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Insights and New Directions from Demand-Side Approaches to Technology Innovation, Entrepreneurship, and Strategic Management Research

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The authors review the progress of three rapidly growing macro management literatures—in technology innovation, entrepreneurship, and strategic management—that have in common the use of a “demand-side” research perspective. Demand-side research looks downstream from the focal firm, toward product markets and consumers, to explain and predict those managerial decisions that increase value creation within a value system. Typical characteristics of demand-side, macro-level management research include clearly distinguishing value creation from value capture, emphasizing product markets as key sources of value-creation strategies for firms, viewing consumer preferences as dynamic and sometimes latent, and recognizing that managers’ differing decisions in response to consumer heterogeneity contribute to firm heterogeneity and, ultimately, value creation. The authors review recent demand-side findings showing that strategies based on consumer heterogeneity can result in competitive advantage even if the firm holds only obsolete or mundane resources, these advantages can be sustainable without

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resource- or ability-based barriers to imitation, successful innovations can be consumer driven rather than resource or technology driven, and consumer knowledge can play a key role in entrepreneurial idea discovery. These seemingly counterintuitive findings from demand-side research indicate the promise of future demand-side work for generating new knowledge useful to scholars and managers. The authors suggest directions for future demand-side research based on their review. What's more, the research they review represents a start—but only a start—toward integrated theories that could attend to both the demand side and the producer side of the value creation equation.

Keywords: *demand side, technology innovation, entrepreneurship, strategic management*

Some scholars advocate resource-focused approaches to management research that “look inside” in attempting to value firms’ or nascent ventures’ heterogeneous resources or dynamic capabilities (Barney, 1991; Eisenhardt & Martin, 2000; Makadok & Coff, 2002). These approaches have contributed to knowledge in areas such as technology innovation, entrepreneurship, and strategic management, with some scholars even assigning the resource-based view (RBV) a “preeminent position” in the strategic management field (e.g., Lockett, Thompson, & Morgenstern, 2009: 9). Recently, however, some management scholars researching innovation, entrepreneurship, and strategy have begun focusing on the demand side of the value equation rather than on the resource side. Yet because this growing demand-side approach has been conducted by scholars spanning these three areas, the extent and importance of this new research direction may have gone unnoticed by many scholars. Indeed, even scholars currently using the demand-side perspective may be unaware of others currently following this same perspective.

Ours is therefore a different type of *Journal of Management* review article. We do not review, integrate and identify new directions for a long-established area of research. Instead, our purpose is to review and integrate an emerging—yet dispersed and relatively little-known—literature representing a rapidly growing and potentially highly consequential new direction for researchers in technology innovation, entrepreneurship, and strategic management. We hope to show how this broad-scope work following the demand-side perspective may ultimately inform or complement more established domains of management research.

Before proceeding, a few initial definitions and a distinction are necessary. A *value system* is composed of all primary and secondary activities, usually conducted by a series of firms, necessary to transform raw materials into products for end users (Porter, 1985). *Consumers* are those customers who are end users; that is, consumers purchase a value system’s end product, and consumers’ *willingness to pay* indicates the value created by that particular value system. Intermediate, business-to-business purchasers in a value system are also *customers*, but they are not consumers. By *demand-side* research we mean work that looks downstream from the focal firm, toward product markets and consumers, rather than upstream, toward factor markets and producers, to explain and predict those managerial decisions that increase value creation within a value system. Demand-side research typically remains at the firm level—for example, by evaluating how heterogeneity among a firm’s immediate customers can affect the viability of various strategic responses to radical technology

change (e.g., Adner & Snow, 2010a, 2010b), or by showing how consumers' preference functions can be useful in guiding strategies, such as diversification or backward or forward integration, for multiple firms up and down the value system (Priem, 2007). One final distinction is also necessary. Demand-side management research is different from typical marketing research in the following way. Although marketing research might examine, for example, how differing retail assortments may attract different types of consumers (e.g., Messinger & Narasimhan, 1997), demand-side management research focuses on how major strategic moves, such as interindustry diversification, could provide an ongoing value creation advantage (e.g., Ye, Priem, & Alshwer, in press). For example, the late mainframe computer manufacturer Control Data Corporation acquired Commercial Credit Corporation and General Motors established General Motors Acceptance Corporation for the same reasons. These large companies pursued interindustry diversification to create new value for their customers by streamlining the buying experience while also providing the firms with more value-capture flexibility when negotiating "bundled" prices. What can be a clear distinction for large firms could be less so for entrepreneurial start-ups, however. For entrepreneurial start-ups, for example, decisions involving a single-industry product assortment would be functional marketing; those involving interindustry resource allocation would be strategic (see Ye et al., in press, for further discussion).

Typical characteristics of demand-side research include (a) clearly distinguishing between value creation, which is determined by consumers' willingness to pay, and value capture, which is determined by market structure and resource ownership (e.g., Bowman & Ambrosini, 2000, 2001; Priem, 2001, 2007); (b) recognizing that consumers' heterogeneity of demand contributes to firm heterogeneity through managers' differing judgments about, and decisions in response to, consumer heterogeneity (e.g., Adner & Snow, 2010b); (c) viewing consumer preferences as dynamically changing and sometimes latent (e.g., Kirzner, 1997; i.e., just like March & Simon's, 1958, bounded rationality for managers, consumers have bounded foreknowledge of their own needs), and (d) emphasizing product markets as key sources of value-creation strategies for firms, rather than the more common RBV emphasis on resource markets and value capture. This last characteristic follows from Gans, MacDonald, and Ryall's (2010) distinction that firms first must compete to create more end-user value, so they can join a value system, and only then compete to capture that value. For example, Intel's decision to brand their chips in the early days of personal computing increased consumers' willingness to pay, allowing Intel into many computer manufacturers' value chains and, ultimately, to capture more value.

We review the rapidly growing demand-side research because of its unique potential for advancing knowledge across multiple fields. Recent demand-side findings show, for example, that strategies based on consumer heterogeneity can result in competitive advantage, even when a firm holds only obsolete or mundane resources (Adner & Snow, 2010b; Ye et al., in press) and that such advantages can be sustainable without resource- or ability-based barriers to imitation (Jonsson & Regnér, 2009; Madhok, Li, & Priem, 2010). In short, the demand-side work to date indicates that the possession of "superior" resources is not always as important as previously supposed and may in many contexts be unnecessary for sustainable advantage. Thus, the potential of future demand-side work for generating new knowledge useful to scholars and managers is profound, and such work could inform or even redirect several fields.

In the next section we successively review recent demand-side work that contributes to technology innovation, entrepreneurship, and strategy. We then discuss how these research areas are interrelated and also how they relate to the RBV and dynamic capabilities literatures. We conclude with a discussion of future research opportunities from the demand side and suggest how such work also may complement future resource-based and dynamic capabilities research.

Recent Demand-Side Research in Management

We searched for recent demand-side literature in technology innovation, entrepreneurship, and strategic management through online library database sources, by examining citations to existing demand-side work using Web of Science, and by manually examining the “in-press” listings of scholarly journals. To capture the most recent demand-side work, we also emailed those scholars whom we found had previously engaged in demand-side research and asked for their latest in-press articles and working papers. The response rate to our email was 100%, although about 30% of these scholars did not have an active demand-side paper in progress. A number of the studies we located have implications that fall at the intersections of technology innovation, entrepreneurship, and/or strategy. Adner’s (2002) demand-side technology innovation study, for example, has implications for both new and established firms. In such cases we used our judgment either to include the study in multiple sections of our review, so each section would be complete and could stand alone, or to allocate the study to the section for which it clearly has the greatest influence.

The Demand Side and Technology Innovation

Technology innovation scholars have long debated whether innovation is driven by technology breakthroughs or by market demand—that is, technology push versus demand pull (Freeman, 1974; Rosenberg, 1982; von Hippel, 1976). As the RBV has risen to prominence, however, the research emphasis has been on technology—and especially a firm’s internal technology resource base—as the key driver of innovation (Benner & Tripsas, in press; Hitt, Bierman, Shimizu, & Kochhar, 2001; Hoskisson, Hitt, Wan, & Yiu, 1999). And Christensen’s (1997) seminal work on the innovator’s dilemma, suggesting that incumbents may fail to adopt disruptive technology because of excessive focus on customers, likely further tilted the field toward technology-driven research.

Notwithstanding these factors and the resulting dominance of technology-based explanations for innovation, empirical anomalies increasingly have led researchers toward demand-pull explanations for innovation. For example, advanced users are involved in many innovation design processes, in part because of new business models such as open sourcing (Baldwin & von Hippel, 2010; von Krogh & von Hippel, 2003, 2006) and in part because of the increasing availability of venture capital, which helps innovative consumers become product producers (Lakhani & von Hippel, 2003; Shah & Tripsas, 2007). Notions such as “users as innovators” (Bogers, Afuah, & Bastian, 2010) and “collaborative innovation with customers” (Greer & Lei, in press; Lettl, Herstatt, & Gemuenden, 2006; Nambisan & Baron, 2010) have

been adopted to describe this rising phenomenon. This move toward more demand-pull innovation research has been acclaimed as a paradigm shift away from the traditional producer innovation model (Baldwin & von Hippel, 2010). We define demand-pull innovations as those innovations driven by the goals of either satisfying current consumer needs in an entirely new way or identifying and satisfying new needs.

To demonstrate its novel insights, we highlight two demand-side studies in innovation that alter traditional technology management perspectives. In the first study, Benner and Tripsas (in press) demonstrated that demand-side features were critical in the emergence of a dominant design for digital cameras. By studying the digital cameras introduced from 1991 to 2006, Benner and Tripsas found that the final, dominant design in the newly established digital camera industry was influenced in part by companies' prior industries, such as photography, consumer electronics, and computing, and in part by consumer preferences. Before 2004, no one knew what functions a digital camera should contain to offer maximum value for potential consumers. Therefore, industry competitors needed to rely on market information to determine which features to offer. By 2004 the initial variety of digital camera features began to converge through a series of trials and errors. Thus, Benner and Tripsas (in press) showed that, contrary to solely technology-push explanations, demand pull contributed to which features emerged as the dominant design for digital cameras.

In the second study, Adner and Snow (2010a, 2010b) took a demand-side approach to identify an alternative strategy for incumbent firms facing a new entrant's disruptive technology. Traditional wisdom from the technology-push perspective suggests that incumbents must transform themselves and embrace new technology to compete effectively. Adner and Snow (2010a), however, were able to identify a strategy they labeled "technology retreat" that can allow incumbent firms to proactively cope with the emergence of disruptive innovations by repositioning their "old" technologies in the marketplace. They explained with a formal model how a disruptive technology can reveal previously undiscovered heterogeneity among customers by, for example, revealing the size of the customer segment that perceives relatively little utility from the features offered by the new technology. If this segment is sufficiently large, a disruptive technology can present new opportunities for an incumbent to successfully reposition its existing technology in the marketplace. The thriving mechanical watch industry demonstrates a successful retreat from the rise of the more accurate quartz technology. This retreat was possible because of heterogeneous consumers' multidimensional needs for a watch (i.e., preferences for mechanical craftsmanship and beauty versus absolute accuracy in timekeeping). Similar examples of technology retreat can be found in the bicycle industry's response to automobiles and pager manufacturers' response to cell phones, and so on. Thus, Adner and Snow's (2010a) demand-side work has uncovered new options for how incumbents might successfully respond to a disruptive technology. Below we organize our review around the themes of customer heterogeneity, technology life cycle, and value creation to show the novel light that demand-pull research can shed on innovation research.

Demand pull, technology push, and customer heterogeneity. The emergence of the demand-pull innovation research stream does not mean that traditional, technology-based innovation research treats the role of customers—users as secondary or trivial. Instead, the key difference between the two research streams is that technology-based innovation research tends to

assume that customers' needs are certain and that an innovation's value creation is a given. In this sense, the role of innovation is to reduce production costs or to increase efficiency in satisfying a given customer's needs, consistent with the RBV's basic assumption of "two business firms competing in a production market, one of which has a competitive advantage over the other" (Peteraf & Barney, 2003: 315, emphasis added). On the other hand, demand-pull innovation research does not assume that customers' needs are constant; instead, innovation research taking a demand-side approach tends to emphasize market change and heterogeneity. von Hippel's (2005) work provides one example. Through a series of studies in industries where customers tend to have more heterogeneous needs—such as integrated circuits, custom foods, and security software—von Hippel and his colleagues found that firms offering tool kits that help their consumers modify products or invent new solutions provide greater customer satisfaction.

Demand-pull innovation and the technology life cycle. Demand-pull research also has provided fresh insights that complement traditional, technology-push research into the technology life cycle. For instance, Adner and Levinthal (2001) used computer simulation to reveal a new stage in the technology life cycle, characterized by increasing performance at a stable price, which had largely been ignored by traditional approaches. Adner (2004) further proposed that consumer demand is not stable over time but evolves in an S-curve. This demand S-curve complements the traditional technology S-curve to provide novel implications for the technology life cycle. One insightful implication of combining the demand and technology curves is that firms can rejuvenate mature demand through "value innovations" that alter the attribute set over which consumers evaluate performance. For example, name-brand personal computer companies are increasingly offering new services that provide added utility for more mature customers and thereby overcome disadvantages in direct price competition for PCs. Along this same line, Tripsas (2008) recognized that the evolution of customer preferences—their preference trajectory—is based on cycles of incremental and discontinuous preference changes. By studying major technological transitions in the typesetting industry, she found that each technological transition was triggered by customer preference discontinuities instead of technology-driven factors. These studies show the importance of considering demand-side market heterogeneity, in conjunction with technological capability, when examining technology evolution.

Consumer demand and value creation. Demand-side innovation research also has begun examining the relationship between consumer demand and value creation through innovation. This research has evolved around two common topics: customers as innovators and how a focus on consumer demand can help firms deal with disruptive innovation. By recognizing value creation from the consumer side, scholars have given new emphasis to the role of users in the innovation process (e.g., Henkel & von Hippel, 2005; Nambisan & Baron, 2010; Prahalad & Ramaswamy, 2004). Researchers have found that consumer users are major drivers of innovation, especially in consumer goods sectors, and that firms intentionally get consumers involved in their innovation processes (e.g., Franke & Shah, 2003; von Hippel, 2005; for a review see Bogers et al., 2010).

Another series of studies reevaluated the benefits of a consumer-oriented strategy for innovation, demonstrating that demand landscapes can shape the opportunity structures for firms' innovations (e.g., Adner, 2002; Adner & Snow, 2010a, 2010b; Danneels, 2003, 2004, 2008). This research tends to be embedded in contexts of disruptive innovation because those contexts present the greatest challenge to the idea of consumer-oriented strategy. The study by Adner and Snow (2010a) we discussed above demonstrates the importance of understanding customer preferences. Danneels's (2003, 2004, 2008) work provides more examples. For instance, his 2003 qualitative study of apparel retailers found that firms must strategically manage their level of "coupling" with customers to maximize benefits for customers. His 2008 study used two-wave panel data in a study of public U.S. manufacturing firms, finding that different antecedents for exploring the customer environment produced different effects on marketing and R&D competences. In addition, Reuber (2008) has closely examined survivors of disruptive innovation in the computer graphics chip industry in the mid-1990s. She found that even the surviving firms needed to respond to demand uncertainties if they were to achieve long-term advantage.

Altogether, these works show how an incumbent's inability to identify future demand can cause failures in the face of disruptive technology changes, thereby challenging the universality of Christensen's innovator's dilemma and providing practical implications for innovation management. From the starting point that market demand can be heterogeneous, these case studies, simulations, and quantitative studies demonstrate that customer-oriented incumbents need not fail when faced with disruptive technologies. Instead, it is an incumbent's *inability* to identify future demand, sometimes combined with a lack of sufficient demand heterogeneity, that may doom the incumbent to failure. In sum, this suggests it is *critical* for firms to analyze and understand demand factors, instead of ignoring them; given marketplace heterogeneity, a consumer focus is key for firms to successfully innovate or to successfully retreat from a competitor's disruptive innovation.

The Demand Side and Entrepreneurship

In this section we first provide a brief discussion of the overarching theoretical perspectives often used to describe entrepreneurship from the demand side—most notably the work of Kirzner (1973, 1997) and Penrose (1959). Second, we review two demand-side research themes in entrepreneurial contexts, which we label as opportunity signaling (Yli-Renko, Autio, & Sapienza, 2001) and user entrepreneurship (Shah, 2005; Shah & Tripsas, 2007).

Theoretical perspectives. The phrase "opportunity rich, but cash poor" is commonly associated with entrepreneurs. Yet even under severe initial resource constraints and in highly competitive industries, new entrepreneurial ventures somehow successfully "appear." In fact, entrepreneurship is defined as "the pursuit of opportunity *beyond the resources you currently control*" (Stevenson, 2000: 1, emphasis added). Thus, opportunity finding—based on what Kirzner (1997) has labeled the "pure entrepreneurial judgment" to envision possibilities—is the essence of entrepreneurship. That is, the process of new value creation often is predicated on a start-up entrepreneur's ability to successfully recognize and exploit consumer demand

that is unknown to or undervalued by more established firms. Such opportunities, when sound, draw financial capital and other assets necessary for venture creation (Stevenson & Gumpert, 1985). Thus, a demand-side perspective is fundamental to new opportunity discovery.

For this review, we do not seek to enter debates concerning neoclassical theory, Schumpeter's (1942) theories of "creative destruction," or the important work of Hayek (1948), Mises (1949), and others. Instead, we limit ourselves to brief descriptions of two important views of entrepreneurship that emphasize the demand side—Kirzner (1973) and Penrose (1959).

Kirzner's work is built on concepts developed by Hayek and Mises in the Austrian school tradition and has helped shape our understanding of the market process, the entrepreneur, and the creation of entrepreneurial opportunities. Kirzner's contribution to the demand side and entrepreneurship can be seen in his elaborations of "entrepreneurial alertness" and of the competitive market process as it relates to entrepreneurial opportunities. Under neoclassical economic theory, rational market actors act with perfect information under "perfect competition" and market equilibrium is achieved. Under a neoclassical equilibrium, there is "no scope for pure profit: there is simply nothing for the entrepreneur to do" (Kirzner, 1997: 69). Rather, Kirzner outlines a *market process* that, with imperfect information and uncertainty, is always seeking the equilibrium state but never achieves it. Central to Kirzner's theory is the concept of "entrepreneurial alertness," whereby entrepreneurs engage (and reengage) with markets, seeking profits as a result of their receptiveness to opportunities. These opportunities often result from *surprise*, in that the entrepreneur boldly recognizes and exploits opportunities that have been overlooked by others.

Entrepreneurial alertness does not occur in a vacuum in Kirzner's (1973) framework, however; other entrepreneurs also are offering products and services in the market, thereby creating "rivalrous competition" as they engage in a discovery process regarding market needs. Entrepreneurs can gain advantages over others in this discovery process by developing "unthought-of knowledge" (Kirzner, 1997: 73) about the market and previously unrealized profit. Thus, Kirzner's work emphasized the alertness of the entrepreneur in interacting with the market.

The work of Edith Penrose (1959) also serves as a foundational perspective for the demand side and entrepreneurship (see, e.g., Kor & Mahoney, 2000). Similar to Kirzner's emphasis on the interaction between the entrepreneur and the market process, Penrose (1959) used a resource-based approach to explain the dynamics of market demand, entrepreneurial response, and subsequent firm growth. In Penrose's view, entrepreneurial discovery is a product of "imagination," which results from the synergies created by past knowledge and experiences and the resources available to the firm. Indeed, demands within the market "offer opportunities" (Kor, Mahoney, & Michael, 2007) for entrepreneurial imagination. In Penrose's (1959: 80) view demand is not seen as a given but rather "something [the entrepreneur] ought to be able to do something about." Thus, entrepreneurial imagination is multifaceted, affected by the unique experience, knowledge, and resources of the firm, but also by the market.

Recent demand-side research has supported these early ideas and shows the potential for exploring entrepreneurship from the demand side. For instance, entrepreneurial success has been tied to an entrepreneur's prior experience with the same consumers or markets

(Hmieleski & Baron, 2009). This may be because market-experienced entrepreneurs possess market-specific “idea sets” (Hill & Birkinshaw, 2010) that allow them to recognize consumer needs in ways their more resource-rich competitors cannot. Recent research also suggests that entrepreneurial firms can succeed, despite resource constraints, in large part because of their ability to dynamically combine and recombine limited resources to more successfully address consumer needs (e.g., Zahra, Sapienza, & Davidsson, 2006). For example, Baker and Nelson (2005) have explained “entrepreneurial bricolage” as using or combining existing resources in new ways to serve existing markets. The demand-side approach extends the resources available for bricolage to include those *outside* a start-up that may be useful in addressing previously unforeseen consumer needs. The judgment necessary for such activity (Klein, 2008) is most likely to be exposed through demand-side studies.

In summary, the works of Kirzner and Penrose are important foundational perspectives that have received recent support regarding the role of the demand side in entrepreneurship. Both perspectives, in conjunction with other theoretical frameworks, have provided the impetus for further research on the role of the demand-side in entrepreneurial settings. Based on our literature review, we identified two primary themes in the demand-side entrepreneurship literature: opportunity signaling and user entrepreneurship.

Opportunity signaling. Considerable research has been conducted on entrepreneurial opportunities (e.g., Sarasvathy, Dew, Velamuri, & Venkataraman, 20003; Shane, 2000), based on several overarching views of the mechanisms leading to opportunity discovery or creation. For example, some research has defined entrepreneurial opportunities as existing objectively within the environment so they can subsequently be “discovered” and exploited by entrepreneurs (see Shane & Venkataraman, 2000). Other research leans more toward the idea that opportunities can be “created” by interpreting environmental cues and enacting an entrepreneurial vision (e.g., Alvarez & Barney, 2007). Our purpose is not to focus on this debate, however; regardless of the view considered, entrepreneurial opportunities must be discovered or created by *someone*. We instead examine literature reflecting the role that markets and customer demand have on the opportunity identification process. Demand-driven factors are external to the entrepreneur, yet they serve as important signals for opportunity discovery or creation. We therefore label the articles in this portion of our review as “opportunity signaling” literature. We define *opportunity signaling* as the general process whereby overt or latent consumer or market demands indicate to entrepreneurs prospects for opportunity creation or discovery. In reviewing this literature we found that the entrepreneurial process can be influenced by (a) signals received through customer–entrepreneur relationships or (b) demand signals from changing customer preferences, each of which can indicate a potential opportunity for entrepreneurial action.

Opportunity signaling can occur through the close relationships that are possible between entrepreneurs and their customers (Coviello, Brodie, & Munro, 2000; Kor et al., 2007). In some circumstances, the degree to which these relationships lead to entrepreneurial opportunity can be a function of the customers’ characteristics (Fischer & Reuber, 2004). For example, Fischer and Reuber (2004) demonstrated that young firms’ dominant customers can have strong effects on firm direction. Moreover, such effects can translate into legitimacy for an entrepreneurial firm (Venkataraman, Van de Ven, Buckeye, & Hudson, 1990) and into

the firm's ability to exploit opportunities with other potential customers (Reuber & Fischer, 2005).

Overt or latent demand for new products or services also can serve as a signal for new entrepreneurial opportunities (Yli-Renko et al., 2001; Yli-Renko & Janakiraman, 2008). Yli-Renko et al.'s (2001) research, for example, showed that interaction between new high-technology ventures and their key customers is important to success. High-tech new ventures face special challenges that often include resource constraints and limited knowledge of market needs (see also Danneels, 2004). Yet new ventures can successfully compete in high-tech environments by responding to opportunities signaled by their customers. Using a sample of 180 high technology new ventures, Yli-Renko et al. (2001) demonstrated that knowledge gained from key customers significantly improves start-ups' abilities to develop new products, reduce sales costs, and develop technological distinctiveness. Thus, close relationships with customers can shape the actions of entrepreneurial firms as they attempt to meet the external demands for products or services. In addition, Hiatt, Sine, and Tolbert's (2009) research on the Women's Christian Temperance Union demonstrated how a social movement organization can place demand constraints on existing industry players, with the result being new entrepreneurial opportunities for, in this case, carbonated beverages. This suggests that demands from customers or markets that lead to entrepreneurial opportunities can come from a variety of sources (Cohen & Winn, 2007; Companys & McMullen, 2007).

User entrepreneurship. Although opportunity signaling generally captures how demand-side pressures can lead to entrepreneurial opportunities, research in user entrepreneurship demonstrates how the demands of a user or user community can lead to innovations that are ultimately commercialized by the users themselves (Franke & Shah, 2003; Huefner & Hunt, 1994; Kline & Pinch, 1996; Shah, 2005; Shah & Tripsas, 2007). User entrepreneurship shares several characteristics with research on lead users and the creation of radical technological innovations (e.g., von Hippel and colleagues). The difference in these two views is that the opportunities created by these innovations are exploited by users and not by established firms.

Users may initially recognize the entrepreneurial opportunity that exists with their innovation (Companys & McMullen, 2007), but they often do not start out with the commercialization of their innovation in mind. In some instances they are embedded in existing firms that ignore or actively thwart their desire to leverage their innovation, which can lead to "spinout" businesses based on the new product or service (Klepper, 2007). In other situations users' innovations are developed initially for their own benefit, such as when physicians adapt a medical technology to be more useful and later decide to exploit their innovation as a commercial product (Chatterji, Fabrizio, Mitchell, & Schulman, 2008). A study by Shah and Tripsas (2007) provides a clear example of this phenomenon. They focused on the development and commercialization of innovations in the juvenile products industry—an industry that includes products such as baby carriers, cushions, strollers, walkers, and safety systems. Using a sample of 263 firms from this industry, they found more than 80% of the firms were founded by user entrepreneurs. Often, these firm founders included fathers and mothers who had developed products for their own use or to meet a specific need that was unavailable within the existing marketplace. One example is the

development of the Baby Jogger, which was created in response to the difficulties experienced by active parents who wished to go running with their small children in a carriage. Another example is the creation of the ToddlerCoddler, developed by an active mother to give her children a more comfortable pillow to lean on as they traveled in their vehicle. Each of these examples highlights how users became entrepreneurs through the creation of products that were at first centered on addressing individual needs but subsequently were recognized by these same innovators as creating value for others.

One frequent characteristic of successful user entrepreneurs is the presence of other users who signal the potential value of an innovation (Shah, 2005). Improved communication media allow users to interact more easily with other, similar users, thus providing them with the ability to recognize and exploit opportunities in multiple contexts (Chandra & Coviello, 2010). When a user community signals an entrepreneurial opportunity, a user can exploit the discovery by manufacturing the innovative product with multiple use contexts in mind (Baldwin, Hienert, & von Hippel, 2006; Nambisan & Baron, 2010).

The Demand Side in Strategic Management

Demand-side considerations are not entirely new to strategy scholars: Long ago Penrose (1959) argued that companies realize successful business growth when they attend to consumers, and Peter Drucker (1954: 37) asserted that “the customer is the foundation of a business.” More recently, Porter (1996) showed how effective business-level strategies can be based on consumer heterogeneity. The possibility for a resurgence of demand-side work in strategic management was likely aided when the difference between value creation and value capture—often conflated in the RBV literature (Makadok & Coff, 2002)—was clarified, with the former determined by consumer evaluations and the latter determined by the relative power of actors in a value chain (Bowman & Ambrosini, 2000, 2001; Priem, 2001, 2007; Wijnberg & Gemser, 2007). Researchers have since examined strategic issues such as value cocreation, technological discontinuities, industry evolution, consumer and firm heterogeneity, diversification, opportunity finding, and systems for judging value, all from the demand-side perspective.

We highlight two studies to show how demand-side work can produce insights that would be considered counterintuitive from a solely resource-focused perspective. In the first study, Adner and Zemsky (2010) applied a value-based approach using formal modeling to evaluate how relationships among production characteristics and consumer choice characteristics affect the efficacy of niche versus generalist strategies for value creation. Their model included, on the production side, scalability and fixed costs and, on the demand side, consumers’ decreasing marginal utility (represented by their willingness to pay) and heterogeneity (represented as the number of market segments), plus improving production technology over time. Adner and Zemsky (2010: 1) show that firms entering a market pursuing a generalist business-level strategy—often considered ineffective and labeled “stuck in the middle” by Porter (1985)—actually can “dominate from the middle” when production is scalable and the market segment is sufficiently large. Under such conditions, they note that a generalist such as Barnes & Noble in the brick-and-mortar book business

can dominate small specialist booksellers by offering large selection and a “living room” atmosphere, while simultaneously using economies of scale to effectively serve more cost-conscious consumers. Thus, Adner and Zemsky (2010) show that production and market characteristics together help to identify situations in which, counter to much prevailing thought, a contingent choice among supposedly mutually exclusive generic strategies is neither necessary nor effective.

In the second study, Ye et al. (in press) demonstrated how strategic-level, interindustry diversification can result in synergistic and sustainable value creation for multiple consumer groups, even though the underlying assets are mundane (i.e., commonplace) and easily tradable and any benefits available from typical producer-side sources such as economies of scope or skill transfers are negligible. They first modeled consumer utility increases that result from (a) helping consumers to conduct two tasks simultaneously and (b) bringing different groups to a common platform when intergroup externalities are present (i.e., when each group’s utility increases with increased platform participation from the other group). Value creation in the simultaneous utilities situation is illustrated by many business combinations, ranging from the ubiquitous convenience store–gas stations and bookstore–coffee shops to the quite unusual dog wash–coffee shop, to the big-ticket manufacturer–credit supplier combinations of large companies we discussed earlier. Value creation in the common platform situation is illustrated by Amazon and eBay on the web (i.e., more sellers make the platform more attractive to buyers, and more buyers make the platform more attractive to sellers) and by “speed dating” and venture capitalist–entrepreneur “meet and greets” in the bricks-and-mortar environment. Ye et al. (in press) modeled how a combined simultaneous utility and common platform situation increases participants’ utilities in cases of both symmetric and asymmetric consumer preferences. They then found support for their value creation predictions using the simple empirical case of a university area’s combined self-service laundry and sun tanning establishments compared to the value creation of separate laundry and tanning establishments in the same area. Ye et al. (in press) showed that interindustry diversifications with otherwise-mundane assets *can* create consumer value; counter to prevailing thought, “superior” assets are not necessary for value creation. Moreover, they determined that common ownership is required—rather than, say, alliances or joint ventures—for full value creation when consumer preferences may change.

These two studies each produced counterintuitive findings that are *inconsistent* with resource-focused prescriptions for strategic managers. Although we cannot go into this level of detail for all demand-side studies in strategy, those we mention more briefly next offer similarly counterintuitive insights. We group these studies by their emphases on value creation, consumer heterogeneity and firm strategy, and estimating value creation. We then discuss studies addressing the sustainability of demand-side competitive advantages.

Value creation studies. Ramírez (1999) was one of the earlier scholars who advocated value coproduction as increasingly important to strategic management. He focused on the importance of creating utility, or “use” value, for customers (Bowman & Ambrosini, 2000), arguing that companies can “create value; or more exactly, co-create and even co-invent it both with their suppliers and their own customers” (Ramírez, 1999: 51). Zander and Zander (2005) developed a related argument that close customer relationships can give producers

an “inside track” (Penrose, 1959) to information on consumer needs that is useful in guiding innovation and firm diversification. Baldwin and von Hippel (2010) modeled the efficacy of producer innovation versus user innovation (i.e., by individual firms or single individuals) versus open innovation. Their model suggests that user and open innovation are playing an increasingly important role in our economy. Faulkner and Runde (2009) provide an example. They discussed how user innovation by hip-hop DJs reinvigorated the turntable industry.

Priem (2007) used the household production model (Ratchford, 2001; Stigler & Becker, 1977), in which consumers interact with products or services to “produce” their own utility, to illustrate complementary approaches through which firms could directly increase “consumer benefit experienced” in novel ways. These included increasing the consumer’s product-specific knowledge to increase enjoyment, decreasing the consumer effort required for product use, and increasing within-the-household consumer synergies from product use, that is, synergies from multiple users in one family. He also showed how strategic moves—including forward vertical integration and diversification—could aid in providing these increased consumer benefits. Gans et al. (2010) integrated consumer value creation ideas with producer value capture in a two-stage, competitive model. They argued that producers first must compete with other, similar producers to be selected for participation as a member of a value system (Porter, 1985) that is especially effective in delivering consumer benefits. Only after this selection does the producer have an opportunity to compete over value capture with other members of the value system, but that competition must be restrained by the desire to remain a member of the high-quality value system. Finally, Aspara and Tikkanen’s (in press) recent study of more than 500 Finnish firms evaluated the relative performance effects of an emphasis on novel value creation versus value capture. They found no direct effects but instead configuration effects, such that a high emphasis on value creation and low emphasis on value capture were associated with better performance for all firms, whereas a high emphasis on both value creation and value capture was associated with better performance only for larger firms. In all cases, these relationships were strongest in more dynamic environments. Together, these studies indicate that attention to value creation must precede attention to value capture and that value creation for consumers stands on equal footing with value capture regarding its importance to firm success.

Consumer heterogeneity, firm strategy, and value creation. Strategy scholars also have examined the effects of consumer heterogeneity on the viability of different firm strategies. An early article by Adner and Levinthal (2001) used a simulation to evaluate the effects of consumer heterogeneity—represented by consumer segments with different needs and with differing-but-decreasing marginal utilities for product innovation—on producers’ incentives to innovate. Adner and Zemsky (2006) modeled the effects of consumer heterogeneity on the sustainability of low-cost and differentiation business-level strategies (Porter, 1985), where heterogeneity again was based on differing needs for quality and decreasing marginal utilities for product improvements. They found that the effectiveness of business-level strategies and, therefore, the value of firm resources is affected by consumer heterogeneity and technology trajectories. Chatain and Zemsky (2007) developed a formal model showing how organizational and market factors—including client-specific economies of scope and customer heterogeneity—affect the utility of generalist, specialist, and hybrid intraindustry scope strategies. Recently,

Adner, Csaszar, and Zemsky (2010) modeled heterogeneous buyers who have preference differences across multiple product features. They show that the number of viable competitive positions in an industry increases with the number of attribute trade-offs and decreases with the degree of organizational design interdependencies. Thus, strategic effectiveness can be determined by market factors as well as organizational design features.

Demand-side studies are also clarifying the role of heterogeneous consumer needs as a source of value-creating strategies for firms. A study by Schmidt and Keil (2010b) modeled the more general case of customer-driven diversification based on unique demand-side complementarities, where having multiple products on offer increases the customers' willingness to pay. They found that firm market share and profitability differ consistently across diversification types based on product scope versus demand complementarities. And another study by Schmidt and Keil (2010a) provided a general model of consumer-based advantages without "superior" resources. Finally, an empirical study of an airline's strategy for increasing consumers' knowledge of product alternatives (Granados & Siqueira, 2011) is especially important because it identifies (a) that web-based versus agency-based marketing channels provide different levels of information transparency that result in different levels of value creation for consumers and (b) that differing product bundles on web-based channels discriminate among consumer segments with differing price elasticity of demand, which in turn affects the firm's ability to capture the value created. This study leads directly to the issue of determining how much value is created by a particular firm or value system, which we turn to next.

Estimating value creation. Several scholars have analyzed the amount of value created or the processes involved in determining value. DeSarbo and his colleagues (DeSarbo, Ebbes, Fong, & Snow, 2010; DeSarbo, Jedidi, & Sinha, 2001) developed techniques for consumer value analysis that identify the drivers of consumers' value perceptions in a heterogeneous market. Wijnberg and his colleagues developed "selection systems" theory, which examines how different arbiters of value—consumers, peers or experts—are more effective or less effective at estimating value in various contexts, and how these differing selection systems affect attributions of value. Wijnberg and Gemser (2000), for example, explained how the then-new Impressionist movement was stymied when artistic value was judged by "peers" in an academy of established artists who favored the status quo. It was only when an expert selection system developed, composed of gallery owners and critics, that the innovations of Impressionism were recognized as valuable and rewarded. Currently, Mol and Wijnberg (in press) and Wijnberg (in press) are beginning to build links among resources, product classification, and value creation through the framework provided by selection systems theory. Similarly, Kim and Tsai's (in press) empirical study showed that firms can positively affect consumer preferences by classifying their product as competing with more positively perceived products, even when that classification is inconsistent with consumers' prior classification of the product.

The sustainability of consumer-based advantage. These demand-side findings together beg the question of how sustainable advantages based on consumer value creation might be. Following resource-based logic, mundane resources cannot be the source of sustainable

advantage because all potential competitors have the ability to duplicate the advantage and such duplication will soon produce competitive parity (Powell, 1992). Recently, however, demand-side researchers have begun moving beyond the ability-based isolating mechanisms (AIM) that result from resource characteristics to examine new, willingness-based isolating mechanisms (WIM) that result from managers' strategic decisions regarding alternative opportunities. Madhok et al. (2010), for example, evaluated WIM by applying Ricardo's (1821) theory of comparative advantage at the firm level, using a two-firm, two-product case. They show how, when one firm with limited resources has a comparative advantage for both products compared to a second firm, the first firm will manufacture the product for which it has the greatest advantage while voluntarily ceding the other product's market to the second firm. This is an example of a WIM derived from the strategic choice of a potentially competing firm that has the *ability* to compete effectively in the less attractive marketplace but instead *chooses* an alternative that allows it to produce and capture greater value. Arora, Gambardella, Magazzini, and Pammolli's (2009) recent research on the U.S. drug industry provides an excellent example of a WIM. They analyzed more than 3,000 drug R&D projects in the United States during 1980–1994 and found that pharmaceutical firms are superior to biotech firms in both the discovery of new compounds and the clinical development of those compounds. Yet because pharmaceutical firms have a greater comparative advantage in clinical development than in the discovery of new compounds, they tend to specialize downstream in clinical developments and leave biotech firms to conduct upstream discoveries. Taking a different approach, Jonsson and Regnér (2009) examined the role of institutional norms in establishing WIMs in the Swedish mutual fund industry. They found that institutional affiliation contributed to the speed of adoption of new fund products, thereby supporting their argument that institutional norms affect firms' strategic choices and, thereby, are a potential source of WIMs.

RBV discussions of AIM generally assume that a potential competitor will enter a market if it has the ability to do so. But these studies show how, because many firms that have the ability to compete in multiple markets choose to compete in only one or a few while eschewing the others, some competitive advantages may be sustainable because of the choices of possible competitors (i.e., WIM) rather than because of AIM.

Comparisons with Marketing, the RBV, and Dynamic Capabilities

In this section we briefly describe and distinguish among marketing research, the recently dominant RBV, dynamic capabilities, and demand-side research.

Distinguishing Demand-Side Research from Marketing Research

Research studies in marketing represent an important source of useful ideas for demand-side management scholars. The usefulness of any particular marketing study depends in part on the hierarchical decision-making level at which its ideas can be applied (see Priem & Li, 2010, for a more detailed discussion). Consider, for example, the prescription that functional strategies must support business-level strategies, which in turn must support corporate-level

strategies (Schendel & Hofer, 1979). Marketing studies that have focused on managing customer relationships (e.g., Payne & Frow, 2005), offering consumers “one-stop” shopping (e.g., Messinger & Narasimhan, 1997), or providing the opportunity to customize a product before purchase (labeled “mass customization”; Dellaert & Stremersch, 2005) all could support business-level strategies. Therefore, such studies could provide useful ideas for demand-side management scholars wishing to link willingness to pay to the value creation potential of various firm-level resource bundles at either the business or corporate level. Such demand-side, management studies are called for (a) when consideration of consumer heterogeneity can contribute to the discovery of corporate-level or business-level strategies that produce differential advantage *and* (b) when the decisions made are important to firm survival, involve substantial resource deployments, and would be difficult to reverse (Grant, 2005)—that is, when they are clearly strategic decisions.

Most marketing studies do not address issues that are unambiguously strategic at the enterprise level, according to the criteria just mentioned. For example, Messinger and Narasimhan (1997) examined the role of broad versus narrow retail assortments in satisfying consumers’ utility for one-stop shopping versus depth of selection; this typically is a functional-level, retail assortment decision. Ye et al. (in press), on the other hand, used these ideas as part of their foundation for examination of otherwise-unrelated interindustry diversifications—a corporate-level strategy concern—that potentially could offer the same customer two utilities simultaneously. Our demand-side review has emphasized research that, at its core, has enterprise-level strategic implications for new or existing firms.

Yet there already has been interaction between management and marketing scholars, with marketing ideas published in management journals (e.g., Hult, Ketchen, & Slater, 2005; Kotha, 1996; Payne & Holt, 2001; Slater & Narver, 1998; Ye et al., in press) and ideas from organizational science published in marketing journals (e.g., Hult, 2011; Webb, Ireland, Hitt, Kistruck, & Tihanyi, 2011). And a few marketing scholars have begun nascent links of firm resources and demand issues (e.g., Hunt & Morgan, 1995). Appropriate distinctions between demand-side management studies and marketing studies may become clearer as the demand-side perspective is developed further. It is likely that each research stream can provide inspiration for the other. Long term, the continued interplay between demand-side management research and marketing strategy research may help to address the need for closer integration of marketing and management research, long discussed by strategy scholars (e.g., Jemison, 1981).

Differences in Demand-Side Research and the RBV

The RBV has been widely advocated (e.g., Barney, 1991, 2001; Peteraf & Barney, 2003) and criticized (e.g., Arend & Lévesque, 2010; Priem & Butler, 2001a, 2001b). Its focus is internal to the firm (Barney, 1995), and it considers the firm as a bundle of resources. RBV scholars typically assume that resources are heterogeneous but also assume that the market is homogenous (Priem & Butler, 2001a). That is, the RBV argument is based on a two-firm, one-market model, where firms differ because of their resource heterogeneity but market

demand is uniform and fixed (see Peteraf & Barney, 2003, for details). Firms possessing resources that are valuable, rare, inimitable, and nonsubstitutable (VRIN) can achieve a sustainable competitive advantage. Traditionally, RBV scholars argue that the two most critical rent-creation mechanisms for firms are skills in resource “picking” and capability building (e.g., Makadok, 2001); only those firms with superior abilities to pick VRIN resources from a heterogeneous resource factor market and to bundle them effectively using capabilities can generate and capture rents. Recently, an emphasis has emerged on managerial skills in “resource bundling,” which allows maximum rent generation from a particular resource set (e.g., Holcomb, Holmes, & Connelly, 2009).

The RBV’s emphasis on “rents from resources” can be viewed from the demand side using the long-established distinction in economics between economic costs and profit. Indeed, rents from asset ownership normally are considered as economic costs rather than a source of profits for the firm. Kirzner (1973: 69), for example, noted that

rents earned by firms who own scarce, non-reproducible resources used in their production operations, are (although included in accounting “profit”) properly to be included in the firms’ economic costs. These firms certainly enjoy an advantage over other firms who, not owning these resources, must produce with resources of lower productivity. But this advantage consists, for the economist (as distinct from the accountant), not in entrepreneurial profit won by the fortunate firms, but rather in rental income earned through asset ownership. The entrepreneur is considered as hiring these resources from himself as owner, and should then include this rental income as part of his (implicit) economic costs. For a full and classic discussion of the sense in which differential rent on assets owned are properly included in the firm’s economic costs, see Machlup (1952: 237f, 288ff).

Demand-side research, on the other hand, is concerned with the economists’ entrepreneurial profits instead of rents from resources. The focal point is the marketplace, and the firm is considered as an organization created to satisfy diverse market demands. The basic assumption of demand-side researchers is market heterogeneity (e.g., Adner, 2002; Priem, 2007), which indicates that firms compete in a multidimensional marketplace (Adner et al., 2010). This market heterogeneity assumption has several implications. First, it means that different consumer groups can have different demand characteristics. Second, it means that a single consumer can exhibit different demand characteristics over time. And third, a consumer’s demands and preferences may sometimes be latent: that is, like March and Simon’s (1958) bounded rationality, consumers have bounded foreknowledge of their own needs.

When market heterogeneity is taken into consideration, firms can gain competitive advantages by creating value for their customers, determined by the level of utility delivered (Priem, 2007). Hence, demand-side studies typically examine value-searching or benefit-combining mechanisms that provide utility for customers, reflected by their willingness to pay (e.g., Adner et al., 2010; Brandenburger & Stuart, 1996), instead of mechanisms to capture value for the firm as suggested by the RBV. In addition, market heterogeneity can help shed new light on isolating mechanisms. Under the RBV’s homogenous-market

assumption, isolating mechanisms prevent potential competitors' ability to imitate or substitute for resource-based advantages. Under the market heterogeneity assumption, demand-side research recognizes that firms are not limited to competing in a single market segment but instead can create value for different types and levels of customer demands. Firms with better alternatives may lack willingness to imitate a potential competitor's resources or capabilities, even when they have the ability to do so (Madhok et al., 2010), illustrating another rudimentary difference in isolating mechanisms between the RBV and demand-side research.

Differences in Demand-Side Research and Dynamic Capabilities

We follow Teece, Pisano, and Shuen (1997) and Eisenhardt and Martin (2000) in distinguishing the RBV from the dynamic capabilities perspective. Dynamic capabilities are "second-order" capabilities through which firms manage resources to satisfy changing market conditions. For example, a cost leader could be successful in a particular context of factor markets and consumer markets only as the result of luck (Barney, 1986). If that context changes unexpectedly, however, and that firm again achieves a cost leadership position, it likely has exhibited a dynamic capability for achieving cost leadership (or, it has really incredible luck). Some scholars even have even labeled the traditional RBV as the "static" RBV, to better distinguish it from the dynamic capabilities perspective (e.g., Kor et al., 2007). More formally, as Eisenhardt and Martin (2000: 1107) define dynamic capabilities, they "are the organizational and strategic routines by which firms achieve new resource configurations as markets emerge, collide, split, evolve, and die." Similarly, the recent review article by Barreto (2010: 271) defines a dynamic capability as "the firm's potential to systematically solve problems, formed by its propensity to sense opportunities and threats, to make timely and market-oriented decisions, and to change its resource base."

Both of these definitions encompass the management of internal resources *and* the external marketplace; thus, it is likely that work on dynamic capabilities can complement both the RBV and demand-side research. Indeed, steps toward an integration of these approaches could represent a considerable advance in management research. Of course, one might simply label "dynamic capabilities for bundling resources" as rent-generating resources themselves, or "dynamic capabilities for understanding latent consumer preferences" as rent-generating resources, and be done with it. But that approach would miss the point because it would obscure rather than help expose the underlying mechanisms required for strategic success. To better identify these mechanisms we need to ask additional questions, such as the following: What sorts of decision content are necessary for success in particular factor market and consumer market contexts? And what steps are required now for ensuring a firm's ability to change effectively in anticipation (or response) to changes in factor market or consumer market conditions? A better understanding of the differences in these three perspectives and how they might interact likely would go a long way toward (a) helping the RBV to enhance our knowledge of the mechanisms and choices underlying resource-side capabilities and (b) helping demand-side research to enhance our knowledge of the mechanisms and choices

underlying demand-side capabilities. We discuss such opportunities further in the section on future research opportunities.

Discussion

Our review has identified impressive work that already has taken demand-side perspectives in technology innovation, entrepreneurship, and strategy. This research represents a start—but only a start—toward integrated theories that attend to both the demand side and the producer side of the strategy equation (Priem & Butler, 2001a, 2001b). In the sections that follow we first summarize some of the unique, and often surprising, insights that already have resulted from research using demand-side approaches. Next, we provide ideas for future research directions in demand-side research in technology innovation, entrepreneurship, and strategic management. Then, we discuss the potential for research that ultimately may link the demand and resource sides in unified theories.

Insights from Demand-Side Research

Our review has shown that scholars already have begun using demand-side approaches to examine issues such as consumer-focused strategies for value creation and appropriation (Adner & Snow, 2010b; Gans et al., 2010; Gruber, MacMillian, & Thompson, 2008, 2010, in press; Priem, 2007; Schmidt & Keil, 2010b; Ye et al., in press; Zander & Zander, 2005), the influences of consumer demand on technological innovation and competitive advantage (Adner, 2002; Adner & Levinthal, 2001; Adner & Zemsky, 2006; Tripsas, 2008), opportunity signals (Fischer & Reuber, 2004; Kor et al., 2007), and users' roles in entrepreneurial innovation (Faulkner & Runde, 2009; Nambisan & Baron, 2010; Sawhney, Verona, & Prandelli, 2005; Shah & Tripsas, 2007), among others.

Moreover, we have highlighted several studies that illustrate the often-surprising insights that have resulted from taking demand-side perspectives when studying technology innovation, entrepreneurship, and strategic management. A selective (but not comprehensive—many other demand-side studies produced similar insights) list of these insights includes the following: Regarding innovation, dominant design features that emerge for new and disruptive technological advances—such as those that occurred in the camera and video playback industries—are often determined by demand pull along with, or instead of, technology push (Benner & Tripsas, in press). Regarding entrepreneurship, new ventures in high-tech industries can increase their success by responding to opportunity signals from key customers; knowledge gained from customers significantly improves start-ups' abilities to develop new products, reduce sales costs, and develop technological distinctiveness (Yli-Renko et al., 2001). Regarding strategy, firms pursuing a generalist business-level strategy—often considered ineffective and labeled “stuck in the middle” by Porter (1985)—actually can “dominate from the middle” if production is scalable and the midmarket segment is sufficiently large (Adner & Zemsky, 2010).

Future Directions for Demand-Side Research

Technology innovation. The emergence of demand-side research has complemented the dominant, technology-driven lens by providing a more comprehensive understanding of firm innovation. New issues also have been raised, however, as this new conceptual frontier has been developed. For instance, do customers and users belong to the same group? As Danneels (2003) notes, the two groups do not necessarily overlap—sometimes users, and especially lead users, are not necessarily current customers or customers at all. Given the stream of research focusing on user innovation (see, e.g., Bogers et al., 2010), a more detailed classification of users would be a useful next step in determining the extent to which the demand-side perspective may uniquely benefit user innovation research.

A more precise definition of demand-side innovation is another issue that deserves attention, and, fittingly, scholars have started working on more detailed specifications of “demand-pull” innovations. For instance, Di Stefano, Gambardella, and Verona (2009) argued that a demand-pull innovation is one that results in a shift of the demand curve, implying an increase in consumers’ willingness to pay and, thus, greater value creation. But issues remain, such as the following: How can this definition be operationalized? And will demand-side innovations have different attributes from technology-driven ones? One potentially feasible approach for distinguishing demand-side and technology-driven innovations is to combine archival data (e.g., patent data) with primary, qualitative data (e.g., interviews with inventors) to gauge the extent to which an innovation was spurred by and oriented toward customers. Then, researchers might cluster the patent-level information to the firm level to depict firms’ tendencies toward more technology-driven or more demand-pull innovations. In this way, we could better advance current understanding of what determines whether a firm chooses demand-side versus technology-driven approaches to technology innovation and the strategic implications of these different approaches to innovation for firm performance.

Moreover, given that user innovations typically occur outside established firms, another key question is, how should established firms obtain and manage user-based innovations? Some scholars have started to focus on knowledge transfer and value appropriation issues (Greer & Lei, in press). For instance, Shah and colleagues (Shah, 2005; Smith & Shah, 2010) examined the mechanisms that facilitate knowledge transfer between user innovators and established firms in a variety of industries. Similarly, Foss, Laursen, and Pedersen (in press) have examined user innovation appropriation mechanisms. By studying 169 Danish firms attempting to utilize consumer innovations, they discovered that firms must have suitable internal organization practices—such as intensive vertical and lateral communication, rewarding employees for sharing and acquiring knowledge, and high levels of delegation of decision rights—to effectively appropriate valuable consumer knowledge. These studies provide a good starting point for further examination of how knowledge can be transferred effectively both within the user community and between the user community and firms and how firms can better capture the value residing outside their traditional boundaries.

Entrepreneurship. Research on user entrepreneurs, which is largely based around concepts put forward by Shah (2005) and others, is focused heavily on products and services

where users can make relatively inexpensive adaptations. As a result, adaptations that initially were developed for personal use and perhaps validated by others within user communities can lead to business applications. Future research should examine what factors differentiate a user entrepreneur from a lead user, how their innovation processes may differ, and how particular industry and market contexts might encourage or discourage user entrepreneurship.

Many popular press stories have highlighted how individuals were successful in creating personal products or services as “kitchen table” businesses that ultimately led to a major business success. Invariably, the “surprise” associated with the initial customers (“Someone actually wants to buy this from me!”) spurred the recognition of these business opportunities. This could be an area with rich research potential for demand-side entrepreneurship. For example, to what extent do these first customers shape the characteristics of these products and of the start-up firm itself? Do the products become more specialized to meet initial customers’ needs, or do the nascent entrepreneurs create less-specialized offerings to appeal to a broader spectrum of future customers? What are the implications of such decisions for a start-up’s future size and growth? Moreover, future research on the demand side and entrepreneurship could include the degree to which demand-side opportunity signals drive the creation of entirely new markets. Casson (2005) has proposed that entrepreneurial market makers are key to uncertain and volatile markets. The question of how the demands of customers are leveraged to generate entire new markets through entrepreneurial action is a still largely unexplored, however. Research questions such as these get to the heart of the importance of demand characteristics to the creation and success of new firms.

Much of the demand-side research in entrepreneurship is qualitative in nature. As theory development progresses, opportunities will increase for the use or adaptation of quantitative methodologies to capture demand-side relationships and effective entrepreneurial action. This might include in-depth analyses of dominant customer–entrepreneur dyads or empirical research on market- or industry-level demand characteristics and entrepreneurial market entry. In particular, future research should more comprehensively examine the role of demand on the decision making of nascent entrepreneurs.

Finally, a key finding associated with the demand side and entrepreneurship is the role that demand can have in signaling opportunities to entrepreneurs. Current research in entrepreneurship has often focused on how information, and subsequent knowledge, is gained by entrepreneurs as they scan their potential market environments. Under such circumstances, entrepreneurs are reactive to market signals, through a variety of individual, firm-level, or environmental characteristics, with subsequent opportunities stemming from these scanning activities. We propose that under certain conditions customers and markets are more active drivers of the opportunities that are identified and evaluated by entrepreneurs. The process of opportunity signaling, and the conditions under which potential customers actively drive opportunities toward entrepreneurs who are cognizant of those signals, represents an important new stream of research for entrepreneurship scholars.

Strategic management. Researchers in strategic management already have begun to examine classic strategy problems from the demand-side perspective—such as how dominant incumbents should respond to a major technological change (e.g., Adner & Snow, 2010a, 2001b) and when interindustry diversification makes sense (Ye et al., in press). Although these examinations have resulted in specific managerial prescriptions, as we have shown,

major questions remain, such as the following: What other sources of demand-side advantage are available with “everyday” resources? And which of these are most likely to be sustainable?

Clearly, more work needs to be done in each of these areas, and there are many classic strategy problems that have not yet been examined from the demand-side perspective at all. For example, multipoint competition has been viewed as competition among firms supplying the same product in different locations (e.g., Chen, 1996). Such competition also could occur on the demand side, however, if multiple firms provide the same multiple products used by the same consumer, as is seen in pricing decisions among supermarket competitors. Similarly, the chances of strategic alliances’ or joint ventures’ success (e.g., Gulati, 2003; Gulati & Wang, 2003) could be examined from the demand side based on the degree to which partners’ multiple products are complements that can synergistically create value for a particular market segment. Moreover, forward vertical integration by manufacturers into retail could be examined as providing consumers with increased utility by offering services such as training or owners’ groups (Priem, 2007; Sawhney et al., 2005).

Integration between retailers and consumers opens another line for inquiry. Such integration, wherein consumers coproduce value when they make online travel bookings, conduct banking online, or carry furniture home to assemble from stores like IKEA, both increases consumer utility through greater convenience and reduces firm costs. And firm–customer integration also results in the coproduction of value-creating innovations (e.g., Franke & Shah, 2003; Gruber et al., 2008; von Hippel, 2005) and spurs the identification of entrepreneurial opportunities (Chatterji et al., 2008; Franke & Shah, 2003). Future research could examine how new offerings are jointly designed, the contexts under which firms or customers take the entrepreneurial role, how this function is organized, how established firms organize to encourage this function (Ramírez, 1999), and what industry characteristics make such capabilities most valuable.

In sum, the demand-side approach suggests many opportunities for future strategy research. We have identified a number of classic strategy issues that could be examined using a demand-side perspective, but these suggestions are not exhaustive. We are sure that, given the inventiveness and scope of the strategy research community, we can expect that many more demand-side opportunities will be developed by strategy researchers.

Integrating Demand-Side Research, the RBV, and Dynamic Capabilities

Choice has long been a central construct in the strategy discipline (Child, 1972) and also in innovation and entrepreneurship research (Kirzner, 1997). Recently, scholars in the RBV and dynamic capabilities traditions have begun to argue that what they label as “subjective managerial judgment” or “entrepreneurial judgment” is important to firm success (e.g., Augier & Teece, 2008; Foss, Klein, Kor, & Mahoney, 2008; Klein, 2008; Kor et al., 2007; Teece, 2007). Yet so far the difficult issue of *which* judgment policies (also called cognitions, mental models, causal maps, cognitive frames, causal maps, schemas, belief systems, decision rules, idea sets, and judgment policies) are likely to lead to effective choices, in *which* specific situations, has hardly been addressed. Answering questions such as these represents the elemental opportunity that may be possible by bringing the demand-side research emphasis

on consumer heterogeneity together with the RBV's emphasis on resource heterogeneity and the dynamic capabilities perspective's emphasis on capabilities for either the resource or demand sides. We address this possible integration next.

From a demand-side perspective, value must be created for consumers before it can be captured by firms upstream in the business system (Priem, 2007). Value is *captured* by firms through their managers' skills in negotiating exchanges given the particular characteristics of their transaction contexts (e.g., Williamson, 1981) and their resource portfolios (e.g., Makadok, 2001). The demand-side perspective adds to these value capture approaches by including the potential for firms to "increase the size of the pie" (Gulati & Wang, 2003) through value *creation* strategies, either within their own value system or by diversifying into other value systems. That is, firms can take actions that aid consumers in value creation, thereby increasing the exchange value for which the firms compete (Bowman & Ambrosini, 2000; Gans et al., 2010). Using terms from economics, demand-side research emphasizes entrepreneurial profits, whereas value capture approaches emphasize rents from asset ownership (Kirzner, 1973, 1997; Machlup, 1952).

One important area of consensus is that the value of a firm's resources is determined exogenously to the RBV (e.g., Kraaijenbrink, Spender, & Groen, 2010; Lockett et al., 2009; Priem & Butler, 2001a, 2001b). Barney (2001: 42) noted, "[A]s Priem and Butler correctly observe, the determination of the value of a firm's resources is exogenous to the resource-based theory presented in the 1991 article." Thus, the RBV must rely on *other* theories if it is to be part of a complete and actionable understanding of strategic management (Arend & Lévesque, 2010). More broadly, we advocate demand-side research as an important source of theoretical insights that could spur effective and actionable prescriptions for innovators, entrepreneurs, and strategic managers. Although more recent RBV-oriented research has attempted to define resource value by applying the firm positioning perspective (e.g., Barney, 2002), this effort has been judged by some as ineffective (Kraaijenbrink et al., 2010). The positioning perspective can provide some needed insights from the external market yet cannot by itself endogenize resource value without reference to improved efficiency (reduced cost) and effectiveness (increased value), which unfortunately remain tautological in the RBV's definition of value (Kraaijenbrink et al., 2010; Priem & Butler, 2001a, 2001b).

One way to resolve this issue could be to integrate the demand-side approach—emphasizing the independent value determinations of heterogeneous consumers—and the RBV. The emerging demand-side perspective may be a step toward bringing value determination back within the strategy framework, and thereby could complement the existing RBV, transaction cost, and firm positioning perspectives. We might find that the success of many strategic moves ultimately may be determined as much (or more) by consumers' heterogeneous preferences as by cost savings on the producer side. Some demand-side research is already moving in this direction. Granados and Siqueira's (2011) examination of airline-consumer knowledge transparency and value creation, for example, followed the RBV by starting with IT resources and then evaluated how bundled versus "a la carte" web-based offerings affect how much of the value created can be captured by the firm. Their findings have specific and actionable prescriptions for airline executives. More attention to the demand side relative to the producer side is needed in strategic management and also would likely have similarly beneficial effects for the technology innovation and entrepreneurship literatures as well.

Conclusion

Our review has examined three vital, yet nascent and previously disconnected, streams of research emphasizing the demand side of the business equation. Each stream focuses on value creation in heterogeneous and dynamic consumer markets in disequilibrium. Clearly, viewing technology innovation, entrepreneurship, and especially strategic management from a demand-side perspective may require a shift in mind-set from focusing on the firm to focusing on the consumer and from an emphasis on value capture to an emphasis on value creation. Such a shift is likely to spur knowledge generation in technology innovation, entrepreneurship, and strategic management. Just as Child's (1972) discussion of strategic choice linked the firm and its environment in a way that produced a blossoming of descriptive and prescriptive strategy content research with strong managerial implications, we hope that our review and research questions might stimulate agendas for future research with a demand-side focus and may even help reinvigorate resource-side studies (e.g., Barney, Ketchen, & Wright, in press). Perhaps most important, we hope our exposition of studies conducted from the demand-side perspective might spur interactions and integration among demand-side, resource-side, and dynamic capabilities approaches that could answer key questions about creating maximum value and establishing especially strong competitive advantages. Such answers should interest researchers and practitioners in innovation, entrepreneurship, and strategic management.

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