System Analysis and Design (SAD)

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Unit – 2

Planning

Planning -Introduction

- Project Planning in software engineering consists the tasks which carried out prior to the development process. Before embarking on a software project, managers and business owners must strive to **keep things in check, by first predetermining all essential tasks to be performed as well as properly allocating such tasks to teams or individuals** who are part of the software development team.

Introduction

- The demand for new or replacement systems exceeds the ability and resources of most organizations to conduct systems development projects either by themselves or with consultants.
- This means that organizations must set priorities and a direction for systems development that will yield development projects with the greatest net benefits.
- As a systems analyst, you must analyze user information requirements, and you must also help make the business case—or justify why the system should be built and the development project conducted.

Introduction

- The reason for any new or improved information system (IS) is to add value to the organization.
- As systems analysts, we must choose to use systems development resources to build the mix of systems that add the greatest value to the organization.
- The source of systems projects is either initiatives from IS planning (proactive identification of systems) or requests from users or IS professionals (reactions to problems or opportunities) for new or enhanced systems.

Objectives of project planning

- It defines the roles and responsibilities of the project management team members.
- It ensures that the project management team works according to the business objectives.
- It checks feasibility of the schedule and user requirements.
- It determines project constraints.

Learning Outcome of this Chapter

- After studying this chapter, you should be able to
  - Describe the project identification and selection process,
  - Describe the corporate strategic planning and information systems planning process, and
  - Describe the three classes of Internet electronic commerce applications: business-to-consumer, business-to-employee, and business-to-business

Introduction

- The acquisition, development, and maintenance of information systems consume substantial resources for most organizations.
- This suggests that organizations can benefit from following a formal process for identifying and selecting projects.
- The first phase of the systems development life cycle

  —project identification and selection

  —deals with this issue

Activities

- When using this system to manage a project, you need to perform at least the following activities:
- Establish a project starting or ending date.
- Enter tasks and assign task relationships.
- Select a scheduling method to review project reports.

SDLC-planning

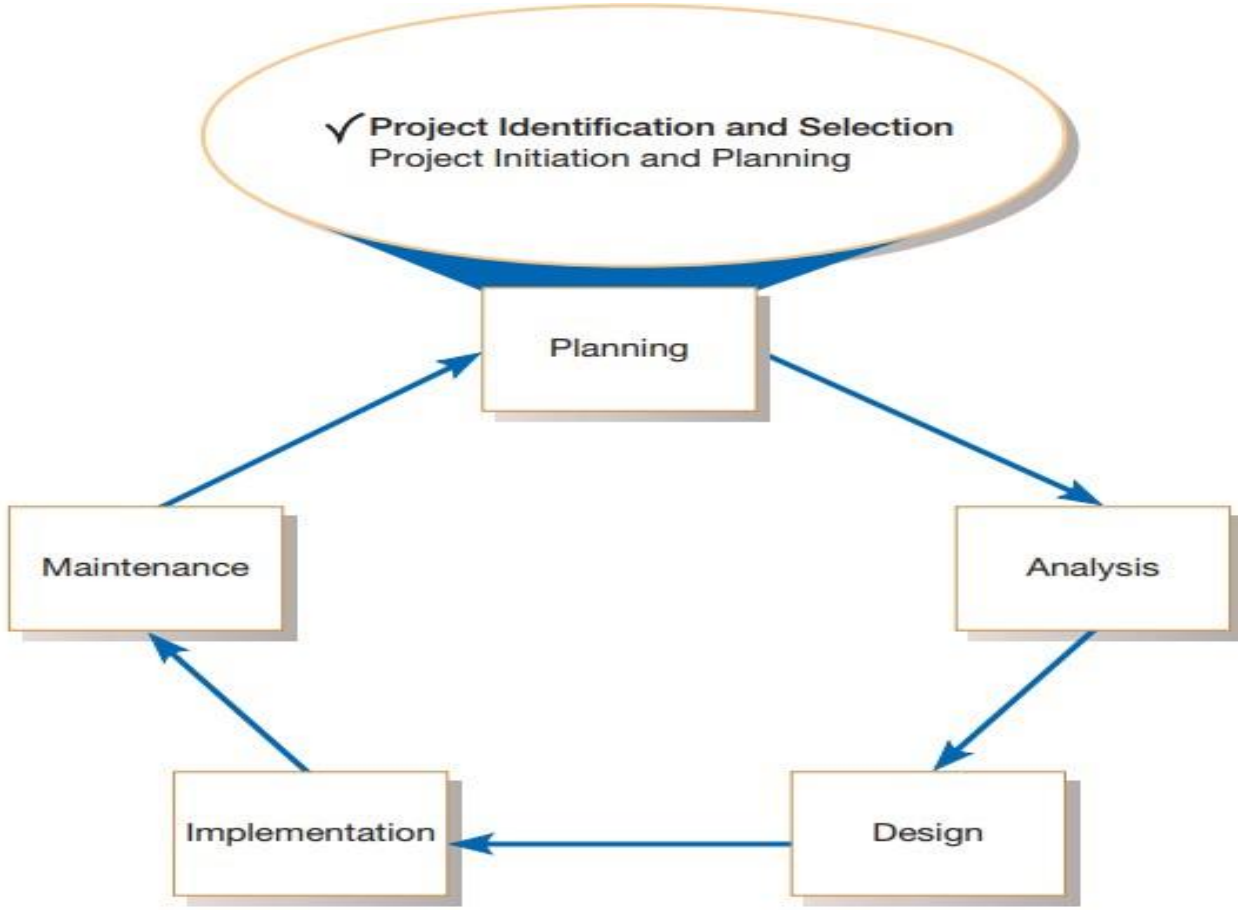


FIGURE 4-1
Systems development life cycle with project identification and selection highlighted

Identifying and Selecting Systems Development Projects

- The first phase of the SDLC is planning, consisting of project identification and selection, and project initiation and planning .
- During project identification and selection, a senior manager, a business group, an IS manager, or a steering committee identifies and assesses all possible systems development projects that an organization unit could undertake.
- Next, those projects deemed most likely to yield significant organizational benefits, given available resources, are selected for subsequent development activities.
- Organizations vary in their approach to identifying and selecting projects. In some organizations, project identification and selection is a very formal process in which projects are outcomes of a larger overall planning process.

Identifying and Selecting Systems Development Projects

- Information systems development requests come from a variety of sources.
- One source is requests by managers and business units for replacing or extending an existing system to gain needed information or to provide a new service to customers.
- Another source for requests is IS managers who want to make a system more efficient and less costly to operate, or want to move it to a new operating environment.
- A final source of projects is a formal planning group that identifies projects for improvement to help the organization meet its corporate objectives (e.g., a new system to provide better customer service).

Identifying and Selecting Systems Development Projects

- Regardless of how a given organization actually executes the project identification and selection process, a common sequence of activities occurs.
- In the following slides, we describe a general process for identifying and selecting projects and producing the deliverables and outcomes of this process.

Three Primary Activities

- Project identification and selection consists of three primary activities:
  1. Identifying potential development projects
     - Identification from a stakeholder group
  2. Classifying and ranking IS development projects
     - Using value chain analysis or other evaluation criteria
  3. Selecting IS development projects
     - Based on various factors

Identifying Potential Development Projects

- Organizations vary as to how they identify projects. This process can be performed by
- A key member of top management, either the CEO of a small- or medium sized organization or a senior executive in a larger organization;
- A steering committee, composed of a cross section of managers with an interest in systems;
- User departments, in which either the head of the requesting unit or a committee from the requesting department decides which projects to submit (often you, as a systems analyst, will help users prepare such requests); or
- The development group or a senior IS manager.

Identifying Potential Development Projects

- All methods of identification have been found to have strengths and weaknesses.
- Other factors, such as project cost, duration, complexity, and risk, are also influenced by the source of a given project.
- Characteristics of each selection method are briefly summarized in Table in next slide

Identifying Potential Development Projects

TABLE 4-1 Characteristics of Alternative Methods for Making Information Systems Identification and Selection Decisions

Selection Method	Characteristics
Top Management	Greater strategic focus
	Largest project size
	Longest project duration
	Enterprise-wide consideration
Steering Committee	Cross-functional focus
	Greater organizational change
	Formal cost–benefit analysis
	Larger and riskier projects
Functional Area	Narrow, nonstrategic focus
	Faster development
	Fewer users, management layers, and business functions involved
Development Group	Integration with existing systems focus
	Fewer development delays
	Less concern with cost–benefit analysis

Identifying Potential Development Projects

- Of all the possible project sources, those identified by top management and steering committees most often reflect the broader needs of the organization.
- This occurs because top management and steering committees are likely to have a broader understanding of overall business objectives and constraints.
- Projects identified by top management or by a diverse steering committee are therefore referred to as coming from a **top-down source**.

Identifying Potential Development Projects

- Projects identified by a functional manager, business unit, or by the information systems development group are often designed for a particular business need within a given business unit.
- In other words, these projects may not reflect the overall objectives of the organization.
- This does not mean that projects identified by individual managers, business units, or the IS development group are deficient, only that they may not consider broader organizational issues.
- Project initiatives stemming from managers, business units, or the development group are generally referred to as coming from a **bottom-up source**.

Identifying Potential Development Projects

- These are the types of projects in which you, as a systems analyst, will have the earliest role in the life cycle as part of your ongoing support of users.
- You will help user managers provide the description of information needs and the reasons for doing the project that will be evaluated in selecting, among all submitted projects, which ones will be approved to move into the project initiation and planning phase of the SDLC.

Classifying and Ranking IS Development Projects

- The second major activity in the project identification and selection process focuses on assessing the relative merit of potential projects.
- As with the project identification process, classifying and ranking projects can be performed by top managers, a steering committee, business units, or the IS development group.
- Additionally, the criteria used when assigning the relative merit of a given project can vary.
- Commonly used criteria for assessing projects are summarized in Table in next slide

Classifying and Ranking IS Development Projects

TABLE 4-2 Possible Evaluation Criteria When Classifying and Ranking Projects

Evaluation Criteria	Description
Value Chain Analysis	Extent to which activities add value and costs when developing products and/or services
Strategic Alignment	Extent to which the project is viewed as helping the organization achieve its strategic objectives and long-term goals
Potential Benefits	Extent to which the project is viewed as improving profits, customer service, and so forth, and the duration of these benefits
Resource Availability	Amount and type of resources the project requires and their availability
Project Size/Duration	Number of individuals and the length of time needed to complete the project
Technical Difficulty/Risks	Level of technical difficulty to successfully complete the project within given time and resource constraints

Classifying and Ranking IS Development Projects

- An important project evaluation method that is widely used for assessing information systems development projects is called **value chain analysis.**
- Value chain analysis Analyzing is an organization's activities to determine where value is added to products and/or services and the costs incurred for doing so; usually also includes a comparison with the activities, added value, and costs of other organizations for the purpose of making improvements in the organization's operations and performance.
- Information systems projects providing the greatest benefit to the value chain will be given priority over those with fewer benefits.

Selecting IS Development Projects

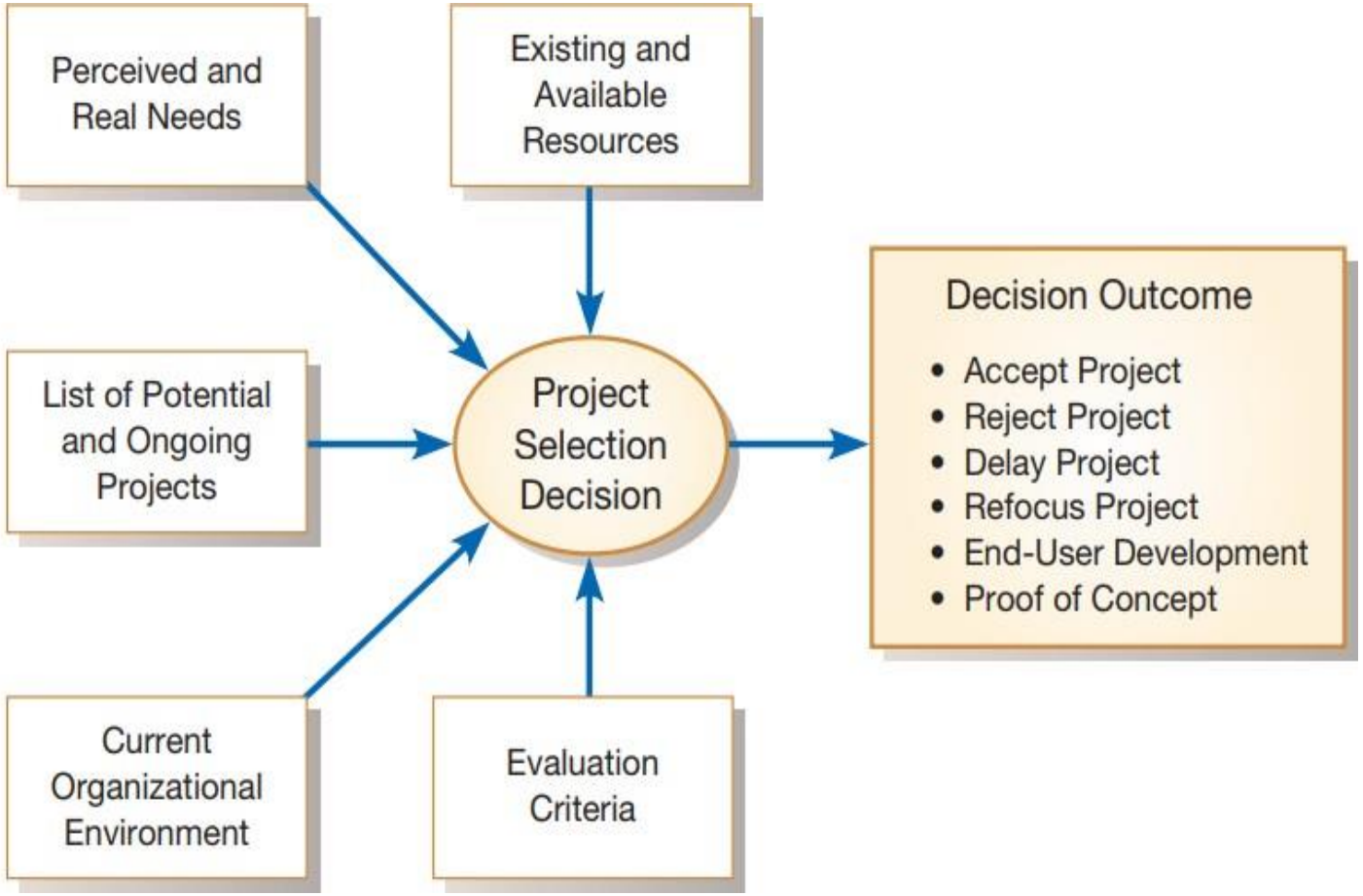
- The final activity in the project identification and selection process is the actual selection of projects for further development.
- Project selection is a process of considering both short- and long- term projects and selecting those most likely to achieve business objectives.
- Additionally, as business conditions change over time, the relative importance of any single project may substantially change.
- Thus, the identification and selection of projects is a very important and ongoing activity

Selecting IS Development Projects

- Numerous factors must be considered when making project selection decisions.
- Figure 4-3 shows that a selection decision requires that the perceived needs of the organization, existing systems and ongoing projects, resource availability, evaluation criteria, current business conditions, and the perspectives of the decision makers will all play a role in project selection decisions.
- Numerous outcomes can occur from this decision process. Of course, projects can be accepted or rejected.

Selecting IS Development Projects

FIGURE 4-3
Project selection decisions must consider numerous factors and can have numerous outcomes



Deliverables & Outcomes

- The primary deliverable from the first part of the planning phase is a schedule of specific IS development projects, coming from both top- down and bottom-up sources, to move into the next part of the planning phase—project initiation and planning
- An outcome of this phase is the assurance that careful consideration was given to project selection, with a clear understanding of how each project can help the organization reach its objectives.

Deliverables & Outcomes

- Due to the principle of **incremental commitment**, a selected project does not necessarily result in a working system.
- After each subsequent SDLC phase, you, other members of the project team, and organizational officials will reassess your project to determine whether the business conditions have changed or whether a more detailed understanding of a system's costs, benefits, and risks would suggest that the project is not as worthy as previously thought.

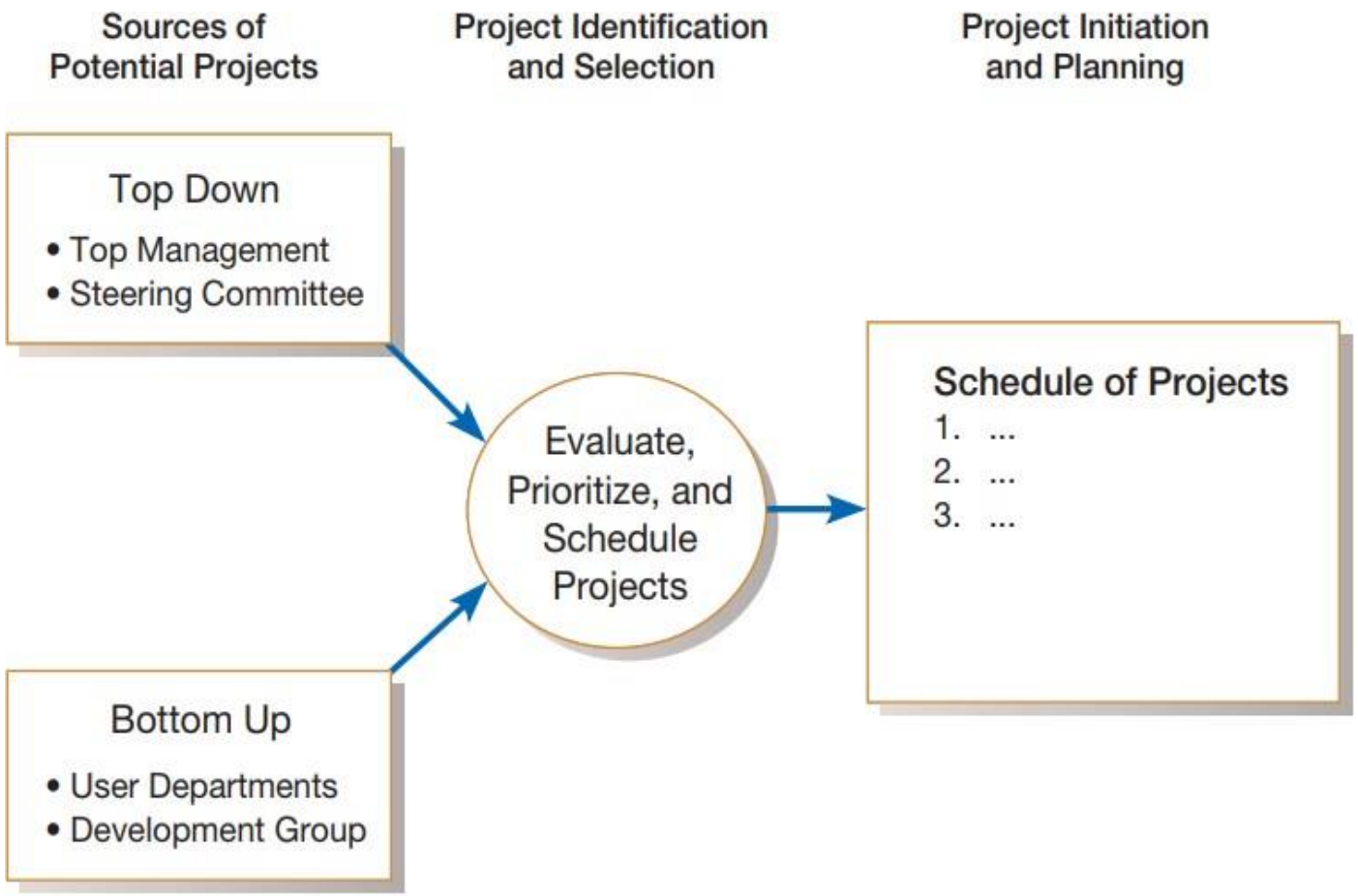


FIGURE 4-5
Information systems development projects come from both top-down and bottom-up initiatives

- Many organizations have found that in order to make good project selection decisions, a clear understanding of overall organizational business strategy and objectives is required.
- This means that a clear understanding of the business and the desired role of information systems in achieving organizational goals is a precondition to improving the identification and selection process.

Corporate and Information Systems Planning

- The need for improved information systems project identification and selection is readily apparent when we consider factors such as the following:
- 1. The cost of information systems has risen steadily and approaches 40 percent of total expenses in some organizations.
- 2. Many systems cannot handle applications that cross organizational boundaries.
- 3. Many systems often do not address the critical problems of the business as a whole or support strategic applications.

Corporate and Information Systems Planning

- Data redundancy is often out of control, and users may have little confidence in the quality of data.
- Systems maintenance costs are out of control as old, poorly planned systems must constantly be revised.
- Application backlogs often extend three years or more, and frustrated end users are forced to create (or purchase) their own systems, often creating redundant databases and incompatible systems in the process.

Corporate and Information Systems Planning

- Careful planning and selection of projects alone will certainly not solve all of these problems.
- We believe, however, that a disciplined approach, driven by top management commitment, is a prerequisite for most effectively applying information systems in order to reach organizational objectives.
- The focus of this section is to provide you with a clear understanding of how specific development projects with a broader organizational focus can be identified and selected.
- Specifically, we describe corporate strategic planning and information systems planning, two processes that can significantly improve the quality of project identification and selection decisions

Corporate Strategic Planning

- A prerequisite for making effective project selection decisions is to gain a clear idea of where an organization is, its vision of where it wants to be in the future, and how to make the transition to its desired future state.
- Figure 4-6 represents this as a three-step process.
- The first step focuses on gaining an understanding of the current enterprise. In other words, if you don't know where you are, it is impossible to tell where you are going.

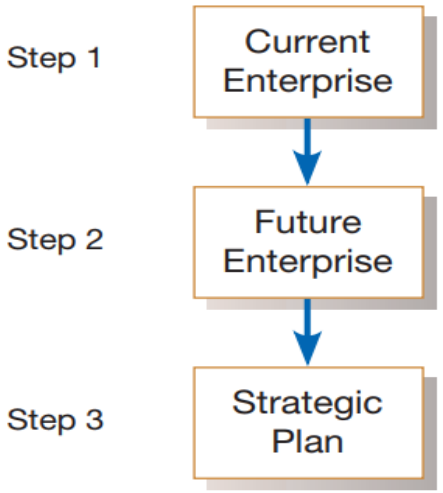


FIGURE 4-6
Corporate strategic planning is a three-step process

Corporate Strategic Planning

- Next, top management must determine where it wants the enterprise to be in the future.
- Finally, after gaining an understanding of the current and future enterprise, a strategic plan can be developed to guide this transition.
- The process of developing and refining models of the current and future enterprise as well as a transition strategy is often referred to as **corporate strategic planning**.
- *Corporate strategic planning is an ongoing process that defines the mission, objectives, and strategies of an organization.*

Corporate Strategic Planning

- During corporate strategic planning, executives typically develop a mission statement, statements of future corporate objectives, and strategies designed to help the organization reach its objectives.
- All successful organizations have a mission.
- The **mission statement** of a company typically states in very simple terms what business the company is in.
- *Mission statement is a statement that makes it clear what business a company is in.*

Corporate Strategic Planning

- After defining its mission, an organization can then define its objectives.
- Objective statements refer to “broad and timeless” goals for the organization.
- These goals can be expressed as a series of statements that are either qualitative or quantitative but that typically do not contain details likely to change substantially over time.
- Objectives are often referred to as critical success factors.
- Once a company has defined its mission and objectives, a competitive strategy can be formulated.
- *Objective statements A series of statements that express an*
- *organization’s qualitative and quantitative goals for reaching a desired future position.*

Corporate Strategic Planning

- A competitive strategy is the method by which an organization attempts to achieve its mission and objectives.
- In essence, the strategy is an organization's game plan for playing in the competitive business world.
- *Competitive strategy is the method by which an organization attempts to achieve its mission and objectives.*

Corporate Strategic Planning

- For example, Rolls-Royce and Kia Motors are two car lines with different strategies: One is a high-prestige line in the ultra-luxury niche, whereas the other is a relatively low-priced line for the general automobile market.
- Rolls-Royce may build information systems to collect and analyze information on customer satisfaction to help manage a key company objective.
- Alternatively, Kia may build systems to track plant and material utilization in order to manage activities related to its low-cost strategy.

Corporate Strategic Planning

- To effectively deploy resources such as the creation of a marketing and sales organization or to build the most effective information systems, an organization must clearly understand its mission, objectives, and strategy.
- From an information systems development perspective, by understanding which activities are most critical for achieving business objectives, an organization has a much greater chance to identify those activities that need to be supported by information systems.
- In other words, it is only through the clear understanding of the organizational mission, objectives, and strategies that IS development projects should be identified and selected.