WHERE DOES IT-BASED COMPETITIVE ADVANTAGE COME FROM?

Information technology (IT) has long been seen as possessing an inherent potential to facilitate sustained competitive advantage, i.e., value-creating strategies that are difficult for others to imitate. But successfully fashioning and executing long-lived IT-enabled strategic actions are becoming ever more challenging as hardware costs continue to decrease, off-the-shelf software reflecting industry best practices is increasingly available and affordable, and contemporary firms face intense rivalry and the unbundling of information and physical value chains.

Over the last decade, scholars studying why some firms have been able to derive significant value from IT investments while others have not have agreed on two very intuitive observations.

• First, it is not the amount of IT investment that matters but the extent to which these investments are aligned with the firm’s strategic directions.

• Second, the capability to leverage value from IT investments lies not only with their effective fashioning and execution but also with the fashioning and execution of business investments that complement the IT investments.

Executive Summary

Enterprise Rent-A-Car developed a value net that links the IT-enabled business processes of auto-insurance companies, auto body shops, and Enterprise Rent-A-Car. This platform provides recurring value to each member, allowing Enterprise to cement and extend these relationships.

We believe that a firm can gain a sustainable competitive advantage by developing and owning the underlying technology platform that its value net members use to interconnect their business processes. This paper presents a conceptual framework of the drivers that influence the sustainability of this competitive advantage, based on the business value the participants derive and the barriers that deter competitors from developing a similar technology platform. Enterprise Rent-A-Car’s value net is evaluated using this framework, with suggestions for sustaining its competitive advantage in the future.
This article frames and describes an under-exploited pathway for applying IT to gain a sustainable competitive advantage: that of developing and owning the underlying technology platform that enables the members of a value net to interconnect their business processes.

THE VALUE OF A “VALUE NET’S” TECHNOLOGY PLATFORM

All firms exist within webs of interacting stakeholders — suppliers, customers, and strategic partners. Over the past four decades, an increasing portion of cross-web business processes have migrated from being solely human-handled to being partially IT-enabled to being fully automated through IT channels, e.g., e-business. Most recently, the “… emergence of pervasive digital networks—especially the public Internet—has created business opportunities in both established and emerging sectors of the economy. Firms that have embraced these digital networks … can execute transactions, exchange information and innovate through new business processes …” 8

When multiple firms work together in a seamless manner, the resulting assemblage of interactions is referred to as a value net, “… a dynamic network of customer/supplier partnerships and information flows.” 9 A value net is so named because it creates value for all involved. If the parties involved are digitally interconnected, the partner interactions can occur quickly and responsively, increasing levels of service to meet and even exceed customer expectations. Moreover, as the digital platform hosting these partner interactions becomes truly interoperable, even richer information exchanges and partner collaboration become possible, further increasing potential service levels.

While conceptually elegant, in practice getting value net participants to work together can be difficult, because some are competitors. It is even more difficult to get the participants to work through a common technical platform. Rightly, some firms fear the loss of competitive advantage if they participate in a common value net platform that standardizes business processes and levels the playing field for all firms. Still, examples do exist of cooperative efforts to form such value net platforms in a spirit of mutual gain or strategic necessity: ATM networks, airline reservations systems and, more recently, the formation of Covisint in the automotive industry and Rosettanet in electronics manufacturing.

Value net platforms can be created by neutral intermediaries, industry consortia, a major player in the network, or a player in the network who is not in direct competition with the others. The power structure in the industry significantly affects who can initiate the value net platform, because every participant has a valid concern about the loss/gain of competitive advantage.

Customer-initiated value nets are most common where customers are able to use their market clout and power to impose the system on their suppliers (e.g., Wal-Mart or Dell). These nets tend to emphasize reducing procurement and inventory costs as well as increasing visibility and timeliness of information to all partners, to improve business process configuration and coordination.

Supplier-driven value nets, however, have a different dominant purpose: that of creating a flexible and adaptable value chain able to react quickly and effectively to meet the needs of a varied customer base. 10 Here, the intent involves capturing market share, locking in customers, facilitating customer interactions, and reducing customer acquisition costs. However, supplier-initiated nets can be hard to sell, because the interaction platform must provide ‘true value’ to each participant. When the firm initiating the platform lacks the economic clout to force adoption, this is an especially difficult sales job.

It is intuitively clear that competitive advantage can be created through a value net when the value net — as a virtual entity — enables its members to be more responsive to both customer requirements and market uncertainties than competitors. What is not as clear, though, is exactly who will reap the business value represented from this competitive advantage — customers or value net participants? By exhibiting leadership in and maintaining control of a value net, a firm is more likely to be able to reap a significant portion of this business value themselves. Weill and Vitale describe this strategic role within a value net as the ‘value net integrator.’ They describe value net integrators as firms that “…attempt to control the virtual value chain in their industries by gathering, synthesizing, and distributing information. Value net integrators add value by improving the effectiveness of the value chain by coordinating information.” 11

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10 Bovet and Martha (2000).
A particularly effective way to exhibit leadership in and maintain control of a value net is to introduce and own the technical platform on which the value net operates.

Enterprise Rent-A-Car built such a value net platform. Enterprise Rent-A-Car developed a technology platform (i.e., a set of IT-enabled business processes linking both insurance companies and auto body shops with Enterprise) that provides recurring value to each member of their value net, allowing Enterprise to cement and extend its relationships with its business partners.
THE ENTERPRISE STORY

Enterprise Rent-A-Car does 94% of its business in local home/city markets (as opposed to in airport car rentals) and is one of the major players in the market niche serving car owners who need to rent a car while their damaged car is being repaired. The businesses that interact with these car owners and Enterprise are the auto insurance companies and auto body shops. While the insurance companies tend to be large and to have a national presence, the auto body shops are small with a local presence.

Insurance companies depend on third-party service providers, such as auto body shops and car rental companies, to provide good customer service to the customers of these insurance companies. The insurance companies derive considerable value from capabilities that facilitate customer service at the local level. The auto body shops, due to their small size, derive considerable value from capabilities that reduce their administrative costs as well as time spent interacting with the insurance and car rental companies.

Enterprise’s business success is largely based on its capacity to establish a nationwide relationship with insurance companies and, at the same time, provide excellent service at the local level to insurance customers while also maintaining good relationships with local auto body shops. Enterprise's Automated Rental Management System (ARMS®), originally developed to serve and enhance Enterprise’s relationship with its automobile insurance company partners, has become a primary driver of the firm’s on-going success in this market. Today, ARMS® effectively links the three trading partners - Enterprise, insurance companies and auto body shops - involved in post-accident auto insurance (see Figures 1 and 2 providing pre-ARMS® and post-ARMS® views of these interactions).

The History of ARMS®

In the early 1990s, communication and coordination between Enterprise and its insurance company partners involved manual, labor-intensive business processes requiring multiple back and forth communications for each insurance claim. A typical claim required 10 phone calls between the two parties for each rental. One of the first attempts to simplify these processes was through use of fax technology. This was an improvement over the multiple phone calls but still was far from being an efficient and effective solution.

In 1994, the formation of the Collision Industry Electronic Commerce Association (CIECA) provided a mechanism through which industry-wide standards on data formats and communication protocols for electronic data interchange (EDI) could be established. CIECA’s efforts to facilitate EDI served as a basis for Enterprise and its customers to begin looking for ways to automate their common business processes. Without ever doing a ROI calculation, Enterprise decided to develop a system to connect electronically with its insurance customers – reasoning that such automation was simply “good for the customer” and, hence, was an investment in information technology Enterprise should be making.

Enterprise developed the first Automated Rental Management System, named ARMS® Direct, in 1993 in partnership with Safeco. It used a proprietary X.12 EDI standard with a direct link between Enterprise and Safeco computer systems. When rolled out to partners, the proprietary nature of ARMS® Direct made it very costly for each partner to implement, because each had to establish a direct link with Enterprise.

A more generic system (ARMS® 400) using terminal emulation was developed with GEICO Insurance Company in 1996. This architecture shifted from a decentralized EDI messaging system (where messaging standards and interfaces had to be agreed to by all participants) to a centralized system with a generic (although primitive) interface that did not require much implementation effort by each partner insurance company. Moving to this open, generic interface architecture increased the adoption rate to where approximately 60 insurance companies were interacting with Enterprise through ARMS® 400.

Emergence of the Internet provided a common network platform and user interface through which data flows could occur. When the Web-based version of ARMS® (called ARMS® Claims) was introduced in 1999, insurance companies aggressively adopted it.

Today, approximately 500 insurance companies use the ARMS® Claims system. The simple Web browser and standard networking technologies considerably reduced the cost and complexity of adoption for the insurance companies as well as for the less technically sophisticated auto body shops.

Even given the critical role served by the Internet, the success of Enterprise’s ARMS® Claims system can largely be attributed to Enterprise’s ability to develop a flexible system that meets the needs of the major insurance companies. The company’s decade-long

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12 Our primary source of data collection was interviewing Enterprise officers to gather relevant information about past and ongoing strategies regarding ARMS® and its impact on the value chain participants. We provided some initial questions (i.e., what our conversation was going to focus on) and we followed up with questions via email after the interviews. Officers interviewed include: Bill Tingle, Vice President of E-commerce; Craig Kennedy, Chief Information Officer; Bruce Clifton, Vice President, National Marketing; and Dave Smith, Assistant Vice President, Internet Solutions. We also gathered publicly available information from Enterprise’s Web site.
history of interacting with these companies through IT-enabled channels gave Enterprise a rich understanding of these companies’ business processes. Using this understanding, Enterprise designed the ARMS® Claims system as a functionality set that each insurance company ‘opens’ through a configuration process. Although this approach complicated Enterprise’s system development, it made it easy for the insurance companies to configure their profile options, even though they each had unique information processing requirements.

Each profile is a set of data-driven rules, with some of the rules set by Enterprise and others by the insurance company. Because ARMS® is highly configurable, additional insurance companies can be brought into the value net fairly readily. At the same time, this highly customizable platform is a significant barrier to entry for Enterprise’s competitors. What might seem at first glance to be a fairly simple technical solution is actually very complex and would require both a formidable task and large investment to replicate.

By offering business functionality compatible with the business processes of the major insurance companies, the platform has become the de-facto standard for the business processes associated with this ‘repair-rental’ value net. Enterprise's knowledge of the insurance companies’ business processes, embodied within and enabling the platform’s high degree of customizabil-

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13 Although Enterprise’s competitors obviously do have information systems to communicate with the insurance companies, these systems are not as flexible or robust as ARMS®.
ity, is the strategic asset at the core of the platform’s sustainability.

**SUSTAINING COMPETITIVE ADVANTAGE FROM A VALUE NET PLATFORM**

Two major challenges inherently increase the difficulty (and, hence, the cost and risk) of developing, implementing and deriving business value from inter-organizational information systems as compared to information systems developed within a single enterprise: effectively interconnecting the often distinctive business processes of trading partners, and sufficiently aligning the often conflicting business objectives of these trading partners. Such difficulties, costs and risks increase even more when the investment target is a value net platform that enables and coordinates trading partner interactions. Clearly, such an investment is justifiable only if the resulting competitive advantage can be sustained over time. But, how does a firm assess this likely sustainability?

Figure 3 provides a conceptual frame for making such an assessment by identifying the drivers likely to influence sustainability of the competitive advantage gained from a value net platform. Here, the extent to which a technology platform might create a sustainable competitive advantage is a function of (1) the business value that participants derive from the value net and (2) the barriers that deter competitors from developing a similar technology platform.

Figure 4 provides definitions of each of these business value drivers and competitive barriers. To explain this conceptual frame, we first describe the value proposition of the platform for the insurance companies, auto body shops and Enterprise. Then we discuss how the drivers of these value propositions and the competitive barriers that protect them are positioned with regard to Enterprise’s value net platform.

**The Value Proposition for the Insurance Companies**

The platform reduces participating insurance companies’ search costs and integrates their business processes with their business partners’ processes, enabling them to more easily manage their rental cycles. The platform also provides them with a way to efficiently process claims and repair information, which reduces their costs and improves their operational efficiency.

**The Value Proposition for the Auto Body Shops**

The platform increases operational efficiency, reduces labor costs and enables enhanced communication with the insurance companies and with Enterprise.

Traditionally, Enterprise would call the auto body shops to get the status of repairs (typically requiring mechanics to be interrupted) and then pass that information on to the insurance companies. With the value net platform in place, an administrative worker at the auto body shop now routinely sends a mass update of all Enterprise customer repairs in their shop once a day. By Web-enabling this daily update, the auto body shops no longer have to field multiple phone calls (throughout the work day), sometimes from different Enterprise locations, which is both annoying and a drain on costly labor. As a consequence, the auto body shops have improved their operational efficiencies without, essentially, any additional investment in hardware or software.

**The Value Proposition for Enterprise**

The platform increases market share.

The process efficiencies gained by both the insurance companies and the body shops have made ARMS® a very appealing solution. When a car needs to be repaired, the insurance companies are likely to want their customer to take the car to a preferred auto body shop. In order to continue to attract business from the insurance companies, auto body shops want to be part

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16 Adopted largely from ideas introduced by Bakos and Treacy (1986), Henderson and Venkatraman (1993), and Piccoli and Ives (2004).
17 Piccoli and Ives (2004).
of the Enterprise value net. Consequently, the value net platform has helped Enterprise lock in insurance companies and their customers and thereby increase market share. Enterprise’s market share growth with most major insurance companies has increased significantly since the development of “preferred provider relationships” with these companies. Specifically, Enterprise believes ARMS® played an important role in their realizing a 40% increase in business with GMAC, a large insurance company. Donald Ross, President and COO, comments, “We’ve seen our business more than double with certain companies since they’ve gone on ARMS®. It’s really the glue that put it all together.”

Apart from sales growth with the insurance companies, the value net platform also significantly increased Enterprise’s ‘goodwill’ with the auto-body shops. Enterprise has always attempted to maintain a good relationship with auto body shops so they will provide good word-of-mouth referrals for customers needing rental cars. Enterprise has long been known for providing donuts or pizza to auto body shop employees. The ARMS® system has further reinforced Enterprise’s good relationships with the auto body shops.

Assessment of Participant Value Proposition Drivers and Competitive Barriers

In Figure 4, we identified three factors that drive participant value propositions in Enterprise's value net platform and five barriers to competitive imitation or substitution of the value net platform. The way in which each of these contributes to the sustainability of the competitive advantage that Enterprise derives from its value net platform is now described.

Search-related Efficiencies. The ARMS® Claims system supports each participant’s capability to locate and coordinate with partners in responding quickly, efficiently and effectively to customer requirements. As the number of partners (insurance companies and auto body shops) joining the value net grows, the magnitude of these effects can only increase even more dramatically, due to the multiplying factor of network effects.

Platform Functionalities. The ARMS® Claims system is quite flexible and is able to adapt to the needs and support the core business processes of many diverse insurance companies and thousands of auto body shops. The functionality of the platform represents a considerable value proposition for potential adopters.

Adoption Costs. Adoption costs borne by the insurance companies are relatively low due to the customizability of the ARMS® Claims systems and the use of common Web technologies. Adoption costs borne by the auto body shops are relatively trivial.

Platform Development Barrier. Enterprise’s knowledge of the insurance companies’ proprietary business processes has made it possible to implement a complex set of platform functionalities that can be aligned with each insurance company’s unique business processes. It is the embodied knowledge within the platform’s design that accounts for this barrier-to-entry for another value net platform.

Platform Implementation Barrier. Insurance partners find it relatively easy and cheap to interconnect their IT-enabled business processes to the value net platform. Although Enterprise feels that this provides a barrier for competitors, the advent of new integration technologies, i.e., Web services, may change the competitive landscape. Our assessment suggests this may be one barrier where Enterprise is particularly vulnerable.

Switching Cost Barrier. Given the beneficial network effects that can come from an expanding value net and the socially-complex linkages embedded in the platform, the costs borne by insurance companies in moving to another platform could be substantial. The benefits of being a preferred provider to the many insurance companies in the value net create significant disincentives for auto body shops to switch to another platform. Nevertheless, it is possible that the appearance of new integration technologies might lessen this barrier over time.

IT Capabilities Barrier. Since the early 1990’s, IT has been at the center of Enterprise’s business strategy. They understand how IT can serve and create value for their firm and their value net participants, and they continue to implement new IT solutions. Enterprise’s technology expertise deters competitive response because the expertise is difficult to imitate.

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Complementary Capabilities Barrier. Enterprise’s relationships with their insurance company customers, coupled with their knowledge of the insurance company business processes related to claims handling, richly complement Enterprise's capabilities in designing inter-organizational information systems. The functionality provided by the ARMS® Claims system is tightly aligned with Enterprise’s business model. This is perhaps best captured in Enterprise’s mission statement: “… to fulfill the automobile rental, leasing and car sales and related needs of our customers, and, in doing so, exceed their expectations for service, quality and value.” The link between customer service and IT can be seen in the history of ARMS®. As noted earlier, when the first ARMS® system was envisioned, CEO Andy Taylor decided that if ARMS® was important to Enterprise's customers, then it was important to Enterprise. They did not need to analyze the dollar costs of a system that would help Enterprise maintain its dominance in the repair rental-car market.19

The business and technology capabilities required to design, build, market and diffuse the platform across the value net (as well as to continually enhance its functionality) are readily available at Enterprise because it is precisely these same capabilities that are core to Enterprise’s business model. A competitor

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would have to acquire or develop these capabilities prior to applying them to the development of a competing value net platform. This creates a significant barrier to imitation. Some of Enterprise’s competitors have, in fact, attempted to develop a similar technical platform. None has been able to fully grasp and overcome the complexity of a successful offering.

**ENTERPRISE’S MARKET OPPORTUNITY: UNIQUE OR REPLICABLE?**

Enterprise Rent-a-Car was well positioned to launch a technology platform to host their value net. Since Enterprise was the leader in the ‘repair-rental’ market, they had already formed well-established business relationships with all of the major insurance companies, and they had electronically interconnected their business processes. They had evolved a deep understanding of the insurance companies’ auto rental and claims-handling processes as well as the nature of the relationship between these insurance companies and the auto body shops. This knowledge provided them the expertise to design a functionality set that encapsulated the business requirements of all of its insurance partners and to configure both this functionality and the system’s interfaces so as to ease the insurance companies’ and the auto body shops adoption burdens. In the words of one insurance company CIO, “They understand enough about their partners to know what IT innovations will provide value to each of them.”

Another important factor behind the success of this venture is Enterprise’s position as the leader in the ‘repair-rental’ market – little risk was likely to arise from insurance companies’ partnering with Enterprise. In fact, since the major insurance companies are large national firms, many were eager to partner with a car rental firm with a national presence that was committed to this specific market niche as it reduced their costs and enhanced their customer service capabilities. Further, Enterprise was not in direct competition with any of its value net partners, nor did it seem to want to be in either the insurance or the car repair business.

Finally, of the three ‘partners’ in this value net, neither the auto body shops nor the insurance companies were as ideally positioned as Enterprise to create and sustain a value net platform. The auto body shops are too small and too local, and they do not possess the technology base or technological expertise to create such a platform. While the major insurance companies each possessed the incentive, the technology base and the required technological expertise, the competitive nature of the insurance industry and their disparate business processes make it unlikely that insurance competitors would or could adopt a platform designed and hosted by any one insurance firm. Due to its neutral and central position in the value net, Enterprise was able to offer a platform that presented little risk to the other participants.

We do not believe that this case represents a unique opportunity. Most, if not all, organizations participate in value nets. And, all too frequently, the business processes that underlie these value nets are poorly integrated and inadequately coordinated. If anything, what was unique was Enterprise’s recognition of the strategic value the platform represented and their competence to engineer a platform from which they could appropriate a substantial portion of the value being created.

Sustaining such a competitive advantage in an ever-changing world requires continuous monitoring and investment to ensure that all members of the value net continue to extract value from the technology platform. As mentioned earlier, Web services may someday allow inter-organizational business process integration through loose, rather than tight, interface coupling. If Web services become a reality in the near future, then at least two of the competitive barriers (i.e., platform installation and switching costs) accounting for Enterprise’s sustained competitive advantage may very well dissipate.

Researchers applying the resource-based view of the firm would argue that Enterprise must thus periodically evaluate the uniqueness of the assets and capabilities on which the ARMS Claims system depends. Clearly, if the barriers to entry begin to weaken, then the value proposition drivers must increase at a faster rate to maintain the dominance of the platform within the value net. In order to sustain the use of their value net platform, Enterprise will likely have to continue to enhance participants’ value propositions. For example, they could increase search-related efficiencies by penetrating further into the insurance company and auto body shop populations. They might also add search-related efficiencies by identifying other constituencies whose presence as value net participants would complement the insurance companies’ and/or auto body shops’ efforts to exceed their customers’ expectations. They will undoubtedly continue to add new functionality by improving interfaces or further

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automating insurance company or auto body shop business processes.

**PRESCRIPTIONS FOR ACTION**

While it is impossible to prescribe actions that will ultimately lead to a successful strategic position, it is possible to prescribe a set of actions that can increase the likelihood that strategic opportunities are recognized. Below, a number of actions are suggested for IT-enabled strategic actions regarding value nets:

- **Examine the value nets in which you participate.** What are the purposes of the value net? What are the business processes that must be coordinated to achieve these purposes? The intent here is to clarify the nature of the business processes likely to be hosted on a value net technical platform.

- **Identify those value nets that contribute directly to your core business model.** Would ‘owning’ this value net’s platform dramatically increase revenues for your firm by bringing in new customers, penetrating more deeply within existing customer bases, or locking in customers? A strong business case will be needed to justify the large investment required.

- **Identify those value nets in which the business processes to be coordinated align well with your firm’s core business model.** Are the assets and capabilities required for the value net platform the same as those that determine your firm’s success in its core business market? If so, your prior investment in these assets and capabilities can be leveraged in building and operating the technical platform for the value net and may represent a significant entry barrier.

- **Determine whether the identified value net is ‘underperforming.’** Is it possible to dramatically transform the competitive position of the value net through a shared technical platform that would host the value net’s business processes? If so, then it is likely that a strong case can be made that all value net partners would obtain substantial value from their adoption of this technical platform.

- **Assess whether your firm’s hosting of the value net’s technical platform would threaten any of the value net partners.** Does your core business model overlap with those of any value net partners? If so, the potential disintermediation threat that your strategic action might represent is likely to inhibit the adoption of the platform by at least some value net participants.

- **Ensure that a revenue path exists through which a portion of the value being created can be appropriated.** How exactly will the technical platform accelerate the profitability and/or the growth of the market niche? How exactly does the value net platform align with your company’s revenue model? While a hosted technical platform that facilitated information exchange and process integration would certainly benefit the value net as a whole, the host of the platform must be able to recoup this investment with a satisfactory return.

- **Protect the knowledge embedded in the value-net platform to prevent replication.** A common practice in industry today is to patent unique business processes and practices so that the knowledge embedded in them can be protected and so that they will provide continued value to the firms that invested in developing the process/practice. A classic example is the patenting of the “one click” approach to online buying by Amazon.com. We believe that Enterprise Rent-A-Car is, in fact, in the process of patenting the intellectual assets that serve as the foundation for their value net platform. This is an indication of the competitive advantage provided by the value net platform.

By carefully examining your firm’s immediate business environment and thinking through these seven issues, you may very well discover an unexposed market opportunity.

**CONCLUSION**

All too often, being a ‘first-mover’ within a market can be more of a liability than a competitive advantage. Early followers can often move quickly to introduce improved follow-on products while also capturing new manufacturing or logistic efficiencies and encountering lower marketing hurdles. It is wise to think twice before engaging in any first-mover strategic action.

Our analysis of Enterprise and their inter-organizational systems suggests two primary lessons with regard to competitive advantages from value net platforms. First, alignment must exist between the capabilities embodied in the platform and the platform owner’s core business model. For Enterprise, compelling alignment did exist. Second, a key factor in sustaining a competitive advantage from a value net platform is deep knowledge about the business processes of the value net participants that create value for the
value net's customers. The deep relationships forged between Enterprise and its business partners prior to and during the development of the value net platform provide Enterprise with the rich understanding of their partners’ business processes that are critical in fulfilling the needs of the ‘repair-rental’ customer. Their knowledge of this customer is the key reason that Enterprise is likely to maintain its competitive dominance in this market.

As inter-organizational cooperation through value nets intensifies, the strategic benefits that accrue from being a ‘first-mover’ in introducing a technical platform for a value net cannot be overlooked. If the right conditions hold, then the benefits to be realized from owning a value net technical platform can be extraordinary. Once participants are locked in and enjoy the benefits from their network participation, it can become difficult for a competitor to induce these participants to switch to a follow-on platform. We hope that the Enterprise Rent-A-Car success stimulates other firms to include similar scenarios in their strategic planning dialogues.

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