

CUSTOMERIZATION: THE NEXT

REVOLUTION IN MASS CUSTOMIZATION

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ABSTRACT

In this conceptual paper, we propose that the next stage of evolution of mass customization is *customerization*—a buyer-centric company strategy that combines mass customization with customized marketing. Spurred by the growth of Internet and related technologies, many leading companies (e.g., Dell) are beginning to deploy customerization on a large scale. In this paper we define customerization, and describe how it is different from the related strategies of mass customization, personalization, and one-to-one marketing. We also describe the opportunities and challenges companies face in deploying a customerization strategy, and the potential benefits that they might realize.

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I. INTRODUCTION

A new type of mass customization is redefining marketing and business strategies. Many companies now offer highly customized products in a wide range of categories, including sneakers, coffee, dental products, newspapers, vitamins, bicycles, cars, golf clubs, eyeglasses, garden design, cosmetics, and greeting cards. Some companies, such as *priceline.com* and *DealTime.com* have customized the price determination process; they let customers specify their own prices and then try to locate providers who are willing to sell at those prices. Companies, such as Dell, establish custom websites (called premier pages) for their business customers, whose employees can then order computer configurations that have already been approved by their companies. These are examples of what we call *customerization*, a redesign of marketing from the customers' perspective. These companies are doing more than catering to new markets or delivering custom-made products at lower prices; they are transforming the practice of marketing from being seller-centric to being buyer-centric.

From Mass Customization to Customerization.

Customerization encompasses more activities and functions than mass customization of products. Hart (1996) defines mass customization as "using flexible processes and organizational structures to produce varied and often individually customized products and services at the price of standardized mass-produced alternatives." As an illustration consider Cannondale (www.cannondale.com). This company can configure over 8 million different frame and color variations in its bicycles. Likewise, Motorola's Bravo pagers can be configured in millions of possible combinations varying in such dimensions as color and shape. But how do these companies translate this ability to produce numerous product options into customized shopping, purchasing, and consumption experiences for their customers? This requires customized marketing, not just mass customization. In fact, mass customization is just a step toward realizing customized marketing. We propose the term "customerization" to distinguish

mass product customization from the new approach that combines mass customization with customized marketing.

It is important to recognize that to be good at customerization, a company need not have any manufacturing capabilities at all! As an illustration of customerization, consider the concept of *garden.com*, which tried to transform the nursery industry.¹ Typically, nursery customers go to a local store and select from about 200–300 plants, which in most cases, they have to transport back to their homes. In contrast, *garden.com* starts this process way up on the value chain. Its customers can start with a blank palette or any number of starting formats such as a Japanese or English garden and design a garden on their desktop computers, customizing their gardens to the configuration of their lot and local climate (at the level of the zip code). They can select from over 16,000 products and try out various landscaping options before deciding what their garden will be like. The site also contains an encyclopedia of information related to gardening, helpful hints for both amateurs and experts, and editorials, all designed to help customers in their decision process. Once customers design a garden, they can generate a "bill of goods" for the items in the garden with a click of the mouse. *Garden.com* then coordinates the supply chain for these products from its set of over 100 supplier partners and orchestrates the delivery of the products through FedEx, so that all of the items are delivered together in one shipment at the customer's door. The interesting aspect of this business is that *garden.com* does not own any nurseries nor does it take delivery of the plants, that is, it does not own a manufacturing process. Yet this company is able to create a customized product and a unique shopping and purchasing experience for each of its customers. Thus, customerization is more than just mass customization—it is a business strategy to recast a company's marketing and customer interfaces to be buyer-centric.

¹Although now in bankruptcy, the concept behind *garden.com* is sound and a good example of customerization.

Interestingly, customerization can be implemented with little prior information about customers, and the product itself can be manufactured after customers tell the company what they want to buy. For example, *priceline.com* sells a standardized product (airline seats), but customizes the price determination process, and (currently) requires no a priori information about the background of the individuals. As in the garden.com example, *priceline.com* can function effectively without any manufacturing facilities, by simply orchestrating the delivery of the chosen products and services.

Both mass customization and customerization are attempts to provide products and services that better match the needs of customers—they are two sides of the same coin. Both are IT-intensive. However, mass customization is IT-intensive on the production side, whereas customerization is IT-intensive on the marketing side. Also, customerization is inherently dependent on Internet and related technologies (particularly the WWW) as a vehicle for implementing this concept in an economical way.

Customerization begins with customers and offers them more control in the exchange process. However, companies can still decisively influence customer decision making and choice processes by framing the choice options—which aspects of the product and service can the consumer customize and which are given—by providing relevant information and education, and by making it easier, more engaging and cheaper for customers to deal with them than with competing firms. In fact, customerization is driven by a firm's desire to redefine its relationship with customers. In some sense, a firm becomes an agent of the customer—"renting" out to the customers pieces of its manufacturing, logistics, and other resources and allowing them to find, choose, design, and use what they need.

Customerization versus One-to-One Marketing and Personalization. Customerization is also an enhancement to one-to-one marketing and personalization, terms that are in wide use today. Peppers and Rogers (www.1to1.com) define one-to-one marketing as "marketing based

on the idea of an enterprise knowing its customer. Through interactions with that customer the enterprise can learn how he or she wants to be treated. The enterprise is then able to treat this customer differently than other customers." As implemented, one-to-one marketing is typically initiated by the firm (e.g., offering a smoke-free hotel room based on past preferences indicated by a customer). However, because one-to-one marketing is based on trying to predict what customers want, it may end up providing a customized product even when customers may not have a clear idea of what they want on a particular purchase occasion (e.g., a smoker may sometimes prefer to have a non-smoking hotel room). Peppers and Rogers also define personalization as "customizing some feature of a product or service so that the customer enjoys more convenience, lower cost, or some other benefit." It enables companies to satisfy highly heterogeneous customer needs at low costs. Personalization can be initiated by the customer (e.g., customizing the look and contents of a home page as in NetCenter or Yahoo!) or by the firm (e.g., a real estate agent determining the set of houses to show to a customer; greeting a customer by name when the customer calls a support line).

In contrast, customerization is a buyer-centric strategy. It is under the control of customers and initiated by them. Its focus is to help customers to better identify or define for themselves what they want—it is a way for companies to adapt personalization and one-to-one marketing for the digital marketing environment. Customerization exploits a "build-to-order" mass customization process to deliver a product or service that best fits the needs of the customers. In fact, the product is sold before it is produced! In contrast, at their core, one-to-one marketing and personalization are not necessarily initiated by customers nor executed under their control. More importantly, they do not closely integrate the production and supply chains with marketing. Instead they rely on modifying an established product or process at their periphery to fit the needs of specific customers. The main drawback of these strategies is that they could put a firm at a competitive

EXHIBIT 1

Differences between Personalization, One-to-One Marketing, and Customerization

	<i>Personalization</i>	<i>One-to-One Marketing</i>	<i>Customerization</i>
Locus of control	Customer/Firm	Firm	Customer
Customer co-design	Low	Low	High
Prior data about customers	Low	High	Moderate
Links to production/supply systems	Low	Low/Moderate	High
Links to customer systems (especially B2B)	Low	Moderate	High
Does it require build-to-order system?	No	No	Yes

disadvantage relative to nimble competitors, who are increasingly using more sophisticated customerization strategies.

The distinctions between customerization, personalization, and one-to-one marketing are summarized in Exhibit 1. These differences are particularly salient for Business-to-Business (B2B) companies. Companies such as *Freemarkets Online* and *Chemdex.com* are completely transforming channels and exchange relationships in B2B markets to be more buyer-centric. For example, *Freemarkets Online* offers a bidding mechanism in which multiple suppliers bid online on well-specified products and services that are put out for bid by firms. *Marshall Industries* (www.marshall.com) helps design engineers in the electronics industry to use the information and tools available at their site to design new products. Designers can custom-design products using parts from various suppliers. (Incidentally, *marshall.com* has been voted the best business-to-business site on the Web two years in a row by *Business Marketing* magazine.) B2B customers are also increasingly demanding deeper links into the production and organizational processes of their suppliers (e.g., for 24/7 access to order status, automatic inventory replenishment, remote diagnostics). To accommodate such customers, B2B companies need to offer more than customized products and services—they need to customerize their internal processes and supply chain partnerships to more fully meet the differing needs of their customers.

Exhibit 2 identifies alternative ways for customerization strategies to evolve in a com-

pany. The road to customerization is often through personalization and/or mass customization. Given the heterogeneity of products and market segments available to a company, an optimal strategy would often involve a portfolio of all four strategies identified in Exhibit 2.

In developing a strategy for customerization, a company should be guided not only by customers' wants and needs that are best satisfied by customized offerings, but also its operational capabilities. At one extreme is the situation where targeted customers have no need for customized offerings, and the firm offers standardized products (e.g., salt will probably continue to be sold in this way). At the other extreme are offerings where customers desire a high level of customization *and* the production process allows the customization of the product and service offerings at reasonable costs. Products with a large amount of "digital content" (e.g., software, music, business cards) fall in this category. Here, customization can be done by the customer, the firm, or by an intermediary. Finally, there are many products where some customer segments have needs that are best satisfied by product customization, but there may be significant costs (relative to selling price) involved in satisfying those needs (e.g., cars, IC chips, cosmetics). Here both customers and firms face a tradeoff situation, and the costs and benefits of customerization have to be evaluated carefully. For example, Nike offers customized sneakers (with customized engraving up to eight letters), but charges \$10 for the customization.

In summary, a firm's decision to move from

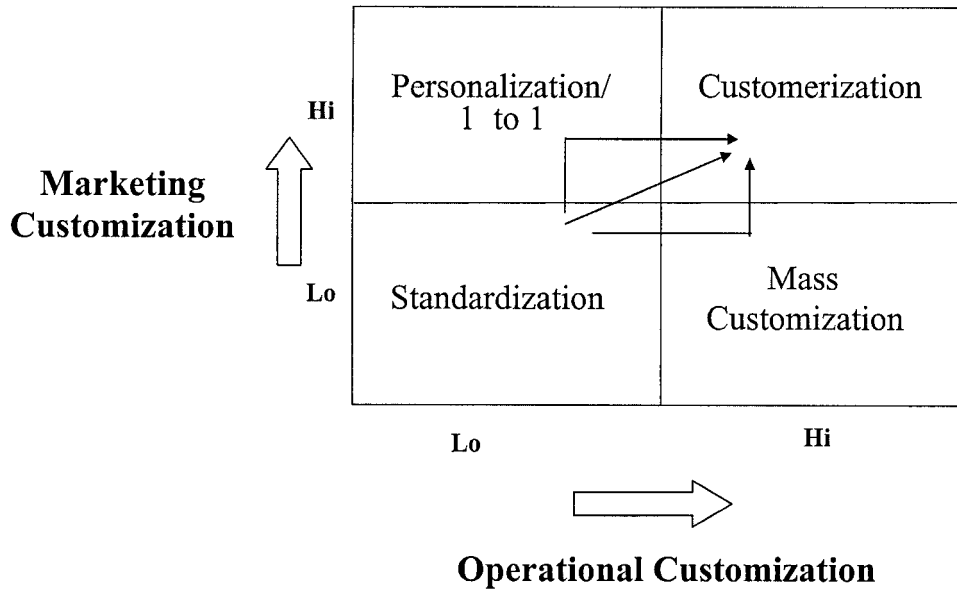


EXHIBIT 2
Pathways to Customerization

standardization to customerization is based on the changing customer needs and desires, their interest in customerization and ability and competencies to engage in this co-production process as well as the firms' technological and operational capabilities, and the business model it pursues. In this article, we use examples from leading-edge practice to help managers frame their thinking about what customerization means for their own companies. We summarize the reasons for the growth of customerization, its potential benefits, and the challenges of implementing a customerization strategy. For this article, we used both library research and interviews with pace-setting companies to gain an understanding of how customerization is transforming the marketing function, and how managers can take advantage of customerization to reinvent themselves by building strong and lasting relationships with their customers and thus, grow and strengthen their businesses.

The Next Revolution in Customization

The impact of mass customization on manufacturing is well known. The technology and strategy of lean production significantly changed the tradeoffs between efficiency and customiza-

tion, sending shock waves through manufacturing (see, e.g., Nicholas, 1998; Delbridge, 1998). While much attention has been given to the impact of customization on manufacturing, we are just beginning to understand its impact on marketing.

Early customization efforts were in the form of "made to order" products and services (e.g., furniture or tailored suits), which, however, had long lead times and were not tied to flexible manufacturing systems. The recent advances in flexible manufacturing, coupled with the collection of detailed information about customers, and advances in database marketing and its associated analytics [e.g., CASA's Adaptive Dynamic Marketing (ADM) and Relationship Value Tags (RVT)], enables firms to offer products tailored to customers' needs but at costs that are almost the same as that of standardized production and mass marketing. This shift is illustrated in Exhibit 3.

As shown in this exhibit, mass customization changed the centuries-old tradeoff between tailoring a product to the needs of specific customers and the costs/time associated with delivering the desired product. Continuing innovations in flexible manufacturing, inventory management, and integration of global

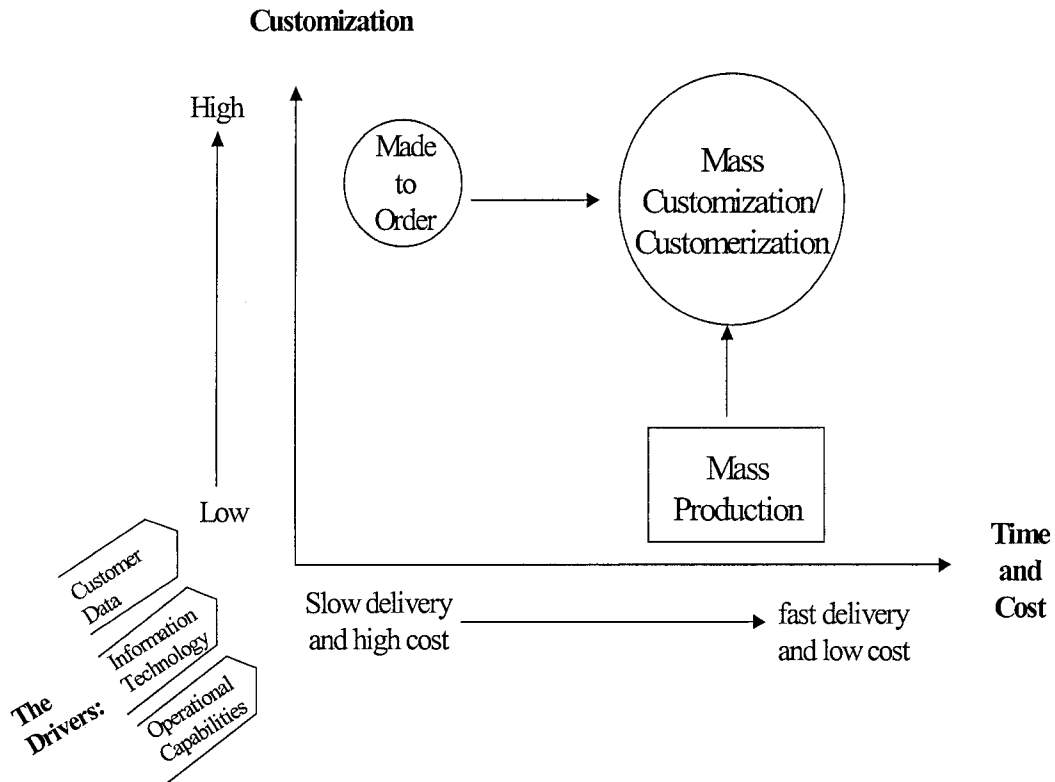


EXHIBIT 3
The Mass Customization Paradigm

supply chains have provided further impetus in favor of delivering customized products quickly and at reasonable costs. But the strategic impact of these developments has pretty much been played out in the marketplace in the last decade.

Increasingly, it is becoming evident that the customizability of marketing is a limiting factor for realizing further benefits from mass customization. Millions of manufacturing options are not exercised and less-than-satisfied customers stay with mass-produced products. One informal study determined that while an auto manufacturer ostensibly offered 20 million possible variations of a popular sports coupe, most customers chose from among the 20 or so models that were actually in stock at local dealers (Fisher, Jain, & MacDuffie, 1995). In contrast, Dell Computer Corporation was able to satisfy the needs of its customers better by producing 25,000 different computer configurations in 1999! Recently, the auto companies have an-

nounced plans to customerize. For example, General Motors announced a build-to-order system that would enable customers to custom-design cars online, which are then to be delivered within as few as four days. Such a system calls for a complete restructuring of the company—its order processing, manufacturing, and distribution. Cars would need to be redesigned to simplify manufacturing. Suppliers, factories, and dealers would be wired together via the Internet, helping the company to cut in half the \$40 billion in parts and unsold inventory the company carries at present (Simison, 2000).

Mass customization and customerization can offer significant benefits both to customers and the firms offering them. These are summarized in Exhibit 4. From the customer's perspective, the real benefit is the ability to find and or design products and services that meet their needs. There is some experimental evidence that customization increases satisfaction—customers allowed to specify their attribute prefer-

EXHIBIT 4

Potential Benefits of Mass Customization

The Experience to Date

For the Customers

- Better meets their needs and wants and solves their problems.
- For a significant segment, the benefits of customization is worth a premium price.

For the Firm

- Best protection against the commoditization of your products.
- Reduces/eliminates inventory.
- Provides opportunities for better value-added services.
- Provides, for the portion of the business that is manufactured for inventory, more accurate market information on changing customer tastes and the actual tradeoffs they make in choosing products. Also offers opportunities for more accurate forecasting.
- Helps redesign the operations and logistics, leading to processes that result in “better, cheaper, and faster” products and services.
- Helps in developing and maintaining customer databases and allows better utilization of IT to implement “segments of one” strategies.
- Get the customer to spend more on the products and services.
- Builds a relationship with customers, thus achieving higher customer satisfaction and loyalty.
- Offers opportunity for better channel management.
- Stimulates continuous innovation.

ences in selecting products were more satisfied (Huffman & Kahn, 1998). For firms that adopt a customization strategy there could be several benefits. Among the most significant benefits to the firm are the substantial reductions in inventory, the opportunity to enhance customer loyalty, and avoid the pitfalls of commoditization. For example, for 1999, Dell Computer Corporation (which uses a build-to-order system) had inventories of \$273 million on sales of \$18.2 billion (1.5%) whereas Compaq, which relies more on the traditional build-to-stock system, had inventories of \$2 billion on sales of \$38.5 billion (5.2%). When asked “Is it possible to

mass customize products, deliver them rapidly, and at the same time reduce cost?” Yes, said *Hewlett-Packard*, based on its experience in computers, printers, and medical products (Fetzinger & Lee, 1997).

With the continuing sharp decline in the costs of computing and communication, and the growing customer acceptance of online shopping, other limitations of traditional mass customization are increasingly becoming evident. A remarkable aspect of the digital marketplace is that it is infinitely re-configurable. Each customer can be individually guided during the shopping and purchase process: Only products of interest to a specific customer can be displayed using search features. Customers who are looking only for special deals can be offered unique promotions (e.g., stay at the hotel for 2 days instead of 1 and we will offer an additional 10% discount); customers who want to know what other customers thought about a particular product, could be offered testimonials from other customers, or guided to a chat area of the web site. These are just some examples of how marketing can be further customized in new ways in the online environment.

Customerization offers both new opportunities and also vexing problems for the traditional marketers. It is really a call to everyone in the marketing profession to rise to a new standard of interacting with customers and building relationships with them. The customer has to be viewed as an active participant in the process of creating and marketing the product or service. In effect, what was once a DC marketing circuit has become an AC circuit, alternating between the marketer and the customer. Customers are driving the process, searching for information they need to make choices, creating their own products and services, setting their own prices, and self-selecting themselves into segments.

While traditional marketing environments (mass-produced products sold through mass markets to target segments) will continue to play an important role in the economy, and while an increasing number of companies experiment with mass customization and personalization, the new type of marketing characterized by customerization represents a growing

EXHIBIT 5

The Changing Face of Marketing

	<i>Old Model—Mass & Segmented Marketing</i>	<i>New Model—Customerization</i>
Relationship with customers	Customer is a passive participant in the exchange	Customer is an active co-producer.
Customer needs	Articulated	Articulated and Unarticulated
Segmentation	Mass Market & Target Segments	Customized segments and “segments of one.”
Product and service offerings	Line extensions and modifications	Customized products, services, and marketing.
New Product Development	Marketing and R&D drive new product development.	Customer interactions drive new product development. R&D focuses on developing the platforms that allow customerization.
Pricing	Fixed prices and discounting.	Customer determined pricing (priceline.com; auctions). Value-based pricing models.
Communication	Advertising and PR	Integrated, interactive, and customized marketing communication, education, and entertainment.
Distribution	Traditional retailing and direct marketing	Augmented by direct (online) distribution and rise of third-party logistics services.
Branding	Traditional Branding & Co-Branding	The customer’s name as the brand; My Brand or Brand 4 Me
Basis of competitive advantage	Marketing power	Marketing finesse and “capturing” the customer as “partner” while integrating marketing, operations, R&D, and information.

and increasingly important segment of the business. It offers enormous opportunities for companies that are poised to take advantage of this new type of customization. In the online environment, marketers are able to better identify customer preferences and either focus their messages and products and services on meeting the needs of each individual, or allow the customer to customize the message and products and services they desire. Both can be done with the efficiency with which they once met the needs of mass or segmented markets. In fact, firms are only limited by their imagination and resources in the extent to which they adopt customerization strategies.

II. MARKETING IMPLICATIONS OF CUSTOMERIZATION

Customerization challenges everything we take for granted in Marketing. This is illustrated in Exhibit 5. What does a product line mean when

the customer designs the product? What should be the role of R&D? What pricing strategies are appropriate in a world in which customers set their own prices for airline tickets, hotels, mortgages, and automobiles? What does segmentation mean in a world in which every customer is a segment? A discipline that came of age in an era of mass markets and relied on traditional direct marketing methods to reach individual customers, now has to devise strategies to take advantage of the potential offered by viewing the customer as an active participant in the exchange process and a co-producer of the product and service offerings.

Relationships: From Passive to Active Customers

Traditional marketing often views the customer as a passive participant in the exchange process until the time of the sale. Customerization sees the customer as an active participant at every stage of the product development, purchase

and consumption process, and as the co-producer of the product and service offering. Lighting manufacturer Lutron Electronics, for example, has changed its mantra from “What can we do for you?” to “What can you do with us?” This philosophy has helped the company become the worldwide leader in the design, manufacture and marketing of residential lighting controls and systems.

Individually and collectively, customers now have the means to directly influence a company’s policies and strategies. For example, the growth of online product communities is profoundly altering the power structure in the exchange process. A compelling example is what happened to Intel in 1994. Andrew Grove, CEO of Intel, was forced to issue an apology on the Internet and revamp a proposed product return policy to soothe irate customers who were unconvinced about the steps the company was taking to resolve concerns about a possible flaw in the Pentium chip. Various chat groups at that time were discussing both the flaw and the solutions being proposed by Intel (*Wall Street Journal*, November 29, 1994). Likewise, the reluctant adoption of the MP3 standard by the music industry, after vigorous attempts by the leading industry players to thwart its adoption, is a testament to the clout that online customers have in decisively influencing the direction of entire industries.

Customer Needs: Focusing on Unarticulated Needs

Mass marketing focuses on articulated needs as stated by customers, or the marketer’s perception of consumers’ articulated needs. Customization focuses on both the articulated and unarticulated needs by guiding the customer through a design and discovery process. For example, companies have been notoriously inept at trying to figure out what customers want in interactive television. This product experience is so foreign that companies have to engage the potential consumer in a process of education and experiencing the new product or service as part of the design process.

Even some seemingly straightforward products such as windows or jeans are hard for cus-

tomers to visualize, let alone explicate their wants and needs. They cannot say exactly what they want, but know it when they see it. Technology offers ways to give customers product use experiences before the company produces the product. Andersen Windows uses a program called Window of Knowledge to allow customers to “see” how various Andersen windows would look in their homes. If a customer wants to install a new bay window in her kitchen, the program shows them the options inside and outside, including for example the impact of lighting on the kitchen.

Tailoring the Offering

Database marketing offers alternative approaches by which firms can tailor individual offerings and products to increase customer loyalty, dollar volume of purchases, and repeat purchases. First, companies that have made a commitment to one-to-one marketing are good at managing this information and communications process. In this way, companies can actually offer customers fewer options than mass marketers, because only the relevant options are visible. Second, firms can use innovative software, such as Firefly, a collaborative filtering tool, to offer creative recommendations to a purchaser of music, movies, books, etc., based on related products purchased by other customers who purchase the same product(s). Third, companies can ask customers to provide them information about their preferences, and then design products and services to conform to the stated preferences. Coffee manufacturer Millstone asks new customers what kind of salad dressing they like and whether they prefer the taste of dark or milk chocolate. The company uses the responses to these and similar questions to create a “Signature Blend” of coffee tailored to the taste of their customers and delivered directly to the homes. The customer’s name, rather than the manufacturer’s brand, is printed on each bag.

Peapod, an online grocery store, customizes the grocery shopping process. Its customers can create personal lists, such as products purchased frequently, products purchased for weekend parties, and products for special occa-

sions (e.g., Thanksgiving). Using this service, customers can greatly reduce their shopping time (frequent users can purchase \$200 worth of groceries in less than 10 minutes), eliminate product categories of no interest to them (e.g., pet food), keep running totals of purchases so that they can spend within their budgets, etc. Another way Peapod customizes the shopping experience is by helping customers to list items available on hand in their pantry and refrigerator, and then suggesting recipes where these items can be used. The company hopes that this process will identify a few missing items, which the customer would then order online.

New Products: The Real World Is the Laboratory!

Instead of accepting off-the shelf products, customers are creating their own products—from customized vitamins, to configuring computers, to building their own CDs. New products no longer come fully formed out of the labs alone, but arise through an interactive process of working directly with the market. Each customized product is a result of a co-design and production process of the customers and the firm. When this process is repeated across a number of customers, new insights emerge about customer preferences. Attributes and offerings that are not attractive can be dropped and those that are frequently requested can be enhanced.

Customers are helping many companies to configure a wide range of products on demand, including computers (Dell and others), bicycles (National Bicycle and Cannondale), CDs (CD-Now), vitamins (Acumin), designer jeans (Levi's), and newspapers (Wall Street Journal Personal Journal). Brad Oberwager, founder of Acumin, which offers customized vitamins, says customers stop thinking about the company as a producer of products and begin to view it as a service provider. The service is to give customers access to the manufacturing facilities to design and produce their own products.

By combining customer configuration with a mass production strategy, companies can also use the insights from the customized products to shape their mass-produced line. Customer design choices may portend emerging trends.

For example, National Bicycle in Japan uses its customized bicycle production to provide insights into hot colors or styles for its mass production line. In a similar vein, P&G's reflect.com website for customized cosmetics can provide insights into preferred product characteristics that can be incorporated into its mass-produced cosmetics.

To take full advantage of customerization for product design, companies need to give R&D a direct pipeline into the market and invite customers (figuratively speaking) into the laboratory. In fact, several hi-tech companies such as Microsoft, Netscape, and Texas Instruments (TI) have recognized the need to continuously engage the customer in the product design process. For example, TI posted the design specs for a new calculator (TI-92) at its website. This product is designed for use in schools and is targeted at schoolteachers as the primary purchase influencers. TI engineers then invited customer participation and feedback by sending e-mail to chat groups where high school teachers congregate on the Web. Thousands of teachers responded. A week later TI posted a revised prototype based on the responses. The design specifications were finalized only after several rounds of such interactions. Selling this product was much easier because it was tailored to customer needs and was "pre-sold" to customers who had played a role in creating it. The product went on to become one of the most successful calculators sold by TI. Interestingly, when a competitor quickly came out with a copycat product, many customers were incensed that a "competitor stole *our* ideas." The market owned the product, and therefore, the product owned the market!

All Prices Are Negotiable: The Global Bazaar

Pricing is becoming more fluid. Even before the advent of the online medium, industrial markets and third-world bazaars have long followed a customized pricing mechanism based on bargaining and discount schedules. The online medium has made it feasible to apply flexible pricing more broadly. Online prices can be tailored to specific users and raised or lowered instantly

for assessing price elasticity at different prices. The ability to create truly fluid pricing is only limited by customer acceptance. Technology is now available to vary pricing in ways that were not possible in the past. New in-store technology allows supermarkets to customize pricing based on specific times of the day through digital price labels or even to tailor discounts and coupons to individuals based on their past purchasing patterns. Dell has implemented a highly successful customized pricing mechanism through its premier pages program. It has set up password-protected custom websites for over 30,000 of its business customers by extracting the most relevant content from its public sites and then customizing each site with the specific volume-pricing agreement that Dell has concluded with each customer. The system is also designed to take into account the purchasing process and billing procedures specific to each client. Employees of a client firm can configure computer systems and directly obtain a price quote specific to that client.

A more radical form of pricing is the rise of customer-set pricing. The old mass-market model was that manufacturers and retailers set prices and customers paid them. *Priceline.com* and *DealTime.com* offer a reverse model of pricing, in which customers propose the prices (e.g., for such products as airlines, hotels, and mortgages) and producers determine whether they will accept them. This approach is more likely to work for non-customized products, such as airline seats, where the customer can easily shop around for the lowest price on the same product from a variety of sources.

Online auction sites have greatly expanded the appeal of auctions by customerizing the auction process. Companies such as *ebay* and *Onsale* have built successful businesses on this model. *Onsale* founder Jerry Kaplan predicts that retail markets will operate more like stock exchanges in the future, with prices fluctuating based on demand. Another interesting transaction model in this vein is offered by *Accompany.com*. The basic idea is to leverage the Internet to dynamically form a group of potential customers of a product (a "buying circle") to take

advantage of quantity discounts. The time of sale is announced in advance. As more customers join the buying circle, the price of the product continues to fall for the entire group.

Due to the influence of the online medium, we expect that all firms will be called upon to revamp their pricing strategies completely. The fixed one-price strategy of the past has been completely eroded over the past few years. In the years ahead, "dynamic pricing" that takes advantage of instantaneous market conditions will become the norm. Interestingly, these developments do not necessarily mean that prices will decline. In fact, several research studies show this (e.g., Lynch & Ariely, 1998; Shankar, Rangaswamy, & Pusateri, 1999). The convenience, time-saving aspects, and product matching features of online markets can increase the price a customer is willing to pay. For example, a Wharton School study found that by their fifth visit to Amazon.com, customers had shaved off 200 seconds from their purchase time. This represents about \$1.44 savings per visit, given the income levels of the sample.

When customers become familiar and comfortable with a shopping site it reduces their incentive to shift to other sites for lower price. Further, if a company understands the customer (e.g., by tracking and understanding what customers do while visiting its website) and facilitates the creation of a co-production process to produce a product and service tailored to the customer's need, there is relatively little opportunity or incentive for customers to comparison shop based on price. Customerization of the product or service adds so much value and strengthens the relationship, that the price becomes a less important factor. (Of course, if the price is out of touch with reality, customers may begin to substitute less customized products.) For example, as the only producer of customized vitamins, price is relatively unimportant for Acumin customers. As competition increases from other companies, this situation may change, but to the extent that companies can form deep relationship (based on their understanding of individual customer needs) and create value-added customized products and

services, they may be able to command a price premium.

From Broadcast Advertising to Interactive Edutainment

Education is a key part of facilitating customer decision making, and many companies are beginning to grasp the full significance of providing detailed information and knowledge to enable customers to become sophisticated buyers. Lutron created a display at the Ultimate Home Theater Experience in Innovations at Disney World's Epcot. Millions of visitors directly experienced "the magic of lighting controls." It shows them how different lighting can be used to make a room feel larger or smaller, warmer or colder. When Lutron introduces a new lighting product, its first priority is to educate the trade through public relations, advertising, trade shows, and training session. Lutron focuses on communicating these direct customer benefits rather than focusing on individual products. Customers might be better able to convey the feel or function they want from their lighting system versus simply specifying a particular dimming switch.

A growing number of companies are recognizing that the online medium provides an unprecedented opportunity to "mix what they *know* with what they have to *offer*" to provide true incremental value to their customers. For example, the value of a DuPont chemical is not just the chemical, but also the vast storehouse of knowledge that DuPont has about the potential applications of the chemical, its performance characteristics in various applications, the economic consequences of substituting that chemical in a particular process, etc. By making this knowledge become part of the customer decision process, both the customer and the company can win—the customer finds better products and may focus less on price and more on product benefits. Likewise, the potential success of most customerization sites depends on their ability to provide a supporting knowledge environment so that less price sensitive consumers spend more time and money over a lifetime in enjoying both the process of coproducing the product and using it.

Another challenge in the communication area is the move from passive one-way ads or P.R. messages from the manufacturer to the consumer, to a customized interactive communication in which the customer can interact with the provider and create a customized communication process whereby he or she selects and receives the information relevant to them. Services such as Pointcast (now entrypoint.com) and customized publications are increasingly being used, and most advertising agencies are experimenting with some form or another of interactive advertising and communication. The customerization of the content, format, the educational component and the entertainment/captivating power of the communication, its mode of delivery, and timing and place is becoming important to a segment of customers and will become an increasingly important part of the portfolio of communication activities of the firm.

Taking Distribution Off the Shelf

Distribution used to mean retail shelf space, or, in recent years, catalogs mailed to a large number of customers. However, as more customers go online and become more active participants in creating their products and services, it is becoming critical for firms to offer a direct channel to its customers. Of course, this has raised channel conflicts and many other complications for manufacturers who have relied heavily on their legacy distribution systems.

Close coordination with companies such as Federal Express enable manufacturers and distributors to move customized products such as vitamins, coffee, etc., or customized assortments of products such as groceries into the hands of customers without ever touching a retail store. Digital products such as CDs, books, software products, and movies can be distributed electronically, eliminating the need for a separate physical distribution infrastructure, apart from the Internet. For example, Xerox is planning to become a big player in the book business. From a central digital repository, the company hopes to be able to print 4-color books on demand in any quantity using specialized printers that are connected to a network. The interesting aspect

of this business is that costs are linear for any quantity, thus allowing a high degree of customization. If only 23 copies of a report are required for a board meeting, exactly that number can be printed at competitive prices.

Successful e-tailing may increasingly involve the use of creative distribution strategies. Consider for example the different distribution strategies used by Peapod and Webvan, who offer home delivery of supermarket groceries, versus Tesco, who encourages its electronic shoppers to pick up their order at the nearest store, versus Waitro, who deliver the electronic orders at the end of the day to the consumers' work place. While these distribution strategies are a major differentiation among these firms, one can easily envision the emergence of an e-tailer that offers consumers a choice among various distribution options.

The distribution channel is also becoming more customerized. In particular, mechanisms such as "reverse portals" evolve to aggregate and coordinate deliveries to the homes of customers from various suppliers. Already, FedEx and UPS are evolving in this direction. For example, when a customer placed an order with *garden.com* for plants and other items for landscaping, Fed Ex coordinated the deliveries so that items from several different suppliers showed up at the same time at the customer's residence. In fact, we expect the entire "fulfillment process" to undergo major changes in the years to come to evolve into a process that is entirely driven to meet customer needs for convenience in order fulfillment. The old milkman may not come back, but the functions served by the milkman will re-emerge in the digital economy.

Branding: The Consumer Name as a Brand

Reflect.com provides you, the consumer, not only a customized webpage (reflecting the consumer's lifestyle and preferences) and customized products (reflecting the best R&D can offer to address these needs, interests, desires, and preferences) but also a customized brand name—your name as the brand.

Other efforts to customize the brand, while capitalizing on the brand name of the manufac-

turer, include options such as Dell 4 ME or the numerous products and services for which a domain name beginning with "my" have been reserved.

All of these efforts are aimed at increasing the perceived customization of the product and services offering and the consumer ability to identify the resulting products and services as his or her product.

The "personalized branding" can be extended beyond the words to the consumers' own picture. Consider for example the picture postage stamps introduced by Canada Post. This new service allows consumers to design their own stamps with the photograph of their choice—themselves, their family, pets, or other personalized images.

Competitive Advantage: The Power of Finesse

Success used to depend on marketing power. Bigger was better and competitive strategies often resembled the "arms race" of the Cold War period: "You increase your sales force and I'll double mine." Increasingly, however, success depends much more on finesse—ability to deploy effort into areas that generate higher customer value than the added cost of providing that value. While huge marketing campaigns and massive ad budgets may still work, they are no longer as important for success as they once were. Given the direct channels for reaching customers, the increasing number of strategic options available, and the increased acceptance of co-marketing and other forms of strategic alliances and outsourcing, finesse is more important than brute strength. Amazon.com, using new technologies that offered an "easy search and order" process for books, customized recommendations for its customers, and a large number of "Associates" who are given monetary incentives to direct traffic to its site, has built a powerful online business. Within a short period of time, Amazon and MP3 have become widely recognized brands by spending just a fraction of the expenditures required to establish such well-known brands as AT&T. Companies that are savvy, flexible, willing to constantly experiment, and have finesse can

gain an advantage over traditional giants with resources that are orders of magnitude larger.

Companies with finesse and flexibility seem to be perceived by the financial markets as having a competitive edge in delivering high value to customers, as compared to traditional players. If market capitalization is viewed as an indicator of perceived competitive advantage, firms with finesse in the online medium seem to have an advantage (Compare, for example, the market caps of Charles Schwab versus Merrill Lynch.) As someone put it succinctly, "In the new competitive environment, the big will not eat the small. The fast will eat the slow."

III. INTEGRATING MARKETING STRATEGIES

As we explore the dynamics of customerization, it is important to understand that customerization, mass customization, and personalization and even standardization will exist side-by-side. The rise of the Internet does not replace standard broadcast advertising, but rather creates new two-way channels for interactively communicating with customers. Customerization is not a strategy that replaces traditional mass marketing, but rather it offers additional competitive options in developing an overall marketing strategy. The challenge facing the firm is, therefore, how to design and manage a customerization process along with mass-produced products and services. In some sense, this process is easier for companies that were built from the ground up as e-businesses (e.g., *Amazon.com* or the new Internet bank Wingspan) as compared to well-established companies with considerable investments in legacy systems and processes (e.g., General Motors).

For example, a pharmaceutical company might use traditional direct-to-consumer advertising and mass advertising and links to other websites to encourage potential customers to visit an informational website on heart attacks. At the site, customers fill out a questionnaire and then receive a printed or electronic newsletter targeted to their specific concerns—say quitting smoking or increasing exercise. The

newsletter can offer customized messages and products customers need. This personalization strategy could be supplemented with a process allowing the customer to customize the information and the products and services they would like to receive. Likewise, Levi's invites potential customers to kiosks at its store. This gives customers a chance to experience the customization process without being intimidated by it, and with help available close by. The customer engages in a 40-minute fitting process that provides enough information about the customer to create a good-fitting pair of jeans.

While technology makes the implementation of customerization easier and cheaper, the accompanying strategic and organizational decisions are actually more complex and more expensive. For example, to avoid spamming customers with e-mail and to be able to make the right offers on a website, the company has to be able to determine the right information to send to each customer. Databases and data mining techniques (Zahavi, 2000) can help in this process. Using database technologies, travelocity.com maintains customer profiles using information provided by the members themselves about the particular destinations and trips of interest to them. Whenever the fares change for any of the selected destinations or trips, travelocity.com sends out a customized e-mail (about 2 million per week) with this information. Seybold and Marshak (1999) indicate that customers welcome this type of customized e-mail promotion, which is one of the most successful programs at travelocity.com. Data mining is also critical in helping a company identify the customer segments most receptive to customerization.

Firms such as net.genesis and e.piphany are developing software systems that combine data mining technologies with customization strategies. These software systems allow companies to decide how much customerization to implement in their customer-facing operations. The amount of customization can also be decided dynamically depending on what a company knows about a customer, or what the customer does while at its website. However, to successfully implement these types of technologies, the

Acumin's Strategy

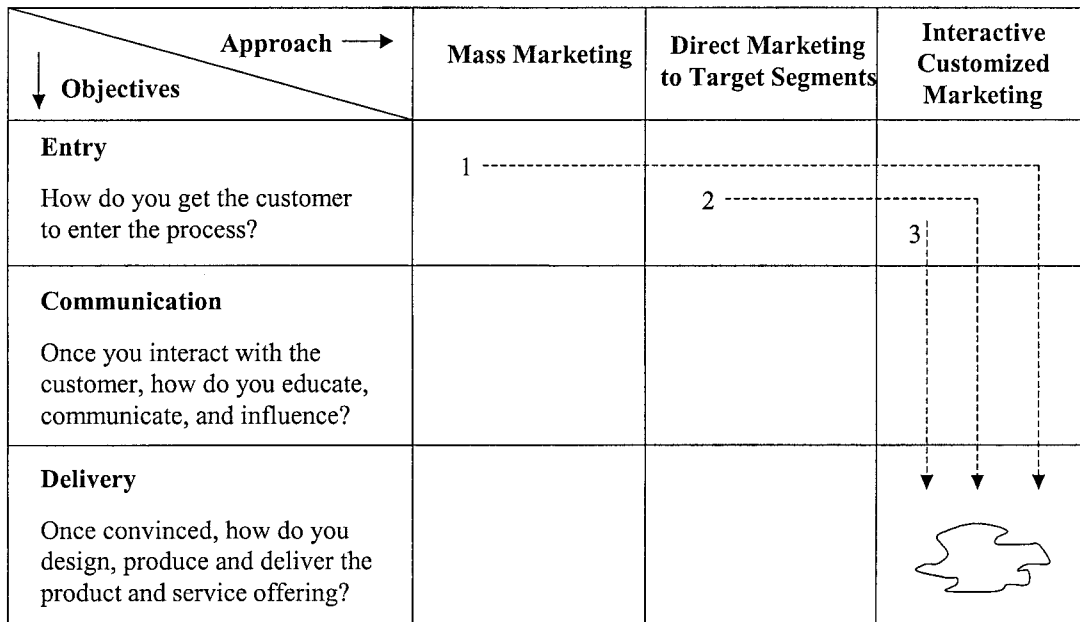


EXHIBIT 6
The Path to Customerization

entire company might have to be reorganized around a new order generation and fulfillment process as part of a customer-driven, integrated global supply chain, which in turn is linked to the firm's CRM (Customer Relationship Management) System. Effective CRM systems are increasingly linked to the firm's "one to one" initiatives and offer the customer opportunities to customize the content of the e-mails and other communications, products, services and offerings they receive. This is increasingly the case with American Airlines, Delta, and other airlines.

Decisions about where and when to customize and integrate this strategy with the other marketing strategies is one of the most critical challenges facing marketers. It is not enough to merely recognize the existence of customerization or to know how to do it well. Managers must determine the "optimal" portfolio of (a) mass marketing, (b) direct marketing to target segments, and (c) interactive customized marketing at each step of the business cycle. Some

of the diverse pathways are illustrated in Exhibit 6. As shown in this exhibit, there are alternative ways to bring customers through the process. Some companies will get the customer to enter through mass marketing, others will communicate through direct marketing to target segments and still others will create an ongoing relationship through interactive customized marketing. Obviously, companies may also select any combination of these three approaches.

For example, *Acumin Corporation* (www.acumins.com) enables customers to create their own specialized mix of vitamins to meet their needs. A tool available at their website called "SmartSelect" queries customers about their lifestyles and health and creates a personalized nutritional supplement. The user can modify the recommended composition and place an online order for the customized nutritional supplement. Thus, instead of taking dozens of different pills, customers can purchase a vitamin pill formulated to their individual needs. The company, as illustrated in Exhibit 6, brings cus-

tomers in through mass marketing, direct target marketing, and interactive customized marketing. Regardless of how they come in, however, the company's goal is to move the customer into an interactive relationship as quickly as possible (the star) through communications by phone or Internet. The company also delivers its product and services through interactive customized marketing. Although most of Acumin's customers buy customized products, about 10% still buy off the shelf.

The Challenges of Customerization

Customerization also raises a number of challenges including issues related to obtaining information from customers, the identification of the intangible factors that can make or break an offering, enhanced customer expectations, the need for limiting the complexity of options, pricing issues related to customized offerings, and the required changes to the entire marketing and business strategy of the firm. We discuss each of these in turn.

Knowledge Exchange with Customers. A key challenge is that for customerization to work effectively, there needs to be exchange of information and knowledge between companies and customers. This requires the company to "open up" some of its internal processes and structures to its customers. It also requires customers to be willing to share their attitudes, preferences, and purchase patterns with the company on an ongoing basis. Currently, the "knowledge transfer" occurs because of the novelty of the new medium, and because both the customers and the company become better off to some extent with such knowledge transfer. However, with increasing online competition and concerns about privacy, companies need to design privacy guidelines and incentive structures carefully to facilitate the knowledge exchange between themselves and their customers.

First, consider the privacy aspects. It is important to recognize that companies can obtain and provide information useful for customerization without having to know the identity of the customer. For example, Acumin provides access to its SmartSelect customization program with-

out asking for any information about the respondent's identity. Second, consider the incentive aspects. Customers must feel that they benefit in some measurable way by providing information to the company. This is more likely to happen if the company puts in place a structure in which it brings its own knowledge in the service of its customers. For example, if DuPont knows more about lubricants than any other company, then customers must feel that somehow that information was used to help them select the best lubricant for their applications, even if it sometimes means suggesting competitive products that may be best for a particular application.

Real-time conjoint analysis studies that allow the company to assess consumers' preferences while offering the consumers the results, as an aid in their decision process, have great potential to offer value to both the company and the consumers.

In general, as consumers become more empowered, one can also see the further development of search engines and decision support systems to help consumers make better decisions including the customization of the product and services they design and the associated information they seek.

Identifying Intangible Dimensions. Customized products without customized marketing often fail by focusing on the product itself rather than on the customer perceptions of and preferences for desired product and service attributes and their associated benefits. One of the reasons for the failure of *Custom Foot*, which offered mass customized footwear, is the subjective nature of fitting shoes. Two customers might be measured for a size 10 shoe, but one might prefer a tight fit while the other prefers a loose one. Some aspects of the styling and feel of the fit may not be captured by simply measuring foot size. In a shoe store, the customer tries on several pairs to find the right "feel," using measurements only as a starting point.

Somehow, firms have to find creative ways to customize the shopping and purchase experiences of their customers. For example, *Custom Foot* might send the customer three shoes of the

same size but with different width and height and allow the customer to keep the one that “fits” best. Or it could send out a special measuring instrument that would allow customers to experience the feel of a certain shoe and then communicate the best fit back to the company. Maybe this would require an initial visit to a store or visit from a traveling representative. Once these data are obtained, the company would have the information on file for repeat purchases. A customized marketing approach would focus more on finding ways to understand the unarticulated needs of customers.

Higher Customer Expectations. Just as the expectations of a customer who buys a suit off the shelf are far lower than those of the customer who buys a custom-tailored suit, the customerization process creates higher expectations on the part of customers. They expect the product they receive to match their needs and wants perfectly. If it fails to meet these higher expectations, they will likely be far more disappointed and dissatisfied than if they had bought a standardized product.

Companies need to have the marketing and manufacturing capabilities to maintain a one-to-one relationship and to deliver efficiently what the customer wants. At the heart of Levi’s custom jeans business is the technology for dynamic pattern making. At the core of Dell’s customized computer sales is an assembly process that can rapidly deliver exactly what the customers requests. Yet these technological solutions have to be augmented with a marketing communication program aimed at managing customer expectations.

Limiting the Options Offered to Customers.

The temptation in the customerization process is to give customers too many options, but this may lead to psychological shutdown. The key is to offer just the right amount of variety so customers are presented with the right choices without being overwhelmed. When *CD Now* first introduced its “Supersonic Boom,” offering customized CDs that can be assembled by selecting single tracks from a library, it provided customers with a search engine. Customers were over-

whelmed by the choices. The company had better success when it used a banner ad to offer a customized Christmas CD during the holiday season. Sales took off when customers were presented with a more manageable set of options. *CD Now* has also exploited opportunities for customized promotions by linking up with third parties. GM, for example, offers potential customers a free customized CD for test-driving a car. It allows customers to choose from a set of 30 song titles to create the CD, which it orders in quantity through *CD Now*. This is a great way to overcome pricing challenges (because the consumer doesn’t pay for the product) and limit options (so the consumer isn’t overwhelmed) while giving a substantial number of new consumers the experience of a customized CD.

The decision of how much customerization to offer depends, however, not only on consumers’ preferences and ability to handle the choices, but also on the nature of the product and its requirements to assure quality performance, capabilities of the available technology, the competitive offerings, and the implications of the target positioning, and value proposition.

One way to limit the options to the feasible set is to present standardized options packages, as is common in the automotive industry. This gives customers a starting point in developing more customized products. The automobile industry uses these options very effectively, but does not do as good a job at inviting customers to use these options packages as a starting point for more extensive customization. The manufacturers generally offer many options, but customers typically buy the cars on the lot. *Priceline.com* is also finding that without limiting the pricing options, many transactions go unrealized. According to Jay Walker, its founder, the company is able to convert only about 7% of the offers it receives into a successful transaction, and it realizes a profit of only \$5 to \$10 for each airline ticket it sells. The company is now encouraging customers not to bid below the lowest airfare offered by an airline.

Pricing. Mass-customized products do not always command a premium. Levi’s Personal Pair

and CD Now found that they could not charge a large premium for their customized products, but they could charge at the top end of the established price range for similar, standardized products. Customers were reluctant to spend extra for music beyond the \$11.99–\$16.99 for a standard CD. In fact, a recent study shows that customers actually paid about 9 to 16% less when purchasing CDs and books online, as compared to offline purchases (Brynjolfsson & Smith, 1999). This creates a challenge for companies who have to make additional investments to support customerization. Although some customers seem unwilling to give up the price benefits of standard products when buying customized products, a well-designed customerization strategy should offer opportunities for marketers to find creative ways to bundle products and services, thereby generating additional revenues through innovative “packaging,” cross-selling, and up-selling. In this context, of critical importance is the expected increased loyalty of the customer who customizes the product and service offerings. These factors—bundled products and services and loyalty—offer the firm opportunities to focus not on the price of the products but on maximizing the lifetime value of the customer and focus on creative value-based pricing models.

IV. IMPLICATIONS AND CONCLUSION

Customerization is a critical aspect of the emerging new marketing paradigm (Wind & Mahajan, 2000), which has enormous implications for a firm’s marketing strategy (as we discussed in section II), and, more importantly, for the entire business strategy and operations of the firm. Fundamentally, customerization requires an effective integration of marketing, operations, R&D, finance, and information. It also requires a reinvention of the firm’s orientation and processes, especially as they relate to R&D, operations, marketing and finance, and changes to the organizational architecture required to support this integration.

Where should a firm begin in implementing a customerization strategy? Aside from the required conviction that customerization is the

inevitable next development in marketing, the commitment to experiment with it, and the willingness to reinvent the firm and its organizational architecture, there are two critical aspects that management should consider:

1. **Increase the digital content of everything the company does.** In particular, the firm should increase the digital content of its offerings, and of the customer’s shopping and consumption experiences. Once these are digitized, it becomes easier to customerize. For purely digital products (e.g., music, news, etc.) and services (e.g., online stock trading), a firm is able to do this more easily. For digital products, there are inherently innumerable options for customers to choose from and customerization improves the fit between what the customer wants and what the firm can offer profitably; but there are also big gains from customerization even in the case of non-digital products. Consider two diverse products—automobile and a hot cup of cappuccino. It is now conceivable that we can digitize some elements of these products or their shopping and consumption experiences. Mercedes Benz recently introduced an online customizer—build your own E300 Turbo Diesel. The company is trying to digitize parts of the shopping experience. How about a cup of cappuccino? It is conceivable that a cappuccino machine could be designed to take into account the type of coffee beans, type and amount of milk, temperature, brewing time, etc. leading to a customized cup of cappuccino. Eventually, the cappuccino machine could become an Internet appliance that downloads the appropriate brewing instructions from the Internet, or is activated remotely over the Internet so that the coffee is ready when the customer comes home.
2. **Position the firm to become the customizer of its entire industry:** A major opportunity for companies is the possibility

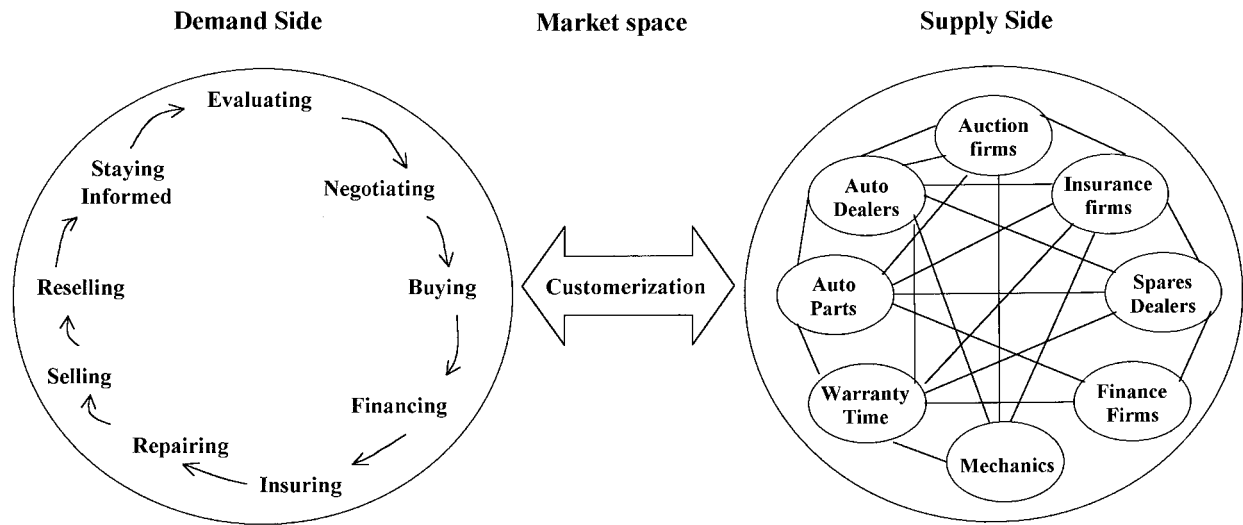


EXHIBIT 7
Customerization in the Auto Industry: Edmunds.com

Source: Adapted from a chart developed by Professor Mohanbir Sawhney.

that they could play a central role in digitally focusing the forces of supply and demand to create a new exchange process for customers. To be truly successful at customerization, a company must bring together the value chains of the supply and demand sides of a market. Exhibit 7 illustrates how Edmunds.com is trying to do this. It brings together the varied functions performed by the different players in the auto industry and delivers a complete shopping/purchasing experience for the customer. Such online intermediaries can also facilitate the ranking of standardized branded products by price as well as on quality or other desired attributes. To the extent that the intermediaries are customer-centric and allow the customer to customerize the products and services, customer loyalty may switch from the manufacturer to the electronic intermediary.

The travel industry is still organized by mode of travel (car, train, plane, etc.), places of stay (hotels, bed & breakfast, etc.), things to do (museums, restaurants), etc. But, what many customers (especially business travelers) are

looking for is a simple way to customize their travel plans, but without having to purchase different things from different vendors. At the same time, when leisure travelers are thinking of a vacation, they are not thinking of planes, cars, and the like, but romance, adventure, and getting away from it all! This market is in need of a customerizer.

In conclusion, the new concept of customerization described in this paper, together with other major trends such as the growing influence of the Internet and globalization, have major implications for the business strategies of all firms. Business strategies that ignore the opportunities associated with customerization are unlikely to be aligned well with the demands of the marketplaces of tomorrow. The current turmoil in the computer industry, where Dell is setting new standards for customerization, suggests that companies that do not adopt this concept are at a competitive risk. We expect that many businesses will benefit from customerization—it is a win-win proposition for both customers and businesses.

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