

## Chapter 2: Information Systems

### General Comments

There isn't much technology in this chapter. It could almost be moved as is into a strategy course. Students who have had such a course may have an edge with this topic. However, understanding the content of this chapter is vital to applying information technology to make a business successful. Students who learn these concepts here for the first time will have an edge when they take a strategy course later.

Most information system textbooks, probably including the one you used until now, cover these topics in an early chapter. Authors as a group agree that they provide an important foundation for what will come later. The big difference here is Figure 2.1, which connects the concepts. The intent of this connection, and of the rest of this chapter, is to enable students to see how information systems can help real organizations in real situations. If they can't do this, they're just a theoretical exercise—perhaps an interesting one, but not worth time in a required IS course.

### Recent Developments, Additional Sources

None for this chapter.

### Teaching Suggestions

If you've taught this course before, you probably used figures much like Figures 2.3, 2.4 and 2.8. They're much the same here as they were in your previous book. Other than adding Figure 2.1, which shows how they come together so they don't come across as unrelated frameworks, you can probably teach those topics in much the same way as you did before.

Regarding the soccer (football) example on pages 42–43: the airline industry provides a real-world example of the same effect. American Airlines developed the first computerized reservation system, SABRE. (It was originally available only to travel agents, since home computers with data links to them were not common at the time, but that doesn't affect the validity of the example.) While it listed flights on all airlines, it featured AA flights most prominently. The result was a substantial gain in AA's market share. Competitors fought back in two ways: by fighting this *display bias* in court as an unfair trade practice and by developing competing reservation systems that were free of bias and therefore more attractive to travel agents. They were eventually successful on both counts. Display bias is a thing of the past. Still, AA's market share gains did not disappear.

Students are often confused about new entrants versus substitute products. At what point does a new pizza shop, selling "Chicago-style" pizza that was previously not available in its area, become the seller of a substitute product rather than just another new pizza shop? Most would say a substitute has to be substantially different from existing products, not just baked in a deeper pan (or the equivalent in non-pizza contexts), but there is an element of judgment here.

Similarly, since Mazda cars generally overlap Hondas, most people would call a Mazda dealership in an area where there was previously none a new entrant into the auto market, not a substitute product. But what of, say, a Tesla store? Are electric vehicles another kind of car, or a substi-

tute product for vehicles that run on gasoline (petrol) or diesel fuel? And how does Tesla owning its stores, while Mazda and Honda dealerships are independently owned, affect this?

You can probably explain the difference well enough for practical purposes while recognizing that grey areas will always exist.

There is also often confusion between customer power and rivalry with competitors. I tried to address this in the last paragraph of page 44. You can see if students understand the difference by giving a few other examples and asking for a show of hands (or clicker button presses) regarding which force is at work here. Some examples:

- Nikon, in designing its D5950 DSLR camera to replace its aging D5900<sup>5</sup>, has its controls and menus work much the same way as earlier cameras in that series (dating back to the D5000 in 2009) worked. *Customer power. This gives existing Nikon customers a reason to stay with that series rather than buying a competitor's product which may be smaller, less expensive, or superior in other ways.*
- Mazda sends purchasers of its cars the monthly *Zoom-Zoom* magazine with articles about cars, featuring Mazda, and other lifestyle topics such as food, travel and entertainment. *Customer power. The magazine gives people an emotional tie to Mazda. This tie will motivate them to buy another Mazda next time even if a different car is objectively better for their needs at that time.*
- Mazda could enclose, with its magazine, a coupon for a 20 percent discount on an oil and filter change at a Mazda dealership. *Rivalry with competitors, though here those competitors are probably independent service stations. The coupon will have little long-term impact, since Mazda owners presumably already know that dealerships can change oil.*

In discussing the value chain, strategic choices, and response to competitive threats, I find it useful to emphasize that they involve tradeoffs. A firm that pares costs to the bone as part of a low-cost strategy may find it difficult to innovate in technology or provide outstanding service. Part of the manager's job is to make these tradeoffs. Understanding how tradeoffs work is part of what our students signed up for when they entered a management program.

## Review Questions

1. What is the ultimate purpose of using information systems in organizations? *Page 36: to improve organizational success, however a given organization defines success.*
2. Identify the three ways in which information systems can make a big difference to organizations. *Page 37, also on page 6: "connecting parts of the organization to each other, connecting organizations to their customers and suppliers, and helping make better decisions."*
3. What are the three basic types of business strategies? *Page 39: Low cost, differentiation, niche.*

---

<sup>5</sup> These are hypothetical numbers for possible future models. In 2015, the latest model in Nikon's D5000 series is the D5500. In the past they have gone up by 100 or 200 with each new model.

4. What are the five competitive forces that Michael Porter identified? *Page 41: Threat of new entrants, threat of substitute products/services, rivalry among competitors, customer bargaining power, supplier bargaining power*
5. Describe, briefly, the competitive force of *rivalry*. *It describes how the behavior of companies already in a market can affect each other.*
6. Describe, briefly, the competitive force of *customer power*. *It describes how companies can encourage or discourage customer loyalty.*
7. Describe, briefly, the competitive force of *supplier power*. *It describes how companies can encourage or discourage supportive actions on the part of their suppliers.*
8. Describe, briefly, the competitive force of *threat of new entrants*. *It describes how new companies entering a market can affect companies already in that market, and vice versa.*
9. Describe, briefly, the competitive force of *threat of substitute products*. *It describes how companies that offer new types of products or services can affect the companies that offer existing types of products or services that meet the same need, and vice versa.*
10. What does *value chain* mean? *The value chain is the sequence of activities that an organization goes through in order to produce valuable outputs from less valuable inputs.*
11. In the context of the value chain, what is the difference between *primary activities* and *support activities*? *Primary activities are fundamental to producing the organization's product or service. Secondary activities support the primary activities but do not contribute to the product or service directly.*
12. How are the value chain and the five competitive forces related to each other? *Information systems can leverage the competitive forces by improving the efficiency and effectiveness of various points in the value chain.*

## Discussion Questions

1. *Explain why the three ways that information systems can make a major difference to an organization's success, listed in the section "A Perspective on Information Systems," are more important in that regard than knowing how to use all the features of Microsoft Office or a similar set of applications.*

Because they improve the performance of a large part of the organization, not just that of one individual. Also, because they are concerned with the content of information, while many (not all) uses of personal productivity applications focus mainly on its presentation.

2. *Visit the link in Box 2.1 and answer the questions posed just before the link. Give reasons for your answers.*

Answers will vary from student to student. My opinion is that inertia will push most of these items out past the next five years, other than a few pilot projects of limited scope. However, I don't have a perfect crystal ball. Any answer is at best somewhat speculative. Students' reasoning is the most important thing here.

3. *Give examples of restaurants in your area that employ the three basic competitive strategies (one restaurant for each strategy). Explain why you think each fits its category.*

Price: El Caribe, New Bedford, Mass. Edible food, excellent value.

Differentiation: How on Earth, Mattapoisett, Mass. Freshness and locally grown products.

Niche: Turk's, Mattapoisett, Mass. Focus on seafood. Plain décor, a limited wine list, and few non-seafood dishes, but people flock to it because its fish/seafood is the best around.

Those are personal opinions of restaurants near where I lived in southeastern Mass. when I wrote this. Student answers will vary according where they live and their own opinions.

4. *When Japanese auto manufacturers began selling luxury cars in the U.S. after being known for inexpensive cars, they started new divisions with separate identities and dealerships: Acura (Honda), Lexus (Toyota) and Infiniti (Nissan). They did this even though it cost more than extending their existing lines with the same cars. Using competitive strategy concepts, explain why they thought this was worth the cost.*

They wanted to use a **differentiation** strategy. Having separate brand names made it look more as if these were new brands, not high-end models of existing brands.

5. *A city apartment cleaning service employs about ten people and cleans about 100 apartments: some weekly, some every other week. Its rivalry with competitors is about how it compares with other apartment cleaning services in the same city. Describe, in a few sentences each, what the other four competitive forces mean to it.*

Threat of new entrants: New cleaning services could drive prices down. This service can counter that threat by emphasizing its credibility based on stable history over several years.

Threat of substitute products: A substitute product might be a device that does a type of cleaning that, until now, had to be done by people. This service can counter that threat by staying informed on new developments and using such devices to keep its own costs down.

Bargaining power of customers: Customers can switch cleaning services easily. This service can counter that threat by offering discounted long-term contracts.

Bargaining power of suppliers: Suppliers can raise their prices, increasing the expenses of this service without enabling it to raise prices. It can counter that threat by pointing out to such suppliers that their products, or comparable ones, are available elsewhere and that a long-term customer is worth keeping by holding the line on their prices.

6. *Justin Thyme wants to start importing Chinese cars to the U.S., where they are not sold or well known. Explain how his venture would be affected by the five competitive forces. (Some might not matter.)*

Rivalry among existing competitors: Justin's competitors are importers of cars from other countries. Justin can compete by discussing other high-quality products from China, such as Apple computers, tablets, phones and watches.

Threat of new entrants: Once Justin is successful, others might also want to import cars from China. He can counter this threat by signing long-term contracts with the Chinese auto manufacturers he wants to work with.

Threat of substitute products: A substitute product might be a replacement for cars overall. Justin can work with other automobile importers and manufacturers to support regulations that will make it difficult to replace cars with anything else on a large scale.

Bargaining power of customers: Justin's customers are dealers whom he hopes will sell the cars he imports. He can reduce their bargaining power by limiting the number of dealers to fewer than the number of dealerships that want to carry those cars.

Bargaining power of suppliers: Justin's suppliers are the Chinese automobile manufacturers. He can limit their bargaining power by importing more than one make of car from China.

7. *Identify a well-known brand of consumer products, such as Fisher-Price toys. Is its position weak or strong with respect to each of the five competitive forces? Justify your answers. If you said it is strong with respect to a force, give an example of another firm that is weaker, or of a hypothetical firm that would be weaker. If you said it is weak with respect to a force, say what could make it stronger with respect to that force.*

This example will use Nikon cameras.

Rivalry among existing competitors: Nikon's position is strong. It benefits from an excellent reputation, especially among professionals, and a strong dealer network that does not hesitate to recommend it.

Threat of new entrants: In high-end cameras, Nikon can emphasize the benefits of a complete system with a wide range of components (such as lenses). Its position is strong in this regard.

Threat of substitute products: Camera manufacturers are threatened by increasingly capable smartphone cameras. Low-end cameras no longer sell well. Nikon can counter this threat by offering its expertise to smartphone manufacturers to supply the camera components of high-end phones, by producing and selling phone camera components, and by emphasizing that high-end cameras can do more than phone cameras. Still, its position is not very strong; there are several existing suppliers to smartphone manufacturers that focus on this market rather than competing with it.

Bargaining power of customers: Nikon limits the ability of customers to switch by encouraging them to invest in lenses and other accessories that work with all Nikon cameras but do not work with competitive cameras. It could encourage them more by shifting its pricing model so the camera body cost more but lenses cost less. It also has (as do its competitors) a menu and control system that, once a photographer masters it, discourages that photographer from moving to a different brand of camera. Overall, its competitive position here is moderate.

Bargaining power of suppliers: Nikon's suppliers are producers of glass, metal and plastic. It has specialized requirements that are probably not easily met. It would be hard to find alternate suppliers. That gives its suppliers a great deal of power. Nikon can counter this by using multiple suppliers where possible and by writing contracts that call for a long lead time before terminating them or changing their terms. Still, its position here is moderate to weak.

[If you assign this question, you might require students not to use Nike and perhaps not any athletic shoe firm. The reason: a good analysis of Nike is easy to find online in places such as

<http://www.trefis.com/stock/nke/articles/217421/marynike-through-the-lens-of-porters-five-forces/2013-12-02>

Or, ask students to analyze a different athletic shoe firm, using this as a starting point.]

8. *Visit [tgifridays.com](http://tgifridays.com) and read about their Give Me More Stripes loyalty program. Which competitive force does it leverage? Do you think it is effective in motivating people to eat there more often than they would otherwise? Why or why not? What changes to it would you recommend, and why? If you answered "none," explain why you think it can't be improved.*

This program leverages the competitive force of customers, by reducing it.

Personally, I believe it is effective in motivating people to eat there more often than they would otherwise. It probably doesn't get people to go out more, but it does get them to pick TGI Friday's over competitive chains when the decision is close. I would recommend that they add more kinds of rewards and allow rewards to be used together with discount coupons. That will reduce the degree to which people hoard points.

A correct answer must identify the correct competitive force, but may differ otherwise.

9. *Draw the value chain for your college or university. Start by defining its raw materials, or inputs, and its outputs. There is no single right answer to this question, so your answers will differ from your classmates'.*

Inputs should include high-school graduates, faculty time and facilities. Output should be college/university graduates. The main primary activity is classes (perhaps of various types, on-line and in-person). Other primary activities may include admission, registration, and more.

10. *Draw the value chain for an airline. Start by defining its raw materials, or inputs, and its outputs. There is no single right answer to this question, so your answers will differ from your classmates'.*

Inputs should include aircraft, crew, fuel, and passengers/cargo at their departure locations. Output should be passengers/cargo at their destinations. The main primary activity is flying passengers/cargo from departure to destination. Other primary activities may include selling seats, check-in, baggage handling, security (to the degree that it is an airline's responsibility), operating a frequent flyer program, and more.

Note on Questions 9 and 10: Students get a head start on these two near the bottom of page 49. If you don't want that, you can pick a different type of organization: a restaurant, television station, farm, wireless telephone carrier ...