

Chapter 2 The Internet Value Chain

Learning Objectives:

By the time students complete this chapter they should be able to:

- Distinguish between the following concepts: supply chain, value chain, and virtual value chain.
- Explain lean processes and greening the supply chain.
- List the business processes that are necessary to manage the supply chain.
- Identify the desired outcomes of an efficiently functioning supply chain.
- Identify the core marketing processes.
- Discuss the concept that all goods are services.
- Define EDI, ERP, and Web Services and explain their roles in integrating the value chain.
- Explain the nature of cloud computing and its relevance to supply chain management.
- Discuss the potential benefits and negative consequences of RFID technology in supply chains.

Chapter Perspective

Students need to recognize from the get-go that Internet marketing is much more than cool websites and interactive advertising. Perhaps that is the reason that reviewers of the first edition insisted that this chapter be near the beginning. It forms the basis of a solid understanding of the transformational change being created throughout the economy by the Internet. It also puts a subject that is essentially B2B near the beginning of the text. It's also a chance to point out to marketing students that, yes, their operations management course is relevant to their marketing career. You may also wish to put this in the perspective of the blurring of boundary lines between organizations and professional disciplines that continues to be characteristic of the Internet economy.

Users of the second edition will find this chapter less changed than most of the chapters. The sections on outcomes-driven supply chains and the service-dominant logic paradigm are new, as is the emphasis on cloud-based services. All the examples have been updated.

The Transformation of Herman Miller

The intent of this extended example is to draw students into a subject matter that may be unfamiliar to them and that they may have a tendency to consider theoretical and boring. The example is intended to show its relevance and to be lively enough to show that it is also interesting. Herman Miller has a good website, but supply chain issues are hard to see on a site. . If you want another example, students always seem to like automobiles.

The example is completely updated with input from Herman Miller. The SQA process that was central to the example in the second edition has been replaced by the lean initiative. You will still find many articles about SQA, but they did not even want it mentioned in this discussion.

The replacement is “lean thinking,” and their model is Toyota, both issues that are likely to be familiar to you, and hopefully to your students, from an operations course. Six Sigma and continuous improvement are also concepts that should be familiar and that are worth noting.

There is more emphasis in published material and on the Herman Miller website on their green initiative which has been ongoing for well over a decade. You might want to go live to their 2020 Perfect Vision Statement (<http://www.hermanmiller.com/about-us/our-values-in-action/environmental-advocacy/our-vision-and-policy.html>) and the associated pages to see the emphasis they place on this initiative. If you want to bring it home to the students, they have a yearly contest on “What Makes Your Campus Green?” Since campuses use a lot of office furniture, the PR tie-in is interesting: <http://www.hermanmiller.com/discover/pick-up-a-video-camera-and-answer-%E2%80%9Cwhat-makes-your-campus-green%E2%80%9D>.

Strategic Value Chain Concepts

Students may recognize concepts in this section that are borrowed or adapted from strategy material; if so, they are entirely correct. Relating this material to Porter’s basic strategy rubric is worthwhile. It is even more important for students to realize that both supply chains and channels of distributions are not new ideas. The issue is end-to-end integration, from earliest stage in the supply chain to the final consumer or business user. A colleague of mine who has worked in the field for decades points out that the operations management literature just refers to it as supply chain integration. Value chain is used in this text in order to stress the integration issue and distinguish it from the older concept of supply chain. Some like the term “virtual value chain” but the fact seems to be that integration requires the Internet and so it is *de facto* virtual. That makes virtual value chain somewhat redundant; quite possibly integrated value chain is also redundant.

The concept of outcomes-driven supply chains (Melnik et al., Sloan Management Review, Winter, 2010) is timely and relevant. They identify successful outcomes as:

- Cost: minimize cost while ensuring customer service
- Responsiveness: respond to changes in demand in a timely fashion
- Security: protect against external threats to the supply chain
- Sustainability: minimize environmental impact
- Resilience: be able to identify and react quickly to supply chain risks and disruptions
- Innovation: provide new products and new ways of distributing them that meet customer needs

Notice that greening of the supply chain is such an important issue at present that it is included as one of their successful outcomes. The trick is in successfully balancing all six outcomes. The Patagonia Footprint page <http://www.patagonia.com/us/footprint/index.jsp> is interesting on several dimensions. It is a great example of interactivity and it turns the cost and effort they expend on keeping their supply chain transparent and their carbon footprint low into a PR win. On the Digging Deeper tab they have 3 videos you might want to consider using or assigning for class discussion.

The core supply chain management processes (Table 2.1) are important but dry. Students should realize that they are empirically-based, the result of an extensive piece of research. Good examples would make this section more interesting, but they are hard to come by because they are very specific and not part of the mainstream marketing literature.

The Zara example engages students. Some of your students are likely to have shopped at Zara and may have interesting customer experiences to recount. Their interaction with customers is visible and students tend to find it memorable. Zara has an interesting website, but it doesn't give any insights into the supply chain issues. Students around the world love the retailer and its story and you will find many videos on YouTube, many of which are not in English. The academic video

http://www.supplychainer.com/50226711/supply_chain_video_the_way_zara_operates_its_supply_chain.php could be assigned as a video case for class discussion. If you want one to play in class try <http://www.youtube.com/watch?v=EAbJfkiwVg> which looks to be a student production.

The Value Chain

The “Jenga” supply chain model of Bain identifies four key factors in creating a cost-effective integrated value chain:

- Information search costs
- Transaction costs
- Fragmentation of the customer marketplace
- Standardization of products

The section on the Dell Direct Model (notice that it is still direct but no longer build-to-order) has been shortened with an attempt to retain all the relevant points. The “Jenga” graphic (Figure 2.5) shows how many activities (how much friction) have been cut out of Dell's chain. Dell, like Herman Miller, has been working on its value chain for many years. The time and effort it takes to create an integrated value chain is the reason that it becomes a sustainable competitive advantage.

At the same time Dell took a PR black eye when it ignored the customer service complaints of journalist and blogger Jeff Jarvis: <http://www.buzzmachine.com>. This is a well designed blog—a long list of tags in the right hand column includes Dell and leads you to his original posts and the subsequent ones in summer 2006 when Dell (and later Apple) recalled laptop batteries as a fire hazard. Figure 2.6 includes Dell's first initiative in reply, the Direct to Dell blog. It also includes the Idea Storm site, which has some wiki features, and its community forum page. Dell took a lesson from the PR disasters of almost a decade ago and listens to—and acts upon—the suggestions of its customers.

If your school is a corporate customer of Dell, you may be able to get access to the password for your school's Premier page and show it to your students. Even more interesting, you might ask the buyer who deals with technology products to talk about how the system affects purchasing activities and the school's relationship with Dell.

The three concepts used to describe the creation of a virtual value chain are:

1. **Visibility**—information systems that let managers know what is going on in the supply chain at all times. We will return to this topic at the end of the chapter with the discussion of RFID technology.
2. **Mirroring**—information systems, often available to both suppliers and customers, that puts data in the context of physical distribution activities.
3. **More Customer Value**—the final strategic issue is how to include customers in the benefits of integrated supply chain management.

Both the FedEx and the Frito-Lay examples have been updated, although there were not many major developments since the 2nd edition. Was that because both had developed a smoothly-functioning supply chain and now can concentrate on creating customer value?

The listing of the benefits of an integrated value chain lead into the discussion of Vargo and Lusch's service-centered dominant logic. Are all goods essentially services? That's easy for some of us to accept; perhaps unacceptable to others. The propositions listed in the chapter seem unarguable to marketers and some of them represent issues that will be discussed in chapters to come. They are:

- Goods are distribution mechanisms for service provision
- All economies are services economies
- The customer is always a cocreator of value (related to our discussion of social media marketing in Chapter 9)
- The enterprise can only make value propositions (related to the discussion of business models in Chapter 3)
- A service-centered view is customer oriented and relational (related to our discussion of CRM, Chapter 11).

The chart in Figure 2.8 continues to make the argument that integrated supply chains have been achieved in many enterprises with the emphasis shifting from costs and inventory levels to customer service, speed to market and greening the supply chain.

With that in mind we turn to the discussion of relevant technologies, and the major development, supplying business integration services in the cloud.

EDI, ERP, and Web Services

Students need to understand this material, although it is by no means glamorous. You might, however, be able to get someone from IT at your school or a local company to talk about an actual integration project. There may be enough current activity to illustrate that the higher education ERP projects have as one of their benefits student access to grades, records and online registration or officials may have less-than-fond memories of what it took to get there. A discussion of your school's IT systems helps make this material relevant.

EDI is the process that predates the Internet. You may remember the old cases and articles from HBS and HBR that describe the American Hospital Supply and McKesson systems and the competitive advantage they conferred. One reason was that no hospital or pharmacist wanted more than one system. Literally, there was not room for more than one dedicated terminal in most nursing stations and pharmacies. Walmart is always a good example. You can find a great deal of material on their systems if you want to expand on this discussion.

ERP is the activity that took center stage at institutions of higher education and corporations. If ERP is currently underway at your school, one of the consultants may be another possibility as a guest speaker.

Web Services is the activity that is most relevant to many marketing issues—and also the worst named. Wikipedia has a lengthy article with more technical data than you probably want. They have an interesting list of Web Services providers. In addition to Amazon, eBay and Google, they list Flickr and Blogger as Web Services providers. Amazon puts the link on their home page under “Make Money with Us.” eBay’s is a bit harder to find <http://developer.ebay.com/common/api>. Google has many APIs, as shown on a page called Code <http://code.google.com> which has a link to the Google Apps page for developers. Flickr makes for interesting exploration; some of your students may use it. If you are encouraging or assigning students to set up blogs, this is a good time to explore Blogger, although describing it as an API seems a bit tenuous to me.

Cloud services is clearly the development *de jour*. It is also clearly best referred to as Software as a Service (SaaS). That explains what is going on in a way that Web Services has never done. eBay is the main illustration in this section and they do as good a job of explaining it as anyone. There are other examples given in the PPT. For a student-friendly example you might go to one of the sites like H&R Block that offers income tax filing online. Students can easily contrast that with having to purchase tax software and then updates each year.

The RFID Future

Slides 21 - 23

RFID technology, as pointed out in the text, is not new technology. It is, however, only recently coming into widespread use. The RFID Association (<http://www.rfida.com/index.htm>) is one place for timely information. Another is the German site for the Future Store Initiative is very interactive and makes an interesting site to explore in the classroom: <http://www.future-store.org/fsi-internet/html/en/375/index.html>. The best page is the one for the supermarket of the future http://www.future-store.org/fsi-internet/html/en/459/index.html#anker_6226 which has interesting information and a link to apps. There is a video at <http://www.youtube.com/watch?v=eefUwLHLGWo>. Posted in 2008 it looks old, but many of these innovations have not yet seen widespread diffusion and it’s interesting. There’s a slightly longer one here <http://www.youtube.com/watch?v=oHKcDTY2v7s> that strikes me as less informative and more promotional.

The last section summarizes the benefits of business, and therefore supply chain, integration. Sometimes referred to as the 4 Vs of business transformation, they are:

1. Velocity—goes back to speed as a strategic driver
2. Visibility—one of the steps in creating an integrated value chain
3. Variability—also goes back to choice/customer power as a strategic driver
4. Volume—the importance of scale (critical mass) in being able to achieve integration. Think about how often the benefits of size have been touted in corporate mergers and acquisitions. In some industries like financial services where IT systems represent a major portion of their capital investment, scale may be a motivator for consolidation.

Discussion Questions

1. Differentiate between three key concepts: supply chain, value chain, and integrated value chain.

- Supply Chain. All the efforts to plan, produce and deliver products from raw materials to finished product.
- Value Chain. Every point at which economic value is added to the product or service as it moves through the process from earliest supplier to final customer.
- Integrated (Virtual) Value Chain. A channel in which all members are connected to one another and can communicate and transact electronically.

When the supply chain and the channel of distribution become part of the same system, it is a value chain (Figure 2.2). Digitizing the chain makes it virtual.

2. Marketing has three core processes: one of which is supply facing, one of which is essentially internal, and one of which is customer facing. Do you agree with this statement? Be prepared to explain why or why not.

This question is based on Figure 2.3 and the accompanying text. It lists the three processes as supply chain management, product development and management, and customer relationship management. Supply chain management clearly refers to supply-facing processes and issues. Product development and management is an internal activity although it must rigorously focus on customer wants and needs in order to be successful. Customer Relationship Management is clearly a customer-facing activity. The only process that is arguable in this conceptualization is product development and management, which represents internal activities that include extensive use of customer data. Remind students that this is not theory; it is a construct based on empirical research.

3. What are the business outcomes that are the result of a successful supply chain?

A supply chain has become more than a place where costs must be balanced against customer service, although that is still the first issue as listed in the text:

- Cost: minimize cost while ensuring customer service
- Responsiveness: respond to changes in demand in a timely fashion
- Security: protect against external threats to the supply chain
- Sustainability: minimize environmental impact
- Resilience: be able to identify and react quickly to supply chain risks and disruptions
- Innovation: provide new products and new ways of distributing them that meet customer needs

4. Do you agree with the concept that all goods are essentially services? Why or why not?

One way of looking at this is that advertisers have always known they must sell product benefits, not product features. It is not the product itself the customer wants; it is the benefits the product will provide.

5. What are the business practices used by Zara that have made it responsive to customer needs and successful financially?

The principle here is the same as it is for Dell. There are customer-facing practices that are visible and appealing—in the case of Dell, the direct model. As much or more of its success, however, can be attributed to supply chain integration and efficiencies, which are less visible to most students.

In the case of Zara, their ability to query customers on the selling floor, to capture that information and to transmit it to headquarters on a daily basis gives them a significant head start over most fashion manufacturers. It appears that designers at headquarters in Spain are highly responsive to that information. Then operations and the supply chain takes over. Zara has resisted the temptation to outsource manufacturing to low-wage countries, owning their own production facilities for fabric and garments in nearby European locations. It is able to get new fashion items into stores in about two weeks, using air transportation if necessary. This compares to six to eight months for their competitors.

So fashion is key; without it nothing else matters a great deal. However, the operational and supply chain capabilities make it possible to get that fashion to the customer in the current selling season—a feat that cannot be matched by others.

6. What stages is an enterprise likely to go through en route to a virtual value chain?

Answering this question requires an understanding of Figure 2.7, Creating a Virtual Value Chain. The first stage is visibility, in which information systems are created that allow participants to know exactly where their products are at a point in time. Systems like this are usually created initially for internal purposes. They create additional value in the chain when they are opened to

suppliers and customers. They call the second step “mirroring.” This describes the creation of information systems that represent each step in the chain and allow customers to manage activities through the system. In this step time-consuming and error-prone paper documents are replaced with electronic systems that provide real-time data to all participants. At this point an enterprise can consider a third step, the potential to add value for customers. This may be done by opening internal systems (production scheduling, for example) to customers or by adding features to the system (wireless access to order status data, for example). FedEx is an example of both types of added value and the purchase and integration of Kinkos, now FedEx Office has added to their value-creation ability.

7. Discuss integrative elements Dell has employed on (a) the supply side and (b) the customer side.

Supply side elements include:

- A small number of trusted suppliers
- Access to relevant Dell production and inventory data by means specialized pages like customer Premier Pages
- Careful assessment (certification) of supplier’s ability to provide quality products and meet production schedules
- Just In Time manufacturing that keeps inventory low and return on assets high

Customer-side elements include:

- Direct sales to customers by means of telephone and the Internet (small businesses and consumers) to its own corporate sales force
- Self-service through Dell’s extensive service database or telephone help by trained service representatives who have access to all relevant information about the customer and his system(s)
- Although not emphasized in the chapter, Dell’s direct model provides extensive customer data. In addition, it uses mechanisms like customer advisory boards to ensure continuous monitoring of customer issues.

The Premier Pages are essentially a passworded website for each customer. A Premier Page offers data tailored to the customer (which Dell systems are approved for purchase in that firm, for example) and often allows employees in the customer firm to place their own orders without extensive assistance from the IT department. The Premier Page also provides direct access to the customer service database elements

8. How does the combined use of EDI and ERP facilitate the development of an integrated value chain?

EDI is a facilitator of transactions between customers and vendors in the supply chain. ERP is the integration of separate systems within the enterprise.

Before ERP can be successful, business processes must be streamlined. It does no good, and has much potential for harm, to automate an error-ridden process or to link it to other processes within the firm.

Before EDI can achieve its full potential, systems within each partner organization need to be streamlined and integrated. It is equally problematic to connect to external systems that do not work properly.

There is a hierarchy to this process and it might be described as, “First, get your own house in order, then worry about systems that connect you to customers and suppliers.”

9. What potential advantages does Web Services have to offer over EDI and ERP?

Web Services provides a way to transact over the common platform of the Internet without a great deal of specialized hardware and software. It has the potential, therefore, to be much cheaper. It should also eliminate the need for much of the expensive integration with the systems of external suppliers.

On one level, because Web Services facilitates transactions between customers and suppliers, it does not have any direct relationship to ERP, which is entirely about the integration of internal processes. On another level, if internal processes are not integrated and smoothly functioning, it is unlikely that connectivity with external partners will be successful.

A “Web 2.0” Web Services application is APIs, as discussed above. The ability to let customers create their own store fronts or branded applications (Google Maps, for example) significantly extends the reach of the site. Even better, it does so with little selling/marketing/developmental effort on the part of site personnel, consequently it is highly cost effective.

10. What is meant by Web Services? Cloud computing?

Web Services provides a way to transact over the common platform of the Internet without a great deal of specialized hardware and software. In its original manifestation Web Services involved the creation of APIs that allowed one site to take advantage of functionality provided by another site. For instance, any website can easily connect to Amazon to sell relevant books or can develop apps to be used on Apple devices and, if approved, to be offered in its App store <https://developer.apple.com>.

Web Services have the potential, therefore, to be cheaper than ownership of systems. It should also eliminate the need for much of the expensive integration with the systems of external suppliers.

Cloud computing was first discussed in Chapter 1 as the most recent addition to the infrastructure stack. SaaS seems to be an easier term for students to get their arms around.

11. What is RFID technology? In what ways can it improve supply chain functioning?

RFID technology is based on a tag, essentially a chip with a tiny antenna. The chip is able to store product code data that has more detail than the currently-ubiquitous bar code. Information on the tag is accessed by a reader, which can be located in another part of the room. RFID can store more data and transmit it on a frequent basis. It makes it possible for manufacturers or retailers to know the whereabouts of items, on an SKU basis, at all times.

This is a good time to ask students how they would feel about taking home a number of tagged products from the grocery or drug store. The conclusion invariably is that they want the tags deactivated before they leave the store, just as library books are demagnetized before borrowers pass through the readers at the door of the library.

12. What are the four benefits of business integration?

The benefits are listed as:

- Velocity
- Visibility
- Variability (the ability to customize)
- Volume

Internet Exercises

The Internet Career Builder Exercise is not included in this chapter because the jobs are mostly in logistics or operations, not marketing *per se*.

- 1. Select an industry (e.g., automotive) or a specific company (e.g., Ford) or even better a pspecific product model (e.g., Ford Focus) and identify elements of its value chain. Where can information be used to decrease costs or increase customer satisfaction or both?**

You may find the Marketing Websites and Newsletters listing on www.marylouroberts.info useful in carrying out this assignment.

This is an exercise that will require both some research and some thinking. It actually takes quite a bit of research to completely document a value chain, so the words used are “elements of its value chain.” Automotive suppliers, for example, include everything from plastics molders who produce dashboards to suppliers of onboard navigation and communications systems. Retailer automobile dealers are obviously important, and there are various wholesalers in some parts of the industry.

Push students to be specific about members of the value chain, even if they do not specify the entire value chain. Otherwise, the simple answer to “where can information be used?” is “virtually everywhere.” Being specific about members of the value chain will give students the

opportunity to think specifically about how costs can be decreased or how customer satisfaction can be increased by better products, improved distribution, or excellent service.

- 2. Think about how you bought the text and other material for this class. It might have been at the college bookstore, at a local supplier, over the Internet, or some combination of all three. Identify the elements of the value chain that were necessary to get these products to you, the final customer.**

This exercise brings the concept of the value chain closer to the student by using a process with which each student can identify. The main members of the chain on the textbook side as well as the trade book side are authors, publishers, distributors and retail or ecommerce book sellers. This exercise represents a good opportunity for class discussion, since various students may have obtained their materials from different channel members. Why they choose the outlet they did, how good the service was, how satisfied they were, and whether it has affected their future purchasing plans are all questions about which students will have different experiences and opinions. Again, students may not recognize all the elements of the value chain without prompting, but they are likely to be vocal about their experiences at the point of purchase. This lays a good foundation for discussion of issues included in the business models chapters and the chapter on the Internet consumer.

- 3. Spend some time on the website for your school, college or department. How does that organizational unit use its website to help students visualize institutional processes, mirror activities carried on in the physical world, and increase the strength of relationships with students and potential students? What more could it do in each of these areas?**

Students might look at issues like, “Can a prospective student find all the information required and submit an application over the Internet?” or “If I want to declare a major in marketing, can I find out all I need to know about the requirements and how to declare the major on the website?” Is all the information there—visualization of the process from start to finish—and are all the elements present to allow the process to be completed on the web—mirroring the physical-world process?

Are the students satisfied with information only or do they want to be able to actually accomplish application and program-management activities on the website? They probably want to actually be able to do things. How satisfied are they with the way the website(s) function to help students do the things they need to do.

As an illustration, you could open the school’s website and have the class play a prospective applicant, searching for information and trying to complete the application process. This should lead to a good discussion of customer focus and making Internet activities appropriate to the needs, wants, and abilities of customers and prospects. If you are part of a multi-campus system, do a search at the most basic level (University of Massachusetts, for example). See where the search lands you and how easy it is to get the information desired. This can lead to a useful discussion of organizational issues in the development and management of websites.

- 4. Locate a news article on a marketing application of RFID technology different from those described in the chapter. Discuss the application in class, being specific about how it is improving a supply chain or other marketing process.**

Students will probably Google this, and that's fine. Hopefully they will come up with a variety of articles from a variety of sources (everything from Advertising Age to your local newspaper). This will illustrate how pervasive and important this technology is becoming. Remind them to look under News for the most recent publications.

- 5. Locate a nontechnical article about Web Services in general or cloud computing in particular and discuss the implications of this way of delivering technology.**

You could also ask them to locate a video not listed in the chapter. It would be easy to do so and the videos they come up with would be interesting.

Key Terms

channels of distribution the intermediaries through which products and information about transactions move in the course of a single exchange.

EDI (electronic data interchange) general term used to describe the digitizing of business information like orders and invoices so that they may be communicated electronically between suppliers and customers.

ERP (enterprise resource planning) integrating all aspects of the business from manufacturing resource planning and scheduling through service functions like human resources.

greening adopting environmentally sustainable business processes.

RFID (Radio Frequency Identification) tiny silicon chips with antennae that can receive and transmit information.

Six Sigma the quality management technique that results in near-perfect products, technically results that fall within six standard deviations from the mean of a normal distribution.

supply chain the downstream portion of the value chain, the channel from suppliers to producers value chain The integrated channel that stretches from suppliers through the producer and on to the end users.

tag a piece of code that identifies a page or an element on it.

value chain integrated channel that stretches from suppliers through the producer and on to the end users.

value essentially the usefulness (economic utility) of the product less its price.

virtual value chain term given to an integrated supply chain in which all transactions are conducted electronically.