

Planning

2.1 IDENTIFICATION AND SELECTION OF SYSTEM DEVELOPMENT PROJECTS

The first phase of the SDLC is planning, consisting of project **identification and selection, and project initiation and planning** (see Figure 4-1). 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. In some organizations, project identification and selection is a very formal process in which projects are outcomes of a larger overall planning process. For example, **a large organization may follow a formal project identification process** whereby a proposed project is **rigorously** (extremely strictly) **compared** with all competing projects. Alternatively, **a small organization may use informal project selection processes** that allow the highest-ranking IS manager to independently select projects or allow individual business units to decide on projects after agreeing to provide project funding.

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

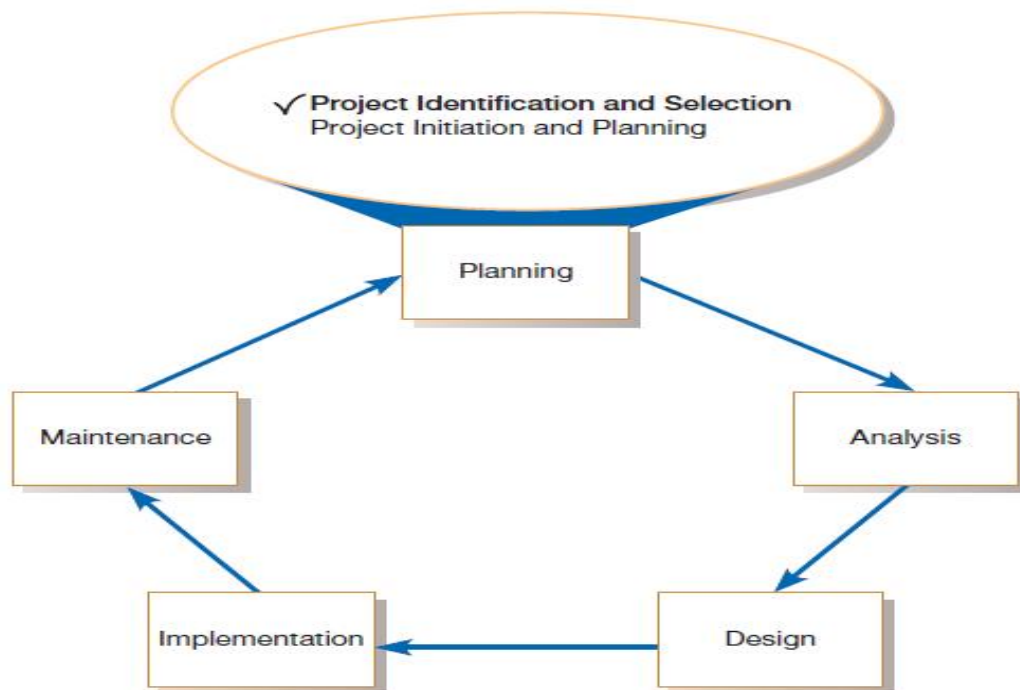


Figure 4-1

Systems development life cycle with project identification and selection highlighted.

The Process of Identifying and Selecting IS Development Projects

Project identification and selection consists of three primary activities:

- 1. Identifying potential development projects**
- 2. Classifying and ranking IS development projects**
- 3. Selecting IS development projects**

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.

- All methods of identification have been found to have strengths and weaknesses. Research has found, for example, that **projects identified by top management** more often have a **strategic organizational focus**. Alternatively, **projects identified by steering committees** more often **reflect the diversity of the committee and therefore have a cross- functional focus**. **Projects identified by individual departments or business units** most often have a **narrow, tactical focus**. Finally, a **dominant characteristic of projects identified by the development group** is the ease with **which existing hardware and systems will integrate with the proposed project**.
- 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 4-1.

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

(Source: Based on McKeen, Guimaraes, and Wetherbe, 1994; GAO, 2000.)

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.

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.

Classifying and ranking IS development projects.

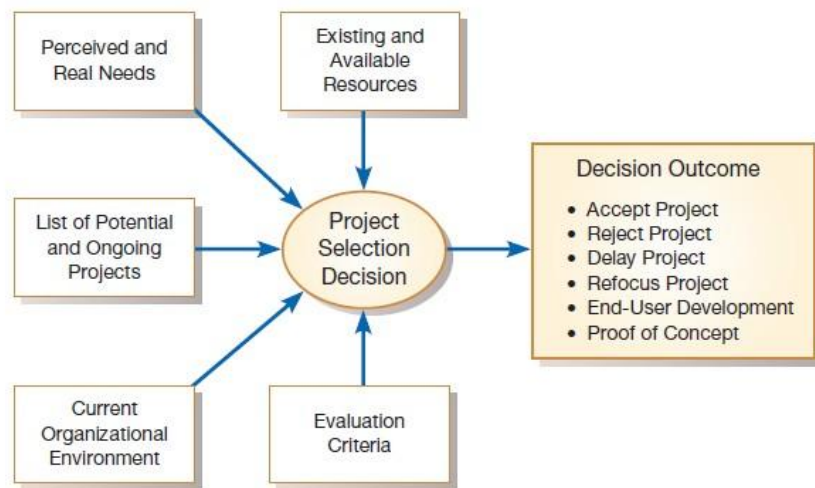
The second major activity in the project identification and selection process focuses on assessing (to **judge or decide the amount, value, quality or importance of something**) the relative merit of potential projects. **As with the project identification process, classifying and ranking projects can 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.

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.

FIGURE 4-3

Project selection decisions must consider numerous factors and can have numerous outcomes



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.

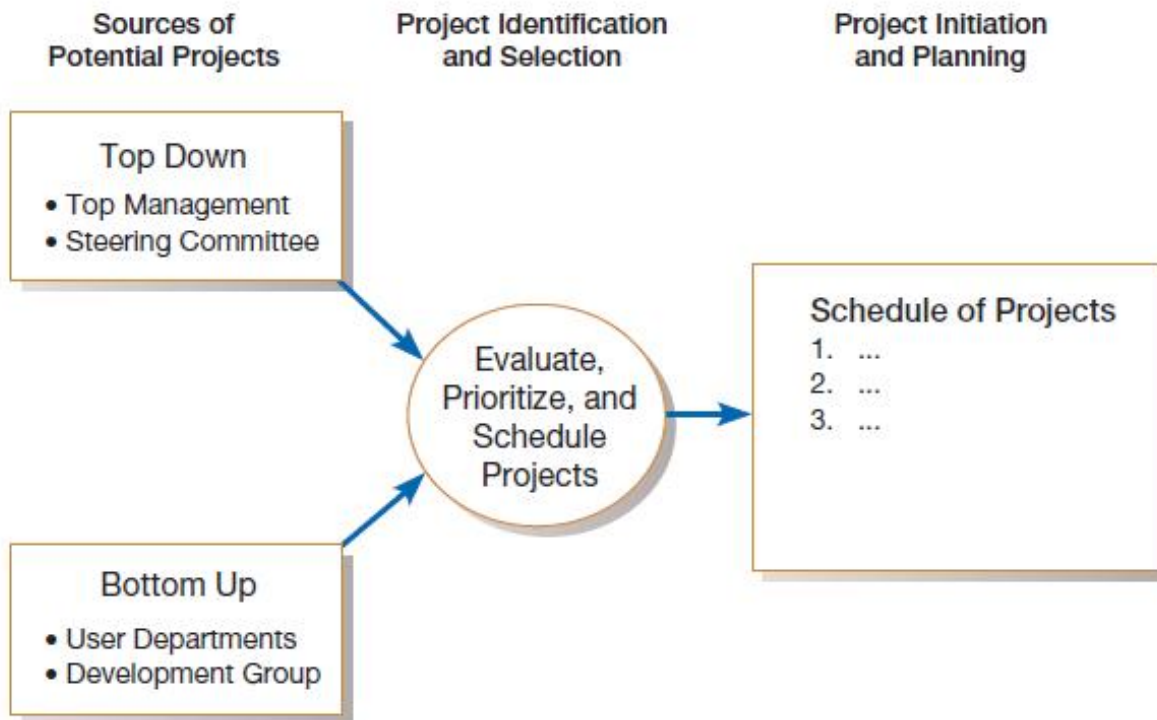


FIGURE 4-5

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

Acceptance of a project usually means that funding to conduct the next phase of the SDLC has been approved. **Rejection** means that the project will no longer be considered for development.

Deliverables and 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 (see Figure 4-5). 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**. 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**. 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

Organizations have not traditionally used a systematic planning process when determining how to allocate IS resources. Instead, projects have often resulted from attempts to solve isolated organizational problems. In effect, organizations have asked the question: “What procedure (**application program**) is required to solve this particular problem as it exists today?” **The difficulty with this approach is that the required organizational procedures are likely to change over time as the environment changes**. For example, a company may decide to change its method of billing customers or a university may change its procedure for registering students. When such changes occur, it is usually necessary to again modify existing information systems.

In contrast, planning-based approaches essentially ask the question: “What **information** (or data) requirements will satisfy the decision- making needs or business processes of the enterprise today and well into the future?”

A major advantage of this approach is that an organization's informational needs are less likely to change (or will change more slowly) than its business processes. For example, unless an organization fundamentally changes its business, its underlying data structures may remain reasonably stable for more than 10 years. However, the procedures used to access and process the data may change many times during that period. Thus, the challenge of most organizations is to design comprehensive information models containing data that are relatively independent from the languages and programs used to access, create, and update them. The need for improved information systems project identification and selection is seen when we consider factors such as the following:

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.

Next, top management must determine **where it wants the enterprise to be in the future.**

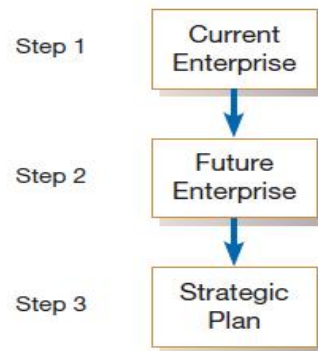


FIGURE 4-6
Corporate strategic planning is a three-step process

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**. 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.

**Pine Valley Furniture
Corporate Mission Statement**

We are in the business of designing, fabricating, and selling to retail stores high-quality wood furniture for household, office, and institutional use. We value quality in our products and in our relationships with customers and suppliers. We consider our employees our most critical resource.

After reviewing PVF's mission statement, it becomes clear that it is in the business of constructing and selling high-quality wood furniture to the general public, businesses, and institutions such as universities and hospitals.

Pine Valley Furniture
Statement of Objectives

1. PVF will **strive** to increase market share and profitability (prime objective).
2. PVF will be considered a market leader in customer service.
3. PVF will be innovative in the use of technology to help bring new products to market faster than our competition.
4. PVF will employ the fewest number of the highest-quality people necessary to accomplish our prime objective.
5. PVF will create an environment that values diversity in gender, race, values, and culture among employees, suppliers, and customers.

Strive (to try very hard to do something or to make something happen, especially for a long time or against difficulties). A **competitive strategy is the method by which an organization attempts to achieve its mission and objectives.**

Consider the following terms as the strategies.

TABLE 4-3 Generic Competitive Strategies

Strategy	Description
Low-Cost Producer	This strategy reflects competing in an industry on the basis of product or service cost to the consumer. For example, in the automobile industry, the South Korean-produced Hyundai is a product line that competes on the basis of low cost.
Product Differentiation	This competitive strategy reflects capitalizing on a key product criterion requested by the market (for example, high quality, style, performance, roominess). In the automobile industry, many manufacturers are trying to differentiate their products on the basis of quality (e.g., "At Ford, quality is job one.").
Product Focus or Niche	This strategy is similar to both the low-cost and differentiation strategies but with a much narrower market focus. For example, a niche market in the automobile industry is the convertible sports car market. Within this market, some manufacturers may employ a low-cost strategy and others may employ a differentiation strategy based on performance or style.

niche: a job or position which is very suitable for someone, especially one that they like or an area or position which is exactly suitable for a small group of same type.

Information Systems Planning

The second planning process that can play a significant role in the quality of **project identification and selection decisions** is called **information systems planning (ISP)**. ISP is an orderly means of **assessing the information needs of an organization and defining the information systems, databases, and technologies that will best satisfy those needs**. This means that during ISP you (or, more likely, senior IS managers responsible for the IS plan) must **model current and future organization** informational needs and develop strategies and project plans to migrate the current information systems and technologies to their desired future state. ISP is a **top-down process**.

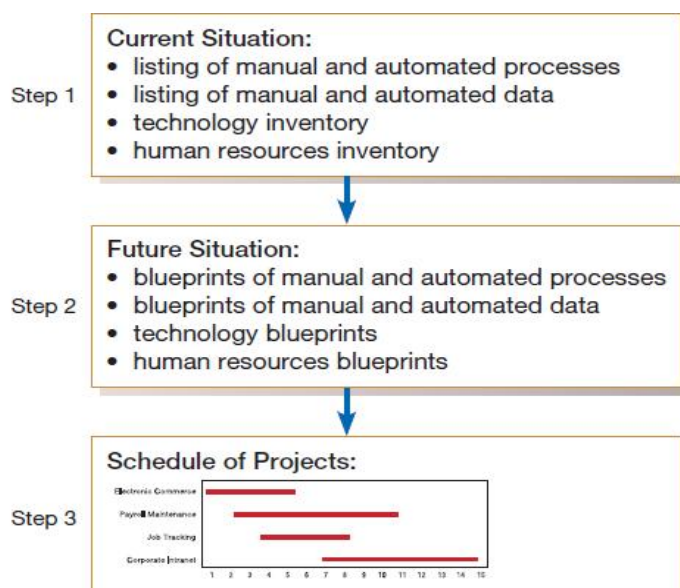


Figure 4-9: Information systems planning is a three step process

The three key activities of this modeling process are represented in Figure 4-9. Like corporate strategic planning, ISP is a three-step process in which **the first step is to assess current IS-related assets—human resources, data, processes, and technologies.**

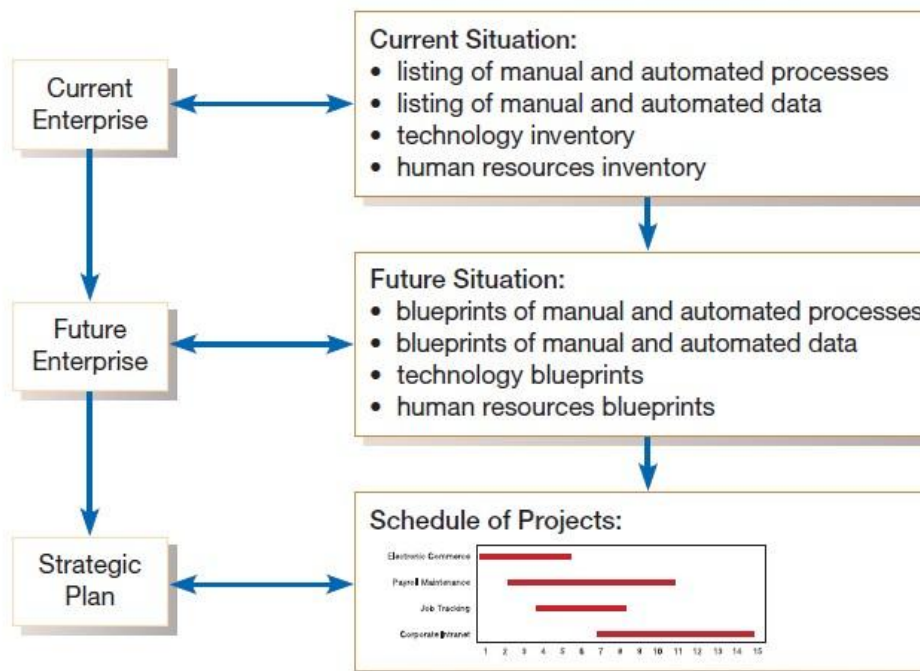
Next, **target blueprints** of these resources are developed. These blueprints reflect the desired **future state** of resources needed by the organization to reach its objectives as defined during strategic planning.

Finally, **a series of scheduled projects** is defined to help move the organization from its current to its future desired state.

1. Describe the current situation. The most widely used approach for describing the current organizational situation is generically referred to as top-down planning. **Top-down planning attempts to gain a broad understanding of the informational** needs of the entire organization. The approach begins by conducting an extensive analysis of the organization's **mission, objectives, and strategy** and determining the information requirements needed to meet each objective.

In contrast to the top-down planning approach, a **bottom-up planning approach** requires the identification of business problems and opportunities that are used to define projects. Using the bottom-up approach for creating IS plans **can be faster and less costly than using the top-down approach; it also has the advantage of identifying pressing organizational problems.**

Yet, the bottom-up approach often **fails to view the informational needs of the entire organization.** This can result in the creation of disparate information systems and databases that are redundant or not easily integrated without substantial rework.



2. Describing the target situation, trends, and constraints

After describing the current situation, the next step in the ISP (information system planning) process is to define the target situation that reflects the desired future state of the organization. This means that the target situation consists of the desired state of the **locations, units, functions, processes, data, and IS** (see Figure 4-9).

3. Developing a transition strategy and plans

Once the creation of the current and target situations is complete, a **detailed transition strategy and plan** are developed by the IS planning team. This plan should be very comprehensive, reflecting broad, long-range issues in addition to providing sufficient detail to guide all levels of management concerning what needs to be done, how, when, and by whom in the organization.

The IS plan is typically a **very comprehensive document** that looks at both short- and long-term organizational development needs. The short- and long-term developmental needs identified in the plan are typically expressed as a series of projects (see Figure 4-16).

Projects from the long-term plan tend to build a foundation for later projects (such as transforming databases from old technology into newer technology). Projects from the short-term plan consist of specific steps to fill the gap between current and desired systems or respond to dynamic business conditions. The top-down (or plan-driven) projects join a set of bottom-up or needs driven projects submitted as system service requests from managers to form the short-term systems development plan.

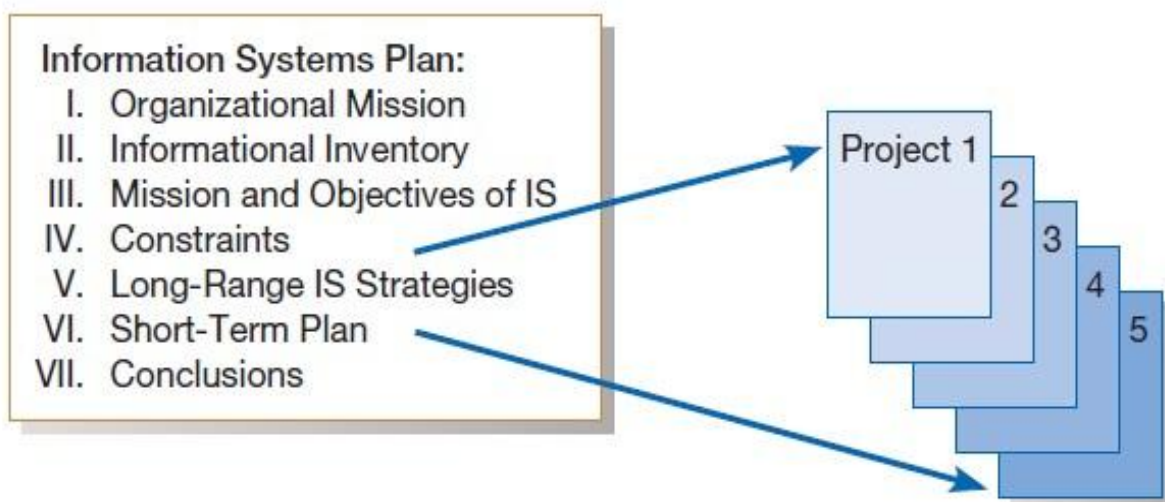


Figure 4-16

Systems development projects flow from the information systems plan.