When Do First Entrants Become First Survivors?

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Despite extensive research concerning the challenges that early entrants face when they enter new markets, the term “first mover advantage” has taken hold in many business classrooms and executive offices. However, the belief in a wide-spread “first mover advantage” largely rests on a severe survival bias. Indeed, the perceived “first mover advantage” is primarily a “first survivor advantage”. This essays seeks lay to rest the idea of a dominant first mover advantage while, in a more positive vein, highlighting conditions in which early entrants do gain sustainable first survivor advantages.

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Introduction

Despite research concerning the challenges that early entrants face when they enter new markets, the term “first mover advantage” has taken hold in many business classrooms and executive offices. The conventional classroom wisdom is that firms that are among the first to recognize an asymmetry in a market and, in turn, possess or have quick access to resources required to tackle that new opportunity commonly reap substantial advantage in long term market share, profits, and other superior performance. Fairchild, for instance, gained long-term advantages from its early success with integrated circuits. Similarly, Medtronic benefitted from its early entry to the implantable cardiac pacing market, as did Kresge with early entry to discount retail, Coca-Cola by being among the first in the soft drinks market, and Kimberly-Clark in the facial tissue market. However, the belief in a wide-spread “first mover advantage” largely rests on a severe survival bias. Indeed, several studies demonstrate that pioneers commonly have high failure rates (e.g., Banbury and Mitchell, 1995; Golder and Tellis, 1993).

Substantial research highlights the challenges that early entrants commonly face (e.g., Teece, 1986; Lieberman and Montgomery, 1988; Lanzolla and Suarez, 2005). In practice, one of the most frequent outcomes is first to market, first to fail (Robinson and Min, 2002). First-movers, in practice, often quickly disappear or linger on as commercial after-thoughts after misjudging technical characteristics, market segments, pricing strategies, and other key elements of the business models needed for launch strategy. Once one examines the early history of most
industries, examples of early failures are legion: whether EMI and DISCO in computed tomography (CT), WinPlay3 in MP3, Motorola in Android-based SmartPhones, the Apple Newton in PDA, Ferranti and Lyon in mainframe computing, Kaypro in PCs, CompuServe in email, CompuServe and The Source in on-line auctions, the Duryea Motor Wagon Company in automobiles, Robinsons in disposable diapers, Atari in gaming, Book Stacks Unlimited in online book sales, and many other pioneers in many other industries. The frequency of such examples and evidence from related research suggests that early market success is often fleeting, at best.

Quite simply, the firms that we discuss in our classrooms as having reaped “first mover advantages” are often far from being the first movers; instead, long-term market leaders are more likely to be later entrants, while the failed attempts to launch what became successful markets have disappeared from memory, although the failures commonly laid the groundwork for success by subsequent entrants. The visible firms with sustained advantages were often the “first survivors”: the first to find a successful match of design, price, market segment, and other key elements of a business model (Shepherd, 1999). That is, the perceived “first mover advantage” is actually a “first survivor advantage”.

We have two primary goals for the essay. First, we hope to help lay to rest the idea of a dominant first mover advantage, a belief that persists in the face of substantial contrary evidence and research showing that early entrants commonly fail. Second, in a more positive vein, we seek to highlight conditions in which early entrants actually do survive and gain sustainable advantages. We focus on core and complementary resources held by early entrants and their potential competitors, together with the conditions under which early entrants seek access to complementary resources. We illustrate the argument with examples that we believe provide the basis for ongoing research.

We start by defining four concepts: first movers, core resources, complementary resources, and early survivors. By first movers or, equivalently, early entrants, we mean firms that are among the earliest to introduce goods and services that create a new market or major subfield within a market (Teece, 1986; Lieberman and Montgomery, 1988; Mitchell, 1989). The notion of “among the earliest” will vary by context, but typically means within the first one to three years of activity in the new market and/or among the first two to four firms to enter (though there is substantial variation around these rough boundaries). Core resources are the primary technical skills that a firm requires to design and create a new good or service (Rothaermel, 2001). Complementary resources are the supporting skills and investment that a firm requires to bring a new product to market and, in turn, support the necessary commercial activity; examples of complementary resources include production facilities, distribution systems, sales and service systems, organizational skills, and the ability to raise financial resources (Teece, 1986). A business model is a combination of complementary resources that supports the commercialization of a core product.

Finally, by early survivors, we mean cases in which the earliest firms that introduce a product or service that turns out to be viable gain sustained advantages in profitable market share for a substantial period of time. At the minimum, an early survivor advantage provides sufficient time along an initial product-market trajectory for the entrant to earn substantial economic rents from the original success. More stringently, a stronger early survivor advantage will help a firm respond successfully to challenges from firms that observe the economic rents and attempt to establish new product-market combinations, involving new mixes of business models that compete with goods that follow the original trajectory.

**Background: Why do first movers often fail?**

Early entrants require the ability to recognize an opportunity before other firms and quickly bring resources to bear in seizing the opportunity. Most often, this ability includes insight about product and/or market innovations (Robinson et al., 1992) together with access to the initial set of core...
technical resources that firms need to create early products. Sometimes, the pioneer is a start up venture with a founder who possesses relevant technical skills, such as Charles Stack who used his knowledge and expertise in software design and programming to develop the first online retailer, Book Stacks Unlimited. Other times, the pioneer is a diversifying entrant that possesses the core resources within its existing business activities, such as the electronic technology that EMI used as the basis for its innovative computed tomography products in the 1970s, the sonar skills that Honeywell used for its entry into medical ultrasonic imaging in the 1950s, and the electronics skills that Research in Motion built on to introduce the Blackberry SmartPhone to the business market in 1998.

Despite their insights, pioneers face three major problems. First, early entry is largely an experiment to determine what product features buyers might value, together with what prices, distribution methods, service systems, and other aspects of a business model will be necessary to complement the core product (Collis and Montgomery, 1995). This evolutionary process is highly uncertain (Abernathy and Utterback, 1978; Anderson and Tushman, 1990). By the nature of experimentation in the face of uncertainty, many of the efforts will struggle (Tellis and Golder, 2006).

No matter how much market and technical analysis a firm undertakes before introducing a new product, much of the learning about what design features buyers want, how much they are willing to pay, and what type of support they will require will happen only after entry. Many initial efforts fail even if they point the way to viable business models. Apple pioneered the personal digital assistant in 1993, for instance, but the Newton achieved only limited success while providing information that Palm used to enter with its PDA in 1996. Book Stacks Unlimited, introduced in 1992, was overpowered in 1994 only a few months after Amazon.com began operations.

The initial technical resources typically are only the beginning of the full set of core resources that the firm will need to refine the original idea for the new product (Lieberman and Montgomery, 1998). Hence, even if the experiment appears to be succeeding, the pioneer will rapidly face competition from firms that may already have relevant core resources or are adding them quickly. CompuServe’s early experimentation with email and on-line communities, as well as the Onsale.com’s pioneering in on-line auctions are examples. While some pioneers can adapt in the face of the initial failures, many lack resources needed to respond or respond more slowly than later entrants that can observe and learn from the initial attempts.

Second, in many industries, it is difficult to create sustainable barriers to entry (Makadok, 1998). Traditionally, much of the notion of first mover advantage rested on the idea that pioneers could obtain patents, copyrights, or some other form of formal intellectual property (IP) that would bar imitation of successful experiments or protect IP informally via secrecy or organizational complexity (Huff and Robinson, 1994; Kerin et al., 1992). However, both formal and informal means of IP protection have always been uncertain, at best (Teece, 2003). Moreover, barriers to knowledge diffusion have declined in many industries as centers of commercial strength and communications pathways have grown throughout the world (Agarwal and Gort, 2001). The mixed outcomes in different countries of the current patent fights involving Apple, Samsung, Google, and others in the SmartPhone and tablet markets, for instance, limit the likelihood that IP barriers will protect innovators in that industry. Hence, if anything, early mover advantages are becoming increasingly difficult to sustain.

Third, early entrants often lack many of the complementary resources that they will require for the full business model (Teece, 1986). In turn, it is often easier and faster for competitors to replicate and extend the core technical resources, whether by copying or by finding alternative routes to the same end, than it is for entrants to create a supporting business model (Lieberman and Montgomery, 1998). Complementary resources commonly entail extensive involvement with customers and other stakeholders, typically involving substantial tacit knowledge and organizational complexity, which in turn makes them slow and difficult to develop (Teece et al., 1997).

In the face of these difficulties, perhaps the more intriguing question is why some early entrants actually live to gain sustainable advantages.
**Why do some first movers become early survivors?**

The traditional argument that firms can protect their resources through some combination of formal and informal IP mechanisms does sometimes arise. Such strong IP regimes provide greater opportunities for sustainable advantages for early entrants. Pilkington Glass, for instance, benefitted from strong patent protection after pioneering float glass during the 1950s. As we noted above, however, IP protection is imperfect: legal protection of formal IP is often highly uncertain, while competitors commonly find ways to discover designs and techniques that entrants attempt to keep secret or embed within their organization. Indeed, Pilkington eventually faced strong competition from companies such as Guardian that were able to bypass the British firm’s patents.

Even in sectors with particularly strong patent protection, such as the pharmaceutical industry, although some pioneers to new therapeutic classes maintain leading positions throughout the life of the patent and even beyond, later entrants often overtake pioneers by developing similar products and providing more effective support to the core drug. In the gastro-intestinal drug market, for instance, Glaxo’s Zantac overtook SmithKlineFrench’s pioneering H-2 blocker Tagamet during the 1970s and 1980s, when Glaxo provided more effective marketing and regulatory support. Similarly, Pfizer’s macrolides antibiotic Zithromax overtook Abbott’s early leader Biaxin, again when Pfizer provided more effective messaging together with a “blister pack” innovation that facilitated compliance.

More generally, the answer to why some first movers become early survivors depends on a duality involving the pioneer and its potential competitors: the degree to which the early entrant possesses core and complementary resources needed for the new market and, in parallel, whether potential entrants possess the core and complementary resources. Prior work has addressed the premise of this duality (e.g., Teece, 1986); here we examine multiple combinations of entrant and competitor resource profiles.

Our argument rests on a key assumption about the early period of a new market. As we discussed above, we assume that there typically will be a period of experimentation, in which some of the early products, services, and business models will need substantial refinement. That is, we expect few cases in which the earliest entrants “get it all right”; certainly, such cases of immediate fit with the market do exist, and raise the chances of first entrant survival when they occur, but they are rare enough in practice that they are less interesting than the more common experience in which firms need to learn about product and market conditions and refine innovations accordingly.

Our argument in turn assumes that early entrants can have two types of resource profiles. First, they may possess at least an initial set of core resources to develop an innovative product or service, but lack complementary resources that they will need to commercialize their innovation. Second, they may possess a meaningful set of both core and complementary resources. That is, we assume that without at least some basis of core resources, a firm cannot become an entrant, even if people associated with a potential venture recognize an opportunity. For instance, Andreas Pavel, a German-Brazilian inventor, patented portable cassette players in 1972, but Sony ultimately pioneered commercialization via the Walkman almost a decade later. In turn, as we discuss below, potential later entrants may have either resource profile; in addition, they may initially lack either or both core and complementary resources but obtain needed resources after observing the initial market entry.

**Table 1** provides examples that reflect the core arguments that we develop below. Of course, we recognize that the examples involve multiple interpretations and causal influences. Nonetheless, we believe that they provide useful insights about when early survival advantages do and do not arise.

**Early entrants: core and complementary resources**

Our first proposition builds directly from existing research. If an early entrant both understands the core technical needs of a new good and possesses the resources that it needs to support commercialization, then it has a greater chance of long term survival and financial success. The core resources help generate viable initial products and, in turn, a foundation for later products to follow (Helfat and Raubitschek, 2000). In parallel, the complementary resources provide rapid
support for the innovations (Teece, 1986) and help create switching costs that lock in customers (Lieberman and Montgomery, 1988). Such advantages will be particularly strong if the entrant has experience with both core and complementary resources when they recognize the opportunity, so that they can draw on a nuanced understanding of the resources when they create their entry initiative. This argument reflects existing logic; we restate the point here because it is too often under-emphasized in classrooms and practice.

**Proposition 1. First entrants are most likely to become early survivors if they possess both core and complementary resources when they recognize the opportunity.**

Row E1 in Table 1 provides several examples. Consider early survivor advantages that Sony achieved after launching the Walkman in 1980. Sony had access to complementary manufacturing facilities as well as marketing and advertising knowledge that allowed them access to large markets in multiple countries. Competitors such as Toshiba with their Walky and Panasonic with the

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MiJockey responded based on their own core technology and also had access to strong complementary resources, but the core technology of the Walkman and Sony’s continuous improvements in quality allowed the pioneer to survive and achieve significant sustainable advantages.

In consumer SmartPhones, meanwhile, Apple’s iPhone quickly succeeded despite the potential threat from RIM’s existing business-focused Blackberry. RIM was slow to recognize the need for different complementary assets, such as incentives for application developers, while Apple possessed access to most of the core and complementary resources that it needed for the innovation through a combination of its internal design skills and its broad network of suppliers and partners.

In the entertainment industry, as another example, United Artists (UA) created a new business model for motion picture production during the 1950s, utilizing complementary resources that changed the way in which studio companies operated. In order to lock in talent, the studio gave control of operations and production to producers, with the studio behaving as a partner rather than a boss. This attracted a significant share of key talent, giving rise to a set of independent studios. UA flourished with this model for the next thirty years.

Although seemingly intuitive, this proposition has substantial implications in practice. Some early entrants may simply “get lucky” and happen to possess a relevant full suite of core and complementary resources; most such firms will be diversifying entrants from industries that share commercialization patterns with the new market. A few start up ventures, meanwhile, may have founders with relevant prior experience that provides needed complementary resources.

Rather than simply depend on luck, however, the proposition pushes early entrants to obtain and integrate a nuanced range of supporting resources as quickly as possible. In practice, this requires that leaders within an early entrant put as much time into obtaining complementary resources as they place on developing core technical skills. In such cases, when early entrants obtain resources that target market needs with high accuracy either because of successful market analysis or good fortune, there will be few opportunities for subsequent entrants to learn from early mistakes (Utterback and Suarez, 1993).

Too often, though, the leaders of early efforts — whether new ventures or diversifying entrants — place most of their emphasis on core resource activities such as product design. Honeywell was a pioneer in medical ultrasonic imaging, for instance, building on its core technical skills in underwater sonar. The company actively innovated in medical ultrasound design but was slow to develop complementary marketing and service skills for the medical market. Honeywell faltered in the face of competition from companies such as Hewlett-Packard that possessed relevant technical skills and also had an existing presence in the medical instrumentation market.

To the extent that they consider the need for complementary resources, many leaders focus on raising money to support commercialization without delving deeply into the nature of support services that the venture will require. Many start ups fall into this trap. Even executives within established firms make this mistake, putting their efforts into justifying budgets for developing a new product or service, without putting enough time and attention on budgets for supporting activities.

The mistake of deemphasizing complementary resources seems so obvious that one might expect few firms to fall into it. Yet at least four strong factors commonly reinforce the tendency: budgets, organizational boundaries, complexity, and visibility. First, some companies have budgets for R&D and product development, with less explicit dedication of money for supporting services; hence, activity follows money, which often focuses on core activities. Second, even if firms allocate funds to support complementary resources, creating and obtaining the resources commonly cuts across organizational boundaries, sometimes within a single firm and often into inter-organizational partners and/or acquisition targets. The complexity and time needed for such intra- and inter-organizational boundary spanning tends to discourage even thoughtful managers from pursuing what they recognize as necessary development of complementary resources.

Third, the scope of complementary resources is often more complex than core resources. It is often easier and more rewarding to devote time and energy to the more focused task of developing a specific product or service, rather than take on the multi-faceted task of creating a system of supporting activities. Fourth, developing new core products and services is often more visible, both
within a company and across a broader population, than creating complementary resources. Hence, the explicit and implicit rewards for spending time and energy are often greater for core resources. These four points, often in combination, lead even knowledgeable executives to under-emphasize development of complementary resources, in favor of the more straightforward and often more rewarding task of creating new core products and services.

Cases in which early entrants possess core resources but lack complementary resources are common. Some such instances arise because the new market requires highly novel complementary resources. Implantable cardiac pacemakers in the early 1960s, for instance, created a surgical market that differed substantially from existing surgical environments. Other cases, more frequently, occur when the first firms to recognize an opportunity in a market that complements an existing commercial area have technical skills but no prior experience in the related market. The diversifying entrant EMI and start up venture DISCO pioneered the market for CT scanners in the 1970s, for example, but were quickly displaced by Siemens and General Electric, which possessed relevant marketing, sales, and services supporting resources. The Honeywell example in medical ultrasound also is relevant.

Early entrants that lack complementary resources commonly struggle once they begin to face competition, particularly if they are slow to recognize the importance of key complementary resources. For instance, SixDegrees.com, which in 1997 was the first website to offer social network services, failed to develop necessary support. Facebook learned from SixDegrees’s experience and created supporting features that attracted customers to visit the site, while also generating income through online advertising.

Despite the challenges, some entrants do succeed as they build complementary resources. The following propositions address situations where this success will be most common.

**Potential entrants: core and complementary resources**

In order to assess the chances the early entrants will become first survivors, we need to consider potential competitors that may become later entrants. Potential competitors may possess four possible resource profiles that they can bring to bear once an early entrant demonstrates the potential viability of a new market. First, some competitors possess both core and complementary resources. Second, others possess core resources but lack complementary resources. Third, others possess complementary resources but lack core resources. Fourth, other firms lack relevant core and complementary resources but are potential entrants because they view the emergence of the new market as an incentive to invest in relevant skills. We assume that first entrants that possess only core resources frequently will fail in the face of competition in all but the fourth competitive resource profile, that is, cases in which potential entrants possess neither core nor complementary resources.

**Proposition 2.** First entrants that possess only core resources are most likely to become early survivors if potential entrants possess neither core nor complementary resources.

Resource profile combination E2-L4 in Table 1 illustrates the most common position for early survivor success. These are cases in which potential competitors possess neither core nor complementary resources clearly provide time for entrants to develop a full business model. Medtronic’s success in cardiac pacing during the 1960s is a relevant example. Similarly, this context contributed to Fairchild’s two decades of success in integrated circuits. Research in Motion, meanwhile, enjoyed more than a decade of success after creating the business SmartPhone market, creating a high security transmission network to complement its core technical skills.

At the other extreme, the resource profile combination E2-L1, where competitors possess both core and complementary resources, the logic for why first movers will commonly struggle is straightforward. Several scholars have pointed out this logic (e.g., Huff and Robinson, 1994; Kerin et al., 1992). Examples of such failures are legion: Winplay in the face of MP3 competition from Apple, KayPro versus IBM in personal computing, and many others.
While the E2-L1 combination is an obvious case in which later entrants tend to dominate, why would early entrants have substantial disadvantages when potential entrants possess only core or complementary resources (resource profiles E2-L2 and E2-L3)? That is, why do we expect early entrants to find it more difficult to add needed resources — whether core or complementary — than later entrants?

The assertion reflects the nature of investment that underlies experimentation. During the early period of the new market, early entrants will make mistakes in their investments in core and complementary resources (Utterback and Suarez, 1993). At the same time, entrants will often find it difficult to redirect their investment in people, knowledge, facilities, and systems as the needs of the market become apparent (Leonard-Barton, 1992).

We commonly think of inertia as a concern for industry incumbents, slowing their response to competitive entry (Henderson and Clark, 1990). However, entrants often face investment lock-ins that are as strong or stronger than firms with established businesses. Investment lock-in for entrants can arise from financial shortfalls and/or over-commitment to prior investments (Sanchez, 1995). In either case, early entrants are often slow to adapt as the market evolves. By contrast, subsequent entrants — whether new firms or diversifying entrants — can often observe those mistakes and direct their investments in more appropriate resources as they enter the market (Mitchell, 1989).

Consider the E2-L2 resource combination in Table 1, which is the case when the early entrant and potential rivals possess core resources, but none has needed complementary resources. As they attempt to create or obtain complementary resources, early movers risk locking themselves into resource commitments that do not suit the long term needs of the product market. These “mistakes” may occur because the early mover selects the “wrong” complementary resource (e.g., undertaking internal distribution when a broader distribution network would be superior), the wrong method of obtaining complementary resources (e.g., attempting to create internal resources when superior external sources exist), or because optimal complementary resources become available only as the market matures (e.g., specialized external distributors become available only once the market becomes established). Having invested in what start as or become suboptimal complementary choices, early movers are often reluctant or unable to change courses. By contrast, a later entrant has the opportunity to observe the progress of the product-market and make more optimal choices as it enters.

The video game industry is one example. Atari was a pioneer in video game consoles, introducing their first model in 1972; Nintendo responded with a competitive video game console in 1974. Despite its later entry, Nintendo was quicker to build on its core skills and develop new complementary resources, particularly focusing on developing games for the Nintendo console. Atari was slow to incorporate complementary innovations and became a laggard in its own market, leading to a long decline.

Music file sharing is another instance. Napster was the first peer-to-peer file sharing Internet service, focused on transferring music files. However, the pioneer was unable to adapt to legal issues over copyright infringement, choosing to fight with the music industry rather than attempt to find common ground. By contrast, Apple was able to negotiate contracts with recording labels and offering the service via iTunes.

Also consider spreadsheet applications for PCs. Lotus’s 1-2-3 software was one of the first “killer apps” for personal computing. Yet Lotus struggled to upgrade its core skills in response to Borland’s Quattro software, which pioneered a graphic user interface beyond the traditional command line system of the “1-2-3” application. In turn, Borland faltered when Microsoft integrated the Excel spreadsheet into its complementary operating system environment.

In parallel, consider the E2-L3 resource profile combination, which is the case in which an early entrant has only core resources while rivals have complementary resources but lack core resources. This situation is a race to obtain the missing resources, with early entrants seeking complements and potential rivals needing to obtain core resources in order to enter. The race is often unbalanced, with the handicap in favor of the later entrants.
Complementary resources such as distribution systems are often complex, involving multiple relationships and points of contact with suppliers and customers. As a result of the complexity, creating them successfully is often slow. By contrast, core resources such as technical skills are often more focused, providing clear models for challengers who initially lack them. While formal intellectual property will sometimes protect core skills from imitation, rivals can often innovate around specific designs and production processes fairly quickly. Hence, potential rivals commonly have substantial advantages in the E2-L3 race.

Examples in the E2-L3 combination are common. For instance, NuvoMedia introduced the first electronic book, the Rocket eBook, but was unable to create effective connections with publishing houses; Amazon introduced the Kindle several years later in 2007 and leveraged their connections with publishing companies that they had developed from their online book retailing business. Similarly, the magnetic resonance imaging (MRI) pioneer Technicare faltered in its race with General Electric, as GE obtained core MRI skills before Technicare was able to obtain complementary skills, particularly relationships and service networks with radiologists.

**Early movers: successfully obtaining complementary resources**

Again, though, early movers do sometimes successfully develop complementary resources and become early survivors, even in the face of strong potential competition. We highlight two situations that support early entrants, involving external sourcing and ambiguous learning.

First, early movers that lack complementary resources when they recognize the innovative opportunity may be more likely to succeed if they seek access to complementary resources from external sources, whether by license, alliance, or acquisition, rather than attempting to develop them internally. In such cases, the external sourcing will help provide the needed support quickly (Arora et al., 2001; Arora and Ceccagnoli, 2006). External sources often provide a level of sophistication that dominates what the entrant would have been able to accomplish through internal development. Of course, this argument will only hold if the complementary resources exist in a relevant external marketplace, but such instances are more common than many entrants recognize.

*Proposition 3a. Early entrants that lack complementary resources are more likely to become early survivors if they source at least some of the complementary resources externally (via alliances, licenses, or acquisitions), rather than rely primarily on internal development.*

Examples in which entrants have used alliances and/or acquisitions to obtain complementary resources are common. In the gastro-intestinal (G-I) drug market, for instance, the Swedish pharmaceutical company Astra formed a partnership with Merck to introduce the proton pump inhibitor (PPI) Prilosec in the U.S. market. The AstraMerck PPI venture succeeded in maintaining market leadership despite a strong market position by the earlier G-I market leader Glaxo (based on its H2 blocker technology) and challenges from strong later PPI entrants such as Takeda-Abbott, Eisai-J&J, and Altana-Wyeth.

Similarly, the Taiwanese electronics company HTC was the first to launch a consumer SmartPhone on Google's Android platform and has maintained substantial market share, despite challenges from more entrenched firms such as Motorola and Samsung. Even here, though, HTC’s early entry bid has been only moderately successful in sustaining its position; while Motorola’s entry largely failed, Samsung has become the market leader. By contrast, Nokia and RIM’s attempts to enter the consumer SmartPhone market with their own hardware and operating systems have struggled, with Nokia attempting to recover by shifting to an operating system alliance with Microsoft. Google, meanwhile, has fueled expansion of its consumer SmartPhone venture through ongoing acquisitions of complementary firms such as Frommer’s travel guides, Motorola’s mobile device business, and Sparrow mobile apps.

Certainly, there are exceptions to this argument. When an early entrant lacks complementary resources but possesses relevant skills to develop them internally quickly and efficiently, then external sourcing will be unnecessary and quite likely suboptimal. For instance, drug companies that pioneer
new therapeutic classes can sometimes shift people and procedures that they have used in older segments to provide marketing and regulatory support for the new products. However, such cases of good fortune and/or foresighted management are relatively uncommon and, moreover, are easy to overestimate. Even many established drug companies have found that it is more effective to ally with external partners with specialized skills when they introduce new products and services, rather than depend on attempts to rely on existing skills that may transform imperfectly. Firms that attempt to ignore their lack of competence and push ahead internally rather than seek external sources for complementary resources will often struggle.

At the same time, though, external sourcing is no guarantee of success. Firms frequently struggle to integrate external resources (Capron and Mitchell, 2009). Moreover, in some cases, the providers of external resources can become competitors; Samsung, for instance, is one of the primary suppliers for Apple’s iPad and is now perhaps Apple’s strongest competitor in the tablet market.

Second, we turn to the nature of learning about complementary resource that will be needed in the new market. A perhaps counter-intuitive proposition is that the more difficult it is for firms to learn from each other, the more likely that early entrants will be able to develop successful complementary resources and become early survivors. This is a variant of the traditional emphasis on protection of intellectual property via informal IP mechanisms such as secrecy and organizational complexity, which limit the diffusion of knowledge from a pioneer to potential competitors. The traditional argument, though, focused on protecting an entrant’s existing core resources. By contrast, here we highlight the value of protecting an entrant’s learning as it discovers what complementary resources that a market needs and how to integrate the core and complementary resources. The core logic here is that nuanced learning that occurs within organizational boundaries, whether within a single organization or in an interactive partnership, commonly faces distortion when it diffuses more broadly (Kogut and Zander, 1996).

**Proposition 3b:** The more ambiguous the nature of learning in an early market, the lower the likelihood that later entrants will overcome early movers by learning from their mistakes.

Examples in this space are intriguing. Nokia, for instance, introduced some of the world’s earliest transportable and handheld phones during the 1980s. Many firms — such as Ericsson in Sweden and AT&T in the U.S. — had long possessed the core technology for mobile telephony. There was substantial ambiguity, though, about what support mobile telephony would require, ranging from transmission standards, to sales locations, to relationships with telecom providers. This ambiguity gave Nokia time to experiment with complementary resources, sometimes publically, other times within its own organization, with only partial diffusion about what the company was learning about the market. Nokia was able to emerge with a leadership role in the GSM standards association as well as with a strong set of relationships with telecom providers and phone retailers around the world that supported its position as the world’s leading mobile telephony company for almost two decades, before faltering in the face of the Smartphone revolution.

Amgen, one of the earliest biotechnology firms, is another example. Founded in 1980, Amgen introduced erythropoietin (EPO), a synthetically produced hormone that promotes red blood cell production, initially targeted for people on kidney dialysis. While there was widespread recognition of EPO’s therapeutic potential, even before the introduction of the drug in the 1980s, there was substantial ambiguity how to target the multiple stakeholders in different geographic markets and market segments (e.g., physicians, patients, and payers with different needs and incentives in different buying segments in different countries), the regulatory regimes that would shape introduction and sales, production techniques, and multiple other supporting activities that firms would need to provide in order to develop the market for biologicals. Amgen quickly entered into a range of partnerships to commercialize the drug, including with Kirin in Japan and Johnson & Johnson in the U.S. and Europe. Amgen also constructed an EPO manufacturing facility in California to support its own sales activities, partly gathering skills from its partnership with Kirin. Although the overall investments were highly visible and received substantial publicity, there was substantial
ambiguity about the details of much of the activity — including production techniques, regulatory and marketing relationships, and partnership specifics. As a result, other companies that were entering the biologicals segment of the pharmaceutical industry had only limited opportunity to learn from Amgen’s early experience. This ambiguity in learning about complementary resources necessary to commercialize core biologicals provided space for Amgen to create a sustainable market position that continues to the present, allowing the company time to develop and introduce a series of new biological drugs.

**Conclusion**

Our core point is that despite the widely-held notion of a “first mover advantage”, early movers face substantial risks of failure. Later entrants will often be able to learn from pioneers’ mistakes and adapt more quickly to emerging understandings of new markets. We expect first entrants to become first survivors in a relatively narrow set of conditions, primarily in the small set of cases when first entrants possess the core technology and own or can quickly obtain the complementary resources they need for the new market. Entrants that seek to develop complementary resources will tend to have greatest chance of success when they use external sources and/or face substantial ambiguity in the nature of learning about what is working and what is not.

Let us be clear: we do not want to discourage exploratory entry, even if the chances of long term success are sometimes low. Some pioneers will succeed. And, fortunately, unsuccessful early entrants in markets that turn out to be viable may still achieve a financial pay off, even if they do not succeed as viable independent businesses.

All industrial economies now have active markets for business acquisitions. Firms with relevant core resources that stumble as they pioneer markets will often become take-over targets for later entrants, particularly firms seeking to add technical resources to an existing set of relevant complementary resources. Napster, for instance, was acquired by Best Buy and later by Rhapsody. Palm, meanwhile, was acquired by Hewlett Packard once its PDA faltered in the face of competition from SmartPhones. Book Stacks Unlimited was acquired by Cendant and then sold to Barnes & Noble. Lotus was acquired by IBM, which wanted its Lotus Notes technology and other resources. Indeed, even firms that introduce new products that simply do not achieve market interest may be acquired if other firms see potential value in their core resources for some other activity.

Clearly, there are many exceptions to the propositions. Some pioneers fail despite possessing relevant core and complementary resources. Some such failures of seemingly privileged firms arise from flawed implementation of entry strategies, others because competitors simply implement more effectively.

Perhaps more interesting, some early entrants succeed when they possess primarily core technical skills with little initial support from complements. Some such early survivors arise when early entrants hit the market accurately and enjoy strong IP protection. Others arise when few potential entrants exist and/or those that do exist miss the opportunity, leaving space for the early entrants to develop with only limited competition. Still others occur when early entrants are particularly skilled at advancing their core skills while rapidly obtaining complements, commonly through partnerships and acquisitions. Such exceptions are important topics for both research and practice.

Despite the importance of exceptions, we want to reinforce our point about challenges to early entrants. Success in a new market commonly primarily depends not on which company offers the better core technology, but rather on which firm can obtain and leverage complementary resources to lock their core product and service into the market. First movers have the greatest chance of becoming early survivors if they recognize quickly that they need to obtain the supporting skills and can integrate them effectively. Otherwise, pioneers will commonly fail, often ending up as targets of later entrants.

**References**


Biographies

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