Research - Banking on the Internet

Chapter 3

Management Challenges and Industry Impacts

"Computers will never replace business people, because business people don't know what they are doing."

-- Prof. Karl Kaysen, Institute for Advanced Studies, Princeton University

Us we have begun to understand, customers and Internet-based service providers are on the verge of a technology arms race, and even today's leaders in the financial services industry will have their hands full trying to understand all this technology and differentiate their services. This chapter takes a closer look at the implications of these trends for technology management, industry economics, and competition.

I. Introduction

Paul Volcker, a former Chase VP of Strategic Planning as well as former Chairman of the US Federal Reserve, once remarked that "Strategic planning at Chase in the 1960s consisted of doing *today* what Citibank did *yesterday*." Indeed for years the conventional view of strategy in the retail financial services industry has been that winning is fundamentally a matter of execution, not of innovation or strategy – rather like golf or skeet shooting, not squash or tennis. In the limit, although competitors may not have realized it at the time, they might have exchanged their most secret strategy documents without having much impact on the outcome.

Of course retail financial services are now much more dynamic and competitive than they were in the mid-1960s. A worldwide trend toward deregulation has increased competition across geographic and business boundaries. Especially in the US, restrictions against interstate and foreign competition in banking, retail securities, and insurance have declined sharply. There is also a global trend toward "universal banking," the erosion of restrictions on cross-ownership and cross-selling among investment banks, insurance companies, securities firms, pension firms, and commercial banks. Together, this combination of increased competition and deregulation has begun to produce a striking consolidation in the financial services industry in almost every First World country. Many observers have predicted that these trends will continue, and even accelerate.

Yet a skeptic might argue that all these changes have been determined by the logic of *pre-Internet* economics. For example, consolidation has often been motivated by such factors as the desire to increase competitiveness by establishing a *physical* presence in distant local markets, diversify *geographic* and product-market risk, pool and prune huge *private* networks, *physical* branch and ATM networks, *central* data warehouses, *paper* check processing facilities, *central* pools of in-house lawyers, regulation experts, *physical* call center operations, large *in-house* IT departments, and large teams of field sales agents, account representatives, and brokers, as well as existing customer bases, to realize the economies of scale, scope and clout that supposedly result from making large institutions even larger.

In short, the logic of consolidation is deeply rooted in the bricks-and-mortar, proprietary, vertically-integrated mode of production that has characterized financial institutions for the past century. The industry seems to be making a multi-billion dollar bet that by smooshing together smaller piles of yester-year technologies and business practices, the resulting larger piles will be more efficient and profitable. At the very least, in light of all the new technology trends that we outlined in Chapter II, we may want to double-check this assumption.

II. The Role of Pre-Internet IT

Since the 1960s the financial services industry has already absorbed a great deal of sophisticated computer, networking, and telecommunications technology. In the last decade IT expenditures by US commercial banks alone exceeded $160 billion. They now total more than $25 billion a year, most of it by the top ten banks. (See **Figure 3.1**). Total IT spending for the global financial services industry averages three to four times that much. Today the retail financial services sector is the second largest non-governmental customer for computer hardware, software, network gear, and other IT-related expenditures in the world.

While these huge investments have increased the industry's *average* productivity, however, they do not so far appear to have provided individual members of the industry with decisive competitive advantages. Up to now, there have been some economies of scale and scope associated with IT and other infrastructure investments in the financial services industry. But most studies have found that such economies are small to begin with, are exhausted at modest scales (e.g., above $5 billion in assets), and are dwarfed by "X-inefficiencies," unexplained variations in the productivity of individual institutions that are of similar size.

This lack of clear competitive advantage from traditional IT investments has several roots.

- First, regulation has leveled the playing field to some extent, preventing technology leaders institutions from taking full advantage of their investments.

- Second, the bulk of the retail industry's IT spending has necessarily been

focused on sheer logistics. The industry took on the monstrous job of tracking millions of accounts and hundreds of millions of repetitive, mainly paper, daily transactions -- checks, security trades, insurance claims, letters of credit, wire transfers, cash disbursements, stop-payments, credit checks, loan applications, and so forth. So a great deal of IT spending was really non-discretionary, the price of admission for being in the game at all. It is not really surprising that in IT, senior management attention has until recently been heavily weighted toward execution rather than competitive strategy.

- Third, until recently, the very nature of the information technology that was available to construct new services probably discouraged their development. As discussed below, pre-Internet IT technology consisted for the most part of proprietary computer networks with low bandwidth and limited global reach, centralized computing architectures, under-powered endpoint devices, and software that was hard to use and program. This made it extremely costly to develop, deploy, and support new services. Each new service had to be built separately from the ground up, with little sharing of back-office systems, networks, customer support, or user interfaces, and limited interoperability.

The good news for industry leaders in this "proprietary network" period was that relatively few competitors or new entrants could afford the startup costs associated with developing new channels for financial services. This helped to account for the tendency, underscored in the Volcker quote above, to rely on a handful of industry first-movers like Citibank.

The bad news, even for these leaders, was that "breakevens" on any particular new service were very high. Not only did each new service channels like the ATM machine and the screen phone have to be built from scratch, but they were costly to deploy, support, and integrate with existing services, because each one had its own separate infrastructure. The development of new services was also risky, because development cycles were long and investments could not be leveraged across multiple services. For customers and the industry as a whole, this probably meant that the industry's rates of innovation and market growth were lower than they otherwise might have been.

Now comes the Internet, and all the powerful trends discussed in Chapter II. In principle, current leaders in financial services *should be* well-positioned to digest this new technology and survive the transition to Internet-based services, given their capital resources, client bases, and the traditional importance of factors like reputation, trust, and brand in the industry.

However, as discussed below, the very nature of pre-Internet IT technology has tended to produce long product cycles, centralized and hierarchical IT management structures, supply-driven service designs, and several other behavioral habits that are not conducive to the deployment of Internet technology. Because of this legacy there is a serious risk that many institutions will change too slowly, losing share and profitability to a combination of "new niche entrants," "financial supermarkets," and

"aggressive consolidators."

Furthermore, as we will examine, the economics of Internet-based services are very different from those of conventional financial services.

Together, all these trends underscore the importance of *technology management* – as opposed to unique technologies, proprietary development, or deep pockets *per se.*Financial institutions that wish to play a leading role in Internet services need to give technology management skills and practices a high priority.

III. Bad Habits

This conclusion is reinforced by the finding that, up to now, financial institutions have often done a very poor job of managing the deployment of new electronic technologies. To help us understand these issues, we have assembled a small sample of case studies of other recent efforts by the industry to launch new retail electronic services. The detailed cases are in the Appendix. This section summarizes the most important lessons learned

1. **Proprietary Solutions.** In the case of new electronic services like smart cards, ATMs, and screen-phones, financial institutions have tried to develop their own proprietary, "closed" solutions. They have also had trouble managing the tricky balance between in-sourcing and out-sourcing, and have often found it difficult to partner effectively with each other to establish the kind of the industry standards and shared platforms needed to grow markets for new services. The result has been slower market growth, and wasteful arms races
2. **"Customer-Last" Service Designs**. Institutions have also focused excessively on the supply-side benefits, failing to involve customers and channel partners early enough in the design process, and to define customer benefits *before* going to market.
3. **Other Pre-Internet Behavioral Habits.** Many financial institutions also still suffer from internal structures, incentives, and practices that make it difficult for them to compete effectively in the fast-paced world of Internet-based services. They need shorter product cycles and more software-centric management – acknowledging, in effect, the need to adopt the best management practices of leading software companies.

The next section explores these bad habits in more detail.

- **Proprietary Development**

Of course the terms "proprietary" and "open" systems are loaded, in the sense that their meaning is partly in the eye of the beholder. For example, for some purposes Microsoft's Windows™ operating system is a defacto standard. Yet it is also closed in the sense that right to reproduce the Windows interface remains off limits to

everyone except Microsoft.

While "proprietary" is often used as a pejorative term in the computer industry, it is not the notion of a "closed' system *per se* that people object to. There are many examples of technically-closed platforms that have won widespread acceptance -- for example, the arcane protocols that Lucent and other telephone equipment manufactures put into their switches, or the micro code that Intel uses for its Pentium chipsets. On the other hand, there are also many examples of "open" standards that are complex and not very popular, like the programming language ADA, or the IEEE committee's work on ATM and cable modem protocols.

One might therefore be tempted to conclude that the real distinction is not between "open" and "proprietary," but between *successful* and *unsuccessful* efforts to gain market acceptance, whether proprietary or not.

But we have a more objective definition in mind. It refers to a situation where industry leaders have persisted in a "win-lose" quest for their own technical solutions, even in the face of evidence that (a) rivals might pursue technically-incompatible solutions, in the absence of a standards-setting effort; (b) customers strongly prefer interoperable solutions; (c) there would be important technical advantages to interoperable solutions – for example, permitting applications that rely on them to work better; (d) it is not too late bring potential rivals together to define a standard.

This definition is not just an *ex post facto* characterization. It takes into account the likely technical and customer benefits from interoperability, the actual opportunities for defining standards, and the risks of lower market growth in the absence of standards.

It is sometimes right to pursue proprietary solutions – for example, where potential rivals are far behind, the market's need for interoperable services is limited, or the costs of organizing a standards effort – including getting arch-rivals to sit down together – are high. (See below.) The question comes down to a tradeoff between market share and market growth over time, with and without cooperation.

Still, our evidence suggests that, especially in financial services, many industry leaders have had a bias toward proprietary solutions even when open solutions might have left everyone better off. This bias exists for several reasons:

- Open systems usually require greater collaboration with outsiders, while proprietary approaches provide the "illusion of control." Working with third parties may also expose internal IT managers to tough questions about their technical strategies.

- Engineers will be engineers – they almost *always* try to find technical improvements if allowed to, regardless of economic implications.

- IT managers may prefer proprietary approaches because they imply

.larger budgets, more staff, and other internal prerogatives.

On the basis of our cases and other industry experience, out hypothesis is that this bias for go-it-alone solutions have often had negative consequences. For example:

- Proprietary solutions, especially where hardware is involved, often start out with have higher prices, cramping market growth. In the case of the Citibank/ Phillips screen-phone, for example, the devices' back-lit displays were technically superior to cheaper alternatives, but they also had much higher unit costs. Neither partner understood the importance of organizing the industry around a common design that would crack this cost barrier.

- A proprietary mindset also influenced the way the screen-phone project dealt with setbacks. A more "open" alternative to outright cancellation of the $20 million project might have been to license the technology to other banks in return for volume commitments. Of course, even if the whole system had been licensed to third parties, the Internet would have eventually undermined the need for the screen-phone's special communications protocol. But it would have been easy to port the screen-phone to the Internet, as many "web-phone" vendors are now doing. With a more "open systems" mindset, therefore, the screen phone might have made it to market.

- In the case of first-generation ATM machines, the high cost of stand-alone, proprietary machines delayed widespread installation, and the lack of availability delayed customer acceptance. But with interoperable machines, usage soared, costs declined, and the industry was finally able to reach breakeven. Without interoperability -- which was essentially forced on the leaders in the banking industry by a collection of smaller banks -- ATMs might have gone the way of the screen-phone.

- For smart cards, a lack of hardware standards continues to inhibit market growth, boosting the cost of cards and readers. Indeed, the implications of non-interoperable readers and a closed format for "electronic cash" are much the same as they were for non-networked ATMs. Customer value is reduced, because users have to carry cash or a variety of payment cards around. High unit costs have also delayed their inclusion as a standard peripheral in PCs. The lack of interoperability with other peer systems and the absence of a standard platform has also inhibited the development of third-party applications for the cards. On the other hand, the success of magnetic-strip phone cards and transportation cards demonstrate what can happen when cards become so cheap that service providers can afford to give them away.

- Another negative impact of overly-proprietary strategies, ironically enough, is that they may actually cause *better technologies to lose*. Apple Computer is the best known example of this pathology. In the PC market Apple gradually lost out to Microsoft's sheer volume, which was originally based, not on technical excellence or innovativeness, but on IBM's arbitrary decision – grounded in its own dominance of the computer market in the early 1980s, and its fears of antitrust laws -- to anoint tiny Microsoft as the exclusive vendor for its new PC operating system. On the basis of this exclusive contract, Microsoft proceeded to attract more third-party application developers than Apple. This occurred despite the fact that from a technical and user interface standpoint, Microsoft's early operating systems were inferior to those offered by Apple. The applications that third-party developers wrote, in turn, greatly multiplied the value of the Microsoft platform. Meanwhile, Apple clung to its own proprietary system, refusing to license its OS to other hardware vendors for almost a decade. Implicitly, Apple must have believed that proprietary technology was its *only* competitive weapon.

- Pinning hopes on a proprietary architecture can have other negative effects as well. For example, risk-averse customers may be concerned about using new technologies that are not widely accepted, don't integrate with other products, or have not received endorsements from other industry leaders. They may also believe that a lack of consensus indicates that a technology is not ready for prime time.

Weak partnering and standards-formation skills, closely related to the preference for proprietary systems, can also lead to slower market growth. Conversely, *industry diplomacy* can free companies to focus on their own true comparative advantages and attract partners *and rivals* to help grow the overall market.

- Among our case studies, NetBill is a very good example of a technology development effort that was in dire need of application partners. Because NetBill was unable to partner effectively, its own project proved too ambitious, and it was late to market. The whole market for micro-payments stagnated, in turn, because there was no complete solution.

- In the case of ATMs, banks worked closely with Tandem and Stratus, two leading Unix computer hardware vendors, to develop "non-stop computing," a critical technology for ATM reliability. No individual bank could have developed and maintained this technology as these vendors have, a good example of the *longer-term* benefits of relying on open systems that have widespread industry support.

- Networked ATMs, NetBill, smart cards, and the Netscape and Microsoft browsers all rely on security technologies that are available

from third-party vendors. In their view, this reliance on open security standards actually helps to increase customer confidence, because customers know that these standards have been tested by millions of other users.

- Lombard, the electronic brokerage, is a good example of successful partnering. By partnering with a major computer hardware vendor at an early stage Lombard got a faster launch, as well as technical assistance, influence over the vendor's future product direction, and a strong marketing partner. It did forgo up the prospect of delivering Internet services over a completely unique architecture, but Lombard is happy with the tradeoff.

- Beyond financial services, there are also many other examples where standards-setting efforts by technology leaders have helped to establish the conditions required for new market growth. In the software industry, for example, the MPEG standard for digital video compression, the H.323 standard for desktop video-conferencing, the DAVIC standard for digital TV, and the Object Management Group's various standards for object-oriented programming have all succeeded in providing high-quality, timely technical standards that have been widely adopted.

  In general, such efforts have been more successful if they started early in the technology life cycle, when industry rivals had not yet coalesced around competing solutions. They have also been more successful where industry leaders have encouraged participation by many other players, while avoiding a process of consensus-building that is so bureaucratic that it takes forever.

  All these benefits of "open" systems are examples of the fact that Internet-based services in general and retail electronic financial services in particular are examples of **network-based markets.** We will have much more to say about network-based markets below; at this point it is sufficient to say that they put a premium on these skills of standards-formation and industry diplomacy.

- **"Customer-Last" Service Designs**

A second problematic management practice in the financial services industry has been the tendency to go to market with poorly-defined value propositions. Sometimes this takes the form of focusing too heavily on internal cost savings; in other instances, the design process for new services has been so drawn out and over-engineered that it has been difficult to modify initial designs to respond to customer feedback. Our case studies provide clear examples of this need for a more iterative approach to development, with customers involved continuously along the way.

- **Example - Non-Interoperable ATMs.** In the case of the ATM, while interoperability clearly benefited customers, and was technically feasible from the beginning, leading banks were slow to adopt it. Indeed, to a great extent, customer inputs were largely ignored. ATMs were introduced not because of potential customer benefits, but because they promised to cut branch and teller costs. Interoperability was only implemented by larger banks when a group of smaller banks in the Midwest offered it as a competitive advantage. By slowing adoption, this delay increased deployment costs and reduced profitability for the industry as a whole.

- **Example – Citibank Screen-phone**. In the case of the Citibank/Philips screen-phone, project managers did not realize that their first-generation devices failed to provide enough customer value for them to be willing to purchase them until well into the project. The devices also didn't provide enough value to Citibank to justify the high subsidies required to cover their initial unit costs. So the new service was basically still-born because it needed a much larger market to bring its unit costs down to customer-value levels. Earlier insights into these realities might have led the project to seek more outside partners.

- **Example – Electronic Bill Payment**. Electronic bill presentment is widely regarded as the "next big thing" in Internet finance precisely because, as one Australian banking manager told us, "These services are designed to let billers and consumers save money, even while letting banks make money." This notion of providing *balanced* benefits to customers, other channel partners, and the network of financial services providers is a key feature of "customer-first" service designs. In contrast, in the case of electronic bill payment *without* presentment – the dominant current form of electronic billing – the benefits to billers and customers have often not been clear.

  Bill presentment aggregators have been trying to change this by providing clear incentives for banks, billers, and customers to use the service. For example, at least initially, Microsoft's MSFDC is not charging banks to use its bill presentment service. This will help to level the playing field for small banks, and provide the kind of "virtuous cycle" that is often found in network-based markets – the fact that banks are signed up helps to attract more customers, billers, and still more banks.

- **Example – Stored Value Cards and Micro-payments.** Some financial institutions have recently introduced stored-value cards into markets where their value proposition is completely unclear. For example, in the US, where credit cards are dominant, or in Canada, where debit cards are even more dominant, experiments with stored-value cards like Mondex have nevertheless been attempted, with miserable results. As with ATMs, the absence of a standard has resulted in poor interoperability among systems. With little customer demand, in turn, the prospective benefits to merchants don't outweigh the costs of having multiple readers, and the resulting lack of

"accepting locations" further reduces customer benefits. Banks need to adopt standards to get past this "chicken and egg" situation, instead of focusing on their own *potential* private benefits from cash replacement.

In the case of NetBill, the technology's sponsors counted very heavily on micro-payments, which credit cards can not efficiently process, to provide market demand. But they failed to develop a precise value proposition for customers and the vendors of digital rights. For example, the vendors were digital content providers, who were much more concerned about protecting their content against copying than they were about micro-payments.

In general, the financial benefits of many new electronic payment systems have been concentrated on the side of the "producers." In many cases, clear benefits to the customer have not been established, and some customer benefits have even been reduced, compared with the general acceptability and anonymity of cash.

- **Internal Organizational Practices**

In order to develop Internet-based services on a timely basis and partner more effectively, financial institutions also need to develop new skills and practices. To underscore the kinds of changes required, we would argue that financial service companies are all now, in a sense, members of the *network software and service industries*. To be successful in this new fast-paced open-technology environment, we believe they may have to adopt many of the same practices and attitudes that have been adopted by these industries. Based on the case studies, and our own experience in network software and services, the following are some of the most important practices to emulate.

- **Rapid Development Cycles**

One critical area of differentiation in highly competitive Internet-based markets is the quality and speed with which new products and services are taken to market. The open systems "mantra" is " Implementations, not Interfaces, meaning that companies compete on the overall quality , design, performance, and speed of product implementations, rather than by trying to make services and their interfaces completely unique.

Our cases clearly indicate how important time to market has become for electronic services, in a period when typical new product development cycles have declined from years to a matter of months.

- NetBill moved too slowly because they tried to do too much themselves. This gave the market and the competition too much time to change. By the time they were finished, the concept of "free" information was too well established to be easily displaced, and the SET alternative was already under development, making aggressive claims about what it could do. NetBill might

have succeeded even without micro-payments had they been fast enough to be the only alternative. This illustrates the fact that among developers who think that superior technology is enough to win, there is often an imbalance between market requirements and their own demands for quality and completeness. In an interesting way, this complements the engineer's tendency to ignore customer inputs and proceed with technology-driven designs – engineers may *overestimate* customer requirements as often as they underestimate them. The mantra for Internet services development in a rapidly changing environment needs to be, "move fast or die."

- Lombard, on the other hand, is an example of a new financial services company that has moved very quickly. Recognizing that it needed to establish a brand, they kept their functionality focused and their product release cycle short, adding checking and other services later.

- Bank of Montreal recognized very early that it needed a whole new separate organization to, in the words of one manager, "Live and breath Internet services, and get rid of our old habits." They formed a separate subsidiary,. MBANK, recognizing that it would probably compete directly with the parent bank. But they had a firm conviction that the channel was that it was better to cannibalize their own customer base than risk losing them to competitors.

The precise methods needed to insure rapid development cycles is a very large subject in software management, and we cannot do justice to it here. However, some of the most useful practices include the <u>following:</u>

- **Release-Based Scheduling.** In an environment where technology and competitive offers are changing rapidly, it makes little sense to schedule projects whose completion, including implementation and testing, is likely to take more than a year. This doesn't mean that longer projects have to be cancelled. But it does mean that projects need to be consciously divided up into staged releases according to an "upgrade" schedule of features and performance. In this schedule, early releases are planned to be short of perfection, and "feature freezes" and release schedules are strictly obeyed. In this environment, many products and services will never be complete. This requires that development engineers have to get used to the idea of continuous improvement, tight definitions of release specifications, and imperfect releases. This is not easy for many engineers to accept. But the use of incremental releases have been made easier by object-oriented programming, publish-and-subscribe technologies for communication between application subsystems, and industry standards.

- **Clear Up-Front Customer Requirements.** As noted earlier, another crucial element in rapid design of successful new services is early customer involvement. For rapid development this is especially critical – the single greatest source of missed deadlines in software projects is the addition of new

requirements. The preferred is to involve customers very early, get data on their actual needs, and write, in effect, a first draft of the service's user manual and a clear overall architecture and requirements document for the new service. This is especially critical where a large project is involved, which requires parsing out development among subteams and perhaps subcontractore. Yet the industry evidence, consistent with our case studies, is that many IT project managers still neglect this.

- **Rapid Prototyping**. In the traditional "waterfall" approach to service development, product prototyping typically came after the user requirements and product design phases of a project. Rapid prototyping emphasizes the value of using prototyping upfront as early as possible, as a way of soliciting user feedback and identifying overall architectural problems. This has an important role to play in facilitating continuous customer involvement.

- **High-Energy Workplaces**

A closely-related success factor for Internet-based services is the development of an appropriate workplace culture. This not only requires the right mix of personal financial rewards to recruit and retain outstanding teams, but also the use of an internal structure for that are closely linked to output, but also stimulating environment for the individuals involved. There are many things that can be done here. Among the software industry's "secret weapons" are the following:

- **Enlightened Project Management.** There is no substitute for "talented field commanders" when it comes to Internet service development. In general, the most productive development efforts are subdivided into small, highly motivated teams of no more than 5 to 10 developers each – the "team of peers, team of teams" concept widely used by companies like IBM/Lotus and Microsoft. Typically a separate team is deployed for each critical component of a system, each with its own development, test, and user requirements groups. Detailed project timetables and goals are negotiated up front within team members and among teams, not dictated downwards by seniors. The resulting "buy-in" and mutual commitments have been found to play a valuable role in securing on-time delivery. There is also a strong emphasis on hands-on management by senior team leaders, with practices like daily builds, weekly progress reviews, and high-priority test groups used to enforce project discipline.

- **Non-Monetary Incentives.** Best practice environments provide good monetary incentives for good performance, but they also understand the importance of non-pecuniary rewards for many software developers. This recognizes that having an opportunity to work in a stimulating workgroup, on a challenging assignment, with decision making power, can be even more important than direct salary as a reward. It often help just to supply the latest equipment and development tools to software engineers, including

equipment for work from homes.

- **Rotating Roles/Training.** This recognizes that entrenched technology bureaucrats can stifle progress -- "up or out" and fresh blood policies are a valuable way of keeping technology efforts fresh and on the competitive frontier. The best organizations also keep training their experts – for example, by giving them broader roles in riskier projects as they progress. There is also no substitute for external software industry experience as a predicate to running an IT organization.

- **Encouraging Honesty.** Another vital organizational element in successful Internet service development is rewarding honesty. The early detection of development project problems is crucial to preserving schedules and coordination among teams, and many costly errors can be traced to the failure to admit that problems exist, or to the accumulation of small problems over time. Developers often have serious difficulty admitting that they may have screwed up. One important aspect of this is that incentives must reward team productivity as well as individual productivity. There are many cases of "brilliant" but a-social coders who have screwed up overall development efforts.

- **Technology and Channel Partnering Skills**

Consistent with the need for non-proprietary solutions, shared infrastructure, and standards-setting efforts in an Internet-services environment, another key factor for success is the ability to work well with outsiders, including "indirect" channels, technology suppliers, venture partners, and perhaps even competitors.

This organizational skill is to a great extent inconsistent with the historical tendency toward vertical integration that many financial service companies have adopted up to now. However, as we will explore in more detail below, the economics of Internet-based services tend to facilitate an "affiliated networks" approach to service architecture, in which backend services and network infrastructure can be shared shared, even while front-end services may retain individual brands. To be successful with Internet services, many financial institutions will have to overcome their biases in favor of vertical integration, especially internally-sourced technology and exclusive reliance on "direct" sales and marketing channels.

Summary – Technology Management Lessons

Figure 3.2 summarizes some of the most important factors at work across all our case studies. Customer value, the right price, better service, ease of use, time to market and the right market dependencies are all influential. In any given case, multiple factors are at work. Recalling the overall model of the impacts electronic services on customer and service provider costs and value that we introduced in Chapter I, **Figure 3.3** applies these factors to "retrofit" the outcome of the

Philips/Citibank Screen-phone case.

III. The Economics of Internet-Based Financial Services

The implications of Internet services for financial institutions depend on how fast existing institutions are able to change these behavioral patterns. But they also depend on the actions of other players who are entering the Internet arena with different skills and backgrounds, the strategies these players choose, and the fundamental economics of scale, scope, and innovation that pertain to Internet services. This section considers these elements in turn, as a foundation for alternative scenarios for the industry's development.

- **Economics of Scale, Scope and Learning**

A key influence on competitive outcomes in the financial services industry is the fundamental economics of producing and delivering financial services. This determines the entry barriers faced by new entrants to the industry, the economics of consolidating service delivery within vertically-integrated companies, the approaches that players in the industry take to differentiating their their services, and the degree to which early investments provide so-called "first mover advantages " that justify their increased risk levels.

As we noted earlier, there is already a large body of evidence on the question of scale and scope economies in conventional financial services. The overall conclusion has been that some scale economies do exist, but that economies of scope have been hard to realize. As discussed below, one important impact of the Internet may be strengthen these economies of scope, while extending scale economies to smaller players and enabling new kinds of technology partnerships among service providers. (See **Figure 3.4.)**

1. Scale Economies

As noted, most of the available research on financial services has concluded that scale economies in financial services are present, but that they are exhausted at relatively modest scales, and that their overall impacts have been dominated by factors like regulation and management inefficiency. Some services like data warehousing, billing, check processing, ATM networks, or retail branches do appear to be subject to important economies, because they require large initial investments in equipment, networks, and facilities that have to be amortized over high transaction volumes. Others may have been subject to *diseconomie*s of scale -- for example, advisory services that required special attention to individual customers. In general, up to now the overall balance of forces has probably favored larger enterprises because of the high entry costs of setting up physical service networks, and many observers have argued that in the absence of regulatory barriers, much more industry consolidation would have already taken place.

The impact of Internet-based services on these relationships is complex, but its net

effect for many kinds of retail services appears to be to sharply reduce the fixed costs of designing and distributing them, as well as the incremental costs of operating them. This significantly reduces the advantages of scale and verticle integration, for several reasons:

- **Lower Entry and Exit Costs, Substitutes for Physical Networks**. The Internet provides a substitute for capital-intensive physical distribution networks like branch networks, foreign offices, and ATM networks. This sharply reduces the costs of entry as well as the costs of exit. In effect, many local players may now be able to match at least the production and distribution capabilities, if not the marketing budgets, of industry leaders.

- **Lower Entry and Exit Costs, Other New Electronic Services.** The Internet also provides much lower-cost substitute for electronic financial services that up to now have required expensive investments in proprietary networks. These include electronic data interchange (EDI) and electronic payments, customer support, and other transaction-based retail services. For these services, entry and exit barriers have also declined sharply. This is partly because the use of "open" systems has sharply reduced the cost of design, development and deployment. There is also now a huge external industry supplying all the technology needed for Internet-based services on a competitive bases -- organizations are no longer hostage to their own "IT monopolists." At a recent banking industry conference, for example, there were more than 600 technology vendors, including two dozen that were specializing in providing turnkey Internet banking and brokerage systems to direct competitors.

Consistent with this, our interviews indicate that new Internet banking sites -- including authentication, registration, security, transactions and account transfer capabilities -- can be developed for well under $1 million for the first 10,000 users, or as little as $50 to $100 per user. At least for individual transaction services, therefore, this levels the playing field considerably.

- **Lower Entry Costs, Global Marketing.** It might be thought that larger players would still benefit from entry barriers that have to do with the costs of branding and marketing. But the Internet also helps to increase competition on that score, as well, by providing a new, more competitive global channel for marketing that is easily accessible to smaller players. While large institutions may still benefit disproportionately from quantity discounts on advertising and other scale-related marketing premiums, their relative advantage is less. Assuming a smaller institution has something to say, it can now at least be said globally quite

- **Lower/ "Zero" Marginal Costs – All Services.** If the "first-copy" costs for Internet-based services are much lower than for their conventional bricks-and-mortar counterparts, so are the *incremental* costs of operating and supporting new services. Indeed, in the limiting case where customers

download software over the Internet, train themselves, and take over the role of managing their own account inquiries, transactions, deposits, and trades remotely, these marginal operating costs -- perhaps apart from sales and marketing costs -- are close to nil. Here the Internet also reduces scale economies, in the sense that after customer #1 appears, there are no particular *differential cost advantages* to having more and more customers.

- **Specialization and De-Integration**. There is one offsetting feature of Internet services that may lead to greater industry concentration in some retail financial segments. This is the fact that they make it easier for institutions to specialize in activities where scale economies apply, reselling these services to others on a "private label" basis. This is a consistent with a less-integrated overall industry, since it fosters a free market for intermediate services like check processing and bill presentment, and enables smaller "downstream" institutions to compete. The recent growth of new non-bank service providers like Check free is an example of this de-integrated specialist model.

- **Other Sources of Scale Economies**. For other services that don't fit this low-entry, zero marginal cost model, they may be actually new opportunities for realizing scale economies. For example, existing functions like marketing and customer support might be relocated to remote service centers with the help of Web technology, including the development of Web-based call centers that share customer databases and use a combination of real-time telephony, e-mail and Web-based information to provide automatic support.

As discussed below, accumulating more and more customers may also provide *differential value advantages*, because it facilitates "data mining," the collection and analysis of data on customer financial service needs. However, these benefits are most important when they are applied across multiple Web services, so they are best regarded as economies of scope.

Finally, the growth of Web-based electronic commerce may also facilitate the rise of entirely new service roles for which there are strong scale economies – for example, the role of providing digital certificates for electronic transactions and software authentication that was described in Chapter II. This role may be a natural extension of the "authentication" and "letter of credit" function that banks have traditionally played in the credit and payments systems. However, it appears that leading non-bank institutions are also beginning to take an interest in it as well. We will consider the implications of this role further in the last section of this chapter.

- **Actual *Dis*economies -- Evidence to Date.** All the effects discussed above are theoretical; it is also important to look at what Internet service providers have been able to achieve in practice. To date, there is some evidence of *diseconomies* of scale in Internet services, although this may just be due to the fact that early leaders have made costly mistakes. As shown in **Figure 3.5**, the experience of commercial Internet service providers and banks that have

invested heavily in Internet services is that development and equipment costs have, if anything, tended to increase with service size. These effects, a combination of experience and scale effects, may be due to the fact that these early services have all been developed on a "custom" basis. They might be overcome with the help of new architectures that permit network services like authentication, customer care, billing, security, and mirroring to be shared across different applications. But at least so far, the "custom" approach to building Internet services has not favored larger development efforts.

Strategy Implications. For Internet-based financial services where this "modest first-copy cost/ low marginal cost/" economic model applies, the competitive battlefield becomes very different from what the financial services industry has been used to:

- From a development, production and distribution standpoint, it is now much easier than ever before to launch all kinds of new offers. (So much for heavy IT investments, huge internal IT departments, and long lead times.)

- Given the fact that so much Internet technology is publicly available, many of these offers may be *technically* quite similar, at least at a fundamental level. Efforts to differentiate services will tend to focus on user interface design, ease of use, performance, and "business model" distinctions that are readily apparent to customers. (So much for high-cost proprietary, non-interoperable development efforts and services.)

- Once development costs have been swallowed, there are strong incentives for service providers to essentially flood markets with "free" competing offers and services, in a race for market share. (So much for attempts to charge customers for software, services, access, or individual transactions – the existence of very low transactions costs is likely to encourage flat-rate/ fixed pricing for many retail services.)

- This means that the strategic battle increasingly shifts to the "technology marketing" tasks of (a) targeting and acquiring new customers, and (b) retaining existing customers. Technology design can help with these tasks. For example, to retain existing customers – the main focus of many institutions -- peer software can be made highly customizable. Once customers have tailored it to their individual situations and interests (e.g., stock portfolios, accounts, news agents, analytical tools, other software applications, and so forth), this increases switching costs, and customers become locked in. Following the model that has become standard in the PC software industry, service providers can reinforce these lock-in effects by providing customers with regular upgrades of their peer software, and by integrating their Internet services with other retail services so that they complement each other.

2. Economies of Scope

While scale economies have to do with the incremental cost of increasing supply for any given service, scope economies pertain to the *costs of adding additional services and customers* to an existing services platform. As noted in Chapter I, the financial service industry's experience with cross-selling multiple products to the same customer basis has been pretty negative. However, the Internet leads to much greater economies of scope, for several reasons.

- **Extensible Platforms.** The Internet makes it easy to share the same underlying network infrastructure, customer support systems, and user interfaces across multiple services, and to distribute new interoperable services to new and old customers. By comparison, previous cross-selling efforts not only relied on distinctive "stovepipe" infrastructures whose costs were *additive* at best; they also required customers to *retool* for each new service's distinctive interfaces and user requirements.

- On the supply side, the incremental cost of delivering new services on a *scalable* Internet services platform are small.

- On the demand side, customers who are familiar with one Internet services channel find it easy and inexpensive to embrace others as well. If the services are well-designed, they will provide customization features that can be "ported" across incremental services by the customer, extending the lock-in effects that were described earlier.

- **Understanding Customer Needs.** The Web also provides powerful tools for gathering data on customer needs across individual product lines and sharing this data across product groups. Data on usage can be extended to incremental customers and products at low marginal cost.

- **Shared Infrastructure and De-Integration.** Internet technology also facilitates new kinds of partnering arrangements, making it easier for service providers to share network infrastructure and backoffice functions without integrating all the way forward into each new service. This lets them take full advantage of scope economies -- service providers can focus on understanding customer needs and deliver a wider range of services.

Overall, therefore, the Internet's impact is to increase scope economies, encouraging institutions to add more and more services to existing platforms at low incremental cost. This has an ambiguous impact on industry competition – it may help new entrants gain customers by offering new combinations of services, but it would also help institutions with existing customer bases defend them by providing multiple services. In either case, the economics of the industry's separate, vertically-integrated product "stovepines" have been fundamentally undermined.

3. Economies of Learning

Another important kind of production economy for Internet-based services has to do with learning, the accumulation of useful experience with respect to service design, technology, and network management over time. In theory, such experience could provide a kind of "first -mover advantage" that doesn't depend on sheer scale or scope at any point in time, but on *cumulative* activity. Thus even smaller players might be able to move faster and accumulate more knowhow. In practice, however, more than 80 percent of all investment in new Web-based technology in the financial services industry has so far been provided by world's top twenty financial institutions. Assuming that such expenditures are correlated with learning, this might lead us to expect that learning would be dominated by scale effects. But there are offsetting factors.

- Most of the world's Internet service experience is actually being accumulated by third-party systems integrators and software and hardware vendors. Since they develop Internet applications for many other industries, their cumulative IT experience is even larger than that of the world's largest financial institutions. The existence of this highly competitive industry of technology suppliers is one of the most important factors driving the Internet's growth, and it is another fundamental *equalizer* for the financial services industry. Thus the industry cost curve for financial services is no longer simply the sum of the cost curves of its individual members, and it also depends on the growth rate of other Internet-based industries.

- Furthermore, much of this *global industry's experience* is now essentially *public*, or at least *marketed*, available to all firms regardless of size or experience. Lead times are short, imitation is rapid, the influence of industry standards are strong, and with few exceptions, basic innovation is beyond the reach of any single service provider. In this environment, competitive goals shift from *technology dominance* and *proprietary learning* to *technology management, design, and service quality* – the timely and adroit implementation of things that most other competitors already know.

All this leaves room Internet strategy a little indeterminate – there is plenty of room for competitors to position themselves quite differently in the market, with some focusing more on early adoption, scale, or scope, and others specializing in particular customer segments. While larger incumbents start out with capital and customers, and should in principle be able to capitalize on the economies of scope and lock-in described earlier, there is plenty of room for smaller, more agile competitors to take grab share from stodgier big brothers. We will explore the alternative roles available to competitors in the section on End-states below.

- **The Economics of Network-Based Markets**

One other critical aspect of the economies of Internet-based services is that they are prime examples of "network-based markets," where, up to a point, customers and

competitors alike may all actually benefit from the presence of other competitors in the market.

For example, in the case of smart card readers or ATM machines, every additional interoperable device *multiplies* the value of a service to customers – whether or not the devices are all provided by the same institution. From a service provider's standpoint, where such so-called network effects are strong, the increase in market size that results from having more players in a new market helps to cut the cost to build, cost to serve, and the time to profitability. This kind of network effect is even stronger in the case of technologies like the Internet or the telephone that permit multipoint communication.

All this implies that it may make often sense for industry leaders to actually welcome potential rivals into a new market, and set standards for networked services that insure interoperability among competitive services. This concept is well-understood in the software and telecommunications industries, but it is not always implemented even there, because of strong rivalries that sometimes develop among industry leaders. In general, financial services rivals has been even more reluctant to work together on standards that can help to grow new markets like those for Internet services.

Figure 3.6 compares this kind of **network–based market** with two other kinds of markets – the **neoclassical market** beloved by conventional economists, and the **benign monopolist market** originally described by the economist Joseph Schumpeter.

In neoclassical markets there is a direct tradeoff between market size and market power, as represented by the industry leader's market share. The products and services offered in such markets are typically simple commodities that are virtually identical, never improve, and are independent of each other in consumption and production. In this situation, any good monopolist, unrestrained by antitrust laws, will be tempted to reduce production below free-market levels in order to boost prices and profit.

Schumpeter's benign monopolist stands this relationship on its head. Over time, this beneficent fellow actually generates a *larger* market, by investing more heavily in innovation, helping to eliminate undesirable incompatibilities among disparate products, and providing market stability. Obviously this presumes that the kind of products and services offered in this kind of market are complex – they are diverse, they change over time, and they have to interoperate with one another to add value. We might also call this a kind of "pre-Internet/ Bell Labs" kind of market, in which it is presumed that there are great benefits to central control, vertical integration, and hierarchy. In other words, one is tempted to envision a world in which *mainframe data centers* are doing all the processing, security is a matter of *physically-segregated* connections and facilities, *bandwidth is scarce*, and distributed decision-making is costly to implement.

In financial services, this mode of production seldom really produced monopoly *per se*. But it did tend to yield a kind of "feudal" corporate structure, with the commanding heights of the industry presided over by a relatively small number of vertically-integrated institutions, each with their own extensive private communications networks, private computer networks and in-house IT departments.

High bandwidth was only available through leased lines and endpoints could not perform effective encryption so security required a restricted access environment. There were no interoperable, standard networks; there were in effect many private channels, developed an operated best by the banks But those channels are being replaced with the Internet, and as illustrated in the technology sector, it is a global platform, controlled by no one, owing its growth everyone, and providing the bandwidth and security through secure messages, not monopolistic control.

Networked-based markets, especially those for communications, Internet commerce, and Internet-based retail financial services, are rather different from both these either of these between these two extremes. In networked markets, market size, growth, and profitability are maximized when industry leaders concede some turf to rivals, by, among other things, sharing technology, providing interoperable systems, and subsidizing the development of standards for key service platforms. In this environment, networks are no longer centralized; an abundance of bandwidth permits processing and decision-making to be distributed to the edges of the network

- **Key Country Variables**

In addition to these basic industry-level forces at work on the economics of Internet-based services, there are also geographic variables that can have an important influence on industry outcomes. These country-specific influences are especially important for companies that compete across multiple markets to understand, since they influence the degree to which Internet services can realize economies of shared design and deployment across geographic boundaries. But since some countries have been much earlier adopters of Internet services than others, they also help to provide an indication of what the future may have in store even for companies that stay close to home.

As shown in **Figure 3.7**, among the most important country-level parameters are overall macro-economic factors like national income and growth, the strength of telecommunications and data networking infrastructure, government policies toward the Internet, telecommunications, and financial services, the role of banks and non-banks within the existing financial services industry, and the relative strength and structure of the domestic payments system. The following briefly describes the influence that these variables can have on local markets for Internet-based services.

- **Overall Macro-Economic Factors.** The market for Internet-based services and financial services in general are strongly affected by macroeconomic factors, not only the level and growth rate of income, but also by the rate of

inflation, the share of trade and investment in economic activity, and the overall distribution of income and education. To begin with, as shown in **Figure 3.8,** there are strong positive relationships between country income levels, phone lines per capita, and Web hosts per capita. In fact, despite its potential for global reach, Internet activity has so far been even more concentrated among high-income countries than telephony.

As of 1997, for example, if we rank countries by income levels, the bottom three-quarters of the world's 5.9 billion people accounted for only 16 percent of all phone lines, and only *two* percent of all Web servers. At the other end of the spectrum, the US, with just five percent of the world's population, accounted for 26% of all phone lines and more than 61 percent of all Web servers; Scandinavian countries, with less than a half percent of world population, accounted for 2.5 percent of all phone lines and more than 6 percent of all Web hosts.

Even among countries at a given income level, it turns out that there are important variations in the level of Internet service development. As **Figure 3.9**indicates, high-income countries like Finland, Sweden, Australia, and the US have several times as much Internet service activity as fellow high-income countries like France, the UK, Italy, and Germany, while certain emerging markets like South Africa, Singapore, Estonia, and Israel have much more active local Internet services than many of these developed countries.

Since the Internet is a global services market, while much of the requisite skills and experience are accumulated locally, this indicates that the choice of country location alone could be a key determinant of competitiveness in the provision of competitive Web services. Of course there are also other country-level variations in new financial channels beside Internet services – **Figure 3.10** provides a summary of comparative measures for a handful of key countries.

Specific macroeconomic environments can also have an important impact on the development of Internet services.

- **Telecommunications and Private Data Networks Infrastructure.** Another important country variable is the degree to which local telecommunication and data networks can support the high-speed, highly-distributed user access required by Internet services. At one end of the spectrum, countries like Sweden and Finland have been very aggressive in deploying high-bandwidth public and private data networks, and extensive Internet services. Pricing policies for access to the Internet have also encouraged its growth in some markets – for example, in the US, long distance phone calls are subject to a 2.75 cents per minute access charge by local phone companies at each end of the call, while calls to a local ISP are offered on a flat-rate basis independent of minutes. Thus the existence of these (artificial) access charges has indirectly encouraged the use of the

Internet for long-distance communications.

At the other end of the spectrum, many developing countries have for decades treated private data and long-distance telecommunications services as luxury goods that deserve to be taxed, while making local service almost free. Combined with government appetites for diverting revenue from the telecommunications sector to other uses, this pricing policy has often resulted in excess demand for local telephone service and long waiting lists for phone lines. At the same time, data services, including Internet and private leased-line networking services, have remained high-cost and limited in scope.

The existence of these expensive private leased-line tariffs in Europe and Asia also helps to account for the US's preferred role as a site for Web hosts – not only because most Web content has historically been there, but also because it is much cheaper to route traffic that is headed from, say, Australia to Japan all the way to the US and back than it is to route it over private lines directly. Longer term, as more backbone is added and these tariff policies change, the Internet will become more truly global; for the moment, the Internet's architecture is very US-centric.

- **Government Policy.** Policies with respect to the development of the Internet and telecommunications are another key country variable. We can distinguish country regimes that have been "pro-Internet and pro-competitive," from those that have tended to be much less sup portative. To cite a few examples:

- In **France**, for example, in 1981 the French government and France Telecom took the lead in creating the world's first public on-line service, subsidizing the deployment of data terminals to homes and offices all over the country. In the long run, however, the deployment of this proprietary (1200 bps!) network may have actually discouraged the Internet's growth in France; only recently has the French government decide to upgrade and open up the Minitel system to an Internet-based platform, and Internet service penetration in France remains relatively low.

- In **Finland**, a combination of government and industry support has produced the highest usage rates for Internet and wireless services in the world, as well as one of the only all-digital telephone networks in existence. In the early 1980s, Finland's Ministry of Education began to provide free Internet access to all schools and universities. It sponsored the development of a high-bandwidth network that connects leading schools, as well as educational programming delivered over the Internet to the home. Finland has also long had one of the world's most competitive domestic telecommunications markets, with 49 local telephone companies that compete vigorously against state-owned Telecom Finland. Its markets have also been open to foreign telecommunications operators since 1994. As a result, Finland now has among the world's lowest rates for international,

wireless, and domestic calls. Another key supporter of these pro-competitive policies has been Nokia, a leading global wireless equipment competitor. Nokia understood very early that in order to strengthen its own competitiveness in export markets, it would benefit from Finland having a cutting-edge domestic market for telecommunications and Internet services.

- Until recently, **Brazil** had maintained a much more closed, state-monopolistic market for telecommunication services from the mid-1960s on. But it also permitted high inflation rates as a matter of policy from the early 1960s until the mid-1990s. This encouraged the growth of electronic banking and relatively sophisticated private corporate data networks, because retail customers needed to monitor and control their account balances on a daily basis. Today, Brazil – with a population of 166 million and a per capita income of just $5400 – has more than 1.6 million retail Internet banking customers, one of the world's highest penetration rates for such services. Now that telecommunications are once again being privatized and Internet services are expanding rapidly, this provides an interesting customer base for financial institutions in Brazil.

- In **Singapore**, **Malayisia**, and **Hong Kong**, Asian financial markets that are otherwise quite sophisticated, the Internet's expansion has been constrained by government concerns about unrestricted freedom of expression. Thus all Internet service providers have to connect to the Internet through government-run "hubs" and caching servers like Singapore's I-HUB, and local governments are trying to implement stiff restrictions on specific content and on using encryption to protect privacy. It is unlikely that Internet-based financial services would prosper in such environments, despite the fact that Internet use in these markets is already quite high – for example, in 1997, about 33 percent of all households in Singapore had Internet access.

- **Financial Services Industry Structure and Roles.** The structure of a country's financial services industry, and the role of banks and non-banks in its payments system, also has an important impact on the role of new electronic services.

- In **Canada**, domestic banking is dominated by a half-dozen commercial banks, which have taken the lead in proliferating debt cards and point-of-sale transactions systems. While most of them also offer Mastercard or Visa credit cards, they have worked together closely to encourage the use of retail debit cards. Smart cards might have been another "bank-friendly" payment alternative, as in Europe, but Canada's high-quality telecommunications network made it easier to do over-the-phone debit card verifications. The result is that debit card transactions now dominate credit card transactions – Canada alone now registers more than three times the annual volume of all US debit card transactions.

- In the **US**, with ten times Canada's population but more than 9000 (relatively

disparate) banks and a dozen major credit card companies, credit cards, checking, and cash dominate debt cards and smart cards, which are more "bank-friendly."

- In **Germany, Switzerland, the Netherlands**, **Sweden,** and **France,** financial conglomerates led by commercial banks have established a dominant role in such "non-bank" retail services as insurance and securities trading. In France, banks have also led the way in encouraging the widespread adoption of smart cards, which provided the banks with automatic debiting without exceeding the capabilities of the French telephone network.

Together, all these examples show the importance taking the mix of country locations into account for customers as well as service facilities, when thinking about the competitive impact of Internet-based services.

III. Industry End-states

Given these forces at work, we will now try to draw some overall implications of the "new economics" of Internet-based services for the competitive landscape in financial services industry. Our aim is not to forecast the industry precisely, but rather to develop a framework for thinking about industry alternatives and identifying how they depend on strategic choices as well as largely -exogenous forces like technology. Indeed, one key theme is that the competitive landscape depends a great deal on the strategies pursued by industry members.

- **Alternatives**

As a forcing device it will be useful to start out with the following thought experiment – thinking five to ten years down the road, what are the possible competitive landscapes for the financial services industry? In principle, as we saw above, this outlook should really be developed for each key geographic market, but to get started we will focus on the US market.

Obviously there are many variables that combine to produce industry scenario. At the outset, however, one way to proceed is by focusing on identifying structural possibilities. As described in **Figure 3.11**., at a generic level, every retail financial service has a similar set of "upstream" and "downstream" activities. As we explored in the previous section of this chapter, the Internet could have a profound impact on the benefits of vertical integration across these activities, as well as the economies of scale in offering any particular service, and the economies of scope from offering multiple services to the same customers.

By focusing on the benefits of scale, scope, and vertical integration, therefore, we can identify the following logical alternatives. (See **Figure 3.12**.)

Each of these alternatives is an extreme case, and it is not likely that any of them would appear in pure form. Indeed the "mixed cases" are the most interesting, as we will argue below. But we can find real-world analogies for most of them, as indicated by the last column in **Figure 3.12**. The following briefly describes each of these logical alternatives, grouping them by their.

1. **Base Case.** This alternative is labeled the "base case" because it is a rough approximation to the current economics of the retail financial services industry as a whole – with limited realized economies of scope and scale, and a high degree of vertical integration. Firms in this kind of industry tend to specialize in a limited range of products and services, and there are a relatively large number of non-dominant suppliers for any given service.

2. **Consolidation Alternatives** Two end-states would favor a much more consolidated retail financial service industry than exists today, because of newly-tapped economies of scale and scope. These alternatives appear to be the most consistent with the recent agglomerating behavior by many leaders in the financial services industry.
    a. **Specialized Giants.** In this end-state, rather like the US chemical industry, the industry comes to be dominated by a handful of companies that each specializes in a relatively narrow range of products. This is consistent with an industry characterized by limited economies of scope, but moderate to high scale economies and important gains to vertical integration. In a financial services context, this would be consistent with an industry outlook in which, say, major banks, brokerages, and life insurance companies gradually gobbled up their immediate competitors in their own service arenas, but preserved existing product line boundaries.
    b. **Conglomeration.** In this end-state, unlike one one ab-Dominance by a handful of global financial conglomerates industry players. All financial products provided. Scale economies dominate. Multi-service companies. Little disintermediation. Existing large players dominate

4. Fragmentation. Industry returns to its fiercely competitive highly fragmented roots. New relatively small entrants.

Disintermediation/ Re-intermediation. New kinds of players enter market. Existing players of all sizes are replaced by new service approaches.

Gradual Evolution/ Continuity.

- **Key Drivers**

In particular, focusing on those drivers that pertain to the economics of Internet service, we can identify a handful of industry end-states that are more or less favored by these underlying drivers. Even within this market there are many different variables to consider, each of which has a range of possible values. Among the most important are the following:

- **Economics of Internet Services --** trends in economies of scale, scope, and the benefits of vertical integration for Internet-based services;

- **Internet Penetration** -- the percent of potential customers on the Internet, and the intensity of Internet use;

- **Internet Technical Progress** -- the rate of technical progress in key Internet technologies;

- **Standardization** – the degree to which financial service institutions and technology providers are able to implement industry standards for Internet-based services;

- **Regulation** – the degree to which regulatory barriers to financial service convergence, global competition, and Internet service growth are maintained;

- **Electronic Payments** -- the extent to which new forms of electronic payments, bill presentment, and Internet-compatible "smart cards" are able to displace paper-based checks, cash, and billing, as well as conventional credit or debit cards.

These drivers are not really independent of each other -- for example, the rate of technical progress and the degree of industry standardization will both impact customer penetration for Internet services. However, they do provide a useful short list of "intermediary variables" that can help to discriminate among alternative industry end-states. Depending on how these variables turn out, the industry will end up with very different competitive structures.

- **Alternative Roles**

Not just one winning strategy. Role choice

When these roles collide, they open the door to a range of alternative outcomes for the industry, which as a simplifying device can be described as alternative end-states.

A great deal depends on strategic critical choices and uncertainties.

Similar results with alternative combinations of "inputs" : markets can tolerate many different competitors with distinctive positions…according to

different customer segments. Existence of differentiated customer base permits differentiation.

- **Speed, technology leadership, niche focus combination**
-

- **Fast follower, large scale,**

Of course many different strategic roles may be played. They are also not exclusive, so that, for example, the same company might take on different roles in a variety of markets at once. At least four dimensions – scope -- the breadth of Internet services pursued; leadership, the extent to which an early adopter role is taken whatever breadth of services is chosen;

origination, the degree to which one is an originator, reseller, or just an evaluator of certain

Internet-based services; and base, the degree to which one has pre-existing position in particular non-Internet financial services. In principle one can describe many different combinations of these four basic variables. However, for our purposes, as summarized in **Figure** the following roles have the most interesting implications for the industry.

- **"Niche Leader"**
- **"Consolidator"**
- **"Service Supermarket"**
- **New Service Provider**

New Roles

There are also important forces at work at the level of key subsystems of the financial services industry, especially the structure of payments systems, networks for the distribution of financial news and expert advice, , the and systems for credit reporting. Given its potential importance to our analysis of end-states in Internet-based services, we will focus here on the

- **Intelligent Advisory Networks**
- **Certificate Authorities**
- **Payment Systems Developments**

One new role specifically worth highlighting.

Risk of abnegating traditional role in the economy to other players.