
31 Key questions on innovation in the B2B context

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Innovation is a critical driver of the improvement in performance of customers, the growth and success of firms and the wealth of nations. Firms need to innovate constantly to offer superior value to their customers or face rivals that do so. Innovation can be in products or processes; in platform, design or component technologies; or in business models. Innovation is as vital in B2B markets as it is in consumer markets. Firms that produce and market to other firms often do so in response to specifications set by end customers. However, in the new intensely competitive marketplace, meeting specifications is no longer adequate. Suppliers need to innovate increasingly to exceed the specifications demanded by their customers or satisfy these specifications at much lower cost. Furthermore, as markets change rapidly, firms must predict the future needs of their customers to meet them in a timely way. Finally, in today's highly global marketplace, new suppliers arise from numerous developed and emerging economies. Being at the cutting edge of innovation helps ensure that firms can successfully serve their customers and are not made obsolete by competitors with a superior product or better processes.

In such a competitive and global environment, although much is known because of extensive research on innovation, several important questions still remain unanswered. This chapter identifies ten major topics in innovation, summarizes the major contributions of and issues in those topics and outlines the following key research questions for the future:

- Developing innovations
 1. Why do great firms fail?
 2. What is the role of top managers in innovation?
 3. Should firms make or buy innovations?
 4. What is business model innovation? What is its role in the B2B context?
- Commercializing innovations
 5. How do technologies evolve?
 6. Is network or quality more important for success?
 7. Should hardware or software come first?
- Fruits of innovation
 8. What is the pay-off to innovation?
 9. What is the role of innovation in emerging markets?
 10. What drives the wealth of nations?

These research questions are organized within the three major stages of innovation: developing innovations, commercializing innovations and the fruits of innovation. Although these stages frequently overlap, and the boundaries between them can be fuzzy, they provide a useful framework to organize the innovation journey (Yadav et al., 2007).

DEVELOPING INNOVATIONS

1. Why do Great Firms Fail?¹

Given the importance of innovation for the survival and success of firms, we would expect that they would invest massive amounts of time, equipment and personnel into research for innovation. The largest firms in each market would have the most resources for this task. Therefore, they would be the most successful at innovation and would grow to dominate the next technological platform. As such, wealth would lead to greater wealth. However, history reveals that large, wealthy firms frequently fail. Indeed, great market leaders in one generation sometimes do not even survive the next generation. For example, leadership in the PC market moved from Altair, to Tandy, to Apple, to IBM, to Compaq, to Dell, to Hewlett-Packard (Tellis and Golder 1996, 2001). Why does prior strength not lead to continued strength?

Researchers have put forth several theories to explain why great firms fail. Schumpeter (1942) at least initially attributed failure to the disadvantages of large size. Foster (1986) attributed the failure of firms to the emergence of a new technology and the commitment of old dominant firms to the old technology. Failure occurred when the new technology crossed the old technology in performance. Continuing with the technological explanation, Utterback (1994) attributed failure to the type of technology. Failure occurred not merely if a new technology merged, but if the new technology was competence destroying rather than competence enhancing (Tushman and Anderson 1986). Christensen (1997) went a step further and attributed failure to the single-minded focus of established firms on meeting needs of the mass market of customers served by the old technology. That focus blinded them to the emergence of a new technology that was inferior to the old technology on the primary dimension of performance but superior on some secondary dimension that satisfied only a niche market. Failure occurred when the new technology surpassed the performance of the old technology even on the primary dimension. Chandy and Tellis (1998) attributed failure to the internal culture of the firm. A firm whose culture focuses on the future, instills internal competition and is willing to cannibalize past successful products is more likely to embrace innovations and stay ahead of the game (see Tellis et al., 2009).

Which of these theories best explains the failure of firms, especially in a B2B context? They have not been tested strictly against each other in a rigorous field experiment or empirical study. Therefore, the jury is still out.

2. What is the Role of Top Managers in Innovation?

In general, B2B markets involve a limited set of customers, relative to B2C markets. Moreover, transaction values tend to be large and purchase cycles long in B2B markets (Brennan et al., 2007). For these reasons, and given the critical role of innovation in B2B markets, managers in the upper echelons of firms often play an active role in innovation activities in B2B firms.

Existing research suggests that top managers can have powerful effects in promoting or discouraging innovation in their firms. In a recent study, when asked 'Who is the biggest force driving innovation at your company?' 45 per cent of managers indicated

that it was their firm's CEO (Boston Consulting Group 2006). CEOs such as Steve Jobs at Apple, Andy Grove and Gordon Moore at Intel and Bill Hewlett at Hewlett-Packard are celebrated for their apparent success in driving innovation in their firms.

Top managers play a crucial role in driving innovation in their firms for at least four reasons (Boyd, Chandy and Cunha 2010; Tellis et al., 2009a). First, top managers can play an *informational* role by helping identify new market opportunities and orienting the attention of others in the firm toward these opportunities. Second, they play a *decisional* role by helping determine the level and type of innovation-related investments made in the firm. Third, they play a *relational* role by managing the firm's relationships with top stakeholders (e.g. major customer accounts, investors, alliance partners, employees) who are relevant to the innovation task. Fourth, and perhaps most important, they play a *cultural* role by shaping the values, attitudes and practices that are promoted or discouraged within the firm. Each of these effects could affect innovation outcomes.

Given the importance of CEOs and other top managers in innovation, scholars have sought to formally examine their role in innovation. Some have highlighted the importance of delving into managers' backgrounds and experiences to predict their emphasis on innovation. For example, some scholars have suggested that top executives with backgrounds in 'output'-oriented functions, such as marketing, R&D and sales, put greater emphasis on product innovation than those with backgrounds in 'throughput'-oriented functions, such as accounting/finance, production, administration and legal (Finkelstein and Hambrick 1996; Hambrick and Mason 1984). Others have noted that top managers' attention patterns have a strong impact on innovation, in that firms with CEOs who tend to focus on the future and on entities external to the firm are more innovative than others (Yadav et al., 2007). Executive compensation schemes may also affect innovation outcomes, in that long-term compensation packages may be associated with a greater focus on innovation activities that pay off over a long time horizon (see Makri et al., 2006).

Despite recent progress in understanding the role of top managers in innovation, much remains unknown. Are top managers in B2B firms more engaged in innovation activities than those in B2C firms? What are the roles of different members of top management teams (e.g. CEOs, CFOs, CMOs) in the innovation journey? How do corporate boards affect innovation? Are top managers in privately held firms more long-term oriented (and thus more encouraging of innovation) than top managers in equivalent publicly held firms, who face quarterly earnings pressures? Should top managers get directly involved in picking ideas and opportunities for innovation? These are all topics that could benefit from additional research.

3. Should Firms Make or Buy Innovations?

Large corporations often depend on the innovation of their suppliers. In this sense, their suppliers provide not only the materials, parts and services for the current mix of products but also the innovations to improve them or develop new ones. For example, in developing the Boeing 787 Dreamliner, Boeing decided to outsource the manufacture and even research of approximately 70 per cent of the plane to firms all over the world (Kotha and Nolan 2005). This included outsourcing the wings, the part of the aircraft that Boeing considered its 'crown jewels'. In the past Boeing reserved manufacture of the

wings to internal divisions only. Moreover, Boeing outsourced such manufacture even though it was well known that some of the firms building these parts had aspirations to grow into manufacturing entire planes themselves. Was Boeing nurturing the competitors of tomorrow? Would these suppliers one day threaten, if not displace, its dominance of the airplane manufacturing business?

Increasingly, firms actively work with outside entities – not only suppliers but also customers, academic institutions and even competitors – to develop new products and services. This process of working with outside entities to create and market innovations is called ‘open innovation’ (Chesbrough 2004). The open innovation efforts of Procter & Gamble (P&G) have received a good deal of attention in recent years. For decades P&G developed its new products entirely within its laboratories and tended to ignore or reject new ideas that were ‘not invented here’. A few years ago P&G decided to abandon its policy of developing most new products internally to developing at least 50 per cent of its products from the outside (Huston and Sakkab 2006). This policy involves the sourcing of new ideas and innovation from outside the firm or outsourcing even R&D to outside firms. Although most P&G products are targeted to end consumers, the successful implementation of the firm’s open innovation strategy relies on collaborating actively with *business* partners and suppliers. For example, the development of P&G’s Mr. Clean brand of water-activated microscrubbers, which ‘magically’ erase tough household messes, involved collaboration with BASF, the large German chemicals company. P&G’s open innovation efforts were partly inspired by the B2B innovation story of Goldcorp, a Canadian mining company. Goldcorp made the dramatic decision to open geological data about its mine (data that was zealously guarded from outsiders before) to the world at large (Tapscott and Williams 2008; Taylor and LaBarre 2007). The firm organized a competition for innovative ideas from outsiders and offered a monetary prize for the best ideas on where it should dig for gold within the mine. Within two weeks, the firm received over 1100 ideas from more than 50 countries. Of the ideas from the 110 semi-finalists in the competition, more than 50 per cent were new to the company, and 80 per cent of these ideas yielded gold. Goldcorp went from mining 53000 ounces of gold per year at a cost of \$360 per ounce in 1995, before the open innovation effort, to mining 500000 ounces of gold at \$60 per ounce after incorporating external sources of ideas. Of note, the inspiration for Goldcorp’s competition came when its CEO learned about the remarkable success of the Linux operating system community in building a computer operating system with voluntary contributions of ideas and effort.

The Linux case (and, more generally, the open source software context) alludes to another rich source of externally developed innovation: lead users (Von Hippel 1986). Lead users are people who face needs that are not yet, but eventually will be, available in the marketplace, and therefore they are well positioned to solve these needs themselves (Von Hippel 1986). By seeking out such users, firms can obtain promising ideas often at little or no cost that can serve customer needs more effectively than internally generated ideas. Many firms have used lead users’ efforts to develop successful innovations.

However, recent research indicates that lead users are not the only types of customers who can provide valuable contributions to innovation activities (Bendapudi and Leone 2003; Grewal et al., 2006). Many leading-edge firms are engaging with customers more

generally in their innovation efforts, in a process called ‘co-creation’ (Prahalad and Ramaswamy 2000). O’Hern and Rindfleisch (2009, p. 4) define co-creation as a ‘collaborative new product development activity in which customers actively contribute and select various elements of a new product offering’. Recent research has identified customer segments that might serve as especially productive sources of co-created innovation (Hoffman et al., 2010). Despite this progress, much remains unknown about the co-creation process (see Hoyer et al., 2010; O’Hern and Rindfleisch 2009). Why are some firms more successful at co-creation than others? What motivates some customers to co-create with companies, and why are some better sources of innovations than others? What incentives should be offered to customers for their co-creation efforts? Do monetary incentives help or hurt the likelihood of engaging in co-creation and the outcomes of co-creation efforts?

The question regarding whether a firm should manufacture or buy its supplies (whether innovation related or otherwise) has been a perennial strategy issue. One theory enlightening the solution has been that of transaction costs. That is, a firm should manufacture when the transaction costs of buying from the outside exceed the costs of acquiring the expertise to manufacture on the inside (Walker and Weber 1984). However, this example illustrates a far more complex set of problems and opportunities that firms face in the global economy today. Products are now so complex and centers of excellence so highly distributed around the world that a firm would be unwise to completely ignore good innovations and expertise that lie outside the firm (Rigby and Zook 2002). What is the core technology, if any, that a firm should reserve for internal development? When should a firm go outside for ideas, and when should it stay inside? In which country should a firm locate its R&D, and how should it recruit and organize its talent for this task?

Other important issues arise when a firm chooses to manufacture its innovation. For example, how should a firm organize to be innovative? Should it use a functional or divisional structure? If the latter, should it resort to cooperating divisions, competing divisions, spin-outs, or spin-offs? These are important issues that merit research.

4. What is Business Model Innovation? What is its Role in the B2B Context?

A recent influential survey found that ‘business model’ innovation is the most important form of innovation for CEOs across the globe (IBM Global CEO Study 2006). The survey also found that firms that emphasize business model innovation grow far faster than firms that undertake product or process innovation alone. However, despite considerable recent interest in the phenomenon of business model innovation, there is still little consensus about what such innovation involves. Velu et al., (2010) combine a review of existing studies (Brandenburger and Stuart 1996; Gambardella and McGahan 2010; Johnson et al., 2008; Zott and Amit 2008) with their own interviews with managers to propose that business model innovations involve systemic changes to a firm’s customer value proposition along with changes to its accompanying operating structure. Such changes involve changing multiple elements of the customer value proposition along with the accompanying cost structure of the business (Susarla et al., 2009). For example, Amazon.com was an innovation that involved changes not only to the customer value proposition but also to the product (a far greater assortment than any

bricks-and-mortar book retailer, made possible in part by a B2B marketplace), distribution (books available everywhere and all the time through the Internet), price (lower prices in general) and promotion (access to online customer reviews about products and retailers). Changes also occurred in the cost structure of Amazon.com's offering through reduced overhead and greater economies of scale. Amazon.com's B2B customers as well as end customers seem to have benefited from its innovation in business models.

Given its systemic nature, business model innovation poses both opportunities and challenges for new venture and incumbent firms alike. New ventures such as Amazon.com can exploit new technologies, such as the Internet, to create significantly new value propositions for consumers that can also be delivered at radically lower cost levels. In this way, firms can come to create and dominate new sectors or even industries. But because business model innovation is more than just product or process innovation, and is often both at the same time, major questions remain about: (1) how new ventures should go about doing business model innovation; (2) the resources and capabilities they require to succeed at such innovation; and (3) the organizational and strategic challenges they face in doing so.

For incumbents firms with existing business models, their superior resources can help them innovate and remain dominant. However, as considerable research shows, radical product innovation is hard enough for most incumbents to undertake because of their commitment to existing technologies and customer segments. Given the systemic nature of business model innovation, this form of innovation is likely to be even harder for incumbent firms than product innovation. Thus, bricks-and-mortar book distributors, such as Barnes & Noble and Borders, have faced particular difficulties in trying to develop an Internet business model in addition to their existing business model. How do incumbents reinvent their business models? What challenges do they face in doing so? How can they leverage their existing resources and capabilities to do so? How are the challenges incumbents face different from those new entrants face? These are questions around which little empirical research currently exists.

Business model innovation raises issues about how firms manage their relationships with other businesses in both B2C and B2B contexts. Even in B2C contexts, because of the systemic nature of business model innovation, such innovation involves working not only with end consumers (because of the role of the value proposition) but also with suppliers and distributors (because of the role of the firm's operating structure). Compared with incumbent firms, how do new ventures manage the inter-firm relationships needed for business model innovation? Further research is needed to shed light on this question.

In purely B2B contexts, the way firms manage their relationships with other firms becomes even more crucial to the successful development and delivery of new business models. Given that the business buying process is different from that of consumers, a key question is: does business model innovation differ significantly in the B2B than the B2C context? Relatedly, are business model innovations more or less frequent in the B2B than the B2C context? Are they easier or harder to develop in the B2B than the B2C context? Does this development vary depending on whether the innovating firm is a new venture or an incumbent? Given the paucity of research on these topics, finding answers to these questions holds the promise of a rich stream of research, with significant implications for academics and managers alike.

COMMERCIALIZING INNOVATIONS

5. How do Technologies Evolve?

A commonly observed phenomenon in innovation is the replacement of one technology for another. For example, digital photography has largely replaced film photography, online air reservation is rapidly replacing travel agencies, and open source software is threatening commercial software. In printing, ink-jet and laser technologies replaced dot matrix printing, and both are steadily improving in performance. Which one will win, or will thermal printing replace both? A change in technology involves huge costs in equipment, training and management for firms. More important, transitions in technologies often cause the demise of or at least the tripping up of giant incumbents. For example, although IBM's mainframe business did not seem immediately threatened by the emergence of microcomputers, the lower cost and increasing power of the latter ultimately encroached on IBM's lucrative B2B business in mainframe computers. Thus, predicting the path of technological evolution can be a great advantage for an incumbent or entrant. How do technologies evolve?

Foster (1986) proposed a simple theory to explain technological evolution. He suggested that technological performance on some key dimension, as a function of research effort, evolved along an S-shaped curve. Curves for rival technologies crossed once. So, a good strategy was to switch from an old technology on the mature or upper flat of its S curve to a new technology on the upward or growth trajectory of its S curve. However, Sood and Tellis (2005a, 2005b, 2011) show that this simple model is rarely, if ever, true. Technologies evolve along step functions, with multiple crossings and huge spikes in performance after periods of long dormancy. How can a firm predict the path of this evolution given this messy real world? What theory or model can throw light on the phenomenon? Is the pace of technological evolution increasing? If so, where is it heading? These are unanswered questions with billion-dollar implications for the firms locked in combat on rival technologies.

Technological innovations are particularly salient because most new consumer products based on new technologies are initially developed in B2B contexts. Mobile phones, room air conditioners, microwave ovens and videotape recorders are commonly viewed as consumer products today, but they got their start as innovations for businesses. Indeed, the B2B market may be the launch pad for many, if not most, major consumer innovations (Golder and Tellis 1993; Tellis and Golder 2001). Conversely, some products introduced for consumer markets may become so successful that they encroach on B2B markets. This phenomenon raises the following questions: how do technologies diffuse from B2B to B2C markets, or vice versa? Which is a preferred launching pad for new products? How do these two markets cross-subsidize the evolution of technologies?

6. Is Network or Quality More Important for Success?

A not uncommon phenomenon in the age of high-technology or Internet products, whether B2B or B2C, is that a single product has an overwhelming market share. For example, Intel, Microsoft Windows, Microsoft Office, eBay, Facebook and Amazon.com all dominate their respective markets. And in some cases, dominance occurs quite

fast and reaches 70 to 85 per cent market share. Why does this phenomenon occur? Analysts attribute it to direct or indirect network effects. Direct or user-based network effects occur when the benefit from a product increases with the number of other users of the product. Alibaba.com maintains its dominant position as the world's largest B2B portal in part because millions of businesses buy and sell on it. Microsoft Excel's usefulness to users increases as more users use the same program. Indirect network effects occur when the benefit of a product increases with the number of accessories or add-ons that run with or on it. For example, smartphones that run iPhone and Android operating systems become more useful as the number of mobile applications ('apps') that run on them grows.

Some economists have argued that in the presence of network effects, a brand that takes an early lead, either because of entering the market early or through some accident, may end up with the highest market share (Church and Gandal 1993; Farrell and Saloner 1985; Katz and Shapiro 1985). This phenomenon is sometimes called 'path dependence' because the market share path of the brand depends on some early accident (Besen and Farrell 1994). The argument goes that network effects or path dependence could be so strong that an inferior brand could dominate its market and even lock out superior quality or lower-priced alternatives.

Some researchers have argued that the case for networks effects and path dependence is overstated (Liebowitz and Margolis 1999; Tellis et al., 2009b, 2009c); yet the dominance of brands that are known to have many flaws persists (e.g. Windows). What are the real causes of market success and dominance of innovations for high-tech and Internet products? Are network effects more important than quality for such products? How do such networks develop, and what control do managers have over them? Do inferior brands really win out through accidents of history? Answers to these questions have important implications for managers and public policy-makers.

7. Should Hardware or Software Come First?

When two products are related by indirect network effects they pose another problem for managers and policy-makers: which product should come first? Such linked products often have a hardware component and a software component. For example, the PC (hardware) is more useful as the number of programs (software) run off it increases. More generally, the hardware may be considered a heavy investment category, while the software may be considered a light investment category.

The presence of indirect network effects raises the proverbial chicken-and-egg problem (Caillaud and Jullien 2003; Gandal 1994; Gupta et al., 1999). Should firms invest in the hardware or the software first? Hardware manufacturers argue that without programs, consumers will not buy the hardware. Software manufacturers argue that without hardware, the software is meaningless. This dilemma is what has delayed and continues to delay the easy spread of ethanol or electric cars in the United States. In the latter case, the link is between cars and the network of refueling stations. Some analysts argue that the issue has no solution, similar to the chicken-and-egg problem. However, a solution could come from many sources, including commitment, level of investment, or regulation (Stremersch et al., 2007). How prevalent is the problem of first investment for such linked products? Should hardware or software come first? Under which conditions? When, if

ever, and how should government intervene to break the impasse between hardware and software suppliers for the benefit of consumers? Research to answer these questions can serve multiple publics.

FRUITS OF INNOVATION

8. What is the Pay-off to Innovation?

Managers typically invest in innovation by comparing the investment costs with the future market revenues of an innovation. However, the pay-off from innovations is often in the distant and uncertain future. Not only must managers discount the profits from future time periods, but they must also factor in the uncertainties from ever earning those revenues. Some analysts suggest turning to the stock market to assess how the market values investments in innovations. The logic from doing so is that the market is efficient, so the stock price reflects current and discounted future cash flows that would accrue to the firm given all the information available at the time. Any abnormal return in the stock price (beyond the normal for the whole market) on some announcement of innovation would reflect the value of that innovation at the time of the announcement.

A few studies have shown that the market does indeed show 'abnormal returns' to certain events in the life cycle of developing and commercializing an innovation (Chaney et al., 1991; Rao et al., 2008; Sorescu et al., 2003). Nevertheless, these findings raise a host of important issues (Sood and Tellis 2008). What is the right metric and approach for evaluating the returns to an innovation? If abnormal returns are the focus, what are the abnormal returns to various stages of an innovation, such as initiation, development and commercialization? What are the total returns to all stages and events in the life of an innovation? Do investments in innovation ultimately pay off in terms of total returns? Answers to these questions are of critical importance in determining the value of investments in innovation and advising managers and investors about strategies on which they should focus.

9. What is the Role of Innovation in Emerging Markets?

For much of the twentieth century, innovation was the preserve of the developed economies of North America, Western Europe and Japan. The world's largest spenders on innovation were mostly Western or Japanese multinational corporations (MNCs) that, even while outsourcing manufacturing to China in the 1980s and back-office processes to India in the 1990s, located their R&D activities at home, close to headquarters. If they chose to locate R&D away from their home country, they typically did so in other developed or triad economies. In the late 1990s and the 2000s, however, this trend was reversed, so much so that China and India in particular, but also Brazil and, to a certain extent, Russia, are now major destinations for large MNC R&D centers (Tellis et al., 2010). For example, General Electric and IBM currently locate their largest R&D centers in India.

The phenomenon of the offshoring of R&D is accompanied by the related phenomenon of the outsourcing of innovation to other companies, both MNCs and domestic

companies, in emerging economies. Specifically, the R&D centers of many large MNCs in emerging markets form relationships with other local companies as a means to tap into ideas and expertise that others have. These ideas may be technical or market related and can be local or global in nature.

The twin phenomena of offshoring and outsourcing of innovation to emerging markets raise several questions for researchers and managers alike. What is driving these phenomena? Given that R&D and innovation are strategic assets imperiled by offshoring and outsourcing, how do firms manage the potential loss of intellectual property to competitors, especially those they also partner with in the R&D/innovation process? What kinds of activities – technological versus market development, local versus global application – do MNCs in emerging markets pursue? How do they combine their activities in emerging markets with their activities in their R&D centers in other parts of the world, especially in developed economies?

Increasingly, it is not only foreign, developed country MNCs that innovate in emerging markets. More and more Chinese, Indian and Brazilian firms are investing in R&D and exploiting their home cost and market advantage to innovate for global markets. These firms are also acquiring foreign, developed country firms to acquire advanced technology they can leverage to compete globally. For example, not only has India's Tata Motors domestically developed the Nano, the world's cheapest car, but it has also acquired the UK's Jaguar and Land Rover to give it access to technology and brands at the high end of the price spectrum. The rise of firms from emerging markets and their increasing focus on innovation raise several questions of interest. Is the type of innovation of emerging market firms different from that of developed country firms? Specifically, do emerging market firms excel at low-cost product and process innovation rather than high-end, technological innovation? Do they undertake more business model innovation than product innovation? Can they successfully take their domestic innovations to global markets? How will they compete with Western MNCs through innovation in the long run? These types of questions hold the promise of a rich stream of research with significant implications for academics and managers alike.

10. What Drives the Wealth of Nations?

Researchers have long been intrigued with the questions: what drives the wealth of nations, and what is the role of innovation in it? Many disciplines have addressed these questions and have come up with quite varied answers. One obvious candidate includes raw materials, which many people assume are the most important cause of wealth. Along these lines, recent research has argued that geography plays a critical role in enabling the harnessing of crops and animals for the development of prosperity (Diamond 1999; Morris 2010). However, could the lack of raw mineral, agricultural or animal resources lead people to be innovative, while abundance of these resources leads people to be lazy? Some authors have argued that a key driver of wealth is a particular religion, which makes believers more materialistic, industrious and innovative than believers in other religions (Weber 1930). Other authors have argued that climate is a critical factor that fosters a work ethic of innovation and industriousness (Parker 2000). Still other authors have argued for the importance of social and political systems (e.g. patent law), which have given people the incentives to be innovative (Landes 1999). Economists have

argued for the role of regulation, investment in R&D and education of the work force (Furman et al., 2002). In contrast with these perspectives, a recent study argues that firm culture is the most important determinant of a country's innovativeness (Tellis et al., 2009a).

Innovations have enabled even countries with minimal raw materials (e.g. Japan) to develop and become wealthy. Furthermore, the innovations of these countries arise from entrepreneurs and firms within the country rather than from governments. In this context, B2B markets may play two roles. First, as explained previously, these markets could serve as the launch pad for innovations, including those that ultimately become consumer products. Second, highly innovative firms may serve as the hub of a highly innovative cluster of B2B suppliers. For example, Apple, Boeing, Microsoft and Intel serve as the nexus of an innovative cluster of B2B firms. The innovations of the hub stimulate and are enhanced by innovations of its B2B suppliers.

An overview of history shows that no country or civilization has been permanently dominant or wealthy. Wealth has not led to greater wealth and success, as some of the aforementioned explanations would lead one to conclude. Rather, history has been witness to the perennial rise and fall of civilizations. Thus any explanation of this complex but important problem needs to take into account the failure of any one nation to remain innovative and wealthy permanently. Moreover, even within a nation, clusters of innovativeness (e.g. Silicon Valley) rise and fall with time. The answer to this problem is not merely of historical importance. It informs public and government policy and firm strategy today.

Key research question are the following: what causes nations to be innovative? Is it climate, geography, culture, religion, economics or politics? Does the innovativeness of a country affect the innovativeness of firms within it? Or does the innovativeness of a country rest on the innovation of its firms? Are there innovative clusters within countries? If so, what drives that phenomenon, and how can it be replicated? Is the location of a firm's R&D department merely one of operational efficiency, or does it affect the innovativeness of the department and the firm? What is the role of B2B firms in the innovativeness of major organizations? To what extent are consumer innovations driven by innovations of the manufacturers versus innovations of their suppliers?

CONCLUSION

Innovation is an important force in markets today, and it is just as vital in B2B as it is in B2C markets. Despite extensive research over the years and across many disciplines, much still remains to be known about innovation, especially in a B2B context. As we argue in this chapter, the B2B context is in some ways similar to the B2C context and in some ways different. Moreover, we could argue that the B2B context is more widespread. Even firms that eventually serve end consumers need to work with other firms to innovate and serve these consumers better. Although much existing knowledge about innovation in a B2C context can be extended to the B2B context, research remains to be conducted to better understand when and how innovation in the two contexts differs. The goal of this chapter has been to outline what is already known and what remains to be done and to trigger interest in finding answers to the questions that remain.

NOTE

1. Parts of this chapter borrow from Tellis (2008).

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