16. Firms and the Creation of New Markets

ERIN ANDERSON and HUBERT GATIGNON

1. INTRODUCTION

New markets do not emerge, nor do they appear. They are *made* by the activities of firms. New markets are created when firms correctly sense (by accident or by design) a latent need and communicate their solution to that need: markets spring into being when economic actors shift resources to that firm's solution. The most visible way to create a new market is to offer a product/service that is novel, thereby addressing needs that were not met (and perhaps not even sensed). Much of this chapter focuses on firms' efforts to develop and commercialize new offerings, and on how buyers respond, thereby creating new markets. However, new markets are also created when firms cultivate an underserved clientele with established products. Much of marketing is about how to bring new customers into a developed industry (as opposed to rearranging market shares among existing customers). This chapter will also highlight these market-creation activities.[1]

Capitalist systems exhibit an astonishing ability to create new markets (and, typically, destroy existing ones) based on developing and commercializing innovations. Schumpeter (1943) argued that large firms innovate so well that they raise a society's general standard of living. In the same vein, Schmookler (1966) argues that long-term economic growth is primarily the result of better knowledge of what goods would be useful and how to make them, i.e. invention. There is little argument that innovation, on the whole, increases public welfare: new markets are thought to arise because buyers recognize they will be better off. Breshnahan and Gordon (1996) document why, with a series of innovations that clearly increase buyers' utility. It should be noted, however, that many innovations are not radical but merely incremental, and that their utility is in the eye of the beholder. Although this chapter emphasizes more radical innovation, it will address new products in general.

[1] We define a market as the set of all actual and potential buyers of a product or service. Following Williamson (1996), we define a firm as a governance structure, an organizational construction. We treat an industry as a group of sellers (firms) serving a market. In the standard economic perspective, the market is the main central institution, and the firms' black-box actions derive from markets. Here, we treat the firm (which is not a black box) as the central institution. And we view markets as an outcome of corporate activities. This reversal of the standard set up follows from New Institutional Economics.

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It is less clear how much firms actually benefit from attempting to create new markets via new products. Firms develop and launch new products with the intention of increasing profitability. Schmookler (1966) shows that invention is not primarily a response to intellectual stimuli but is instead an effort to exploit a profit opportunity. But the payoff to the investing firm is highly uncertain. Frequently, developing firms reap heavy costs, but other firms capture the projected benefits—if indeed, these are not competed away in a ruinous race to build new markets and establish dominance. This may explain why Griliches, Hall, and Pakes (1991) find no relationship between a firm's patent counts and its financial performance. Bayus, Erickson, and Jacobson (2003) note that it is an article of faith among businesspeople that new product development (hereafter NPD) is essential to firm performance, but that the evidence is mixed as to why this is true, and how strong and long-lasting is the effect.

In short, NPD is inherently uncertain: new markets frequently do not materialize, nor do anticipated profits. We contend that the creation of new markets via the creation of new products is best understood through the lens of New Institutional Economics (NIE), leaning on the twin pillars of evolutionary reasoning and Transaction Cost Economics (hereafter TCE). From TCE, we adopt the premise that firms intend to be rational but are bounded in their abilities: in particular, critical information is impacted, and decision makers cannot write complex contingent claims contracts that steer toward optimal outcomes. Instead, executives compare concrete, visible alternatives and attempt to foresee which one does the best job of reducing the total of production and transaction costs long term. Further, opportunism is possible, and given a sufficient scale of operation, worth reducing by employing costly governance mechanisms. Coming sections rely on the TCE mechanisms of asset specificity, environmental uncertainty, and internal uncertainty (difficulty of assessing performance using output measures). The control/commitment continuum from arm's-length market contracting to relational governance through to vertical integration will be invoked frequently to explain how firms develop new products in the hope of creating new markets, and how they form relations with economic actors (such as distributors) that are vital to the product's success.

From evolutionary economics (Nelson 1995, Dosi 1997)), we borrow the premise that markets seldom reach equilibrium, and that if they do so, the equilibrium reached is path dependent at the industry level. Further, firms react to uncertainty by developing routines that are difficult to change, routines that reflect the path of their (unique) history. Learning and imitating feature heavily in our analysis.

Strands of these frameworks also appear in a major part of this chapter that reviews how prospects become converted into customers, thereby calling new markets into existence. We rely here on the study of consumer behavior through the combined lenses of sociology, psychology, and economics. We discard the classical economic assumptions that consumers are well informed, rational maximizers of their own utility, capable of reducing multiple attributes of a product to the lowest common denominator of net utility. We accept that buyers have

complex motives, many of them socially determined, and that utility is subjective and individual (including, for example, Veblen effects that could hardly be considered rational). At the same time, we do not portray buyers as capricious, random, or wholly ignorant. We accept that buyers seek to improve their subjective utility, subject to bounds on their rationality, and that they do so by comparing observable outcomes and attempting to foresee which best fits their subjective preferences.

NIE has a number of core approaches, including property rights, the contractual nature of the firm, the tragedy of the commons, and allocation among claimants to common resource pools. While we focus primarily on TCE and on evolutionary reasoning, we acknowledge that other NIE elements can be brought to bear to understand how firms create markets.

This chapter is organized as follows. We begin with the mundane: how do firms create new markets from established products? We then turn to the far more perilous task of creating new markets via new products. We first revisit the problem of why firms bother to try, given that the payoffs of NPD are so uncertain. Three ways to develop new products are then considered in turn: internal development of the sort favored by Schumpeter (1943), third-party development via market contracts of the sort criticized by Williamson (1996), and today's vogue of merely acquiring or appropriating new products developed elsewhere. New product development is a vast topic. We focus on those aspects that determine what sorts of new markets a firm can hope to create, and offer references to other NPD issues.

Given the new product, how do prospects convert to buyers? A large literature, following the tradition of Griliches (1957), empirically summarizes how innovations diffuse through a target population. We examine this literature, focusing on how the firm's marketing strategy opens (or sometimes forecloses) new markets.

2. How Firms Create New Markets without New Products

If one accepts bounded rationality and opportunism, it follows that economic actors benefit from sheer information and stimulation, and that firms can convert prospects into buyers by offering credible reassurance against both adverse selection and moral hazard. Therefore, *mere marketing activity creates new markets*, and does so even with established products. Pawakapan (2000) shows how firms created a market in a remote Thai village merely by sending salespeople with branded merchandise, a pricing schedule, promotional materials, and the authority to book and fulfill orders. The salesforce came from the cities and spoke the national language, not the local dialect. Their novel proposition was so appealing, however, that the villagers undertook to learn the national language. Indeed, Pawakapan (2000) judges salespeople more effective than any other means, including schools and political pressures, in teaching villagers the national language (from which follows national culture). These firms quickly

created a market for categories of merchandise the villagers had never seen, let alone considered. Given choice, villagers changed their buying habits. Formerly, they bought essentially on price and exhibited loyalty to selected local traders selling strictly local unbranded products. Rapidly, villagers added variety, convenience, and selected brand preferences to their utility function and took to spreading their business across multiple salespeople. Thus, mere marketing activity not only created new markets but altered how markets function.

Spulber (1999) generalizes this idea to any market, even the most sophisticated. He conceives of firms as intermediaries standing between consumers and the providers of inputs (components, assembly, finance, delivery, and so forth). In Spulber's conception, problems of information are paramount, transaction costs are high, and markets are uncertain. The mere existence of firms motivates prospects to become buyers: firms are the engine of commerce (money being the oil). Firms do so by standing ready to buy and sell (providing liquidity and immediacy to markets), simplifying exchange, devising pricing and contract information to induce parties to reveal demand and cost information, creating commercial routines (e.g. for getting credit), and making credible commitments backed by a firm's longer life and greater volume of transactions. In Spulber's (1999) conception, managers are important players, and mundane marketing and management activities (such as holding inventory) are essential to bring markets into being—even markets for well-understood products.

The Role of Sales and Distribution Activity

In short, marketing activities (product design, branding, promotion, pricing, sales and distribution) and management activities (product manufacture, inventory, and the like) create markets. One of the most important means of creating a market is simply to offer sales and distribution to it in a credible manner. A major justification for vertical restraints (of which the franchising system is the ultimate expression) is precisely to insure that sales and distribution activities represent and support a brand properly. This alone is thought to open new markets, by overcoming objections to purchase. One justification of selective distribution is that resellers, in return for protection from intra-brand competition, will exert themselves more vigorously on behalf of the brand (Williamson 1979). For example, they may open outlets in disadvantaged neighborhoods, unquestionably creating new markets.

Chandler (1977) takes this argument to the level of American industry, tracing how large-scale manufacturers in the nineteenth century developed aggressive new methods of marketing their goods, even reaching into isolated rural areas. Many of these distribution methods involved granting territorial protection to dealers in return for brand support and an unusual degree of cooperation with the manufacturer (e.g. McCormick harvesters). Today, we recognize these innovations in distribution as a form of relational governance. It arises when dealers

and suppliers make specific investments in each other: dealers need protection against supplier opportunism (e.g. capricious pricing or contrived termination), and suppliers need assurance that dealers will not degrade the brand name or shirk. At the limit of asset specificity, vertical integration into distribution is appropriate (e.g. Singer sewing machines, originally sold in company-owned stores).

In short, a firm's activities, and particularly its marketing efforts, create new markets, even for familiar products. They do so principally by reducing transaction costs (incurred when using the price mechanism). These capabilities are even more useful when the product itself is new. We now turn to new product development (NPD).

3. How Firms Develop New Products

The Firm's Returns to New Products

As noted earlier, business executives believe that NPD is critical. Indeed, aggregate evidence suggests that profitable firms do innovate (Capon, Farley and Hoenig 1990). However, this does not mean that innovative firms are profitable: as noted, other firms often reap the benefits of NPD. How could the developing firm profit from its own activities? Bayus, Erickson, and Jacobson (2003) lay out four mechanisms. First, new products have new features that could attract buyers. However, this revenue advantage is frequently offset by additional costs of supporting new products. Second, new products might enable the firm to find new markets (or segments) that are price inelastic. Both these arguments involve creating new markets. Third, the firm may be able to move its existing customers to new products that are cheaper to support (for example, might require less after-sales service). Fourth, the firm might develop new capabilities that are difficult to imitate. Without new products, firms eventually fail to adapt to changing market needs and find themselves unable to meet mounting competitive pressures, an argument congenial to evolutionary reasoning. New product launches galvanize firms, giving them impetus to renew and recombine their competences. In this view, new products are a firm's way to overcome inertia, a force to develop new routines and retire old ones. Viewed this way, the gauge of NPD success is not so much whether new products create new markets as it is how much the firm changes.

Nonetheless, firms do develop new products for the primary purpose of capturing some part of the value they add to society by creating new markets (Schmookler 1966). How and why does such innovation occur? Classic economic analysis says little about this issue, tending instead to take innovation by the firm as exogenous. Teece (1996) examines why this is so, arguing that innovation has seven properties that defy the conventions of economic analysis (see Table 1).

Table 1. Seven properties of innovation that contradict standard economic analysis adapted from Teece (1996)

Seven fundamental characteristics of technological development make it difficult to explain innovation using the standard economic lens. The lens of NIE is more appropriate. These characteristics are:

1. Uncertainty: innovation is a quest into the unknown. Therefore, serendipity and luck play an important role.
2. Path Dependence: technology often evolves in path dependent ways, contoured by a technological paradigm. Within a paradigm, research efforts become channeled along certain trajectories. New product and process developments for a particular organization are likely to lie in the technological neighborhood of previous successes.
3. Cumulative nature: technology development, particularly inside a particular paradigm, proceeds cumulatively along the path defined by the paradigm.
4. Irreversibilities: technology progress exhibits strong irreversibilities. The evolution of technologies along certain trajectories eliminates the possibility of competition from older technologies, even if their relative prices change significantly.
5. Technological interrelatedness: it is infeasible to separate out a technology and specialize exclusively in it. Seemingly unrelated technologies share underlying points of commonality.
6. Tacitness: knowledge is difficult to codify, archive, and transmit.
7. Inappropriability: firms face serious hurdles to insuring they, and not a rival firm or a customer, will receive a fair share of the value the firm creates via innovation.

We focus on the governance issues that beset NPD. Below, we examine three ways the firm tries to develop innovations, beginning with vertical integration of new product development activities.

Processes of Internal Development

A very substantial body of descriptive research looks into the "black box" of new product development. Krishnan and Ulrich (2001) review this sprawling literature, seeking to unify it inductively around the literally dozens of decisions firms make to develop and commercialise a new product or service. In the picture that emerges, firms look ahead in a deliberate, goal-directed manner, seeking to develop new products with a minimum of waste and a maximum of market impact. Economic exigencies impose discipline on the process, focusing management on the pursuit of internal process outcomes (such as fast development and roll-out) and external market outcomes (such as market share, revenue growth, and profitability) rather than on organizational politics or pursuit of private sub-goals. In this respect, the picture looks more like economics than sociology or psychology: as Dosi (1997) puts it, abandoning perfect rationality does *not* imply "anything goes."[2]

[2] Dosi (1997) reviews a growing body of economic work outside the conventions of rational, identical agents seeking an equilibrium outcome. He argues that an evolutionary lens is particularly well suited to explain technological change. Dosi (1997) concludes that linear models of innovation do not fit the evidence. A more accurate picture is one of feedback loops between innovation, diffusion, and generation of new opportunities.

However, complexity, information impactedness, and bounded rationality massively influence how the firm goes about the task. The myriad decisions that must be made (even if "decided" by the default path of inaction) exhibit important interdependencies, not the least of which is that each development project must fit the firm's competences and strategy: the identity of the players matters. Each project is part of a constellation of other projects, which need to be coordinated. Further, each project team must coordinate across the various functional areas of the organization (R&D, production, marketing, and so forth). Coordination involves friction, which imposes transaction costs. A major finding of this literature is that the transaction costs entailed in new product development *even under unified governance* are high. (This does not contradict TCE, which suggests that firms cannot eliminate transaction costs but can contain them better than do markets.)

The Bounded Rationality of Potential Buyers

Why are transaction costs high? Developing new products demands a great deal of information, which is not readily available and not equally available to everyone involved in the development effort (information impactedness). Much of the information is tacit: Van den Bulte and Moenaert (1998) demonstrate that sheer physical proximity has much to do with whether tacit information will be shared effectively. Krishnan and Ulrich (2001) conclude that developers must combine many types of information from multiple sources, sifting, weighing, interpreting, and combining in a complex and inherently subjective manner. Combining information strains the cognitive abilities of decision makers (bounded rationality at individual and group levels). Numerous market research techniques have been developed to assist here (for a review, see Kaul and Rao 1995), but their usefulness has limits, particularly when developing truly new products and services. One reason is that subjective, holistic aspects of the product (e.g. aesthetic appeal) are difficult to represent and examine, yet are important determinants of success. More fundamentally, the prospect's first response to an innovation is "What is it?" Not surprisingly, potential buyers are usually unable to imagine and report accurately what utility they might derive from an innovation, nor how likely they are to buy it.

A classic example (Nayak and Ketteringham 1986), is the videocassette player: market research undertaken by Sony led management to assume that buyers would use it primarily to record short television programs to play back later. Accordingly, Sony developed a proprietary machine (the Betamax standard) to play a one-hour tape. Rival developer JVC made no assumptions about how people would use the machine and therefore maximized flexibility (which meant longer tapes). As the market developed, the principal utility that emerged was in playing pre-recorded movies. JVC won the subsequent standards race based largely on what turned out to be the superior utility of a long tape. To do so, JVC licensed its VHS standard to competitors, thereby giving away profits from its invention. Sony attempted to do the same with Betamax but could not

enlist many other firms—because their managers realized that a short tape would limit the creation of a new market. This is a good example of a firm's efforts to be farsighted: a sociological analysis would have awarded more allies to Sony than to lesser-known JVC.

Disparity of Goals

Complicating the development task is disparity of goals. Krishnan and Ulrich (2001) note that the performance of a product development project team is typically indexed by time taken (lead time to market), or by the manufacturing cost, quality, or market attractiveness of the team's output. These goals involve tradeoffs (e.g. short lead times frequently drive up manufacturing costs). Further, it is not clear how well such internal project development goals map onto external performance goals, such as revenue growth or incremental profit. For example, a review of research on organizational processes (Brown and Eisenhardt 1995) concludes that cross-functional communication improves project development outcomes (e.g. speed, productivity). However, Henard and Szymanski (2001), in a review of over 40 empirical studies, find that cross-functional integration has little impact on the next step of market or firm performance outcomes (e.g. market share, profit margin). Apparently, the advantage of superior project development outcomes can be readily offset by inferior commercialization, a theme we develop in section IV of this review.

Development Routines

Firms develop routines to cope with such challenges, routines that have an important influence on the firm's competences (Nelson 1995, Dosi 1997). A common routine ("sequential development") is to split development efforts into phases, assign each phase to a functional group, and set deadlines for each group to complete its input and hand the project off to the next group (for example, R&D might hand off to Production, which hands off to Marketing). Sequential development addresses the problem of bounded rationality by separating tasks and responsibilities, confining them to groups with similar viewpoints. Sequential development reduces internal friction, but at the price of longer lead times and, more importantly, new products that are poorly suited to fast-changing environments. The voice of the potential customer is usually lost as the project moves through internal groups, awaiting its turn for attention in each group. The solution is to overlap the stages ("concurrent development"). Concurrent development requires managing the information flow so as to insure that each stage not only has more information *but understands the information in the same way*. This raises transaction costs, but give firms the flexibility they need to make major changes quickly to adapt to turbulent environments (Krishnan and Ulrich 2001).

The sequential development issue underscores four points that fit well in the NIE paradigm. First, routines are critical and are costly to alter. Second,

bounded rationality means that players will not use information in the same way, even in the unlikely event that all information is available to all players. Third, the uncertainty inherent in a firm's environment has an important impact on the appropriate way of organizing its activities. Fourth, unified governance does not banish transaction costs. Therefore, how a firm structures its internal processes is of importance: firms should not be treated as black boxes, nor as interchangeable production functions.

Internal Team Processes

Brown and Eisenhardt (1995) review a large body of micro-level research examining the workings of project teams. A central challenge here is overcoming the information impactedness that is endemic to innovation development processes. A major obstacle is that functional groups operate in their own "thought worlds," which condition how they obtain, share, and process information. *Even though they work for the same organization*, individuals do not readily cooperate, share information, or reach agreement, especially across functions. Conflicts and information hoarding abound. Traditional internal incentives alone are not sufficiently high-powered to bring forth best efforts from all employees (Teece 1996). Thus, group composition matters because internal cohesion creates better project development outcomes. Moorman (1995) extends this finding from project outcomes to market outcomes: new products are better received 12 months after launch when developed in firms with a strong culture of interpersonal support. In these firms, employees feel a personal loyalty to (and trust in) their employer. Such "clan" structures work by supplementing traditional employment incentives, motivating people to collect, pool, and utilize information candidly. Clan mechanisms, which TCE labels "the economics of atmosphere," are important to the understanding of economic organization: however, they are difficult to unravel (Williamson 1996, p. 270). So doing is a promising research direction in the study of in-house NPD.

The speed and productivity of the project development team increase in teams that rely on "gatekeepers," individuals who go to great lengths to scan for information, bring it into the team and make sure it is dispersed (Brown and Eisenhardt 1995). Three findings are striking. First, effective teams engage in external communication, bringing fresh information and viewpoints into the organizations. Information from suppliers is particularly useful: it appears to substantially improve the development team's results. Second, attempting to reduce friction by burying conflict is counterproductive: better performance comes when team members, who inevitably see the situation differently, discuss freely. Such teams negotiate their way to a solution that mitigates bounded rationality at the individual level: internal cohesion facilitates by keeping the conflict manageable and task focused. Third, the classic approach is for the team to develop one best new project, for which it then garners organizational support. This minimizes transaction costs, and is effective in stable, relatively mature environments. But in rapidly changing environments, planning one's way to a single best project

outcome is a counterproductive exercise because such environments strain rationality. Project development teams perform better by engaging in seemingly wasteful trial-and-error processes, such as experimenting, moving quickly without thorough analysis, and testing competing designs simultaneously. Trial and error, in turn, requires a risk-tolerant, improvisational management style that goes against the routines embedded in many firms.

Purposefully Designing Creative Products with High Market Appeal

How can teams set about purposefully to design something highly creative that will attract buyers, thereby creating new markets? The evidence is that they often cannot, and frequently, they do not. Many successful innovations are not the deliberate output of a creative process. They are by-products, often accidental, of efforts to create a variation of something known (for example, the weak, unconventional glue on Post-It Notes was a failed by-product of 3M's efforts to make conventional glue stronger). Efforts to distinguish what purposeful processes do lead to successful innovative products have not found a dominant answer. However, some generalizations emerge. For example, at a very micro-level, Dahl, Chattopadhyay, and Gorn (1999) uncover thought processes that help designers imagine products that meet the dual (and somewhat conflicting) criteria of being creative, yet acceptable to buyers. Urban and Von Hippel (1988) show that, in business-to-business markets, certain customer profiles correspond to "lead users" who are excellent forecasters of overall market reaction. Enlisting such customers to cooperate with designers early in the development process raises the probability that an innovation will find buyers after launch.

Brown and Eisenhardt (1995) extend the idea: in many markets, project teams that seek information from potential customers tend to develop products that are better accepted in the marketplace. This is particularly the case in uncertain (complex, fast-changing) markets, where, by nature, it is difficult to understand customers. In uncertain markets, an overriding customer orientation improves new product performance by guiding managers to devote resources to decoding customers' needs and options, in spite of the difficulty in so doing (Gatignon and Xuereb 1997). The difficulty of this challenge is underscored by Moorman (1995), who finds that in turbulent markets, firms tend to introduce new products that are less creative than those in more stable markets. A likely explanation is that such markets strain the decision makers' ability to discern customer reaction, making it more risky to introduce something novel. Hence, more conventional new products can be seen as a means of coping with bounded rationality in the face of market uncertainty.

When Is Experience an Asset?

Firms invest in a market, acquiring experience, much of which is idiosyncratic to the firm. Experience should serve useful purposes for some time, which would make it an asset. Indeed, there is a tendency in TCE to equate idiosyncratic

investments and idiosyncratic assets, as though all investments generate durable utility. But an investment is a commitment of resources. This does not always create an asset. Indeed, it could create a lasting disadvantage.

Is a firm's market experience truly an asset in developing new products, particularly innovations? In general, the answer is yes (Moorman and Miner 1997): organizations that gather experience and are capable of dispersing it to multiple decision makers create new products that are more successful (though not more creative). However, there are important qualifications here. Experience can be a drawback, particularly in the context of innovations. Experienced, successful firms often fail to recognize shifts in technologies or markets because they are biased towards existing markets (Krishnan and Ulrich 2001). This focus leads them to overlook or distort information that threatens the status quo.[3] Moorman and Miner (1997) show that in experienced firms in which project team members have a strong consensus about what they know, rapid changes in the technological environment overwhelm team members. Rather than update, they develop *less* creative products than do competitors that have less experience and consensus. Brown and Eisenhardt (1995) show that project teams can become too cohesive by being together too long. After five years of working together, team members lose speed and productivity, apparently because they are less likely to cultivate and use external information.

Net, it appears that not all idiosyncratic investments that build up over time can really be considered assets. Experience, in particular, can become a liability, or a "core rigidity" (Leonard-Barton 1992) because the experience is *too* specific. The routines acquired by experience often do not generalize to other circumstances. By attempting to preserve and apply overly specific knowledge, the firm creates path dependence, which in turn makes it difficult to be flexible and creative. Experience prevents the firm from moving to a new,superior path.

If so, a transaction-specific investment is one thing and a transaction-specific asset is another. An asset generates value, and an idiosyncratic asset does so in a manner uniquely suited to a usage or user. In changing environments, idiosyncratic investments may become idiosyncratic liabilities. Afuah (2001) demonstrates this effect in the computing industry. A massive, competence-destroying technological change (the move to RISC technology, Reduced Instruction Set Computing) threatened all competitors—but not equally. Those whose performance suffered the most were vertically integrated into the old technology and used suppliers to learn the new technology. Via vertical integration, these firms had maximized idiosyncratic assets that were rendered useless, even a liability, by the advent of RISC (which required a great deal of unlearning, then relearning). Further, the firms had no routines for dealing in a relational manner

[3] Two examples, once considered plausible, are ludicrous in hindsight. "It is an ideal dream to imagine that auto trucks and automobiles will take the place of railways in the long-distance movement of freight and passengers," proclaimed a railway trade association in 1913. And in 1977, the president of Digital Equipment Corporation, Ken Olsen, opined that "There is no reason for any individual to have a computer in their home." DEC's product line rested on the mainframe computer: the company ultimately was put out of business by personal computers. See Cerf and Navasky (1984).

with suppliers. They were unable to transition effectively using arm's-length market contracting because the newness of RISC required developing new idiosyncratic assets, which in turn demand safeguarding by vertical integration or by relational governance. In contrast, the best performers were not vertically integrated in the old technology but did vertically integrate to acquire RISC capabilities. Thus, they could more easily shed their old capabilities and could more readily develop idiosyncratic new ones.

Afuah (2001) is a first step in a valuable research direction: when is a transaction-specific investment truly an asset, rather than merely being idiosyncratic *per se*—or worse yet, a liability? TCE has tended to take the decision to create an idiosyncratic asset as given, or exogenous. But TCE has developed to the point that it is useful to endogenize asset specificity, that is, to explain the decision to invest in specific assets. When should firms undertake the transaction costs of customization? When they settle instead for generic investments—or walk away from a transaction altogether? Testing predictions about walking away is an empirical challenge: although TCE predicts circumstances that will not support transactions, it is difficult to find traces of transactions that were considered without being executed.

Development Relying on Third Parties

The last two decades have seen a strong trend towards outsourcing even sensitive functions once considered too central to confide to outsiders, such as new product development. A significant percentage of the sample of firms surveyed in Robertson and Gatignon (1998) reports using partners to develop new products. Shared development invokes the TCE prediction that outsourcing innovating activity creates high exposure to small-numbers bargaining, hence opportunism. The contractual hazards that arise challenge firms to refine ways to safeguard these transactions, including relational governance, or alliances (see Gulati and Singh 1998 for a review). By TCE reasoning, *the move to outsource NPD will fail unless firms dramatically increase their capacity to ally by such means as the exchange of credible commitments*.

Credible Commitments

The automobile industry is a leading example. Automakers are in the forefront of efforts to delegate new product development upstream. Contractual hazards arise because suppliers are expected to invent components that work with each particular brand and model, which are highly idiosyncratic. Thus, suppliers must invest in idiosyncratic learning to develop highly specific components. This puts suppliers squarely into a position of small-numbers bargaining, exposing them to the buyer's opportunism. Transaction Cost Economics (TCE) predicts that suppliers will hesitate, and will demand concrete assurances in order to proceed: promises of good faith will not suffice. The single best assurance is when a buyer creates a reciprocal exposure by itself making investments that are idiosyncratic

to the supplier. In so doing, the buyer creates a vulnerability to a supplier: mutual vulnerability creates incentives to eschew opportunism, thereby protecting the relationship.

Bensaou and Anderson (1999) examine when buyers take the risk of investing idiosyncratically in a supplier. They find firms trade off between production costs motives to invest and transaction cost disincentives to invest. On the production side, the more technically challenging the necessary invention, the more buyers make idiosyncratic investments in their supplier. Buyers do so because they cannot simply put out a contract to motivate the supplier to make such investments, but must offer safeguards. Offering safeguards to the supplier is particularly necessary under fast technological change: buyers must absorb some of the risk for their suppliers if they are to obtain the close cooperation needed. Notably, the institutional environment matters: Japanese automakers are able to induce considerably more cooperation from their suppliers for a given level of investment, consistent with findings by Sako and Helper (1998).

More generally, Oxley (1999) compares governance choices made by U.S. firms in their collaborations with firms from 110 countries, collaborations intended to develop and commercialize intellectual property. She finds U.S. firms to be sensitive to both the transaction and the environment. Specifically, firms structure their relationships to approximate hierarchies (by using equity joint ventures, vs. market contracts) when idiosyncratic assets need safeguarding, when performance is difficult to monitor by observing outputs, and when countries provide weak protection of intellectual property.

TCE argues that idiosyncratic investments serve to generate better performance. In support, Jap (1999) shows that close buyer-supplier relationships built on idiosyncratic investments outperform rivals over time, generating significant competitive advantage. Dyer (1995) finds that automakers which build tightly integrated supplier networks based on high levels of mutual asset specificity reap performance benefits: their new products enjoy higher quality and take less time to develop. These studies affirm TCE reasoning that offering credible commitments is necessary to forestall opportunism. However, other solutions to the specificity problem exist: for example, Dutta and John (1995) show that buyers are more willing to make supplier-specific investments if the supplier licenses the innovation. Thus, buyers know they can use a second source to safeguard against opportunism.

How the Downstream Protects Itself Against Upstream Opportunism

Firms also go downstream to develop innovations, and find many ideas among members of their channel of distribution. These are not end customers: channel members move product or service along the path to the end user. Resellers and sales agencies are prime channel members for purposes of developing new products. Typically, they sell complements, and frequently substitutes, giving them a broad perspective on the market. As noted earlier, project teams perform better when they bring this expertise into their deliberations. Some producers develop

close relationships with channel members in order to secure their cooperation in the development effort. Anderson and Weitz (1992) show that they do so by exchanging mutual idiosyncratic investments and investing heavily in communication over time. However, relationship building exhibits considerable path dependence: reseller-producer dyads find it difficult to set aside a contentious history in their efforts to achieve coordination. Sako and Helper (1998) reach the same conclusion upstream, for customer-supplier dyads.

An emerging issue is how franchising systems (for a review, see Coughlan et al. 2001) generate new product ideas. Franchising is a form of relational governance, a hybrid balancing properties of both markets and hierarchies. The institution of franchising is particularly well suited to generating, refining, then transmitting and commercializing, new product ideas. Darr, Argote, and Epple (1995) analyze how they do so, showing that new ideas (e.g. process innovations) spread by interpersonal communication within a social system, facilitated by geographical proximity. Thus, new ideas tend not to spread beyond the inventive franchisee and his/her immediate circle. The franchisor is an institution that collects, culls, refines, and then spreads innovations across franchisees. Schmookler (1966) notes that much of the energy that goes into invention is really diverted into reproducing inventions that have "depreciated" (been forgotten). Darr, Argote, and Epple (1995) show this effect is particularly powerful when personnel turnover is high and production processes are simple: the relevant knowledge is difficult to embed in anything other than an individual's mind. Getting individuals to share information with each other is therefore critical. Bradach (1997) analyzes how some franchisors do this. He focuses on "plural governance," which is frequent, structured interaction between company-owned and independently owned outlets. Plural governance facilitates remembering and transmitting innovations. This is a new rationale for a poorly understood phenomenon, the simultaneous use of market *and* hierarchy (dual distribution). Explaining dual distribution, a seemingly wasteful duplication of resources, deserves research priority.

Observations on the Hazards of Cooperation

It is highly risky to engage in mutual building of idiosyncratic investments. Giving and taking hostages (exchanging credible commitments) is a difficult affair to calibrate and to execute in practice (Williamson 1996, Wathne and Heide 2000). Teece (1992) uses TCE reasoning to build the argument that vertical integration is appropriate for assets that are "co-specialized," i.e. both complementary and specialized to the innovation. Teece argues that hazards are pronounced with human assets: integration is vital to impede people from leaking knowledge or switching to a competitor. Indeed, Brown and Eisenhardt (1995) underscore that project team gatekeepers enhance performance by performing a "guard" function to protect proprietary information.

There has been a trend (reviewed by Osborn and Hagedoorn 1997) toward increasing cooperation among producers, particularly producers of potentially

complementary goods or services. Cooperation among producers is a new way to outsource the development of innovation. One purpose of these programs is what may broadly be termed co-promotion or co-marketing of each other's brands, including new products. A promising research area is how firms manage the transactional hazards of cooperation. For example, Terpstra and Yu (1990) examine carrier-rider relationships ("piggybacking"), in which firm A (the carrier) uses its sales force to promote the (complementary) new products of firm B (the rider). The obvious danger is that A will behave opportunistically to appropriate B's innovation, (reverse engineering, misleading B about the product's market position, and so forth). How do firms govern such relationships, and which methods are more effective? For example, there is some evidence that in the pharmaceutical industry, firms exchange hostages: piggybacking is reciprocal, with A and B exchanging carrier-rider roles in multiple markets. Such issues deserve research.

Develop by Acquisition or Appropriation

Given the difficulties of successfully developing innovations, including new products, it is not surprising that many producers don't bother to do so. Instead, they watch the activities of other firms, waiting for a "winner" to emerge, which they then acquire—or appropriate. Kogut and Kulatilaka (2001) point out that where firms can merely observe, they will do so. Frequently, mere observation is inadequate: the firm must have some involvement so as to discern the emerging trends and be able to adapt readily. Many seemingly wasteful or indecisive actions, such as investing in multiple (potentially competing) channels of distribution or multiple technologies, or spending inordinately on sales forces or market research, can be interpreted as investments in "real options" that enable the firm to act as soon as uncertainty falls.

Teece (1996) questions the practicality of buying technology elsewhere (e.g. licensing another firm's innovation). Teece concludes that, in spite of the myriad obstacles to developing new products internally, vertical integration is usually the most attractive of the feasible alternatives. Our earlier discussion of the transactions costs inherent in new product development supports this approach by suggesting that complex contingent claims contracting, based on a high level of rationality and information, is simply not practicable. However, management practice indicates that many firms do effectively outsource innovation.

Re truly innovative new products (not mere extensions of the firm's existing products), a common strategy is to merely purchase rights to innovations developed elsewhere. For example, as developing new pharmaceuticals has become slower, more expensive, and more prone to failure, more producers let others invest, then buy licenses to market the results (Tapon 1989). While promising, this approach is fraught with transaction cost perils. To evaluate an innovation developed elsewhere, the firm needs more information than the seller would be wise to reveal. Even if the firm manages to buy the innovation, it may find that

idiosyncratic assets are difficult to uproot and relocate, especially if they involve tacit knowledge or go counter to the firm's established routines.

An example is the biotechnology industry. Start-up firms regularly emerge with innovations, but lack the co-specialized assets (such as sales forces) to commercialize them. Therefore, large, established players, facing internal barriers to developing innovation themselves, often invest in purchasing start-ups, rather than in R&D.[4] However, a considerable body of research on acquisition (for reviews, see Capron 1999, Haspeslagh and Jemison 1991) concludes that many of the same obstacles to licensing examined by Teece (1996) persist, notably difficulties in valuing the acquisition and in meshing the acquiring and acquired firm. Thus, Pisano (1990) finds even for biotechnology innovations, firms integrate R&D to mitigate hazards of opportunism. Argyres and Liebeskind (2002) examine the tradeoff between acquisition and integration, incorporating path dependence in their analysis.

A promising research direction here is to connect models of what firms do (which is the bulk of this literature) to the performance outcomes they achieve. Such an approach fits squarely within the NIE paradigm, in which it is accepted that, although there is a selection mechanism, uncertainty, bounded rationality, heterogeneous agents, and path dependence conspire to permit some firms to "get it wrong," yet survive alongside firms that "get it right" (Dosi 1997).

4. How Firms Create New Markets by Commercializing New Products

To this point, we have focused on how firms attempt to create new markets by inventing novel products. As noted earlier, developing a promising concept is one step, creating a market is another step, and deriving profits from the exercise is still another step. Here, we focus on step two: how do prospects become buyers, thereby calling new markets into existence? Following Griliches (1957), we focus on the adoption (i.e. *first-time purchase*) of the innovation. Markets are born when prospects adopt. But markets grow and become established only when adopters make repeat purchases (replacements, upgrades, multiple units, gifts). As a general rule, if a new product is widely adopted, it has sufficient utility that repeat purchases will occur. Therefore, the creation of new markets rests heavily on the diffusion of the innovation, i.e. the spread of first-time purchases among members of a target population.

Typically, for successful innovations, diffusion starts slowly, then accelerates, then tapers off to a saturation level that is less than 100% of all the potential buying units in a population. Such a process produces a capped S-shaped curve

[4] This is an interesting twist on Schumpeter (1943), who feared that large firms would eventually stifle the entrepreneurial spirit necessary to drive successful internal R&D. Schumpeter did not foresee the solution of buying the entrepreneur's firm, in part because today's institution of venture capital to fund entrepreneurs was not well developed in the 1940's.

when cumulative first-time sales are plotted over time. Griliches (1957) pioneered the study of such curves: he examined farmers' adoption of hybrid corn, noting that the same innovation diffused in a different way among different groups of seemingly identical farmers.

Why does one innovation penetrate the market more thoroughly (closer to 100% adoption) than another? Why do some innovations reach their potential more quickly than others? These are central questions. Subsequent to Griliches (1957), a huge literature on diffusion theory has developed in parallel in the fields of psychology, sociology, economics and marketing. Most of it rests on the S curve. Zvi Griliches offered this observation:

> The basic notion was that here was a technical change that was going on, and it was not just happening entirely out of the air, but it was being affected by economics, and to some extent, being created by the economic situation, as well as being affected by it . . . The funny thing is that diffusion, as such, has never taken off on a large scale in economics. It's a major topic for people in marketing, and they do that. But not very much in mainstream economics, partly because of the way, possibly, I formulated the problem—there is a fundamental disequilibrium . . . knowledge matters, and the spread of knowledge matters. It's interesting to model how the knowledge spreads. (Krueger and Taylor (2000, p. 180))

Nerlove (2001) also concludes that Griliches' ideas about diffusion have had their greatest influence outside mainstream economics. In this section, we review briefly the diffusion theory and modeling literatures. We first focus on why some innovations diffuse successfully, a necessary condition for new markets to come into being. Then we discuss the strategic commercialization decisions taken at the time of the introduction of the new product or service, focusing on how these decisions help to create (or foreclose) new markets.

Diffusion Theory and Models

New products are outside a buyer's routines. Radical innovations go further: they are outside a buyer's cognitive space: their attributes are difficult to understand, let alone to value. Therefore, innovations arouse a buyer's sense of risk. If they displace the buyer's current routines (for example, new software replacing software the buyer has mastered), innovations also arouse resistance. And innovations can create suspicion. If I become locked in to this brand, will the supplier subsequently exploit my dependence, say by raising price or by failing to deliver on service promises? Uncertainty, fear of small-numbers bargaining, disruption of routines—this scenario fits comfortably in evolutionary economics and in TCE.

Cognitive and Social Processes of Adoption of Innovations

Diffusion theory has focused on fundamental cognitive and social processes as an explanation of adoption decisions by individual consumers or by organizational

customers (Rogers 1983). Until recently, this process has typically ignored the marketing of the innovation by the firm commercializing the product or service and the competitive forces at play (Gatignon and Robertson, 1989, 1991, Robertson and Gatignon 1986) with the exception of studies of mass communication (Katz 1957) and inter-personal influence through word-of-mouth (Brown and Reingen 1987, Herr, Kardes, and Kim 1991). We shall return to these influences.

The basic adoption process that underlies most diffusion models considers that individual buyers (who are potential users of the new product or service) can receive information about this new product or service from two sources: inside and outside the "social system" (i.e. the set of individuals whom they can observe and with whom they interact). Sources outside the social system include mass media (buyers can be exposed to these without mediation by the influence of other people). Sources within the social system are a function of the number of prior adopters of the innovation (creating network externalities). Diffusion theory designates two categories of adopters. *Innovators* are those who adopt early because they learn about the innovation from sources independent of prior adopters (as these do not exist early on in the product life cycle). Innovators have a profile (see Rogers 1983, Gatignon and Robertson 1985) that suggests Veblen effects are powerful: innovators seek social status by being among the first to own something new, and often pay high prices to do so. Fortunately for the firm, innovators like to be seen with their acquisition. Their display spurs *imitators,* who tend to be more risk averse and/or more bound to their habits. Imitators adopt later than the innovators, after they gather information (proactively or passively) from those buyers who have already experienced the innovation (have already adopted). The innovator-imitator process implies that, rather than making broad efforts to gain acceptance, firms need to target potential innovators (e.g. by mass media) and win them over first, so that the imitation process can get underway and gather momentum. Diffusion models represent this dynamic in an as-if fashion, for both consumers (individuals) and businesses.

Typically, it is in the firm's interest to spur diffusion as much as possible. However, markets are differentiated institutions. Not all of them depend on widespread adoption. Some rest on a very selective approach, in which exclusivity is considered a positive and widespread diffusion is viewed as a negative. Luxury items, such as certain cars, jewelry, and clothing are examples. Their makers search for terms to differentiate them from their widely-diffused mass-market counterparts. For example, "*haute couture,*" "designer clothes," and "ready-to-wear" are terms used to designate three levels of exclusivity in the clothing category, which generates a wave of new products every season. Makers of *haute couture* seek media mention that they design clothes for specific individuals and occasions (a named actress at the Academy Awards ceremony, for example). Their customers don't want to see other people wearing a similar outfit: diffusion is a negative and exclusivity is a positive. In contrast, makers of designer clothes seek somewhat wider diffusion: they advertise that their wares are derived from *haute couture* and are sold only in selected stores. Seeking

maximal diffusion, makers of ready-to-wear advertise that their clothes are readily available and are appropriate for almost anyone on any occasion.

Some Generalizations from Empirical Models

Bass (1969) proposed a robust, generalizable, readily estimable model that integrates both a propensity to innovate (through a coefficient of external influence) and a propensity to imitate (through a coefficient of internal influence). Based on the Bass model, a large number of empirical studies have been conducted over the last thirty years, permitting us to reach generalizable conclusions regarding diffusion research (Mahajan, Muller, and Bass 1993, Mahajan, Muller, and Wind 2000, Sultan, Farley, and Lehmann 1990). Chief among these is that imitation forces are much more powerful than innovation forces. In other words, a firm's efforts amount to little until there is a solid base of visible users: factors such as word of mouth matter more than the inherent innovative tendencies of buyers. Further, as noted by Griliches (1957), there are many ways to draw an S curve: variation in diffusion patterns is considerable, even for the same innovation in different populations. Finally, diffusion models are robust: they provide a good overall representation of a very large range of situations, including both process and product innovations, and organizations as well as individuals, across a broad range of environments.

A major contribution of the marketing field to diffusion modeling concerns the incorporation of marketing activities into diffusion models. Based on these observed generalizations of the patterns of diffusion, it is clear that *what firms do (or fail to do) matters*. The addition of factors controlled by the firm that is marketing the innovation enables management to influence the adoption and diffusion by consumers. This issue is developed in a later discussion of marketing decisions.

International Diffusion

One particularly recent development in this stream of research concerns the role of multi-market marketing, especially the international introduction of new products and services in multiple countries. It is rare for a firm to enter multiple markets simultaneously. Typically, firms follow a sequence, conquering first one market, then another. To some extent, this is explained by resource constraints.

One of the major ways management affects the creation of new markets is in deciding which countries to enter. The question of knowing which countries to select for entry to commercialize a new product or service, and in which order to enter target countries, has received much attention in international business. However, the focus has been in identifying segments of countries sharing similarities. The idea is to find submarkets that make some groups of countries more attractive and less risky to enter than others. This segmentation by clustering of countries is typically based on macro-political, demographic, geographic or economic variables (Sethi 1971) and is usually rather atheoretical.

Gatignon, Eliashberg, and Robertson (1989) brought a new theoretical focus to this issue by comparing countries in terms of their diffusion parameters and searching for explanations of similar parameters. They explain similarity and differences in patterns of diffusion by invoking sociological explanations concerning the cosmopolitanism of the culture in a country, the mobility of its population, and the role played by working women. Helsen, Jedidi, and DeSarbo (1993) develop clusters of countries based on these similarities.

This segmentation, however, ignores the fact that some countries adopt earlier than others. In fact, the decision to enter one country is not independent of knowing if and when entries in other countries will occur. Usually, the innovation is marketed first in the country that is the home of the firm that developed the innovation (the lead country). Then, other countries are attacked with a lag of different durations. Understanding the reasons for these lags is important: see Dekimpe, Parker, and Sarvary (2000), who investigate the reasons for initial sales and for the diffusion speed across a large group of countries.

Another aspect of the multinational diffusion of an innovation concerns cross-country effects, that is the role that diffusion in one country plays in determining diffusion in another one. Putsis et al. (1997) show that it is possible to analyze the leading role of some countries in explaining the speed of diffusion in other countries. For example, they find that within European countries, Germany, France, Italy and Spain demonstrate a high level of influence on the diffusion of several innovations in the other countries. These findings suggest which countries should be entered first, as the (later) diffusion in the lag countries will require smaller investments on the part of the firm. Therefore, this research demonstrates the inter-relationships that exist between countries that lead to the necessity of taking a global management approach to world markets.

In short, the creation of one market is not independent of the creation of another. Decisions taken earlier as to which countries to enter first can have a very substantial influence on how successfully the firm creates a later market. In other words, there is path dependence in the creation of new markets.

Industry Effects

Initially, the diffusion process was viewed as a monolithic centralized process focused on the innovation itself and on innate features of the adopter. A more recent research thrust focuses on how technological innovations diffuse among firms, as opposed to individuals (Robertson and Gatignon (1986). This stream considers characteristics of the *industry in which the innovation occurs* (e.g. overall competitiveness, reputation, marketing intensity), as well as characteristics of the *target industry* (e.g. demand uncertainty, professionalization). Gatignon and Robertson (1989) and Parker and Gatignon (1994) offer empirical evidence that such factors significantly impact the diffusion pattern.

Taking into account features of the industry of the innovator and the adopter follows naturally from evolutionary economics (which presumes that actors are not homogeneous) and from TCE (which stresses differences in a firm's

stock of idiosyncratic assets). This stream of research directly addresses the issue that motivated Griliches (1957): why do seemingly identical farmers react differently to the same innovation? This research stream unpacks the "seemingly identical" aspect of the target population, as well as differences among the brands competing to be the most successful prototype.

Marketing Entry Strategy Effects

Kuester, Gatignon, and Robertson (2000) identify five strategic actions of the firm at the time of entry that affects the speed of diffusion of an innovation: (1) the choice of the market segment(s) targeted, (2) the order of the firm's entry into the market, (3) pre-announcing activities, (4) market-entry commitment and (5) the distribution strategy. We cover these areas below. In addition, the mode of entry into foreign markets has been a favorite subject of research in the international business field and will be reviewed.

Choice of the Market Segment(s) Targeted

It follows from diffusion theory that the innovators (who adopt without expecting or awaiting information from prior adopters) should be the first group of consumers to be targeted. Characteristics of innovators have been studied extensively, and generalizations emerge (reviewed in Gatignon and Robertson 1985). For example, innovators spread information about the innovations more than do others, and tend to be more exposed to, and more receptive to, mass media communications. Innovators have also been shown to tend to be younger, richer, and less price sensitive than late adopters.

Becker (1970) argues that this profile of innovators may not be the same for all products. For innovations that are inconsistent with the norms in place in the social system, marginal individuals (i.e. noncomformists at the margin of their community) can actually have more influence on other prospective adopters. In contrast, usual groups of innovators typically include individuals who are very well socially integrated with the majority in their community.

Order of Entry

That there is an advantage to being the first entrant in what becomes a product category has been demonstrated in a significant number of empirical studies (Bowman and Gatignon 1996, Kalyanaram and Urban 1992, Mascarenhas 1992, Urban et al. 1984). Gielens and Dekimpe (2000) find that order of entry is the most critical factor of those they study in analyzing the entries of retail firms in foreign markets. However, this first-mover advantage is not always maintained, depending on the later entrants and on the marketing decisions of the first entrant, especially its reactions to the subsequent entries (Bowman and Gatignon 1995, Gatignon, Robertson, and Fein 1997, Shankar, Carpenter, and Krishnamurthi 1998).

There are many explanations for the first-mover advantage. One is switching costs: early buyers become locked in, for example, by investments in learning how to use the innovative brand. Other explanations for the first-mover advantage include becoming the reference brand for preferences in the consumers' cognitions, distributional advantage, and cost advantages through economies of scale. Regardless of the source of the advantage, first-mover benefits tend to last beyond the entry period and throughout the diffusion process in terms of market potential (saturation or cumulative penetration) and market share (Kalyanaram and Urban 1992). However, late movers tend to exhibit a faster speed of diffusion than the pioneers, who must face resistance to trial, due to the complexity of innovations as well as the new patterns of behaviors characteristic of discontinuous innovations (Robertson 1971).

Pre-Announcements

The marketing of a product may actually precede its availability in the market. This is certainly the case with the distribution system: distribution channel members face routine requests that they pre-commit to carry products and services that are said to be under development and are promised at a future date. Pre-announcements (vigorous promotion of nonexistent products) has become common, even the prevailing practice in some industries (such as the software industry—vaporware—or the movie industry—the endlessly forthcoming latest film from director X or star Y). Eliashberg and Robertson (1988) discuss two reasons for the practice, one being to gain an advantage with the consumer (who will hopefully wait for the product) and the other as a preemptive move vis-a-vis the competitors (in hopes they will withdraw resources from the market). While the benefits of pre-announcements are clear in theory, empirical evidence of the extent of their effects is limited. In addition, there are also clear risks associated with the firm's potential inability to bring the new product to market on time (or at all). The firms may be suspected of incompetence—or worse yet, opportunism.

Entry Commitment

The commitment of the firm to a new product in a given market is demonstrated by different actions. Commitment is important: it reassures buyers worried about the firm's potential opportunism (sell, then leave) and discourages competition. Three actions to signal commitment are covered below.

Scale Scale is a classical deterrent to entry. Earlier work has concentrated on barriers that form naturally (Bain 1956, Scherer and Ross 1990). The more recent focus has been on decisions that have the express intent to deter entry, especially decisions on manufacturing capacity (Spence 1977, Dixit 1979, Demsetz 1982). Gielens and Dekimpe (2001) provide empirical support for the long-term impact of the scale of entry in the analysis of retail entries into foreign markets.

Product Adaptation This factor concerns the adaptation of the product to the local environment (as opposed to product standardization—the same item in all markets). While standardization creates economies of scale, adaptation exhibits sensitivity to local market needs. The positive impact of adaptation on the long-term sales of an entry is studied by Gielens and Dekimpe (2001). While adaptation may be beneficial (as it raises demand), some standardization may also be necessary. Standardization is particularly appropriate when externalities are involved. In this case, compatibility is a critical factor in the innovation's development of the market. As global externalities become prevalent, the global standardization of products may be inevitable. Path dependence looms here: the standard is likely to be decided in a country quite different from the one entered—and may be rather poorly suited to countries entered after the standard has been set.

Price Achieving a high level of market penetration through low prices at initial stages of the introduction of a product serves to achieve rapid diffusion, as buyers outside the innovator segment are price sensitive. Further, low initial prices show both consumers and competitors that the firm is committed to the market. The opposite strategy (initial high prices, or skimming) leads to slow, shallow diffusion and implies the firm may readily leave the market as prices drop.

Promotion A penetration strategy is also obtained through intensive advertising and communication expenditures. These fuel the rate of diffusion and enlarge the market, in part by converting early prospects (innovators) into adopters. Heavy promotion may also be interpreted as a sign of the firm's commitment to the innovation, and hence may function like a hostage: prospects may reason that a firm would not knowingly invest heavily in a dubious innovation. In this respect, promotion reinforces a firm's reputation, which in turn reassures potential adopters about the (unknown) quality of the innovation (Kirmani and Rao 2000).

Sales Force The firm's sales force is a critical factor in gaining acceptance among business buyers. In pharmaceuticals, Aitken et al. (2000) argue that the key to obtaining good licenses to new products (a crucial factor in this industry) is to have a strong sales force. McGrath (1997) notes that high technology firms field extremely expensive sales forces. The logic is that salespeople build relationships with prospects, and redeploy these relationships over successive innovations to reduce a prospect's uncertainty over the latest generation of product. Given the high rate of change in these industries, the salesforce's ability to speed up adoption justifies its high cost.

Here, too, transaction costs arise. Salespeople frequently resist selling new products, particularly innovative ones. Overcoming this resistance is not easily done, and requires resources and active management intervention (Anderson and Robertson 1995). Being vertically integrated forward into sales is a major

advantage in so doing. Anderson and Schmittlein (1984) compare producers that have their own sales forces to those that contract with third-party sales organizations (a classic choice between market and hierarchy).[5] As per TCE predictions, in-house sales forces possessed significantly higher levels of transaction-specific assets, in more volatile environments, and operated under conditions of greater performance ambiguity. These are precisely the circumstances surrounding the introduction of new products.

A distinguishing feature of personal selling is that the salespeople are better informed about their customers than are their superiors. This information impactedness underlies why independent insurance agents thrive, in the face of myriad institutional and transaction cost factors that suggest they should not (Regan and Tennyson 1996). Accordingly, a major role of salespeople is not to sell anything. Instead, they act as market researchers and as partners to marketers in new product development. Such non-sales behavior is essential for an innovation, which invariably has difficulty finding its markets/applications.

Distribution

The firm's *channels of distribution* have substantial influence on how well the innovation connects with buyers. Resellers and agents cultivate a reputation among their clientele and put this reputation behind what they sell. Producers effectively rent the selling firm's reputation, and find it particularly valuable to overcome resistance to new products.

As noted earlier, producers may seek to build close, committed relationships with resellers and agents, and exchange credible commitments to do so. One object of such relational governance is to secure quality of effort: producers want their channels to present the innovation a certain way to a targeted segment. Selective distribution is important to this effort. Fein and Anderson (1996) show that resellers and producers employ selectivity in an elaborate exchange of hostages: producers concede market exclusivity in return for category exclusivity (non-representation of competing brands), as well as other safeguards. One reason selective distribution is effective for selling innovations, particularly in final goods markets, is that representation by the "right" channels sends a quality signal to consumers (Wathne and Heide (2000).

An issue resellers and agents face is how to cope with opportunism by suppliers. For example, suppliers have an incentive to be opportunistic by telling

[5] The difference between these two institutions—employee sales force and third-party sales force—is not always understood. In particular, independent sales forces are sometimes confused with franchisees. They are also sometimes assimilated to employee salespeople who are paid on commission. This is incorrect. The third party organization is paid on commission, but it is a company, and therefore makes its own decisions how to pay its salespeople. Frequently, the organization pays its salespeople on salary, not commission. An independent sales force is akin to an independent advertising agency, law firm, accounting firm, or consulting firm. For each function—selling, advertising, legal advice, accounting, consulting—the firm's choice is whether to perform the function with its own employees or contract with another organization. How the individual's compensation is determined is a separate issue.

resellers that all their new products are highly saleable, including those they know to be otherwise. Channel members need to safeguard: one way to do so is to screen out such false information. Here, Chu (1992) offers a novel interpretation of what has become an institution in grocery retailing. Slotting allowances are fixed fees producers pay to "rent" shelf space to introduce new products, and are in addition to margins. Resellers can use them to oblige producers to signal which new products they truly consider to be most likely to sell. Slotting fees can be viewed as a means of negating supplier opportunism (self interest seeking with guile) concerning its new products. This is particularly important in fast moving consumer goods, in which literally thousands of supposedly "new" products come out each year.

More generally, channel members need to safeguard against supplier opportunism whenever they sell new products. By the time channel members discover the product's shortcomings, they have already invested. Further, the producer may fail to live up to its promises, including the promise of a fair return to commercialization efforts. Not surprisingly, Heide and John (1988) show that agents who safeguard their idiosyncratic investments are more profitable than those who do not.

Modes of Entry

How a firm enters a market impacts how well its new products perform there. *Modes of entry* are institutional arrangements (e.g. minority joint ventures) that firms use to govern their activities when launching operations in foreign markets. There are many entry modes: these arrangements can be understood by arraying them along Williamson's (1996) market-to-hierarchy continuum. Gatignon and Anderson (1988) study over a thousand entry mode decisions and show that they tend to follow transaction cost reasoning about the tradeoff between the benefits of control and the costs of risk taking. In particular, when firms invest heavily in R&D or in advertising (and for innovations, they tend to do both), they safeguard these investments by such high-control entry modes as owning their entry vehicle outright or holding enough equity to dominate their partners.

In short, the diffusion of an innovation rests heavily on the governance structure the firm uses to enter a new market, and on the marketing strategy the firm employs. These are decisions made by managers operating under bounded rationality in uncertain markets. The identity of the firm matters because new products are sufficiently unique that they cannot be readily compared to existing products. Traditional economic analysis is difficult to apply in its entirety to these situations.

5. Reprise

How do firms create new markets? We have learned a good deal by positive study of what firms do and how well it works, especially in the marketplaces that arise

in response to market offerings. These patterns fit well in the paradigm of New Institutional Economics, particularly with TCE and evolutionary reasoning. The patterns do not fit an optimizing logic, nor an equilibrium logic, nor a logic of full rationality. Instead, they fit a comparative logic, in which only concrete alternatives are considered by boundedly rational actors, and equilibrium may never be achieved.

The processes uncovered in this research reflect several critical themes. Firms strive to follow an economic logic, and exercise their capacity for conscious foresight to the fullest. But the nature of innovation strains this capacity severely. Bounded rationality, information impactedness, and the tacit nature of knowledge shape what firms do and how well their practices work. Forecasting abilities are highly limited. Calculations are problematic, valuation is error-prone, and risks and uncertainty are irreducibly high. Opportunities for self-interest seeking with guile abound: the institutional environment cannot offer enough protection of property rights to make market contracting the best approach in many circumstances. Thus, many patterns of business practice are motivated heavily by the need to erect governance mechanisms that safeguard innovation activities and their outputs against opportunism. Opportunism cuts multiple ways. Suppliers fear being shortchanged by owners of co-specialized assets. Business partners fear being drawn into small-numbers bargaining, then exploited by their suppliers. Prospective buyers fear being misled by firms that oversell their innovations or exit the market, leaving the buyer with an obsolete or unsupported product. Short of outright vertical integration, hostages appear to be effective safeguards. Mechanisms for creating markets merit a broader analysis than any single perspective provides: in particular, a transaction cost approach needs to be informed by considerations of path dependency. Research directions here are offered by Argyres and Liebeskind (1999) and Williamson (1999).

For the most part, contracts are an unsatisfactory way to safeguard, leading to high levels of vertical integration (or failing that, posting of mutual credible commitments). *Ex post* adaptation to unfolding events is the order of the day, aided by the low-powered nature of incentives in firms: because employees are *not* rewarded as entrepreneurs, it is easier to coordinate the massive efforts needed to develop and commercialize innovations. The identity of the players matters. In particular, the internal structure, culture, and routines of organizations are critical. Path dependence also plays a substantial role because firms cannot easily acquire what they have failed to build painstakingly over time.

Patterns on the buyer side reflect that prospects are not perfectly informed about how well an innovation meets their needs. Indeed, they may not even sense their needs unless the innovation emerges as a solution. Fearful of making an error and unable to resolve their uncertainty, most prospects wait to adopt the innovation until they see others do so or know the product has been successful in another country. Hence, the firm must find, target, and convince a small set of innovative souls in a lead country. This requires intensive marketing effort and opens the possibility that a superb innovation will not create a market because the firm mishandled its introduction. Conversely, a relatively mediocre innovation

may be skillfully commercialized, create a market, and even become a standard because the firm astutely priced, promoted, distributed, and targeted the innovation. Further, the diffusion of innovations exhibits path dependence. How the S curve unfolds depends on the firm's order of entry into a given market, order of entry into serial markets, and early success (or lack thereof) with the innovators.

A key theme of this work is that organizations matter, not only in the development of an innovation but in the creation of new markets. Buyers are not homogeneous in their needs. They do not simply emerge, because they do not easily appreciate the utility an innovation offers to them. How a firm takes its innovation to market has a great deal to do with whether markets come into existence and how those markets function. These patterns merit further study. The paradigm of NIE is a fruitful way to frame them.

REFERENCES

Afuah, Allan. 2001. "Dynamic Boundaries of the Firm: Are Firms Better off Being Vertically Integrated in the Face of a Technological Change?" *Academy of Management Journal* 44(6): 1211–128.

Aitken, Murray, Sunitha Baskaran, Eric Lamarre, Michael Silber, and Susan Walters. 2000. "A License to Cure". *McKinsey Quarterly* 10(1): 80–89.

Anderson, Erin and David C. Schmittlein. 1984. "Integration of the Sales Force : An Empirical Examination". *Rand Journal of Economics* 15(3): 385–395.

Anderson, Erin and Thomas S. Robertson. 1995. "Inducing Multi-Line Salespeople to Adopt House Brands". *Journal of Marketing* 59: 16–31.

Anderson, Erin and Barton Weitz. 1992. "The Use of Pledges to Build and Sustain Commitment in Distribution Channels". *Journal of Marketing Research* 24: 18–34.

Argyres, Nicholas S. and Julia Porter Liebeskind. 2002. "Governance Inseparability and the Evolution of the US Biotechnology Industry". *Journal of Economic Behavior and Organization* 47(2): 197–219.

Argyres, Nicholas S. and Julia Porter Liebeskind. 1999. "Contractual Commitments, Bargaining Power, and Governance Inspearability: Incorporating History Into Transaction Cost Theory". *Academy of Marketing Review* 24(1): 49–63.

Bain, Joseph. 1956. *Barriers to Competition*. Cambridge: MA: Harvard University Press.

Bass, Frank M. 1969. "A New Product Growth for Model Consumer Durables". *Management Science* 15(5): 215–227.

Bayus, Barry L., Gary Erickson, and Robert Jacobson. 2003. "The Financial Rewards of New Product Introductions in the Personal Computer Industry". *Management Science* 49(2): 197–210.

Becker, Marshall H. 1970. "Sociometric Location and Innovativeness: Reformulation and Extension of the Diffusion Model". *American Sociological Review* April: 267–282.

Bensaou, Ben. M. and Erin Anderson. 1999. "Buyer-Supplier Relations in Industrial Markets: When Do Buyers Enter the Trap of Making Idiosyncratic Investments?" *Organization Science* 10: 460–481.

Bowman, Douglas and Hubert Gatignon. 1995. "Determinants of Competitor Response Time to a New Product Introduction". *Journal of Marketing Research* 32(1): 42.

Bowman, Douglas and Hubert Gatignon. 1996. "Order of Entry as a Moderator of the Effect of the Marketing Mix on Market Share". *Marketing Science* 15(3): 222–242.

Bradach, Jeffrey L. 1997. "Using the Plural Form in the Management of Restaurant Chains". *Administrative Science Quarterly* 42(2): 276–303.

Breshnahan, Timothy F. and Robert J. Gordon. 1996. *The Economics of New Goods*. Chicago, IL: University of Chicago Press.
Brown, Jacqueline and Peter H. Reingen. 1987. "Social Ties and Word-of-Mouth Referral Behavior". *Journal of Consumer Research* 14: 350–362.
Brown, Shona L. and Kathleen M. Eisenhardt. 1995. "Product Development: Past Research, Present Findings, and Future Directions". *Academy of Management Review* 20(2) 343–378.
Capon, Noel, John U. Farley, and Scott Hoenig. 1990. "Determinants of Financial Performance: A Meta-Analysis". *Management Science* 36(10): 1143–1159.
Capron, Laurence. 1999. "The Long Term Performance of Horizontal Acquisitions". *Strategic Management Journal* 20(11): 987–1018.
Cerf, Christopher and Victor Navasky. 1984. *The Experts Speak*. New York: Pantheon Books.
Chandler, Alfred D. 1977. *The Visible Hand: The Managerial Revolution in American Business*. Cambridge, MA: Belknap Press.
Chu, Wujin. 1992. "Demand Signalling and Screening in Channels of Distribution". *Marketing Science* 11(3): 327–347.
Coughlan, Anne T., Erin Anderson, Louis W. Stern, and Adel I. El-Ansary. 2001. *Marketing Channels*, 6th Edn. Englewood Cliffs, NJ: Prentice-Hall.
Dahl, Darren W., Amitiva Chattopadhyay, and Gerald J. Gorn. 1999. "The Use of Visual Mental Imagery in New Product Design". *Journal of Marketing rq* 36(1): 18–28.
Darr, Eric D., Linda Argote, and Dennis Epple. 1995. "The Acquisition, Transfer, and Depreciation of Knowledge in Service Organizations: Productivity in Franchises". *Management Science* 41(11): 1750–1762.
Dekimpe, Marnik G, Philip M Parker, and Miklos Sarvary. 2000. "Global Diffusion of Technological Innovations: A Coupled-Hazard Approach". *Journal of Marketing Research* 37(1): 47–59.
Demsetz, Harold. 1982. "Barriers to Entry". *American Economic Review* 72(1): 47–57.
Dixit, Avinash 1979. "A Model of Duopoly Suggesting a Theory of Entry Barriers". *Bell Journal of Economics* 10(1): 20–32.
Dosi, Giovanni. 1997. "Opportunities, Incentives and the Collective Patterns of Technological Change". *The Economic Journal* 107(3): 1530–1547.
Dutta, Shantanu and George John. 1995. "Combining Lab Experiments and Industry Data in Transaction Cost Analysis: The Case of Competition as a Safeguard". *Journal of Law, Economics, and Organization* 11: 87–111.
Dyer, Jeffrey H. 1995. "Specialized Supplier Networks as a Source of Competitive Advantage: Evidence from the Auto Industry". *Strategic Management Journal* 11(3): 42–55.
Eliashberg, Jehoshua and Thomas S. Robertson. 1988. "New Product Preannouncing Behavior: A Market Signaling Study". *Journal of Marketing Research* 25(3): 282–292.
Fein, Adam J. and Erin Anderson. 1997. "Patterns of Credible Commitments: Territory and Category Selectivity in Industrial Distribution Channels". *Journal of Marketing* 61: 19–34.
Gatignon, Hubert and Erin Anderson. 1988. "The Multinational Corporation's Degree of Control over Foreign Subsidiaries: An Empirical Test of a Transaction Cost Explanation". *Journal of Law, Economics, and Organization* 4(2): 305–336.
Gatignon, Hubert, Jehoshua Eliashberg, and Thomas S. Robertson. 1989. "Modeling Multinational Diffusion Patterns: An Efficient Methodology". *Marketing Science* 8(3): 231.
Gatignon, Hubert and Thomas S. Robertson. 1985. "A Propositional Inventory for New Diffusion Research". *Journal of Consumer Research* 11(4): 859–867.
Gatignon, Hubert and Thomas S. Robertson. 1989. "Technology Diffusion: An Empirical Test of Competitive Effects". *Journal of Marketing* 53(1): 35–49.
Gatignon, Hubert and Thomas S. Robertson. 1991. "Innovative Decision Processes" in Harold Kassarjian and Thomas S. Robertson (eds.), *Handbook of Consumer Behavior Theory and Research*. Englewood Cliffs, NJ: Prentice-Hall, pp. 316–348.
Gatignon, Hubert, Thomas S Robertson, and Adam J. Fein. 1997. "Incumbent Defense Strategies Against New Product Entry". *International Journal of Research in Marketing* 14(2): 163–176.

Gatignon, Hubert and Jean-Marc Xuereb. 1997. "Strategic Orientation of the Firm and New Product Performance". *Journal of Marketing Research* 34(1): 77–90.
Gielens, Katrijn and Marnik G. Dekimpe. 2001. "Do International Entry Decisions of Retail Chains Matter in the Long Run?" *International Journal of Research in Marketing* 18(3): 235–259.
Griliches, Zvi. 1957. "Hybrid Corn: An Exploration in the Economics of Technical Change". *Econometrica* 25(4): 501–522.
Griliches, Zvi, Bronwyn Hall, and Ariel Pakes. 1991. "R&D, Patents, and Market Value Revisited: Is There A Second (Technological Opportunity) Factor?" *Economic Innovation and New Technology* 1(1): 183–201.
Gulati, Ranjay and Harbir Singh. 1998. "The Architecture of Cooperation: Managing Coordination Costs and Appropriation Concerns in Strategic Alliances". *Administrative Science Quarterly* 43(4): 781–814.
Haspeslagh, Philippe and David Jemison. 1991. *Managing Acquisitions*. New York: Free Press.
Heide, Jan B. and George John. 1988. "The Role of Dependence Balancing in Safeguarding Transaction-Specific Assets in Conventional Channels". *Journal of Marketing* 52(1): 20–35.
Helsen, Kristiaan, Kamel Jedidi, and Wayne S. DeSarbo. 1993. "A New Approach to Country Segmentation Utilizing Multinational Diffusion Patterns". *Journal of Marketing* 57: 60–71.
Henard, David H. and David M Szymanski. 2001. "Why Some New Products Are More Successful Than Others". *Journal of Marketing Research* 38(3): 362–375.
Herr, Paul M., Frank R. Kardes, and John Kim. 1991. "Effects of Word-of-Mouth and Product-Attribute Information on Persuasion: An Accessibility-Diagnosticity Perspective". *Journal of Consumer Research* 17: 454–462.
Jap, Sandy D. 1999. "'Pie-Expansion' Efforts: Collaboration Processes in Buyer-Supplier Relationships". *Journal of Marketing Research* 36: 461–475.
Kalyanaram, Gurumurthy and Glen L. Urban. 1992. "Dynamic Effects of the Order of Entry on Market Share, Trial Penetration, and Repeat Purchases for Frequently Purchased Consumer Goods". *Marketing Science* 11: 235–250.
Katz, Elihu 1957. "The Two-Step Flow of Communication: An Up-To-Date Report on an Hypothesis". *Public Opinion Quarterly* 21: 61–78.
Kaul, Anil and Vithala R. Rao. 1995. "Research for Product Positioning and Design Decisions: An Integrative Review". *International Journal of Research in Marketing* 12(4): 293–320.
Kirmani, Amna and Akshay R. Rao. 2000. "No Pain, No Gain: A Critical Review of the Literature on Signaling Unobservable Quality". *Journal of Marketing* 64: 66–79.
Kogut, Bruce and Nalin Kulatilaka. 2001. "Capabilities as Real Options". *Organization Science* 12(6): 744–758.
Krishnan, V. and Karl T. Ulrich. 2001. "Product Development Decisions: A Review of the Literature". *Management Science* 47(1): 1–21.
Krueger, Alan B. and Timothy Taylor. 2000. "An Interview With Zvi Griliches". *Journal of Economic Perspectives* 14(2): 171–189.
Kuester, Sabine, Hubert Gatignon, and Thomas S. Robertson. 2000. "Firm Strategy and Speed of Diffusion". in Vijay Mahajan, Eitan Muller and Yoram Wind (eds.), *New-Product Diffusion Models*. Boston, MA: Kluwer Academic Publishers.
Leonard-Barton, Dorothy. 1992. "Core Capabilities and Core Rigidities: A Paradox in Managing New Products". *Strategic Management Journal* 13(1): 11–125.
Mahajan, Vijay, Eitan Muller, and Frank Bass. 1993. "New Product Diffusion Models," in Jehoshua Eliashberg and Gary L. Lilien (eds.), *Handbooks in Operations Research and Management Science*. Amsterdam: Elsevier Science, pp. 349–408.
Mahajan, Vijay, Eitan Muller, and Yoram Wind (eds.). 2000. *New-Product Diffusion Models*. Boston, MA: Kluwer Academic Publishers.
Mascarenhas, Briance 1992. "Order of Entry and Performance in International Markets". *Strategic Management Journal* 13: 499–510.
McGrath, Rita Gunther. 1997. "A Real Options Logic for Initiating Technology Positioning Investments". *Academy of Management Review* 22(4): 974–996.

Moorman, Christine. 1995. "Organizational Market Information Processes: Cultural Antecedents and New Product Outcomes". *Journal of Marketing Research* 32(3): 318–335.

Moorman, Christine and Anne S. Miner. 1997. "The Impact of Organizational Memory on New Product Performance and Creativity". *Journal of Marketing Research* 34(1): 91–106.

Nayak, P. Ranganath and John M. Ketteringham. 1986. *Breakthroughs!* New York: Rawson Associates.

Nelson, Richard R. 1995. "Recent Evolutionary Theorizing About Economic Change". *Journal of Economic Literature* 32: 48–90.

Nerlove, Marc. 2001. "Zvi Griliches, 1930–1999: A Critical Appreciation". *The Economic Journal* 111(3): F422-F448.

Osborn, Richard N. and John Hageboorn. 1997. "The Institutionalization and Evolutionary Dynamics of Interorganizational Alliances and Networks". *Academy of Management Journal* 40(2): 261–278.

Oxley, Joanne E. 1999. "Institutional Environment and the Mechanisms of Governance: the Impact of Intellectual Property Protection on the Structure of Inter-Firm Alliances". *Journal of Economic Behavior and Organization* 38: 283–309.

Parker, Philip and Hubert Gatignon. 1994. "Specifying Competitive Effects in Diffusion Models: An Empirical Analysis". *International Journal of Research in Marketing* 11(1): 17–23.

Pawakapan, Niti. 2000. "Trade and Traders: Local Becomes National". *Journal of Southeast Asian Studies* 31(2): 374–389.

Pisano, Gary P. 1990. "The R&D Boundaries of the Firm: An Empirical Analysis". *Administrative Science Quarterly* 35(3): 153–176.

Putsis, William P., Sridhar Balasubramanian, Edward H. Kaplan, and Subrata K. Sen. 1997. "Mixing Behavior in Cross-Country Diffusion". *Marketing Science* 16(4): 354–369.

Regan, Laureen and Sharon Tennyson. 1996. "Agent Discretion and the Choice of Insurance Marketing Systems". *Journal of Law and Economics* 39: 637–666.

Robertson, Thomas S. 1971. *Innovative Behavior and Communication*. New York: The Free Press.

Robertson, Thomas S. and Hubert Gatignon. 1986. "Competitive Effects on Technology Diffusion". *Journal of Marketing* 50(3): 1.

Robertson, Thomas S and Hubert Gatignon. 1998. "Technology Development Mode: A Transaction Cost Conceptualization". *Strategic Management Journal* 19(6): 515–531.

Rogers, Everett M. 1983. *Diffusion of Innovations*: New York: The Free Press.

Sethi, S. Prakash. 1971. "Comparative Cluster Analysis for World Markets". *Journal of Marketing Research* 8(3): 348–354.

Sako, Mari and Susan Helper. 1998. "Determinants of Trust in Supplier Relations: Evidence From the Automotive Industry in Japan and the United States". *Journal of Economic Behavior and Organization* 34(3): 387–417.

Scherer, F. M. and David Ross. 1990. *Industrial Market Structure and Economic Performance*, 3rd edn. Dallas: TX: Houghton Mifflin.

Schmookler, Jacob. 1966. *Invention and Economic Growth*. Cambridge, MA: Harvard University Press.

Schumpeter, Joseph A. 1943. *Capitalism, Socialism, and Democracy*. London: George Allen & Unwin.

Shankar, Venkatesh, Gregory S. Carpenter, and Lakshman Krishnamurthi. 1998. "Late Mover Advantage: How Innovative Late Entrants Outsell Pioneers". *Journal of Marketing Research* 35(1): 54–70.

Spence, A. Michael 1977. "Entry, Capacity, Investment and Oligopolistic Pricing". *Bell Journal of Economics* 8(2): 534–544.

Spulber, Daniel F. 1999. *Market Microstructure: Intermediaries and the Theory of the Firm*. Cambridge: Cambridge University Press.

Sultan, Fareena, John U. Farley, and Donald R. Lehmann. 1990. "A Meta-Analysis of Applications of Diffusion Models". *Journal of Marketing Research* 27(1): 70–77.

Tapon, Francis. 1989. "A Transaction Costs Analysis of Innovations in the Organization of Pharmaceutical R & D". *Journal of Economic Behavior & Organization Oct* 12(2): 197–213.

Teece, David. 1996. "Firm Organization, Industrial Structure, and Technological Innovation". *Journal of Economic Behavior and Organization* 31: 193–224.

Teece, David J. 1992. "Competition, Cooperation, and Innovation". *Journal of Economic Behavior and Organization* 18: 1–25.

Terpstra, Vern and Chwo-Ming J. Yu. "Piggybacking: A Quick Road to Internatlisation1990". *International Marketing Review* 7(4): 52–63.

Urban, Glen L., Theresa Carter, Steven Gaskin, and Zofia Mucha. 1984. "Market Share Rewards to Pioneering Brands: An Empirical Analysis and Strategic Implications". *Management Science* 32(6): 645–659.

Urban, Glen L. and Eric Von Hippel. 1988. "Lead User Analyses for the Development of New Industrial Products". *Management Science* 34(5): 569–582.

Van den Bulte, Christophe and Rudy K. Moenaert. 1998. "The Effects of R&D Team Co-location on Communication Patterns among R&D, Marketing, and Manufacturing". *Management Science* 44(11): S1–S18.

Wathne, Kenneth H. and Jan B. Heide. 2000. "Opportunism in Interfirm Relationships: Forms, Outcomes, and Solutions". *Journal of Marketing* 64(4): 36–51.

Williamson, Oliver E. 1979, "Assessing Vertical Market Restrictions". *University of Pennsylvania Law Review* 127: 953–993.

Williamson, Oliver E. 1996. *The Mechanisms of Governance*. New York: Oxford University Press.

Williamson, Oliver E. 1999. "Strategy Research: Governance and Competence Perspectives". *Strategic Management Journal* 20(3): 1087–1108.