THE THREE FACES OF BUSINESS MODEL INNOVATION: CHALLENGES FOR ESTABLISHED FIRMS

Established firms frequently have difficulty with business model innovation. The business model innovation typology defines the challenges.

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OVERVIEW: *Business model innovation represents a significant opportunity for established firms, as demonstrated by the considerable success of Apple's iPod/iTunes franchise. However, it also represents a challenge, as evidenced by Kodak's failed attempt to dominate the digital photography market and Microsoft's difficulty gaining share in the gaming market, despite both companies' huge financial investments. We developed a business model innovation typology to better explain the complex set of factors that distinguishes three types of business model innovations and their associated challenges.*

KEY CONCEPTS: *Business model innovation, Value networks, Radical innovation, Breakthrough innovation, Sustaining innovation, Disruptive innovation*

Why is business model innovation that extends beyond the sustaining innovation space so difficult for established firms? Sony developed the Walkman audio player, redefining the market for portable music devices, but failed to develop a successful MP3 player and allowed Apple to displace it in the portable audio space with the iPod. Similarly, Knight Ridder, one of the largest newspaper publishers in the United States and a pioneer in the digital news market, failed to develop new digital advertising channels to capitalize on the potential of new revenue streams such as those exploited by Monster.com, AutoTrader.com, and REALTOR.com, clinging instead to traditional ad-based models. And Kodak, which dominated the film photography industry, ceded the digital photography market to companies such as

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DOI: 10.5437/08453608X5403009

Hewlett-Packard, Canon, and Nikon. In each of these cases, the firms had adequate resources, an in-depth market understanding—not to mention a solid head start in the market—and the technical competencies needed to succeed, yet each of these companies allowed new entrants to disrupt them. We wanted to find out why established companies that dominate their markets later allow other companies to succeed with business model innovations that either disrupt them or limit their ability to grow further.

These cases do not fit the usual pattern of disruptive innovation. In elaborating their concept of disruptive innovation, Christensen and colleagues (Christensen and Raynor 2003; Christensen and Rosenbloom 1995) argue that "there are two types of disruptive innovations: low-end and new market" (Christensen, Anthony, and Roth 2004, xvii). At the low end, disruptors gain market share through a low-price business model focused on overserved customers. New market disruption targets new nonconsumers. Intel's development of the low-priced Celeron microprocessor, which targeted the cost-conscious computer market, is an example of an established firm pursuing a low-price business model. Sony's Walkman audio player is an example of a business model focused on reaching new nonconsumers. The new nonconsumers for Sony's portable transistor radio were teenagers who couldn't afford more expensive, high-performance vacuum-tube radios. These consumers, who had previously had no other alternative, were delighted to have control of their own music, even with a sound quality much lower than that offered by vacuum-tube radios. However, Sony's domination of the portable audio player market was disrupted by Apple's iPod, which neither offered a lower price nor focused on new nonconsumers. In fact, none of the disruptions we've described—Apple's iPod, new digital advertising channels, and digital photography—relied on either a low-price or a new nonconsumer business model.

As part of an Industrial Research Institute (IRI) Research-on-Research (ROR) working group project, we set out to better understand how and why disruption occurs in these cases, which do not seem to fall into Christensen's model for disruptive innovation. Furthermore, while Christensen's work focuses on new disruptive business models, we wanted to understand the problem of disruption, and the challenges presented by disruption, from the established firm's perspective. We sought to develop a more comprehensive model to explain disruptive business model innovations, especially those that do not involve low-cost or new nonconsumer business models. The result is a unified business model innovation typology (BMIT).[1]

[1] A brief, preliminary overview of our work was presented in an earlier report (Koen et al. 2010). The work is also part of the PhD dissertation of Heidi Bertels.

The BMIT classifies innovation along three dimensions: technology, value network, and financial hurdle rate

The Unified Business Model Innovation Typology

Established firms consistently demonstrate their ability to succeed in sustaining innovation. Intel, for instance, leads in the development of next-generation microprocessor chips using radically new technology. However, these same companies frequently have difficulty trying to develop new business models in new markets—even with existing technology. Intel, for example, has been unsuccessful in penetrating the market for cellphone chips, despite many valiant attempts. Current innovation typologies—including those that rely on distinctions such as incremental/radical (Wheelwright and Clark 1992), sustaining/disruptive (Christensen 1997), or exploitation/exploration (March 1991)—are inadequate to explain this phenomenon. The BMIT allows for consideration of a more complex set of factors and thus more readily distinguishes why and where established firms have difficulty with business model innovation.

The BMIT classifies innovation along three dimensions: technology, value network, and financial hurdle rate (Figure 1). It further divides the innovation space into two zones: sustaining innovation, where established firms generally succeed, and business-model innovation, where otherwise successful firms frequently fail. Within the technology dimension, the model distinguishes among incremental, architectural, and radical technological innovation. Incremental technological innovation involves the refinement, improvement, and exploitation of existing technology. Architectural innovation involves creating new ways to integrate components in a system based on current or incremental changes to existing technology (Henderson and Clark 1990). The iPod, for instance, incorporated no new technology, but provided an entirely new design. Finally, radical innovation introduces an entirely new core technology.

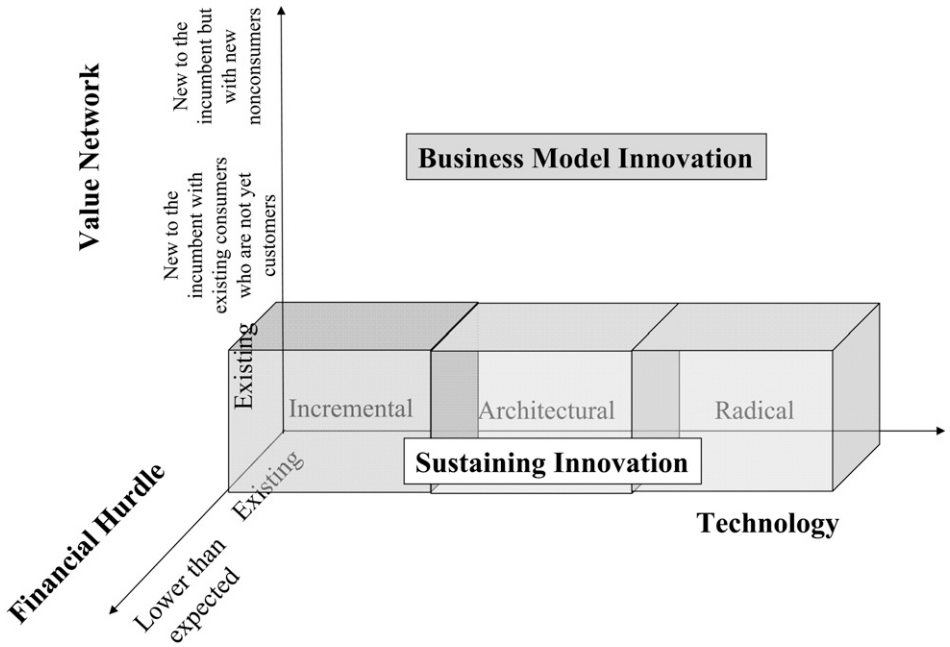

Figure 1.—Business model innovation typology (BMIT) model. Established firms tend to be successful in sustaining innovation (innovation that falls into the area defined by the bottom three boxes), but may have difficulty succeeding with innovations outside this area.

The value network dimension encompasses how a firm identifies, works with, and reacts to customers, suppliers, and competitors. The value network is a tightly connected, complex system of suppliers, customers, distributors, and partners (Christensen and Rosenbloom 1995). The value network dimension is encompassing, embracing the unique relationships that a company builds with both its upstream (supplier) and downstream (distributor and customer) channels. Relationships in these channels are a critical source of competitive advantage. Business model innovation often requires the development of a new value network. The new relationships embedded in a new value network can be problematic, as they are difficult to establish and can disrupt existing relationships. For example, Nestlé distributed Nescafé coffee through existing mass market department store and grocery sales channels, a value network that was very familiar to them. In contrast, the company needed to develop an entirely new value network for Nespresso, a high-end coffee shop targeted to reach young professionals.

In the BMIT, the value network dimension is divided into two areas: innovations within the company's existing network and innovations requiring value networks with components that are new to the company; new value networks may reach existing consumers in the market or new nonconsumers. For example, Zipcar, which makes cars conveniently available for very short-term rental at urban locations, mostly targets existing consumers for rental cars, but the company created a different business model in the way that those consumers access the cars and pay rental fees. By contrast, the angioplasty catheter, developed to widen arteries blocked by cardiovascular disease, replaced the need for open-heart surgery to treat moderate cardiac disease. In marketing the device to cardiologists, who previously did not do surgeries for blocked arteries, rather than cardiothoracic surgeons, medical device companies such as Bard and Medtronic reached out to a set of new nonconsumers—cardiologists who could now treat their own patients rather than referring them to a surgeon.

Hurdle rate is another factor in the BMIT. The hurdle-rate dimension describes the relationship of a given project's financial projections to the minimal expected return. The hurdle rate is a key factor in traditional disruptive innovation that relies on a low-cost business model. Such low-cost business models are difficult for established companies to pursue because they do not meet the hurdle rates defined by the firm's cost structure and expected rate of return. However, it is possible for established firms to pursue low-cost business models successfully. Dow Corning's subsidiary Xiameter (Gary 2004) offers one success story for low-cost business models implemented by established firms. Dow Corning

developed Xiameter as a web-based discount channel through which customers could bulk order at a lower price the company's more traditional products without the customer service usually provided by Corning. Xiameter became an important part of Dow Corning's service offering and prevented the erosion of their market share by companies focused on commodity customers.

Challenges in Sustaining Innovation

The sustaining innovation space, where established firms tend to succeed, is marked by a reliance on existing value networks and a comfortable financial hurdle rate. However, this space is not without challenges even for innovative companies. Exploring it helps provide perspective on the challenges established companies encounter when they leave the relative comfort zone of sustaining innovation.

Sustaining innovation—technology improvements or even radical new technologies implemented within the companies' existing value network and established financial hurdle rates—protects the status quo and represents the majority of product development activities. Incremental sustaining innovations, which deploy minor, progressive improvements in technology within an established value network, are the easiest and least risky, and hence the most common activities. Sustaining innovations that utilize the existing value network to produce and market architectural or radical technology improvements while maintaining existing financial hurdle rates are more difficult, since they involve higher degrees of technological novelty and higher levels of risk. As an example, Toyota's Prius is a sustaining architectural innovation; it involved no new technology, but combines existing gasoline and electric motor technology to create a hybrid design with significantly improved fuel efficiency, and it was created and sold within existing value networks and hurdle rates. Intel's dual-core processor is also a sustaining innovation, as it incorporated a radical technology innovation (new designs that doubled the chip's performance while reducing cooling demands) but relied on an existing value network for distribution.

Sustaining innovations that rely on incremental technology improvements require different behaviors and processes than those implementing architectural or radical technology. Incremental projects can be managed using a well-honed serial innovation process with gated decision points (Cooper 2001), a system that has proven its merit in projects where the market and technology are known. In contrast, architectural and radical technology projects require a more complex learning strategy to manage the challenges associated with radical technology. A learning strategy is a cyclical process in which assumptions and uncertainties are tested and resolved through experimentation and iteration (O'Connor et al. 2008). The project direction and strategy often shifts as uncertainties decrease.

The sustaining innovation space is not without challenges even for innovative companies.

Challenges in Business Model Innovation

The business model innovation space, where established firms frequently fail, requires companies to succeed with business models that require a lower than normal financial hurdle rate or the development of new value networks. Established companies typically encounter significant challenges in this more difficult zone of the BMIT.

Financial Hurdle Business Model Innovations

Business model innovation challenges in the financial hurdle space were first explained by Christensen and colleagues, who describe how disrupters gain market share through low-price business models designed to appeal to existing consumers with a more affordable option (Christensen and Raynor 2003; Christensen and Rosenbloom 1995). Low-cost business models like the disruptive innovations defined by Christensen are business model innovations that are guided by the financial hurdle rate (Figure 2). Innovations in this area typically involve projects with a lower hurdle rate than the established cost structure would allow. Christensen's prime example was steel minimills, which disrupted integrated steel mills with electric arc-furnace technology, a radical new technology that allowed for cheaper production, although initially these furnaces could not match the quality of the larger mills' product. The established mills initially ceded market share to the minimills, allowing the small producers to gain a foothold in the market by making cheap reinforcing bars (rebar). Over time, minimill producers learned how to make more profitable sheet steel at an acceptable quality level and eventually replaced integrated steel mills.

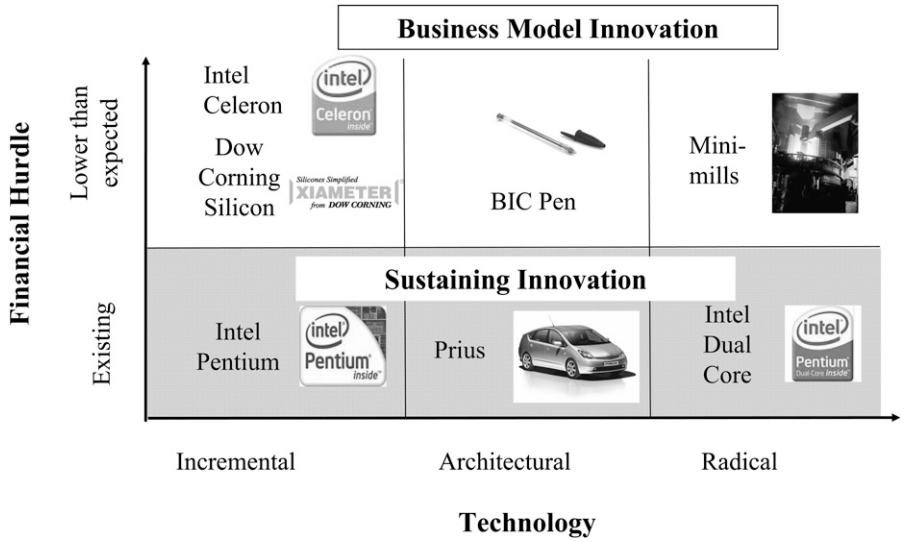

Figure 2.—Examples of innovation projects at the intersection of the financial hurdle and technology dimensions.

Some established companies have flourished by accepting a low-cost business model, meeting potential disrupters head-on. Intel developed the low-cost Celeron chip and Dow Corning established Xiameter in order to prevent erosion of their main offerings by low-cost competitors. Similarly, the Mercedes A-Class targeted a middle-class market, but leveraged existing sales channels and distribution networks to sell the car. Marriott's Courtyard chain of hotels targets a lower-cost segment of the market by eliminating the fancy restaurants and conference and meeting facilities that characterize its higher-end hotels.

We found fewer examples of companies utilizing architectural innovation within their existing value networks to power a low-cost business model. One example is the BIC pen corporation, which moved from manufacturing expensive fountain pens to selling low-cost ballpoint pens using a highly integrated, automated manufacturing process.

Moving to a low-cost business model presents unique challenges for established firms. As both Christensen and Raynor (2003) and Govindarajan and Trimble (2005) argue, it is extraordinarily difficult for a company to maintain two different business models within the same business division. Such a situation, they assert, would produce trade-offs that would result in a strategy favoring the sustaining business. As a result, both Christensen and Raynor and Govindarajan and Trimble recommend that a company interested in pursuing a low-cost model while maintaining its existing business create two distinct organizations—which is exactly what Intel did in the development of the Celeron chip and Dow Corning did in establishing Xiameter. Both Intel and Dow Corning separated these units from the sustaining business. Where the larger Intel business pursued a string of breakthrough innovations in chip technology, the Celeron division focused on cost efficiency, both in achieving just good enough performance features to offer value and in aggressively pursuing manufacturing efficiencies.

New Value Network Business Model Innovations Targeting Existing Consumers

Established firms often see opportunities for growth in seeking out existing consumers within a new value network that allows the firm to maintain existing financial hurdle rates (Figure 3). For example, in an effort to reach young urban professionals, Nestlé developed Nespresso, a coffee outlet that has been described as an upscale Starbucks. Nespresso represented a new value network for Nestlé's coffee business, which had previously sold instant coffee to the mass market via department and grocery stores. Similarly, Tesco, the United Kingdom's largest supermarket chain, developed Tesco Direct as an online outlet to sell not only grocery items but also books, CDs, and other nonfood items. Toyota and Honda both developed luxury car brands, Lexus and Acura, which they sold in separate dealerships from their current lines, focused on a different market via a new value network for them targeted at existing affluent customers.

Fewer firms pair architectural innovation with a new value network. Microsoft launched a new business—videogame

consoles—with a new value network with its development of the Xbox and its accompanying online services, and Knight Ridder, which already owned a network of print newspapers, developed an online newspaper to reach a wider market. In each case, the firms launched new businesses to reach existing consumers via new value networks. In each of these cases the companies lost a considerable amount of their investment. It is even rarer for a established firm to pair a radical technical innovation with a new value network to reach existing consumers.

Christensen and Raynor (2003) and Govindarajan and Trimble (2005) recommend separating sustaining businesses from new value network projects. However, Markides and Charitou (2004) challenge this recommendation, arguing that separation should be dependent on the degree of synergy and conflict between the two business models. Nestlé separated the Nespresso business unit from Nescafé, as the Nescafé division perceived that Nespresso would cannibalize its sales and the two units had markedly different cultures: the Nescafé unit saw its product as a low–price, fast-moving consumer product, while the Nespresso unit was working to position itself as an up-market luxury experience. Unsurprisingly, values and attitudes were significantly different, creating the potential for conflict. In contrast, Markides and Charitou describe the creation of Tesco Direct as a part of Tesco, launched from one of Tesco's west London stores. Since the supermarket's customers were confined to the area surrounding the store, in contrast to the Internet arm whose reach extended to all of the United Kingdom, there was little conflict between the two ventures. Tesco Direct built on the synergy of the supermarket and leveraged the store's stock to keep the initial start-up investment low.

The most successful players in value network innovation pair the new value network with an incremental technology innovation.

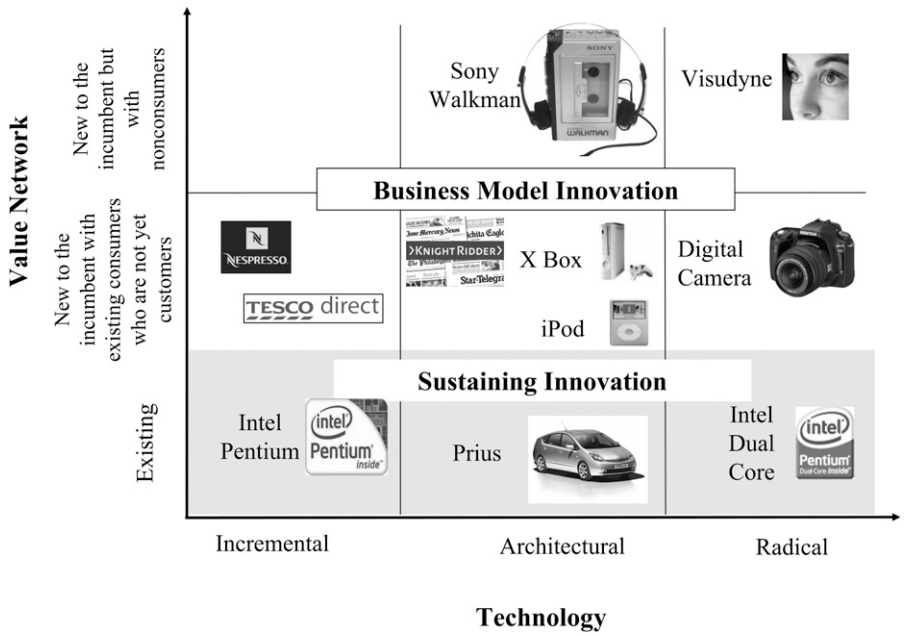

Figure 3.—Examples of innovation projects at the intersection of the value network and technology dimension.

O'Reilly and Tushman (2004) advocate yet another approach for business model innovations in this area: the ambidextrous organization. This approach offers a middle ground between completely separated and completely integrated organizations. O'Reilly and Tushman suggest separating the new business model from the sustaining organization—but they argue that both organizations should share senior management. Such an arrangement, they argue, ensures that the startup unit will have access to the resources and expertise of the established unit. Developing an ambidextrous organization requires considerable senior management leadership training. IBM has followed this approach with considerable success, growing their new-business-model revenue from $400 million in 2000 to $22 billion in 2006 (O'Reilly, Harreld, and Tushman 2009).

The most successful players in value network innovation pair the new value network with an incremental technology innovation. Fewer firms have successfully matched a new value network with an architectural or radical technology innovation. Knight Ridder reportedly accumulated losses of over $100 million in the launch of its first online newspaper. *Information Week* reported in 2009 that Microsoft had total losses in the gaming industry of about $7 billion (Schestowitz 2009). And Kodak invested over $5 billion in digital technology and never managed to become more than a small player in the market.

Knight Ridder and Kodak perceived a threat to their businesses and invested significant amounts of money in an effort to head off the threat. Microsoft, on the other hand, anticipated a technological revolution that would turn the family room into a wireless, networked nerve center for seamlessly accessing and managing all kinds of media, and positioned the XBox to be at the center of that revolution (Grossman 2005). In that context, Microsoft developed the XBox not as a game machine or toy, but as a way to own the entire digital environment in the home, a center for accessing music, movies, photographs, and television. While the Xbox has achieved moderate success in the gaming market, Microsoft was unable to establish it as the nerve center for the family room, resulting in a significant financial loss for the company.

Knight Ridder and Kodak acted out of fear, while Microsoft saw a very large opportunity, but all of these companies were defeated by similar forces. All of these efforts failed in spite of the enormous resources made available to them because of routine rigidity—the tendency to frame responses to new challenges to fit familiar frameworks (Gilbert 2003). Routine rigidity led executives at all three companies to frame their efforts to fit the familiar frameworks of their sustaining businesses. Kodak could envision being successful only by leveraging its existing relationships with retailers and offering digital photography CD disks and digital photography kiosks. Focused on its existing business models, the company did not pursue sales of digital cameras, photo printers, and printer disposables, which ended up being the real moneymakers in the digital market, until much later. Similarly, Knight Ridder could only envision the digital newspaper as an extension of the print newspaper, and so failed to exploit new revenue channels or to develop the digital channel fully. Microsoft's vision of the XBox as a gateway into the living room drove important technology decisions that ultimately produced an expensive console that appealed primarily to hardcore gamers—no one else was ready for the home entertainment hub Microsoft wanted to build. However, the hub platform strategy never came to fruition; although the Xbox became a moderately successful gaming product, the project was a failure that generated huge losses. And it never delivered on the intended business model.

The challenges of business model innovation are shaped by the scope and target of the innovation.

One notable example of a successful architectural innovation by an established company accessing a new value network is the iPod and iTunes. iTunes, which delivers single song tracks to consumers in a user-friendly format, required Apple to build unique partnerships with the music industry, resulting in new value networks. Apple did not envision the music industry as a threat to the company or essential to its future. Rather, the company envisioned music as a new opportunity to be approached prudently, with limited initial investments. As a result, Apple did not try to frame the market as an extension of its current sustaining computer business. First and second-year sales were paltry by most standards, less than $4 million the first year and $10 million the second. But since the company did not view the iPod as central to its future business, the lower initial returns were acceptable and Apple was able to give the new business time and space to develop.

New Value Network Business Model Innovations Targeting Nonconsumers

Established firms may also seek to establish entirely new value networks to reach nonconsumers—potential customers who have not entered the market. Developing new businesses in this context presents a different set of challenges for established companies, one that was also explored by Christensen and colleagues (Christensen and Raynor 2003; Christensen and Rosenbloom 1995). Innovations to reach nonconsumers are the "hardest innovations to identify" (Christensen, Anthony, and Roth 2004, 8), but they have the greatest potential for growth.

We did not find any examples of successful innovation in this space paired with incremental technological innovation. Sony's Walkman is an example of architectural innovation to access a market of previous nonconsumers, and Ciba Vision's Visudyne represents a radical innovation paired with a new value network. With Visudyne, Ciba Vision entered a global agreement with QLT PhotoTherapeutics to develop compounds that can be used with photodynamic therapy to treat age-related macular degeneration, a debilitating disease that leads to blindness. Ciba Vision's sustaining business is focused on improving their hard contact, extended wear, and daily disposable lenses, which are typically sold directly to end users. Visudyne, by contrast, uses fundamentally different technology to slow macular degeneration; it is a pharmaceutical product that is sold to ophthalmologists. Both the Walkman and Visudyne have proven to be very successful for their companies, establishing entirely new value networks and entirely new markets.

Christensen and Raynor (2003) provide numerous examples of start-ups that have succeeded in implementing incremental and architectural innovations with new value networks to access an entirely new market. It is, they demonstrate, quite difficult for established companies to gain management support for the development of an entirely new business in a market that is yet to be defined. As a result, we suspect that new business model development in this area will be driven by new companies.

Conclusion

The BMIT illustrates how and why businesses behave differently in the two innovation zones—sustaining innovation, where established firms typically succeed, and business model innovation, where they frequently fail. The challenges of business model innovation are shaped by the scope and target of the innovation. Established firms will find both rewards and considerable risks in developing new value networks to reach existing consumers who are not yet customers. The challenges faced in building a value network to reach nonconsumers are quite different from those encountered in other types of innovation projects.

Business model innovation represents a new frontier in innovation beyond just product or service innovation. However, it challenges most established firms to the core of their organization and culture and has proven very difficult for many companies. Developing a new business model requires organizations to develop new skills and at times reject the thinking that has led them to success in their sustaining businesses. The BMIT provides a framework within which established companies may understand the different kinds of business model innovation and the organizational challenges associated with each type.

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