In its simplest form, information systems are all about getting the right information in the most usable format to the right people at the right time and place. Advances in integrated software applications, the Internet, and better data management practices provide businesses with better tools to support this goal.

A key competitive advantage of an organization is the ability to react to changes quickly. As we saw in module 1, the environment affects organizations from a variety of aspects (government, competition, suppliers, and so on). Being able to make the right decision to address a potential threat or seize an opportunity could make the difference in whether or not the company stays in business or continues to increase profits. The key to making good decisions is having the relevant information readily available in the form that is needed.

There are three levels of decision making in an organization: operational, managerial, and strategic, as illustrated in figure 2.1.

Figure 2.1
Levels of Decision Making

Source: Based on Laudon & Laudon (2006, p. 17)

Let's look at the process of creating an invoice. An invoice contains several pieces of data, such as customer name, number, address, shipping method, items ordered, and quantities. These data are required at an operational level to update inventories, handle logistics, add to accounts receivable, and so forth. At the midlevel of our pyramid, the management level, the data from each individual invoice are not as important as the cumulative information that many invoices can provide. For example, sales have increased 25 percent on product A, orders for product B are shipping consistently behind schedule, and shipping costs with shipper X are increasing more than with other shippers. With this information on trends or patterns, management can investigate further and make decisions on production schedules, supplier relationships, or preferred shipping vendors.

At the senior or executive level of an organization, the company leadership is less concerned than middle management about the trends or patterns—their concerns are strategic. Senior management looks at information, both from within the organization and external. For example, suppose a key component needed in the manufacturing process is petroleum-based. Rising oil prices, coupled with industry forecasts that prices will continue to rise, call for addressing this situation at a strategic level. For example, they might consider whether a price increase can be justified, how much of an increase the market can bear, or whether there are alternatives that would not degrade the product.

So we can see that information moves through the organization and is viewed for different purposes by different levels within the organization. However, the data are captured at the operational level (transaction-processing systems) and made available in appropriate forms (summary of product, customer, geographic distribution differences, and so on) at the various managerial levels.

It is important to note that information can flow both up and down the levels within an organization. Information that is useful for monitoring ("How are we doing?") typically flows from the operational level upward. Control information ("Is business going as planned?") typically flows from the top level

downward. A senior manager notes that sales figures are declining. She queries down through the organization to find more information to control the declining sales. From midlevel management, she may learn that only the Midwest region is experiencing a decline. From the operational level, she may learn that the sales force in that region has had significant turnover and that 40 percent of its sales representatives have fewer than six months of experience.

Figure 2.2
Examples of Information Levels

Mouseover each section of the figure to see examples of what each level would be concerned with in relation to the information that could stem from the invoice creation process.

Source: Laudon & Laudon (2006)

The concept of sharing information throughout the organization is increasingly at the forefront of organizations' strategic planning, in addition to the more traditional information systems we have just described.