

# IS 525 – Chapter 1: Part 1

## **Introduction to information systems**

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# Chapter Topics

- An overview of information systems.
- The concept of “application.”
- Information systems as products.
- The enterprise of software development.

# Information Systems

- Information systems are systems that process data into information.
- Developing information systems and software applications involves highly **abstract** concepts that have very **concrete** outcomes.

# Information System & Its Components



APPLICATIONS

INFORMATION TECHNOLOGY

PEOPLE

PROCEDURES

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Processing Unit(s)

Communication System

Control System

Data Management System

# Information Systems

- Information systems are **commercial products** that must:
  - satisfy their consumers, and
  - be developed by following a methodology that assures the best possible quality and the best possible use of resources.

# Information System As Commercial Product

- All commercial products have three basic traits in common:
  - they must satisfy certain requirements or take advantage of opportunities,
  - they are human artifacts and, therefore, must be *built*, and
  - their development must follow a **methodology** that helps to lower costs, raise quality and make success more likely.

# Information System As Product

- All software — regardless of purpose — is being transformed into market products.
- As a result, to succeed, software must be conceived as a product, designed as a product and marketed as a product.

# The Enterprise of Software Development

Software development must follow the discipline of product development.

- ☐ Reproduction
- ☐ Testing
- ☐ Modeling
- ☐ Prototyping
- ☐ Installation
- ☐ Support



# Requirements

- Requirements identify the specific objectives that the product must help its users to achieve.
- Requirements are *not* product specifications.

# Requirements vs. Features of the Product

## Same Requirements, Two Solutions

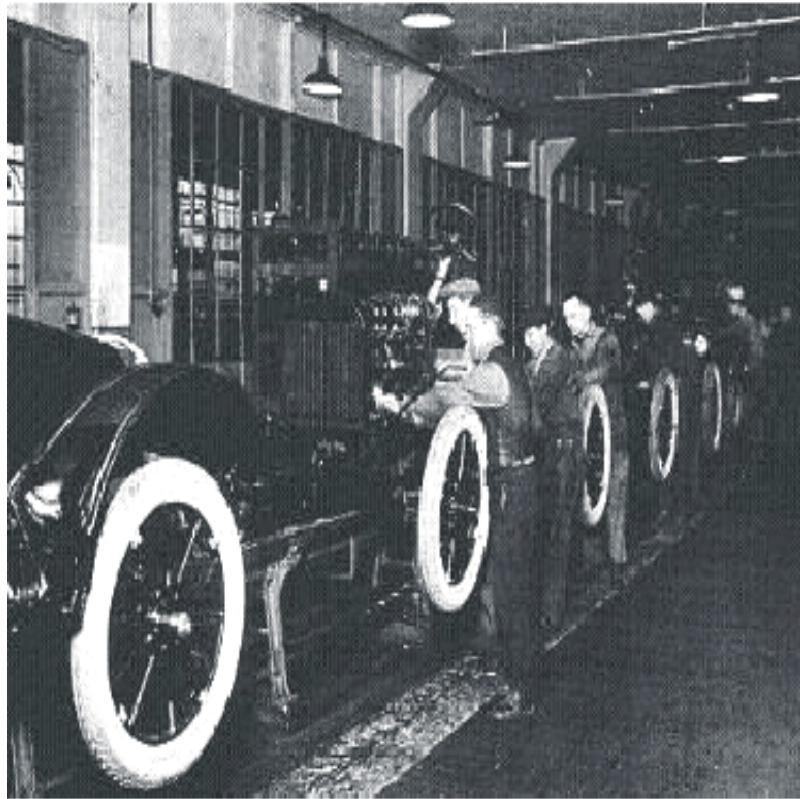


# Methodology

- Development of a product must follow a set of practices, procedures, rules and techniques.

# Methodology at Work

## Revolutionary Methodologies



Ford Model T Assembly Line  
(1913)



Thomas Edison in His Lab  
(1919)

# Project Management

- Project management is planning, monitoring and controlling the course of the development process and the resources used by that process.

# Project Management Principles

- Project management has general principles, practices and guidelines, but must be adapted to:
  - ❶ the goal of the project,
  - ❷ the resources available to a specific project, and
  - ❸ the methodology used to achieve the goal.

# General Principles

- A project has a **goal** and a **lifecycle**.
  - It starts when the decision is made to launch the project (or inception), and ends when the goal is achieved (or completion).
  - Developing an information system is a project.
    - The maintenance of an information system is not.
  - The advertising campaign to launch a product is a project.
    - The marketing department is not.



# Quality Control

- To achieve the maximum possible quality in a product, quality control must be built into the process of its production.



# Problem Space and Solution Space

- Problem space is the environment in which the product must operate; solution space contains issues related to the product itself.
- Understanding the problem space is the job of **analysis**, whereas in the solution space we **design** the product.

# Next: The Object-Oriented Concept

- The real world, as complex as it is, is made of **objects** and their interactions. Clearly, a virtual world can learn greatly from the real world.
- Constructing software from **objects** is the best answer to the challenge of complexity.
- Thus, learning how to develop software must start with understanding **objects** — a task that we will undertake in the next chapter.