Customerization:
The Second Revolution In Mass Customization

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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 jeans, coffee, dental products, newspapers, vitamins, bicycles, cars, golf clubs, eyeglasses, garden design, and greeting cards. Some companies, such as priceline.com and DealTime.com have customized the price determination process, letting 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 web sites (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.

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Customerization encompasses a lot more activities and functions than mass customization of products. Mass customization, as it is often understood, is the ability of companies to offer a wide range of products and services using a common production platform, for meeting the heterogenous needs of its customers. For example, Cannondale (www.cannondale.com) can configure over 8 million different frame and color variations in its bicycles. 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? That 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 realize that to be good at customerization, a company need not have any manufacturing capabilities at all. As an illustration of customerization, consider garden.com, which is transforming the nursery industry. 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 and first design a garden on their desktop computers, customizing their gardens to the local climate (at the level of the zipcode). 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 50 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, i.e., 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.

Mass customization is IT-intensive on the production side. Customerization is IT-intensive on the marketing side, and is inherently dependent on Internet and related technologies (specifically the WWW) as a vehicle for implementing this concept in an economical way. 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. Mass customization represents the production side, and customerization represents the marketing. Customerization offers more control to customers. However, firms can still decisively influence customer decision making and choice processes by providing relevant information, and by making it easier and cheaper for customers to deal with them than with competing firms. In fact, we can say that 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 allowing them to find, choose, design, and use what they need.

Customerization is also different from Personalization and 1-to-1 Marketing, terms that are in wide use today. Personalization can be initiated by the firm (e.g., greeting a customer by name, or an online real estate agent creating a personalized page of houses for a client to visit), or by the customer (e.g., customizing the look and contents of a home page as in NetCenter or Yahoo!). However, at its core, personalization is a firm-centric strategy not a customer centric strategy. It represents a cheaper substitute for customerization because it does not closely integrate the production and supply chains with marketing. It amounts to selecting an established product or modifying it at the periphery to fit the needs of specific customers. The main drawback of Personalization as a strategy is that it could put a firm at a competitive disadvantage relative to nimble competitors, who are increasingly using more sophisticated customerization strategies. Exhibit 1 identifies three customization strategies. While a firm can select any of these, often the road to customerization would be through personalization or mass customization. Given the heterogeneity of all markets, an optimal strategy would often
In developing a strategy for customerization, a firm should be guided by the customer’s perceived need and desire for customization as well as the operational capabilities of the firm. At one extreme is the situation where customers have no desire for customization, and the firm offers standardized products to selected target segments (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. This customization can be done by the customer, the firm or an intermediary. This move from standardization to customerization is thus due to changing customer needs and desires, improved technology and the business model selected by the firm.

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.
Customerization: The Second 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 customization, sending shock waves through manufacturing. [See, for example, Nicholas, 1998 and 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). More recently the advances in flexible manufacturing coupled with the collection of detailed information about customers advances in database marketing and its associated analytics [such as 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 mass marketing. This shift is illustrated in Exhibit 2.

[Insert Exhibit 2]

As shown in the 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 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 and MacDuffie, 1995].

Mass customization and customerization offer significant benefits both to customers and the firms offering them. These are summarized in Exhibit 3. From the customer’s perspective, the real benefit is the ability to find and or design products and services that meet their needs. For firms that adopt a customization strategy then on numerous benefits. Among the most significant benefits to the firm are the elimination of inventory, the opportunity to enhance customer satisfaction and loyalty and avoid the pitfalls of commoditization. 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 and Lee, 1997].

With the continuing sharp decline in the costs of computing and communication, and the rapid customer acceptance of online shopping, the 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 by which marketing can be customized.

Customerization offers both new opportunities and 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) will continue to play an important role in the economy, and while an increasing number of firms experiment with mass customization and personalization, this new type of marketing driven by customerization represents a growing and increasingly important segment of the business. It offers enormous opportunities for companies that are poised to take advantage of this new customization paradigm. In this new 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 their 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 4. What does a product line mean in an environment in which 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.

[Insert Exhibit 4]

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, and in many cases, even after 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, or the marketer’s perception of articulated needs. Customerization focuses on identifying unarticulated needs by guiding the customer through a design and discovery process. Companies have been notoriously inept at trying to figure out what customers want in interactive television. The 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 customers to visualize. 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 the impact of lighting on the kitchen.

**Segmentation: Marketing to Segments of One**

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 how they like their steaks cooked 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, customerizes the grocery shopping process. Its customers can create personal lists, such as products purchased frequently, products purchased for weekend parties, and products for special occasions (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 produce their own products.

By combining customer configuration with a mass production strategy, firms can also use the insights from the customized products to shape their mass produced line. For example, National Bicycle in Japan uses its customized bicycle production to provide insights into hot colors or styles for its mass production line. To take advantage of this opportunity, companies need to give R&D a direct pipeline into the market and invite customers (figuratively speaking) into the laboratory.

Several hi-tech companies such as Microsoft, Netscape, and Texas Instruments (TI) have long recognized the need to constantly have the customer be part of the product design process. For example, TI posted the design specs for its new calculator targeted at school teachers (TI-92) at its web site and asked for feedback by sending e-mail to chat groups where high school teachers congregate on the Web. Thousands of teachers responded. A week later it posted a revised prototype based on the responses. Selling the final 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 offered by TI. Interestingly, when a competitor
quickly came out with a copycat product, many customers were incensed that a “competitor stole our ideas.”

**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 web sites for over 19,000 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 houses have taken local garage sales to the broader market. 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 completely revamp their pricing strategies. 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 and Ariely, 1998; Shankar et al. 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 per visit, given 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 web site) 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 will 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 garden.com depends critically on its ability to provide a supporting knowledge environment so that less price sensitive “weekend warriors” spend more time and money over a lifetime in enjoying their gardening hobby.

Another challenge in the communication area is the move from a 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 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 information content, format, the educational component and the entertainment/captivating power of the communication its mode of delivery and timing and place is becoming increasingly 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 products from virtual inventory into the hands of customers without ever touching a retail store. Peapod offers home delivery of supermarket groceries. 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.

In the future, the distribution channel will become more customerized. In particular, mechanisms such as “reverse portals” will 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 places an order with garden.com for plants and other items for landscaping, Fed Ex coordinates the deliveries so that items from several different suppliers show 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.

**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.” Now success depends much more on finesse. Huge marketing campaigns and massive ad budgets are no longer a prerequisite for success. Given the new 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 facilitated an “easy search and order” process for books and customized recommendations, built a powerful on-line business. Small players with savvy, flexibility and finesse can gain an advantage over traditional giants.
with resources that are orders of magnitude larger. 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 these new 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 web sites to encourage potential customers to visit an informational Web site 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 for giving them the right offers on a web site, the company has to be able to determine the right information to send to each customer. Databases and data mining techniques [Zahavi 1999] 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. However, to successfully implement data mining technologies, the entire company might have to be reorganized around a different order generation and fulfillment process as part of a new, customer driven, integrated global supply chain.
Customerization does not necessarily lead to streamlined marketing operations, nor does it necessarily reduce costs or decrease the size of the marketing staff -- in fact, it might just be the opposite. Over the past five years, Dell has significantly increased its marketing staff, from 35 to more than 600. However, the overall increase in value provided to customers and the increased loyalty that customerization can generate, more than compensates for the increased cost and it also helps the company to focus on the more strategic relationships that offer high leverage.

Decisions about where and when to customerize 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 5. 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 on-going relationship through interactive customized marketing. Obviously, firms may select any combination of these three approaches.

[Insert Exhibit 5]

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 web site 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 5, brings customers 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 percent still buy off the shelf.

**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 carefully design privacy guidelines and incentive structures 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 identify of the customer. For example, Acumin provides access to its SmartSelect customization program without asking for any information about the respondent’s identify. 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 all of 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 suggesting competitive products that may be best for a particular application.

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 perfectly match their needs and wants. 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 heart 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 consumer 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 shut down. The trick 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 overwhelmed 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.

Another way to limit options 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 CD’s and books online, as compared to offline purchases (Brynjolfsson and 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 upselling. 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 and Mahajan, 1999], 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, and information, a reinventing of the firm’s R & D orientation and process, and a change 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 and the commitment to experiment with it, there are two critical aspects that management should consider:

1. **Increase the digital content of everything the firm does.** In particular, the firm should increase the digital content of its products, 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 would be driven by the customers choice of coffee beans, type and amount of milk, temperature, brewing time, etc. leading to a customized cup of cappuccino.

2. **The firm should aim to become the customerizer of its industry by digitally focusing the forces of supply and demand to create a new exchange process for customers:** To be successful at customerization, a firm must bring together the value chains of the supply and demand sides of a market. Exhibit 6 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.

[Insert Exhibit 6]
In an approach similar to Edmunds.com, marshall.com brings together a number of suppliers of electronic parts (e.g., Intel, TI, Motorola, etc.) at its web site so that design engineers can plan/design a product using the design tools available at Marshall’s site. The engineers can customize their design 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). Another successful story of customerization is ebay, the online trading community. They have customerized the garage sale. Sellers can easily list items for sale (old comic books, toaster, printer, whatever) and buyers can find things that are not easy to find in regular markets (the exact china set they remember seeing at their grandmother’s when they were young). Customerization works because it is now inexpensive to take digital pictures of items and post them at the ebay site to create one’s own market.

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 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.


Zahavi, Jacob, "Data Mining" in Wind and Mahajan, eds., Digital Marketing (forthcoming 1999).
Exhibit 1
From Standardization to Customerization

<table>
<thead>
<tr>
<th>Marketing customization</th>
<th>Operational customization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hi</td>
<td>Lo</td>
</tr>
<tr>
<td>Personalization/1-to-1</td>
<td>Standardization</td>
</tr>
<tr>
<td>Customerization</td>
<td>Mass Customization</td>
</tr>
</tbody>
</table>
Exhibit 2

The Mass Customization Paradigm

The Drivers:
- Customer Data
- Information Technology
- Operational Capabilities

Customization

High

Low

Made to Order

Mass Customization

Mass Production

Time and Cost

Slow delivery and high cost

fast delivery and low cost
Exhibit 3

Potential Benefits of Mass Customization

The Experience to Date

For the Customers
- Better meet customer needs and wants and solve their problems.
- For a significant segment, the benefits of customization is worth a premium price.
- The customer influences part of the design and production process.

For the Firm
- 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 of operations and logistics, leading to processes that result in “better, cheaper, and faster” production and delivery of products and services.
- Helps in developing and maintaining customer data bases and allows better utilization of IT to implement “segments of one” strategies.
- Get the customer to spend more on the products and services.
- Builds relationship with customers, thus achieving higher customer satisfaction and loyalty.
- Offers opportunity for better channel management.
- Stimulates continuous innovation.
### Exhibit 4

**The Changing Face of Marketing**

<table>
<thead>
<tr>
<th></th>
<th>Old Model (Mass Marketing)</th>
<th>New Model (Customerization)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Relationship with customers</strong></td>
<td>Customer is a passive participant in the exchange</td>
<td>Customer is an active co-producer</td>
</tr>
<tr>
<td><strong>Customer Needs</strong></td>
<td>Articulated</td>
<td>Unarticulated</td>
</tr>
<tr>
<td><strong>Segmentation</strong></td>
<td>Mass Market</td>
<td>Customized segments of one</td>
</tr>
<tr>
<td><strong>Product and service offerings</strong></td>
<td>Line extensions and modifications. Marketing and R&amp;D drive new product development.</td>
<td>Customized products, services, and marketing. Customer interactions drive new product development. R&amp;D focuses on developing the platforms that allow customerization.</td>
</tr>
<tr>
<td><strong>Pricing</strong></td>
<td>Fixed prices and discounting.</td>
<td>Value based pricing models; Customer-determined pricing.</td>
</tr>
<tr>
<td><strong>Communication, education and entertainment</strong></td>
<td>Advertising and PR</td>
<td>Integrated, interactive, and customized marketing communication.</td>
</tr>
<tr>
<td><strong>Distribution</strong></td>
<td>Traditional retailing and direct marketing</td>
<td>Direct (online) distribution and rise of third party logistics services.</td>
</tr>
<tr>
<td><strong>Basis of competitive advantage</strong></td>
<td>Marketing power</td>
<td>Marketing finesse and “capturing” the customer as “partner”</td>
</tr>
</tbody>
</table>
Exhibit 5

The Path to Customerization:

Acumin’s Strategy

<table>
<thead>
<tr>
<th>Approach</th>
<th>Mass Marketing</th>
<th>Direct Marketing to Target Segments</th>
<th>Interactive Customized Marketing</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Entry</strong></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>How do you get the customer to enter the process?</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Communication</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Once you interact with the customer, how do you educate, communicate, and influence?</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Delivery</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Once convinced, how do you design, produce and deliver the product and service offering?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Exhibit 6

Customerization in the Auto Industry: Edmunds.com

Demand Side  Marketspace  Supply Side

Evaluating  Negotiating  Customerization

Staying Informed

Reselling

Selling

Repairing

Buying

Financing

Auction firms

Insurance firms

Auto Dealers

Auto Parts

Warranty Time

Finance firms

Spares Dealers

Mechanics

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