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# Growth Through Product-Sharing Services

Michael D. Johnson

*Cornell University School of Hotel Administration, mdj27@cornell.edu*

Andreas Herrmann

*Johannes Gutenberg Universitat, Mainz*

Frank Huber

*University of Mannheim*

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## **Abstract**

The authors argue that product-sharing services, where companies offer customers the use of a physical product on a limited basis at a lower cost, offer an overlooked opportunity for growth. The primary advantage of product-sharing services is that they leverage a firm's core product development and production capabilities to expand their portfolio of offerings and market segments. A framework is developed for distinguishing likely candidates for product sharing from unlikely candidates based on product, customer, and company-strategy considerations. An empirical study of a new car-sharing service at Daimler-Benz is then used to illustrate the development of such a service, its strategic advantages, and the challenges involved.

## **Keywords**

product sharing, consumer evaluations, car sharing, new distribution infrastructure

## **Disciplines**

Management Sciences and Quantitative Methods

## **Comments**

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# Growth Through Product-Sharing Services

**Michael D. Johnson**, University of Michigan Business School

**Andreas Herrmann**, Johannes Gutenberg Universitat Mainz

**Frank Huber**, University of Mannheim

*The authors argue that product-sharing services, where companies offer customers the use of a physical product on a limited basis at a lower cost, offer an overlooked opportunity for growth. The primary advantage of product-sharing services is that they leverage a firm's core product development and production capabilities to expand their portfolio of offerings and market segments. A framework is developed for distinguishing likely candidates for product sharing from unlikely candidates based on product, customer, and company-strategy considerations. An empirical study of a new car-sharing service at Daimler-Benz is then used to illustrate the development of such a service, its strategic advantages, and the challenges involved.*

Product-sharing services represent an overlooked opportunity for growth. Taking a core physical product and offering customers use of the product at a lower cost on a limited basis stands to leverage the core competencies of traditionally product-focused firms (Prahalad and Hamel 1990). Yet, most services marketing research has not focused on the strategic advantages of service development. Rather, service research has focused on such issues as the inherent difference between products and services (Schneider and Bowen 1984), the determinants of service quality (Rust and Oliver 1994; Zeithaml, Berry, and Parasuraman 1993), understanding the service encounter (Bitner, Booms, and Tetreault 1990; Solomon *et al.* 1985), and the design of an effective service experience (Berry 1995; Heskett 1986; Heskett *et al.* 1994).

The goal of this article is to explore the development of product-sharing services as an effective growth strategy. We argue that such offerings are one approach that product-oriented firms can use to increase their “hit” rate when developing value-added services. Product sharing is, quite simply, a means of transforming a physical product into a service. A prominent example is time-share housing in which a customer purchases not a house or condominium per se but rather the use of the same physical product at particular times. Another example, explored herein, is that of an automotive company that sells the use of a vehicle at certain times and under certain conditions rather than the purchase or lease of a vehicle outright.

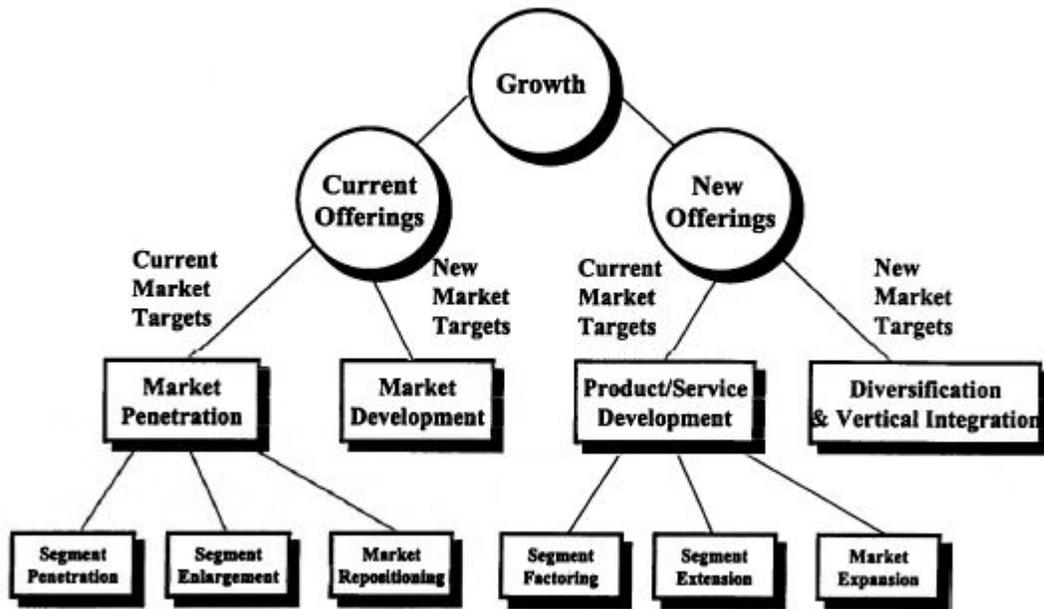
We argue that product-sharing services provide direction to the development of value-added services that potentially strengthens, rather than compromises, one’s competitive advantages. After reviewing traditional approaches to growth strategies, we describe the advantages of growth through product-sharing services. We then describe a framework for identifying physical products that are candidates for product sharing. An empirical study of one such candidate—a new car-sharing service at Daimler-Benz—illustrates the development and strategic advantages of product sharing.

## **TRADITIONAL GROWTH STRATEGIES**

To understand the strategic advantages of product sharing, it is important to highlight the trade-offs involved in choosing a growth strategy. Considered alternatives for growth are typically viewed as falling into one of four categories (Aaker 1995; Ansoff 1965; O'Shaughnessy 1984). One may focus on current offerings either to increase sales to an existing market (customer) base or to develop new markets. Alternatively, one may focus on developing new offerings for either current or new target markets. As illustrated in Figure 1, these distinctions highlight four traditional growth strategies: (a) market penetration (current offerings, current markets), (b) market development (current offerings, new markets), (c) product/service development (new offerings, current markets), and (d) diversification and/or vertical integration (new offerings, new markets). Following O'Shaughnessy (1984), market penetration itself encompasses a variety of strategies including segment penetration (selling more to an existing market segment), segment enlargement (selling to an enlarged geographical area), and market repositioning (selling to new segments of the same market). In contrast, market development would include completely new markets or applications for either a product (such as using an agricultural product in a construction context) or service (such as using a delivery process to distribute products to end users in addition to businesses).

Product/service development also encompasses a variety of strategies including segment factoring (bringing out a new product or service to compete side by side with existing products), segment extension (customizing products or services for new geographic areas), and market expansion (developing a product or service for a new

**FIGURE 1**  
**Traditional Growth Strategies**



market segment). Finally, diversification and/or vertical integration represent more extremes forms of growth in which the emphasis is neither on current offerings nor on markets. As argued later, product-sharing services offer elements of both market penetration and service development.

Prominent examples of successful and unsuccessful product and service growth illustrate the trade-offs among these strategies. USAA and Charles Schwab have developed successful new service offerings for their current customers (such as boat insurance and investment counseling). Traditional service organizations have also begun to distribute physical goods through their service outlets (such as the U.S. Postal Service's distribution of mailing envelopes and other materials). Even traditional physical-product-oriented firms, such as IBM and General Motors (GM), have

developed successful service offerings with multibillion-dollar market values. IBM has expanded successfully both their customer and consulting services into reengineering and database management, whereas GM has developed a whole portfolio of insurance and financial services within GMAC.

At the same time, we are often reminded of the difficulties faced by product-oriented firms attempting to grow through service development. Xerox's unsuccessful move into financial services (as a solution to market share and profit losses in its core copier markets) is a prominent example. And after diversifying into non transportation-related product and service industries during the 1980s, Daimler-Benz has spent much of the 1990s refocusing on transportation products and markets to increase growth and profitability. The Daimler-Benz InterServices (debis AG) company within the Daimler-Benz Group was developed specifically for the purpose of offering external customers financial, information technology, telecommunications, and other services that are explicitly and strategically linked to core transportation products, particularly in the automotive and aerospace industries.

Taken as a whole, these examples illustrate that the key to successful growth lies in a firm's ability to leverage existing skills and resources (Barney 1991; Conner 1991) or core competencies (Prahalad and Hamel 1990). This resource-based view of competition and growth recognizes that organizational learning, or the accumulation of skills and resources, occurs with respect to both what a company does internally and who it serves externally (Nonaka and Takeuchi 1995). Accordingly, market penetration and development strategies allow firms to leverage internal expertise in the production of a product or delivery of a service. Similarly, following Figure 1, market penetration and product/service development strategies, both of which involve the same market targets, allow firms to leverage their understanding of particular target-market customers. Put simply, a company generates a core competency with respect to both what it offers and those customers it serves.

The implication is that the "safest" growth strategy in Figure 1, that which involves the least amount of risk, is market penetration. Here, both forms of expertise are leveraged and strengthened. However, market penetration limits growth to a given

offering and market. In the long run, market penetration is a relatively low-risk but limited strategy. Alternatively, even though the possibilities for growth through diversification into new offerings and markets are endless, the risks are extreme. Firms have no particularly unique resources or skills to leverage. This was evident in Xerox's reemphasis on being a "document" company and Daimler-Benz's focusing back on its core transportation-related products and services. Market development and product development lie between the two extremes. Whereas market development leverages an organization's ability to provide a particular offering, product/service development (as defined here) leverages an organization's understanding of their market or customer base.

## **GROWTH THROUGH PRODUCT-SHARING SERVICES**

The discussion suggests that product-oriented firms looking to grow through service development should look closely at the skills and capabilities they can leverage in the process. Despite the fact that services and service-related industries have come to dominate the economic landscape (Hoffman and Bateson 1997), the strategic trade-offs faced by such firms have not been emphasized. Rather, explanations for the significant growth of services in recent decades have focused primarily around such factors as rising income levels, nonproductivity of services, urbanization, deregulation, the increase of women in the workforce, demographic shifts, growth in government, environmentalism, general economic growth, changes in customer demand, specialization of labor, and international competition in the economy (Shugan 1994).

We argue that the development of product-sharing services is an overlooked growth option for traditional product-oriented companies. A product-sharing service is defined here as offering a customer the use of a physical product at particular times over a contract period. The product is physically shared because other customers have the opportunity to use the same product (such as a house or car) at different times during the same contract period. Product sharing is distinguished in this regard from traditional ownership, leasing, and rental options. For example, a customer who owns,

leases, or even rents an automobile does not have to share the vehicle with any other customer over the period of ownership, lease, or rental. Product sharing is essentially the time-sharing of a tangible good. The trade-off is that the product is made available at a lower cost to customers who want limited access to the product over a period of time.

The primary strategic advantage of product sharing is that it combines elements of market penetration and service development. Consider three examples of product sharing for an existing automobile. One is to market the service of a second vehicle to current owners as a form of segment penetration (selling more to the same customer). Another is to target the service to customers in dense urban areas where parking is problematic and expensive, mass transit options exist, and the resulting demand for owned or leased vehicles is more limited. This option combines elements of segment enlargement and extension (customizing an offering and selling it to an enlarged geographic area). A third option is to target the service at market segments that could not otherwise afford the product or can only afford a less expensive competitor. For example, those who own a Volkswagen but use it on a limited basis may prefer to time-share a Mercedes. This option effectively combines elements of market expansion and repositioning.

**TABLE 1**  
**A Framework for Assessing Potential Product-Sharing Services**

<i>Product, Customer, and Company-Strategy Characteristics and Examples</i>	<i>Likely Candidates for Product-Sharing Service</i>	<i>Unlikely Candidates for Product-Sharing Service</i>
Product characteristics		
Tangible versus intangible	Tangible products ("sharable")	Products with intangibles (difficult to "share")
Standardized versus customized	Standardized performance (for market or market segment)	Customized performance (for individual or group)
Customer characteristics		
Share of wallet (cost)	High	Low
Frequency of use	Low	High
Predictability of use	High	Low
Company-strategy characteristics		
Leverage of customer knowledge	High	Low
Leverage of product knowledge	High	Low
Potential for cannibalization	Low	High
Potential for diluting brand name	Low	High
Examples	Second homes (business or leisure) Second automobiles Vans and trucks Boats Snowmobiles Universal tools (bulldozer)	Kitchen appliances (toaster, coffee maker) TV Clothing Jewelry Heirlooms Customized software (CAD/CAM)

When compared to more extreme forms of service growth (as through diversification), product sharing allows a traditionally product-oriented firm to leverage existing skills and resources when developing service offerings. The goal is to increase the firm's success or hit rate in service development. Product sharing uses a firm's core product offerings and the skills and processes developed to produce those offerings. By using the same physical product, product sharing leverages the internal skills and capabilities required to engineer and produce the product. Product sharing should be particularly effective in industries in which product differentiation is increasingly difficult to achieve. Through intense global competition, many product industries are seeing an emergence toward dominant designs where multiple firms all offer similar, high-quality alternatives (Johnson 1998). In the automotive industry, for example, it has become increasingly difficult to differentiate on "hardware." As a result, firms are turning increasingly to "software" or value-added services (Johnson 1996)

Product sharing is not without its limitations. For example, in the car-sharing service described later, very significant investments in infrastructure, technology, and other resources remain. It is thus critically important to look closely at whether an existing physical product is a likely candidate for product sharing. Does, for example, product sharing have the potential to cannibalize existing, more profitable sales or leases? Might someone who currently owns a Mercedes Benz decide they can just as easily, and more inexpensively, share one? Put differently, will the service result in segment factoring with negative financial consequences (a service that competes directly with more profitable sales of the firm's own products)? It would be similarly important to understand whether time-shares on condominiums and vacation homes eat into more profitable sales. Another danger to explore is whether the service will dilute the brand name. Compared to owning, a wide range of customers would be to share a luxury Mercedes S-Class vehicle or a summer house on Martha's Vineyard. By losing their exclusivity, how much will the equity in the brand or property erode?

## **A Framework for Assessing Potential Product-Sharing Services**

The framework in Table 1 is an attempt to more systematically identify likely versus unlikely candidates for a product-sharing service. The top half of the table describes key product, customer, and company-strategy characteristics that either favor or disfavor the development of such a service. The bottom half of the table provides examples, using the criteria, that represent likely or unlikely candidates for product sharing.

The two key product characteristics are the tangible- intangible nature of the product and its degree of customization. Although tangible-intangible is often used to describe a basic distinction between products and services (Hoffman and Bateson 1997; Schneider and Bowen 1984), it also distinguishes products from products. Certain products are associated with significant intangible qualities that are not easily shared by multiple individuals. The designer name on a suit of clothes, the status associated with an expensive diamond ring, or the family memories associated with an heirloom all contribute to, and reflect on, one's personal identity (Belk 1988). This relates to the problem described above in which overextension of a brand name potentially diminishes its value. The degree to which a product is an extension of one's self will naturally depend on culture and context. For example, a luxury car in Singapore or Japan (where it is more prohibitive to own a large, expensive house) may be more central to one's status than is the case in other countries.

Products that are customized to meet the needs of a particular user are also more inherently difficult to share. Although a particular automobile or piece of construction equipment may be gainfully used by a variety of users for the same purpose (such as transportation with a car or excavating with a bulldozer), where the utility transfers easily from user to user, this is not the case for highly customized products. Examples include homes designed for people with special needs or a software program designed for application within a particular company and context (such as a customized CAD/CAM program for a parts supplier).

Customer characteristics also delimit those products potentially suitable for product sharing. The main tradeoff between buying or leasing versus sharing a product involves cost and use. Product sharing reduces the cost of a product by limiting the time

(and possibly the conditions) in which the product may be used over a contract period. Customer acceptance of the service should thus depend on three key factors: (a) share of wallet, (b) frequency of use, and (c) predictability of use. Customers will be attracted to product sharing because of the cost advantages it offers. At the same time, sharing is only viable if customer demand for the product is on a part-time basis. This part-time use must also be relatively predictable for contract purposes. For example, sharing is not a viable option for someone who uses their automobile or vacation home on a frequent and/or irregular basis. Relatively inexpensive and frequently used products such as toasters, coffee makers, and televisions would also make poor candidates for sharing on the basis of customer characteristics. In contrast, a minivan or truck may be used to take kids to school or deliver goods on a limited and predictable basis.

The key company-strategy characteristics in the framework identify whether product sharing is a good or bad strategic option for the firm to pursue. As described earlier, good growth options leverage a company's knowledge (skills and capabilities) with respect to both what they produce (product) and who they serve (customer). Contrast the three automobile targets for product sharing mentioned earlier (car sharing as a second vehicle, in dense urban settings, and to new market segments). Because in all three cases existing vehicles are made available through a new form, current product knowledge and resources are effectively leveraged. However, there is a greater leveraging of customer knowledge if the focus is on current owners rather than on customers from very different market segments with very different needs (such as economy versus luxury car buyers).

Candidates for product sharing should also minimize the potential negative effects of cannibalization and dilution of the brand name. Regarding cannibalization, it would be critical to determine target customers' evoked set of considered alternatives before offering the service. If the alternative to sharing a vehicle as a second car is to own a competitor's car (at a lower cost with fewer features) then cannibalization should be minimal. Likewise, if the alternative to sharing a condominium is staying in a hotel rather than buying the property, cannibalization should not pose a significant problem.

The potential for dilution of a brand name should depend on both the strategy and brand itself. A strategy of segment penetration is less likely to dilute a brand than is segment repositioning because the same products and customers are involved. With respect to the brand name, some brands are clearly more extendible than others (Aaker 1991). For example, although the BMW brand is more narrowly focused on expensive automobiles in the luxury and sport categories, Mercedes Benz has a broader brand base that extends across a wider range of passenger car vehicles (including the new M-Class sport utility vehicle) as well as other transportation markets (from commercial trucks to aerospace products). As a result, the dangers of offering a relatively expensive product at a lower cost on a part-time basis are likely greater for BMW.

Although no one product is likely to meet all of the characteristics of an ideal candidate for product sharing, the framework is quite effective at delineating likely from unlikely candidates. Kitchen appliances, televisions, and clothing products are clearly poor candidates because they are difficult to share from a customer characteristics standpoint. They are relatively inexpensive and frequently used. Jewelry and heirlooms are also poor candidates because of the dominant intangibles associated with such products, whereas highly customized products such as custom-designed software make it difficult to transfer utility from user to user.

More likely candidates for product sharing include second homes, where there is already an active market for time-share properties, second automobiles, vans and trucks. As argued earlier, although one's primary automobile may be used frequently and unpredictably, a second automobile, a van or a truck, may be used on an infrequent and predictable basis. Likewise, if expensive "toys" for leisure activities are used as infrequently and predictably as vacation properties themselves (such as power or fishing boats, snowmobiles, and personal watercraft), they are good candidates for sharing. In an industrial setting, expensive and "universal" tools that multiple companies could use on a part-time, predictable basis (bulldozers, cranes, and other construction equipment) are also good candidates for sharing. For example, a small construction company that might only afford to buy a limited amount of heavy equipment could share more equipment at critical times to improve its efficiency and productivity. In the next

section of the article, we illustrate in more detail the ongoing development of a particular product-sharing service and the trade-offs involved.

## **THE DEVELOPMENT OF A CAR-SHARING SERVICE**

The study described herein was conducted by the authors for Daimler-Benz InterServices (debis) AG. Recall that this group was established specifically to develop and offer services to external customers that are linked strategically to Daimler-Benz products, particularly those in the passenger car and commercial vehicle markets. Our focus is on passenger cars where the Daimler-Benz line of exclusive, high-quality products has been targeted predominantly to middle- and older age customers in higher income brackets. A strategic priority is to attract younger buyers with limited financial resources. The traditional approach to growth into this market has been to develop a wholly new class of vehicle. For Daimler-Benz, this is evident in the development of the A Class and Smart (Swatch car) vehicles. Following our earlier discussion of growth strategies, the primary problem with this approach is that it borders on diversification (developing new offerings for new markets). To the degree that developing a reliable economy car for basic transportation is fundamentally different from developing a high-performance luxury car, there are risks of compromising a strategic advantage. For example, it is unclear whether Daimler-Benz can compete with Toyota and Honda in the economy car market.

### **The Car-Sharing Concept**

An alternative is to develop and offer a particular type of car sharing to expand the customer base. As described earlier, the car-sharing concept falls between two extremes. At one extreme are traditional ownership and leasing options in which customers either own a particular vehicle outright or keep it in their sole possession for a period of years (with obligations to register, insure, and service the vehicle on their

own). At the other extreme are taxi and rental car options where the commitment is fleeting and, in the case of rental cars, typically extends only for a matter of days.

The car-sharing service of interest is one in which customers would pay a monthly fee to have access to a vehicle for limited periods of time at a lower monthly cost than would be possible through owning or leasing. The concept is designed for those customers who only require a vehicle on a limited but regular basis. Although each vehicle is theoretically “shared” by between three and five people, the goal is to guarantee the availability by having a vehicle stock (as long as the demand is predictable). This guaranteed availability is what distinguishes the concept from other car-sharing concepts in which customers literally share the same vehicle. The concept includes distribution of the product through numerous, smaller volume parking lots (versus fewer, larger fleets). This allows a wider variety of customers to access the vehicles from their home or workplace.

Having paid a monthly fee, a customer is able to access a vehicle using a simplified service process. The customer begins by booking a vehicle through a booking office for a desired period of time. The customer uses a communication method at his or her discretion (such as phone or fax) while observing a stipulated advance-notice period. If the customer fails to comply with the notice period, vehicles will only be provided as available. The car-sharing customer then proceeds (typically on foot) to the parking lot and borrows the car reserved in the pool with the aid of a master key (a chip card that remains in his or her permanent possession). For this purpose, the booking office has already activated the vehicle by satellite for the user’s personal card and for the desired period (plus a safety margin) on the basis of the customer’s security code. The technology also transmits all the relevant vehicle data, such as the mileage and fuel level, to the host computer.

When the car is returned, the computer is supplied with all the information needed to calculate the consumption- related component of the sharing member’s monthly statement. The question of permanent manning for the parking lots is decided according to the procedures chosen for cleaning the vehicle and for refilling it with gas, the size of the pool, and whether it makes sense to employ customer service staff at

these locations from the point of view of customer retention and cross selling. On account of the guaranteed availability, car-sharing membership is more comparable to personal ownership or leasing of a vehicle. Transaction costs, however, are incurred for booking, picking up, and returning the vehicle. On the other hand, these costs are significantly lower than for a personally owned car assuming occasional use. Daimler-Benz estimates that this car-sharing concept is more economical than owning a car if the annual mileage is less than 10,000 km.

### **Strategic Advantages of Car Sharing**

Following our earlier discussion, the strategic advantages of this car-sharing concept are that it allows for significant growth while limiting the risks associated with targeting a completely different group of customers with completely different products or services. For example, current E and C Class vehicles, for which Daimler-Benz has established competencies in development and production, can serve as the core product. The use of currently available technology (such as for booking and pass-key operation) also limits the degree to which an extended service process is needed.

The target market for the concept is that population of “utility-oriented” customers who use a vehicle on a limited basis as a means of transport. Importantly, car sharing gives younger customers with limited resources access to larger, higher quality vehicles over smaller economy cars or other means of transportation. More “status-oriented” drivers, on the other hand, will still prefer to buy or lease their own car, even if they only use it occasionally. (This is consistent with the framework in Table 1 where intangible products are more difficult to share than tangible products.) In this way, car sharing effectively expands Daimler-Benz offerings into new markets short of targeting the same buyers with a completely new vehicle. Depending on the strategy (segment penetration and enlargement versus segment factoring), the car-sharing concept allows for increased vehicle sales without serious risk of cannibalizing from existing vehicle owners and lease customers. As a value-added service, car sharing is also an important

part of an environmentally friendly portfolio of offerings. Finally, it provides a viable option for large-scale use of new information technologies for vehicle consumption.

## **Empirical Study**

An empirical study was undertaken to more closely examine the design features of the concept and their importance to different customer segments, including the price acceptance of potential users. A series of initial interviews were conducted with experts from the Daimler-Benz Group as well as from two other car manufacturers and two customer groups (motoring associations). This led to two focus-group interviews to identify other potentially important design attributes. The target market for the focus groups was driving-permit holders younger than 25 on limited budgets (household income of less than DM 3,000—approximately \$2,100—per month).

All of the interviews were used to develop a comprehensive questionnaire for a conjoint measurement study (Green and Srinivasan 1990). Conjoint analysis has respondents consider jointly bundles of two or more attributes and rank or rate their attractiveness (or choose among or between bundles). The method produces “part-worths” or utility values for both attributes as a whole and their levels and has gained acceptance on a worldwide basis (Wittink, Vriens, and Burhenne 1994). The conjoint survey was also designed to gather a variety of information pertaining to the respondents’ socioeconomic and demographic background and ways in which they use their current vehicle or vehicles. Two pretests were also used to develop the survey for the conjoint study. The first pretest was performed on 100 respondents and used to modify the service design attributes and improve the respondents’ understanding of these attributes.

A second pretest, involving 176 selected respondents from several large, randomly selected cities in Germany, was used to prioritize the attributes for the final study. Because the concept does not yet exist in practice, an explanation of its principles was provided on the first page of the questionnaire. Following this

introduction, the test participants were asked to rate the importance of 14 given attributes on a 5-point scale ranging from very important to not at all important. Four additional fields were reserved for other attributes held to be important by individual customers. The entries in these fields did not reveal any new attributes, as an analysis of their content revealed that they were subsumed by the attributes specified in the pretest.

The calculation of the average attribute importances revealed that the rental charge (mean value 4.44) plays a crucial role in a consumer's decision to pursue the car-sharing concept. Other highly rated attributes included guaranteed availability (4.38), the period of advance notice for bookings (4.24), the opening hours (4.23), and the distance from the parking lot (4.22). The importance ratings for all other attributes were well below 4. Because guaranteed availability is evidently important to the respondents, this attribute was not included in the conjoint analysis but was instead taken into account in the introductory remarks.

The pretests also provided information regarding the relevant ranges to be used in the main study. The final attributes and attribute values used are listed in Table 2. A lower limit for the rental charge of DM 50 was established for eight periods of use, not including fuel costs. An upper limit of DM 200 was derived from the revelation that 94.6% of the interviewed car drivers and 86.9% of the non-car drivers would be willing to pay a minimum monthly fee in the range between DM 50 and DM 200.

With respect to the advance notice for bookings, four attribute levels achieved the highest acceptance values in the pretest (75.0% of the respondents mentioned one of these four levels, whereas 92.0% considered a value within the range in question—or in some cases an even longer advance notice period—to be acceptable). Two sets of opening hours were found to correspond to the wishes of 96.0% of the respondents. These times would also be acceptable to the remaining 4% (shortest opening hours). With regard to the distance from the parking lot, the lower limit was influenced by the supplier's costs. At least one of the distances in the selected range between 500 and 2,000 meters would be acceptable to 96.0% of the persons making up the random sample (only 4.0% of the respondents wished for a walking distance of less than 0.5

km). Finally, four return options were included from a supplier/service-design perspective: return to the same location only (S), return to the same location or another district in the same city (S/ST), return to the same location or another city (S/SD), or return to the same location or other district or city (S/ST/SD).

Despite this streamlining of the attributes on the basis of the pretest results, the respondents would nevertheless have been required to evaluate 512 different service combinations within the framework of a full-profile design. To avoid overtaxing the test participants when they determined their order of preference, a fractional design was used instead. All in all, the respondents were asked to evaluate 16 different cards and specify an order of preference. A total of 247 subjects, again selected from several large, randomly selected cities in Germany, participated in the main study.

The stimuli were presented with the aid of cards describing the attribute profile of the car-sharing concept. To prevent any confusion with regard to definitions, the test participants were given a separate sheet in a different color in addition to the introductory comments. The purpose of this sheet was to define the attributes and attribute levels used in the study in greater detail so that the respondents had an immediate overview of all the available choices and were able to grasp the concept cards faster.

## **Results**

All 247 interviews were taken into account in our analysis, which was performed using the SPSS software package. The aggregated results of the main study were normalized to make them interpersonally comparable and are shown in Table 3. The most important factor affecting the respondents' evaluations is price, followed by the period of advance notice for bookings. The options for returning the vehicle and the distance from the parking lot were less important, whereas the times at which reservations can be made had minimal influence on the decision-making process. The price-utility function, which is derived from the part-worths of the price-attribute levels, is

almost linear. In contrast, it is interesting to note the sharp deterioration in utility that results if the vehicle is required to be returned to the same location rather than optional locations in the same city or different cities.

## **Results by Market Segments**

Although Kendall's tau, which was used as a yardstick of quality, assumed a value greater than 0.9 for each interview, the individual partial utility values that were calculated exhibited significant differences in certain cases. A priori segmentation, based on the additional sociodemographic data that were gathered about the potential users, therefore appeared advisable. With respect to segment enlargement, understanding differences among city, suburban, and country dwellers is particularly relevant. From a cost standpoint, it would be advantageous if all three subsegments could be reached with the same car-sharing concept. Entering the market in rural areas also holds the attraction that parking areas are relatively cheap to purchase and/or lease. With respect to segment penetration and market repositioning, it is important to understand how preferences differ between households owning one or more vehicles versus those that do not own a vehicle.

Analysis of the attribute utilities by market segment reveals that the relative importance of price declines as the distance from cities increases, from 50.98% (city dwellers) to 42.69% (suburban dwellers, i.e., place of residence no more than 20 km away from the mentioned cities) to 37.59% (country dwellers, i.e., place of residence more than 20 km away from the mentioned cities). One possible explanation for this price sensitivity is that there are more category-level service substitutes in the cities (such as mass-transit options) that result in potential customers making cost comparisons of various means of transport. The suburban dwellers, moreover, attach an above-average importance to flexibility of location, which is reflected in the high factor weighting accorded to the return options (33.48%). The country dwellers, on the

other hand, consider the period of advance notice for bookings to be exceptionally important (31.88%).

**TABLE 2**  
**Attributes and Attribute**  
**Values for the Main Study**

<i>Attribute</i>	<i>Attribute Level</i>
Rental charge per month	DM 50
	DM 100
	DM 150
	DM 200
Advance notice period for bookings	0.5 hours
	1.0 hours
	2.0 hours
	24.0 hours
Opening hours	6 to 23 hours
	24 hours a day
Distance from parking lot	0.5 km
	1.0 km
	1.5 km
	2.0 km
Return options	Same location only (S)
	Same location/other district (S/ST)
	Same location/other city (S/SD)
	Same location/other district/other city (S/ST/SD)

**TABLE 3**  
**Partial Utility Values and Relative Factor Weightings for the Total Sample**

<i>Attribute</i>	<i>Attribute Level</i>	<i>Normalized Partial Utility Value</i>	<i>Relative Importance</i>
Rental charge per month	DM 50	0.1780	47.87%
	DM 100	0.1205	
	DM 150	0.0731	
	DM 200	0.0061	
Advance notice period for bookings	< 1 h	0.0960	20.86%
	1 h or more but less than 2 h	0.0802	
	2 h or more but less than 24 h	0.0578	
	24 h or more	0.0212	
Return options	S	0.0134	14.19%
	S/ST	0.0412	
	S/SD	0.0596	
	S/ST/SD	0.0644	
Distance from parking lot	0.5 km	0.0593	11.77%
	1.0 km	0.0441	
	1.5 km	0.0365	
	2.0 km	0.0171	
Opening hours	6-23 hours	0.0062	5.31%
	24 hours a day	0.0253	

NOTE: S = return to the same location only; S/SD = return to the same location or to another city; S/ST = return to the same location or to another district; S/ST/SD= return to the same location or to another district or to another city.

The households without a car were revealed by our segment comparison to attach the highest relative importance to price (52.35% versus 42.38% for all car owners). On the other hand, this attribute was given a relatively low factor weighting by the members of households with multiple vehicles (31.30 %). These results are consistent with the idea that families without a car and with a lower average income, who are natural targets for market repositioning, would be attracted to the cost advantages of the carsharing concept. In contrast, current car owners, who are targets for segment penetration, see the return options (16.95% versus 11.2% for nonowners) and distance attributes (14.79% versus 10.91% for nonowners) as relatively more important. As far as the advance booking period and opening hours factors are concerned, it was not possible to identify any significant differences between the segments.

Our empirical investigation has two primary implications for the development of product-sharing services as a growth strategy. First, the study provides a concrete example of the development of such a service in a car-sharing context. Second, the results of the study illustrate what will be required of such a service to achieve segment penetration (increased use by existing customers) and/or attract new market segments (sales to competitors' customers or nonowners). City dwellers, for example, place a premium on the cost advantages of car sharing and are more flexible with respect to such attributes as distance to pick up the vehicle and return options. Nonowners are the most price sensitive, whereas current vehicle owners are "convenience" sensitive.

## **SUMMARY AND DISCUSSION**

Product-sharing services provide traditionally product-oriented firms with an overlooked opportunity for growth. This research advances the key strategic advantages of product sharing. In addition, we provide researchers with a conceptual framework for assessing likely versus unlikely candidates for product sharing and illustrate the idea in the context of a new car-sharing concept.

The primary strategic advantage of product sharing is that it uses a firm's existing products and the skills and processes necessary to produce them. Product sharing does not require the development of wholly new products that may be outside the scope of a firm's activities. As a result, product sharing stands to increase the success rate of traditionally product-focused firms attempting to expand their portfolio of offerings through service development. Product sharing provides customers with a unique alternative to owning or leasing and opens new markets in which, for example, car sharing competes with fundamentally different service categories (such as other modes of transportation). Finally, product sharing adds to a firm's portfolio of offerings, especially in markets in which differentiation is difficult strictly on the basis of physical products. Overall, product-sharing services provide growth potential that leverages rather than compromises a firm's core competencies.

Our conceptual framework highlights the key product, customer, and company-strategy characteristics that distinguish likely from unlikely candidates for product sharing. Likely candidates are tangible, sharable products that are not customized to meet highly specialized customer needs. Likely candidates should also be relatively expensive yet used on a limited and predictable basis. Strategically, we have emphasized throughout the article the importance of leveraging a firm's product and customer knowledge. It is also important to recognize the dangers product sharing poses with respect to cannibalization and brand dilution. These characteristics suggest that such products as second homes, cars, boats, and construction equipment are likely candidates for sharing. In contrast, kitchen appliances, home entertainment systems, jewelry, and customized software are unlikely candidates for sharing.

We illustrate the development of product sharing in a vehicle context using a conjoint measurement study for a proposed car-sharing concept at Daimler-Benz. The study provides insights into the keys for success when pursuing different growth opportunities. For example, current car owners will place a premium on convenience to add car sharing to their portfolio of vehicle use. In contrast, customers in new markets, such as those who do not currently own a vehicle, will place a premium on the cost advantages of car sharing. We also observed significant differences in price sensitivity among city, suburban, and country dwellers. This suggests that pricing on the basis of

the subsegments appears viable. Similar pricing policies are currently used for other services such as mobile phones. The locations for distribution and return of the vehicles also present a variety of cross-selling opportunities (food and information services).

In a time when it is critical to distinguish between good and bad growth (Porter 1996), product-sharing services provide strategic advantages in their own right. Foremost, they stand to leverage existing core competencies. Nevertheless, significant challenges to their implementation remain. As noted earlier, the proposed car-sharing concept at Daimler-Benz will require significant investments in a new distribution infrastructure and new technologies. More important, our discussion suggests that product sharing, and service development in general, be viewed as a strategic option rather than simply a necessary adaptation to a changing economy.

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