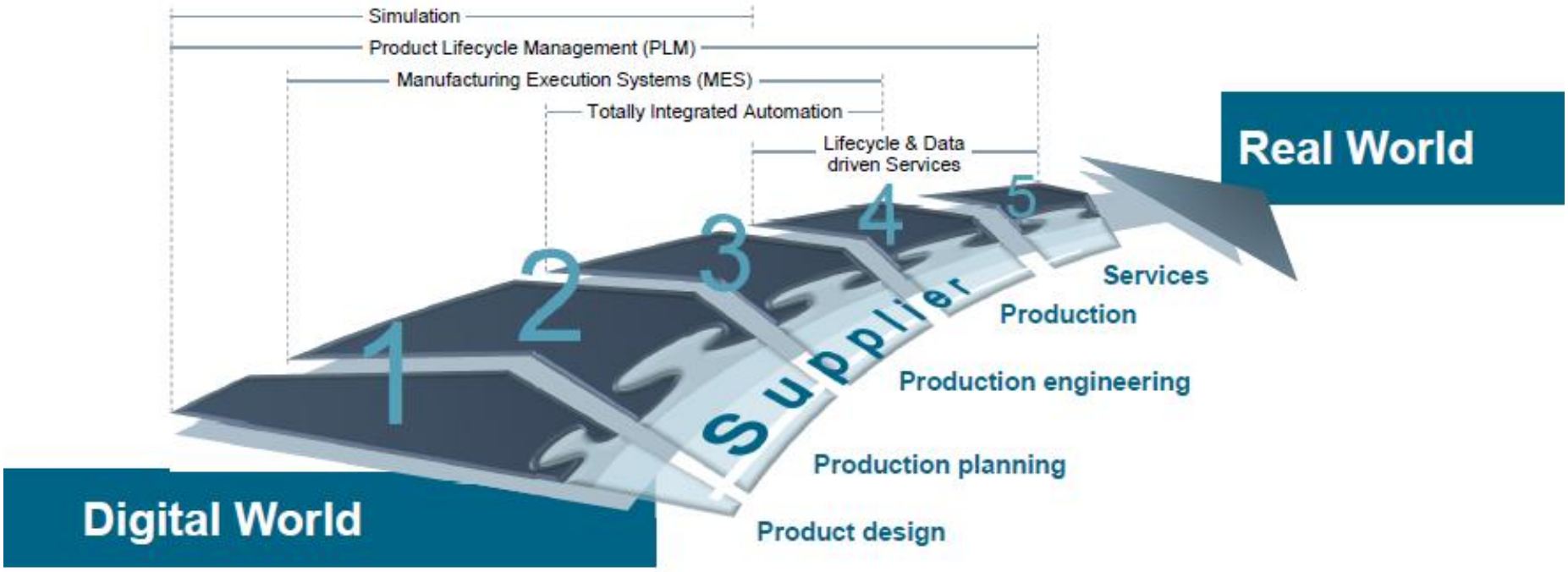


Impacting all aspect of value chain

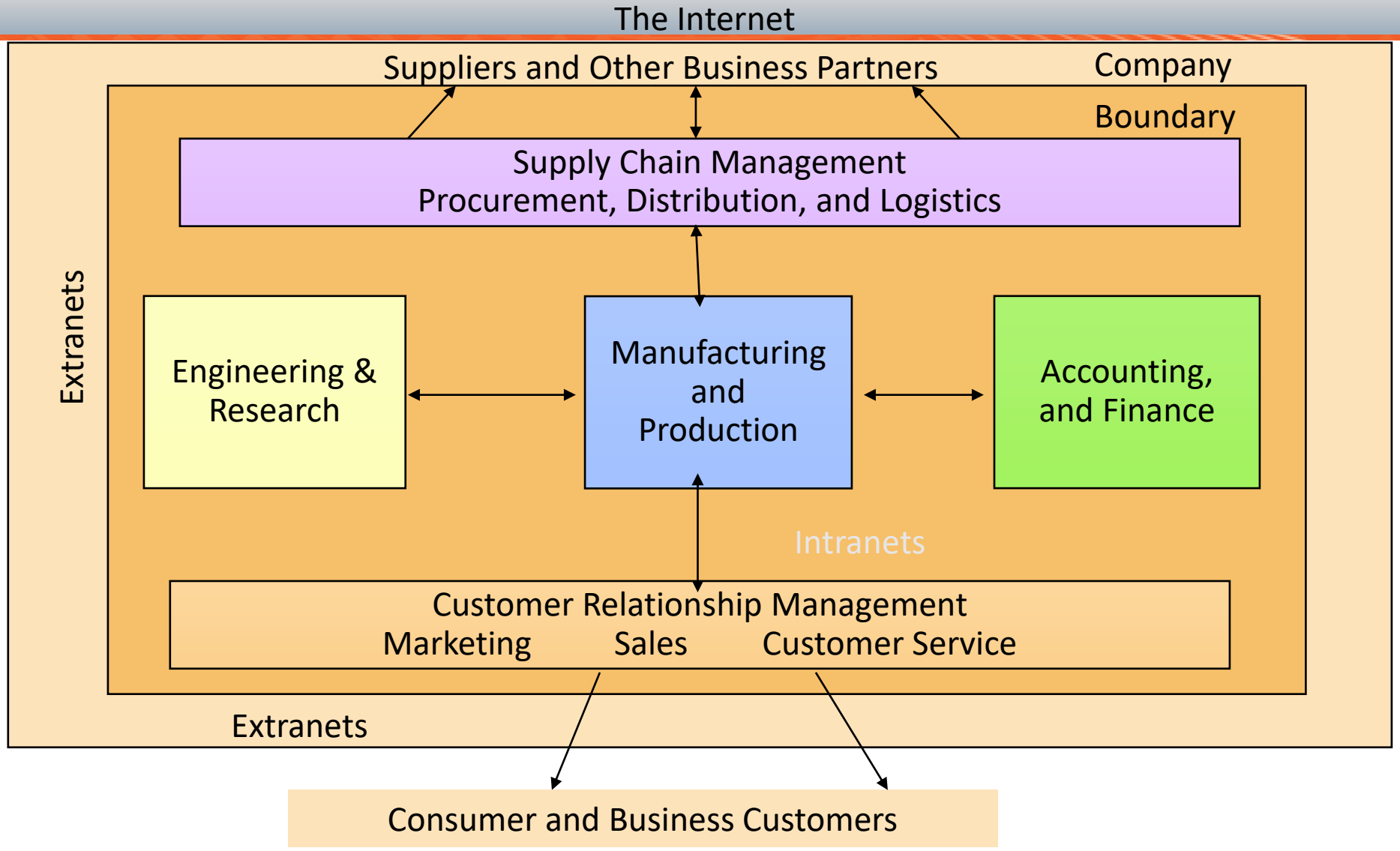


Digital Enterprise

Entire value chain is digitized and integrated



The e-Business Enterprise



Why Organizations need Information Systems

- Meeting Global Challenges
- Capturing opportunities in the Market Place
- Supporting Corporate Strategy
- Linking Departments Whose Functions are different
- Enhancing Worker Productivity
- Increasing Quality of Goods and Services

Challenges of the E-business Enterprise

Business Information systems

- An information system uses the resources of people, hardware, software, data, and networks to perform input, processing, output, storage and control activities. – **Transform organizational processes**

- **Information systems** perform **three vital roles in business firms.** They support:
  - Business processes and operations,
  - Business decision making;
  - Strategic competitive advantage

Bibliography

Adapted from:

Sources:

- Fundamentals of Information Systems, 8th edition – Ralph M. Stair and George W. Reynolds, Course Technology, Cengage Learning, 2012

- Principles of Information systems, 12th edition - Ralph M. Stair and George W. Reynolds, Course Technology, Cengage Learning, 2012