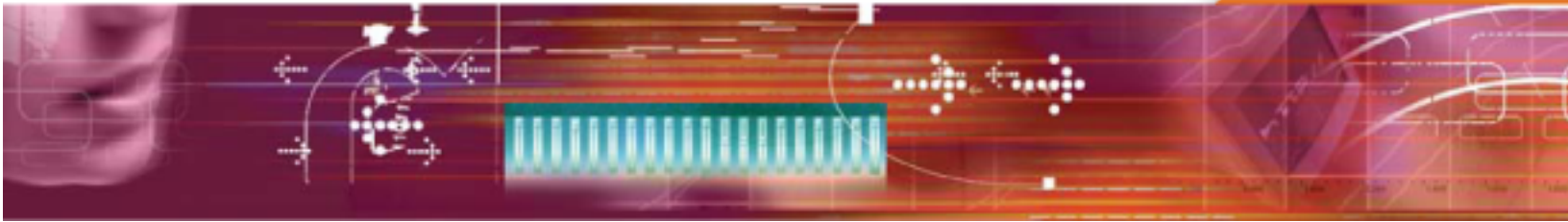


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## Segmenting for the Purpose of Innovation

*by Anthony W. Ulwick*

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# Segmenting for the Purpose of Innovation

*With a focus on the customer's desired outcomes, companies can turn segmentation into a secret weapon for product and service innovation.*

By Anthony W. Ulwick



For decades, companies have been gaining valuable knowledge by uncovering distinctions among their customers—and they have been using that knowledge in efforts to gain a competitive advantage. That process of segmentation has served a number of purposes. Corporate finance groups segment customers so the company can better track financial results. Sales executives segment markets so they can target customers more easily with advertising and marketing programs. Industry analysts segment markets so they can more easily explain industry trends and competitive movements. Since the 1950s segmentation methods have gotten more and more sophisticated, so that today companies can segment their market or customers based on demographic characteristics (such as age, gender, or geographic location), psychographic characteristics (such as comfort with technology or level of risk aversion), purchase behavior, or by distinctions in roles or customers' needs.

Unfortunately, with so many segmentation techniques floating around, it is easy to pick the wrong tool for the job, especially if you do not quite understand the job to begin with. That's what happens when companies try to use segmentation for the purpose of innovation. When it comes to innovation, companies try to segment the market so they can find groups of customers with unique needs, but should that be their objective? Should they even be focused on needs? In today's business environment, development and marketing functions encounter six common challenges that can only be addressed through an effective segmentation methodology. To succeed at innovation, they must be able to discover (1) unique opportunities in mature markets, (2) demanding customer segments that may be willing to pay more for more elaborate solutions, (3) customer segments that are unattractive and should not be targeted, (4) overserved market segments that make attractive entry points for disruptive innovation, (5) segments that offer entry into an existing market as a new entrant, and (6) segments of high potential growth.

Traditional needs-based segmentation has failed to help companies address these challenges because “need” statements, which are poorly understood and poorly articulated to

begin with, also turn out to be the wrong type of input to use to segment markets for the purpose of innovation.

In the last two decades, companies have adopted a customer-driven approach to innovation—that is they talk to customers and ask them what they want and then deliver on their requests. The basic tenant is straightforward: understand what customers want before investing in the creation of a new product or service.

That is where the misunderstanding creeps in. Asking customers what they want sounds like an unimpeachable idea, but companies do not really understand what types of inputs they should be collecting from customers. Neither do their customers. As a result, customers try their best to explain what they want, but their vague and imprecise wish lists are not of much concrete use to R&D teams. In fact, relying on customer inputs can actually lead to the very failures that companies are fervently trying to avoid.

When companies listen to the “voice of the customer” to understand their “needs”, customers end up stating their requirements in the form of solutions, specification, needs and benefits—and companies rarely know one type of input from the other. [See Turn Customer Input Into Innovation, HBR, January 2002]. As a result, they use all these types of inputs to conduct “needs-based” segmentation. In the end they are unable to address their key market challenges because they not only used a mix of inputs, but they also inadvertently failed to capture and use the types of customer inputs that really matter most.

Instead of focusing on amorphous customer wants, needs, benefits, solutions, ideas, and so on, companies need to look at what outcomes customers are trying to achieve. There are three basic tenets to what we call the outcome-driven approach to innovation. First, customers buy products and services to help them get jobs done. For example, on an individual level, people buy insurance to help them with the job of managing their financial risks, and they buy MP3 players so they can manage and enjoy their music. At the corporate level, businesses buy servers to manage their e-mail, hire consulting firms to formulate strategies, and license CRM seats to manage lead generation.

Second, just like businesses use metrics to control the output of an internal business process, customers use a set of performance measures to judge how well a job is getting done. These are the customers’ desired outcomes. Corn farmers, for example, might judge corn seed for its ability to minimize the number of seeds that fail to germinate, to increase the percentage of plants that emerge at the same time, or to minimize the yield loss due to excess heat during pollination. For any given job, customers collectively use between 50 and 150 outcomes (not just a handful) to measure how well the job is getting done. Ironically, these metrics are overlooked in

the customer-driven world because they are not revealed by listening to the “voice of the customer.”

Third, companies can use these metrics as the basis for segmenting their markets and to effectively address the key challenges associated with managing innovation. We call this methodology, outcome-based segmentation. (See the sidebar “The Evolution of Segmentation”).

### **The Shortcomings of Traditional Segmentation Methods**

Unfortunately, when it comes to using segmentation to help with new product and service creation, many companies simply adopt a convenient classification scheme and impose it on customers with the hope and expectation that customers will act according to the dictates of the categories the scheme outlines. Often, they borrow segmentation methodologies from sales, marketing, or finance. Companies may, for example, segment their markets into small, medium, and large businesses and expect that all their customers in the small-business segment will have a set of requirements that they share with each other but not with customers in the medium-sized- and large-business segments. Similarly, they will expect all their customers in the medium-sized-business segment to have a set of requirements shared only by other medium-sized businesses and not by small or large businesses, and so on. The hope is that each segment of users represents a homogeneous, nonoverlapping population that reacts predictably and in unison to new products and services.

What often happens, however, is that traditional segmentation schemes lead companies to focus on phantom targets—that is, groups of customers who are neither homogeneous nor nonoverlapping, and who may not value a unique set of desired outcomes. These arbitrary classifications fail to honor our basic tenets of solid segmentation theory, which state that an effective segmentation scheme must create a population that:

- has a unique set of underserved or overserved outcomes,
- represents a sizable portion of the population,
- is homogeneous—meaning that the population agrees on which outcomes are under- or overserved and responds in the same manner to appropriately targeted products and services,
- makes an attractive strategic target (for example, one that fits with the philosophy and competencies of the firm), and
- can be reached through marketing and sales efforts.

Traditional segmentation schemes not only fail to meet these standards, they also often take on a life of their own and can have a cultural impact that negatively affects the entire organization. The experiences of the communications company Nortel Networks are illuminating. For years Nortel Networks organized its small-business sales tracking and accounting systems around vertical industry classifications such as public services, transportation, manufacturing, and so on. It found that its choice of segment classifications passively dictated what skills it looked for in the employees it hired, what processes it executed, and what actions it took. When staffing, for example, Nortel generally recruited individuals to represent the vertical segments and therefore ended up with employees who had a vertical-segment perspective, focus, and mentality. Sales teams, marketing campaigns, and communication programs were devised for these segments. Engineers and designers thought about the markets from a vertical-segment perspective and attempted to fine-tune product offerings to meet segment-specific needs, guided by managers, who might decide, for instance, that a particular feature should be added to a product because that feature appealed to a vertical segment in which the company needed to gain market share. In effect, Nortel's market and product strategy, resource selection, and capabilities were being dictated by a vertical-segment classification it had initially chosen for sales, marketing, and accounting purposes. This misapplication of segment classification data is common in many firms because traditional segmentation schemes create convenient targets for strategists and developers—but those targets are seldom worth hitting when it comes to innovation.

It is important to note that applying outcome-based segmentation does *not* force a company to change the way it collects and tracks sales and accounting data. An outcome-based segmentation scheme can operate independently, helping companies create new products and services, and define the customer value proposition, regardless of how sales and financial results are tracked.

### **Why Does Outcome-Based Segmentation Work?**

As we have established, customers buy products and services to help them get jobs done, and their desired outcomes are the metrics they use to describe just what it will take to get the job done perfectly. Desired outcomes that are underserved represent opportunities for improvement. But not everybody in a market agrees on which outcomes are underserved, and as a result in most markets there exist different groups of customers who want to see improvements made along different dimensions. Take people who use circular saws, for example: some may evaluate all the outcomes relating to speed as important and unsatisfied because they can't wait to get through a

job, while others may evaluate all the outcomes associated with making a perfect cut as important and unsatisfied because they are perfectionists who take great pride in their work.

Outcome-based segmentation methods make it possible for companies to define segments such as these. This is only possible because the approach incorporates two distinctive practices: it uses the customers' desired outcomes as the bases for segmenting the market, and—most importantly—it relies on a numerical value called the opportunity score when creating the segments. Each customer outcome has an opportunity score that is based on the relationship between how important that outcome is to customers and how well that outcome is currently satisfied. Mathematically speaking, opportunity equals importance plus the difference between importance and satisfaction, where that difference is not allowed to go below zero. In other words,  $Importance + \max(Importance - Satisfaction, 0) = Opportunity$ . The highest opportunity scores will be generated by outcomes that customers think are very important and that are not well satisfied (are underserved); the lowest opportunity scores will be generated by unimportant outcomes that are well satisfied. [See *Turn Customer Inputs Into Innovation*, HBR, January 2002].

Using the opportunity score as the segmentation variable forces the creation of segments that represent unique opportunities. The food and agribusiness conglomerate J. R. Simplot used this approach to discover a segment of restaurateurs who wanted a french fry that would last longer in holding without losing its attractive properties. This outcome was not considered underserved by other segments of the market. The dental-products company Dentsply discovered a segment of dentists that feel that the quality of a restoration depends on their ability to consistently and predictably produce solid bonds—a set of outcomes that other segments did not consider underserved. The Robert Bosch Tool Corporation discovered a segment of drill driver users who wanted the tool optimized for driving and rarely used it as a drill, unlike other segments of users.

### **Outcome-based Segmentation in Practice**

To examine the outcome-driven methodology in detail, let's consider as an example Motorola's Radio Products Group, which manufactures mobile radios that are installed in vehicles and used to communicate with a dispatcher, a central location, or other two-way radio users. In 1997, after experiencing limited growth in what appeared to be a maturing market, Motorola was looking for new ways to achieve its growth objectives.

For years, Motorola had been using a vertical industry classification system to segment the radio market, although it recognized the inconsistencies in customer behavior within and

across these segments. Intuitively, the company knew another segmentation structure existed, but managers were unable to define it. They opted to pursue outcome-driven segmentation using the following four-step methodology: (1) collect the required data, (2) choose the segmentation criteria, (3) conduct cluster analysis, and (4) profile the clusters. The result was the discovery of useful segments of opportunity.

*Collecting the required data.* The data required to create outcome-based segments is, logically, customers' desired outcomes. Through a number of one-on-one and group interviews with customers and potential customers, Motorola found that two-way radio users had nearly 100 desired outcomes when using radio products. For example, they wanted to minimize the number of communications that were intercepted by unauthorized parties, to minimize the likelihood of inadvertently making changes to the settings, and to minimize the number of communications that are misunderstood. Having captured those outcomes, Motorola designed a survey instrument and administered it to a large number of radio users that comprised an accurate random sample of the user population. The survey was designed to capture and quantify the importance that users placed on each outcome and the degree to which they felt that each outcome was satisfied by the products currently available. As explained above, both data points are needed so opportunity scores can be calculated for each outcome.

*Choosing the segmentation criteria.* Motorola did not use all 100 outcomes to generate the segmentation scheme. To identify those outcomes that would make the best segmentation variables, Motorola first used factor analysis (a common statistical technique) to group like outcomes together into 18 distinct opportunity-based factors. Next, they chose from each of those factors the one outcome that showed the most variation in market response. In factors for which there was no substantial variation in market response, no outcomes were chosen. In total, 11 outcomes were selected as segmentation attributes. (See the table "Selected Segmentation Attributes.")

Selected Segmentation Attributes	
1.	Minimize the number of messages that are misunderstood.
2.	Minimize the number of interruptions during a communication.
3.	Minimize the amount of interference encountered when communicating.
4.	Minimize the effort required to communicate discreetly.
5.	Minimize the number of annoying incoming communications.
6.	Minimize the time it takes to confirm receipt of a communication.
7.	Minimize the effort required to establish a record of the communication.
8.	Minimize the number of communications that can be intercepted.
9.	Minimize the likelihood of making inadvertent changes to established settings.
10.	Minimize the effort required to program the device.
11.	Minimize the effort to operate the device with gloves on.

*Conducting cluster analysis.* Motorola used nonhierarchical clustering algorithms found in commonly used computer-based statistical analysis programs to execute the clustering process. The clustering algorithm focused on the opportunity ratings given to the 11 selected outcomes and placed the respondents surveyed into a predetermined number of segments based on their responses. Motorola decided on a three-segment solution, and the resultant segments contained 40%, 28%, and 30% of the respondents respectively. The clustering algorithm isolated one group of users (segment 1) that rated outcomes 4, 7, and 8 as both important and unsatisfied. The second group it isolated (segment 2) rated outcomes 1, 2, 3, 9, and 11 as important and unsatisfied, while the third group (segment 3) rated outcomes 5, 6, and 10 as important and unsatisfied. (See the table “What Each Segment Wants.”)

What Each Segment Wants		
Segment 1 Opportunities	Segment 2 Opportunities	Segment 3 Opportunities
4. Minimize the effort required to communicate discreetly.	2. Minimize the number of interruptions during a communication.	5. Minimize the number of annoying incoming communications.
7. Minimize the effort required to establish a record of the communication.	3. Minimize the amount of interference encountered when communicating.	6. Minimize the time it takes to confirm receipt of a communication.
8. Minimize the number of communications that can be intercepted.	9. Minimize the likelihood of making inadvertent changes to established settings.	10. Minimize the effort required to program the device.
	1. Minimize the number of messages that are misunderstood.	
	11. Minimize the effort to operate the device with gloves on.	



*Profiling the clusters.* To understand the demographic and psychographic characteristics of the three segments, Motorola began profiling them. The survey it had administered to its random sampling of the customer population contained, in addition to the outcome-related questions, more than a dozen questions designed to help Motorola understand what characteristics each segment possessed. The questions elicited the users' ages, their job titles, how they used the product and what they used it for, industry classifications, frequency of radio use, geographic location, and several other important descriptors.

These types of questions are instrumental in understanding segment content once the clusters have been created. After analyzing the data, Motorola quickly concluded, for example, that segment 1 "hired" mobile radio products to communicate privately, discreetly, or covertly, without being noticed by others and without being overheard. Members of this segment, who conducted covert operations from inside a vehicle, valued privacy and security-related outcomes. They included federal and state police, security, and similar individuals, were younger users, and were likely found in urban areas. Segment 2, Motorola concluded, "hired" mobile radio products to provide clear, unambiguous, and uninterrupted communications when faced with dangerous, even life-threatening situations. This segment consisted mainly of firefighters, police, and security personnel that often leave their vehicles to perform assignments but must maintain vehicle contact at all times. Segment 3 "hired" mobile radio products to communicate with teams and groups, to coordinate activities, and to perform administrative tasks. Members of this segment included coast guard personnel, locomotive engineers, and others who make constant use of radio communications throughout the day to carry out their jobs. In contrast to the other segments, members of this segment required neither privacy nor emergency-situation capabilities.

Until this point in 1997, no mobile radio products produced by Motorola or its competitors had addressed the outcomes uniquely desired in each segment with well-matched product and service offerings. There was a one-size-fits-all mentality in the industry. With the discovery of these segments, Motorola was able to optimize a mobile radio product for each segment. The products included new features that addressed previously underserved outcomes and eliminated product features that addressed outcomes of little or no importance to the segment population.

The end result? Better products at a lower price, with increased customer satisfaction. The new products accelerated revenue growth to 18% in a stagnant market and secured the company's leadership position in mobile radio products.

## The Six Challenges Outcome-based Segmentation Addresses

As mentioned earlier, development and marketing functions encounter six common challenges that can only be addressed through an effective segmentation methodology. The outcome-driven segment methodology addresses each of those challenges.

*Identifying unique opportunities in mature markets.* In mature markets companies find it more difficult to discover unique opportunities, and as a result they often begin to compete on price, eroding company profits and moving the industry toward commoditization. One way to prevail over this dynamic is to find one or more segments of users that are underserved and devise products and services that address the unique opportunities their underserved outcomes represent.

This was Motorola’s goal when it applied outcome-driven segmentation to enhance its position in the mobile-radio-products market. Having discovered the three segments of opportunity described earlier, the product team devised unique products for each segment. For segment 1—those who wanted privacy—they created a product that included enhanced encryption, a mechanism to prevent others from overhearing a communication, and noiseless operation. For segment 2—those involved in life-threatening situations—they added voice command technology and emergency locators and modified the interface to accommodate users wearing gloves. For segment 3—those involved in managing work assignments—they added features that made it easier to program the radio and ensure messages were received. (See the table “Distinctive Segments, Distinctive Products.”)

### Distinctive Segments, Distinctive Products.

	Segment 1: Privacy	Segment 2: Emergency	Segment 3: Administrative
<b>Outcomes Desired</b>	<ul style="list-style-type: none"> <li>Discreet communications</li> <li>Record of communication</li> <li>Low interceptions</li> </ul>	<ul style="list-style-type: none"> <li>Clear messages</li> <li>Few interruptions</li> <li>Lower interference</li> <li>Low risk of inadvertent changes to settings</li> <li>Easy use with gloves on</li> </ul>	<ul style="list-style-type: none"> <li>Few unimportant incoming calls</li> <li>Quick receipt confirmation</li> <li>Easy-to-program device</li> </ul>
<b>Characteristics</b>	<ul style="list-style-type: none"> <li>Police, security personnel, etc.</li> <li>Conduct covert operations inside vehicle</li> <li>Younger</li> <li>High urban concentration</li> </ul>	<ul style="list-style-type: none"> <li>Firefighters, police, security personnel, etc.</li> <li>Often have to leave vehicle</li> <li>Must maintain contact with vehicle at all times</li> </ul>	<ul style="list-style-type: none"> <li>Coast guard, locomotive engineers, etc.</li> <li>Rely on radio for their daily job</li> <li>Perform administrative tasks</li> </ul>
<b>Solutions</b>	<ul style="list-style-type: none"> <li>Enhanced encryption</li> <li>A mechanism to prevent others from overhearing communications</li> <li>Noiseless operation</li> </ul>	<ul style="list-style-type: none"> <li>Voice command technology</li> <li>Emergency locators</li> <li>Modifications to permit use with gloves</li> </ul>	<ul style="list-style-type: none"> <li>Easier-to-program radio</li> <li>Mechanisms to ensure message receipt</li> </ul>

Creating such products makes it possible to compete along new dimensions of value rather than price. By appealing to unique underserved outcomes in specialized segments, companies can devise products that deliver more value, enabling new pricing and positioning strategies. Without knowledge of those underserved outcomes, the trend toward commoditization is likely to continue.

*Identifying demanding segments of customers that may be willing to pay more for more elaborate solutions.* In most markets there exists a group of customers who are more demanding than the rest. They are underserved along many dimensions of value; they want more and are willing to pay for it. This segment may be less than 5% of the total market or it may be 20% or greater. A company benefits from knowing if this segment exists, how big it is and what they want.

When Bosch segmented the market for circular saws, it discovered such a segment and designed the CS20 saw to address that segment's underserved outcomes. Although the CS20 contained nearly a dozen new features to address those outcomes, Bosch's goal in this case was not to charge a premium price but to increase market share by offering the breakthrough product at a price point that was competitive with other offerings. In December 2004, with nine months of sales data behind it, Bosch was more than realizing its business and growth objectives. The CS20 circular saw was also recognized as one of the most innovative products of 2004 by Popular Science.

*Identifying customer segments that are unattractive and should not be targeted.* In most markets there also exists a group of customers that is unattractive to target. These customers may be unable to utilize more function, or they may require excessive service while demanding lower prices. Once again, companies benefit from knowing if such a segment exists and how big it is.

When a major insurance provider was looking to expand its customer base, it struggled to find opportunities in the broad market. After completing an outcome-based segmentation analysis, it discovered that a significant percentage of its customers were well satisfied with existing offerings and were unable to utilize more functional value. These customers were only interested in lower prices. By wisely declining to target this segment and instead focusing on the remaining segments, the company discovered a number of solid opportunities that had been masked when it looked at the market as a whole.

*Discovering overserved market segments that make attractive entry points for disruptive innovation.* A technology can successfully disrupt a market only if a sizable segment of the market population is overserved and willing to accept a product or service that is functionally inferior to those currently available. A disruptive technology often enters the market in a nonthreatening manner, gaining initial acceptance only with the

targeted segment and being rejected outright in most segments because of its poorer performance. As the technology improves, however, the product begins to satisfy the outcomes that are important to the mainstream better than products using older technologies and so gains acceptance in a larger population—disrupting the market as a whole. When considering a disruptive strategy, managers must be able to determine if overserved segments exist, their size, and if they make attractive market entry points for disruptive technologies. With this knowledge, a company can confidently define a target segment for disruption—or can be forewarned of its own susceptibility to disruption by others.

In the market for blood glucose monitoring devices, for example, Cygnus, the maker of GlucoWatch, has its sights set on overserved customers who do not necessarily need more accurate and faster readings, but simply want to know if they are heading off in the wrong direction so they can avoid suffering from a diabetic episode. Accuracy, speed, and other outcomes are less important to this segment, which is willing to accept a product that is inferior along those measures of value if they can get what they need. Over time Cygnus may improve this technology to address the traditional measures of value, and at a lower price point, making it a more attractive product in the mainstream market. This is a good strategy for disruptive innovation.

*Determining the best way to enter an existing market as a new entrant.* As a new entrant into an existing market, a company must be able to pick out a small segment of customers, address their unique outcomes, and then leverage its position to make gains in other market segments. But what segment makes the best entry point? The ideal segment will likely be small, filled with opportunity, and ignored by the current set of competitors.

Such segments are easily identified using outcome-based segmentation, and these smaller segments are often ignored by established players in the industry because those companies are looking for opportunities that span one or more larger segments of the population. It is difficult to beat incumbents at their own game, so using outcome-based segmentation to determine if an attractive entry point exists is even more critical in this situation.

*Discovering segments of high potential growth.* Companies often ask how a segment of high potential growth can be identified and sized before it emerges. Financial data can determine an existing segment's size in terms of the revenue it has generated in the past, but there are no financial data for segments that have yet to emerge. Outcome-based segmentation solves this problem by identifying and sizing a segment from a nonfinancial perspective.

Take the day-trader segment in the securities market, for example, which was created and led by E\*Trade. From a traditional market measurement and segmentation perspective, the day-

trader market showed little revenue or growth potential in the early 1990s. At the time, traders who wanted to make many transactions within short periods of time could only do so by holding a seat on the Board of Exchange. With a limited number of seats—and a seat price that exceeded the annual incomes of most people—it is not surprising that this segment appeared relatively small from a revenue-producing perspective. As a result, companies were discouraged from making investments in it.

However, if companies such as Merrill Lynch had studied the market from an outcome-driven perspective, they would have seen a very different picture. They would have found that a good number of people who wanted to make trades wanted to increase the number of trades that could be made per day, minimize the time it took to complete a trade, and minimize the cost of making a trade—and had little need for support and service. Using outcome-based segmentation, managers would have had a very accurate estimate of how many people found those outcomes to be both important and unsatisfied. The percentage of people in this segment and the size of the market would then have been defined. The reality is, the segment already existed; people were simply waiting for a solution that would satisfy their underserved outcomes and make day trading feasible. When that solution appeared, people were quick to act, generating revenues for companies such as E\*Trade and thus establishing the day-trader market from a traditional, financial perspective.

### **Job-based Segmentation**

While outcome-based segmentation is useful for discovering segments of opportunity in a specific market of interest, job-based segmentation lets companies discover entirely new markets by revealing a job or a group of jobs that are underserved. Job-based segmentation involves the same steps as outcome-based segmentation, but job-based segmentation uses jobs, not outcomes, as the bases for segmentation.

So how do companies find new markets of interest? Individuals and businesses perform a variety of jobs on a daily basis. The question arises, “What jobs are people trying to get done today that they are unable to get done satisfactorily given the products and services that are currently available?” When a company identifies a job or a group of jobs that are underserved, they may have discovered a new market that is worthy of pursuit.

When Microsoft, for example, recently wanted to figure out what other software, hardware, and service-related markets to pursue, it canvassed PC users to uncover all the jobs they were trying to get done. Then, through quantitative research, Microsoft determined which jobs were important and underserved. Those with high opportunity scores were potentially

attractive market opportunities. Once the company decided which of those markets to pursue, it obtained the customers' desired outcomes for each job of interest in a second round of research. It then determined which outcomes were important and unsatisfied, so it knew precisely where people were struggling when trying to get the job done. Through this combination of research efforts it uncovered new markets and the underserved outcomes in each—and a road map for innovation and growth.

### **Making the Transition**

Elevating marketing theory from the use of convenient demographic or psychographic classifications or traditional “needs-based” or “roles-based” segments to one that is based upon what customers want to achieve when using a product or service, is a critical prerequisite for helping firms to break free of the apparent randomness of successful new product introductions. Dissecting the customer's value model and understanding which outcomes represent opportunities to different segments of the market goes a long way to bringing discipline and predictability to the often elusive process of innovation.

### **Sidebar: The Evolution of Segmentation**

Over the years, the practice of segmentation has been both defined and limited by the types of customer information that have been available. In the 1950s, for example, market segmentation was based purely on demographic characteristics such as age, geographic location, or gender because demographic information was the only type of data that was easily collected and readily available. Over time, marketing, sales, and accounting systems were designed to track and analyze data from a demographic perspective, giving these demographic-based segments a permanent home in the corporate environment.

As information technology evolved in the 1970s, so did marketers' ability to gain insight into their customer base. They developed new methods of segmentation that included not only demographic data but psychographic data as well. With information on common customer traits and attitudes towards products and services, marketers were able to produce more-specific customer profiles. As organizations installed large transaction databases and captured real-time point-of-purchase data, even more information became available to marketers. Purchase-behavior segmentation arose in response to this information flow, giving companies the ability to segment customers not only based on their age, income, and psychographic profiles, but also based on their past purchase behavior.

In the 1980s, companies discovered needs-based segmentation. This approach was made possible by powerful computers and sophisticated clustering techniques, which allowed researchers to classify customers into segments based on what product features and benefits were most appealing to them. This approach provided managers with some helpful insights but failed to take over as the standard for segmenting markets because the segments it uncovered were often intangible and difficult to understand and target. More often than not, the needs-based statements used to segment markets did not really represent needs at all.

Today, many companies use a combination of demographic, psychographic, roles and needs data as the basis for market segmentation. (See the figure "The Evolution of Segmentation Methodology.") Perhaps because segmentation schemes based on these data have been useful for sales, marketing, and accounting functions, managers have tended to overlook the schemes' unintended and often undesirable effects on the organization's ability to innovate.

**Sidebar Figure: The Evolution of Segmentation Methodology**

