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**Financial Services and
the Evolution of Self-Service**
From ATM to Credit Card Kiosk

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WHITE PAPER

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INTRODUCTION

Since the industrial revolution, businesses have sought to automate processes with the goal of reducing costs, increasing speed, and eliminating the variance and uncertainty inherent in the human element. Such automation naturally began in the manufacturing sector, but as the economy evolved and technology progressed, it led to self-service in the retail and service sectors, progressing steadily to more and more complex and useful forms. One industry that has been greatly impacted by this “self-service revolution” is financial services, where kiosk-based self-service—in the form of the ATM—has revolutionized banking.

Focusing on financial services, this paper surveys the evolution of self-service machines and kiosks and analyzes the factors that make a given task or function suitable for such a device. Applying this analysis, it then demonstrates that one next logical manifestation of self-service technology in financial services would be a credit card kiosk.

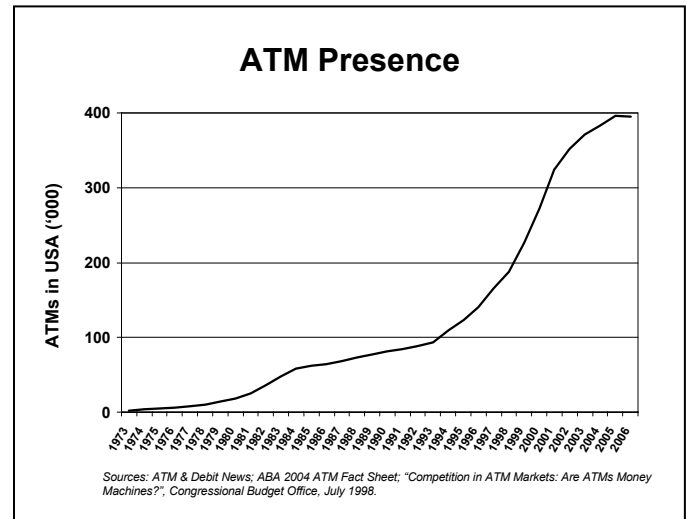
THE EVOLUTION OF SELF-SERVICE

The genesis of retail self-service dates back to the 1880s, when gumball machines and postcard dispensing machines were introduced in New York and London, respectively. Soon the range of vending machines was expanded, offering snacks, drinks, and cigarettes, which continue to represent the most important products sold by self service today.

As technology progressed, businesses began to transfer more complex functions to self-service machines, moving from basic mechanical devices that provided a product in exchange for coins to machines that could deliver or perform a wide array of services. The last ten years have seen an explosion in self-service devices, as they have become an integral part of life in the industrialized world, used in nearly all sectors of the economy.

The financial services industry was at the forefront of this transformation with the introduction of the Automated Teller Machine (ATM) in the late 1960s. Conceived originally as a cash dispenser for preferred customers only, by the 1980s the ATM was ubiquitous and offering a variety of services.¹ Any bank that did not make

¹ Another period of intense growth was experienced in the mid-1990s, as the deregulation of fees led to the multiplication of non-branch-located ATMs.



extensive use of the ATM found itself at a competitive disadvantage. Successful uses in other industries include gas station self-service payment, airport check-in kiosks, and movie ticket kiosks.

Some view the trend toward self-service as merely part of the larger trend in the business community toward reducing costs, automating tasks that can be performed more cheaply by a machine than a human. The facts, however, do not bear out this narrow view of self-service. Indeed, numerous technological and cultural factors have operated together to create this drive toward self-service.

Technological Evolution

The evolution of self-service devices mirrors the evolution of technology. Successive advances in technology have increased the variety of products and services machines can offer, accelerated transaction times, and broadened the means of payment. For example, computer networking and interface advances have led to automated check-in kiosks at hotels and airports, while optical and magnetic scanning technology has expanded the ways a consumer can pay, permitting kiosks to offer higher-value products or services and fostering the introduction of self-service check-out at grocery stores.

Service-Based Economy

Culturally, the migration of countries from manufacturing-based to service-based economies has invariably led to a larger market for self-service.² As consumers grew more prosperous they began to indulge in service-based activities, such as dining, entertainment, and vacations. The myriad industries that have developed and pros-

² In the mid-1950s, the U.S., for the first time in its history, had more service jobs than manufacturing jobs, and by 2002 manufacturing accounted for a mere 13% of U.S. employment.

pered as a result of these changing lifestyles adopted various self-service solutions. Financial services developed the ATM, travel and leisure developed airport and hotel check-in kiosks, retail developed vending machines and self check-out. As newer services develop, self-service options for those services will appear.

Time Compression

Another cultural factor that has contributed to the increasing number of self-service options is the compression of time for the average consumer. Heavier workloads, two-income households, long commutes, and multiplying activities for children, among numerous other factors, have all contributed to consumers placing more value on their time. In such circumstances companies that can reduce the time it takes to perform a given service for their customers will obtain a competitive advantage.³ ATMs and self-service payment at gas stations were among the most successful such deployments.

Comfort with Technology

The consumer's comfort with technology has also played a role the multiplication of self-service devices. Consumers' willingness to use self-service for more complex or high-value tasks has increased as customers have grown more accustomed to using technology for such transactions, as has happened with the emergence of the internet as a consumer phenomenon.⁴

DETERMINING SELF-SERVICE VIABILITY

Although it is clear that the above factors propelled the general trend towards self-service, it is also clear that not all tasks are equally well-suited to self service; there are no iTunes or travel agency kiosks. There is a wide range of factors that indicate whether a given function is appropriate for a self-service offering, but two specifically seem to be particularly indicative: Whether a physical item is exchanged, and the immediacy or spontaneity of the transaction. While neither of these is a *sine qua non* of self-service, the presence of both signals a great likelihood of success, while the presence of neither tends to doom a self-service offering to failure.

³ It should be noted that although self-service devices have succeeded by reducing customer waiting times, it does not follow that they are inherently time-saving devices. Some companies, banks in particular, have introduced kiosks with a wide array of services, only to be forced to scale back when it became evident that customers taking advantage of these services were causing greater waiting times.

⁴ In 2006, 47 per cent of US households with an internet connection applied for a credit card online, an increase of more than 60 per cent in three years: "Credit cards lead online FS spending spree", Silicon.com, 24 October 2006.

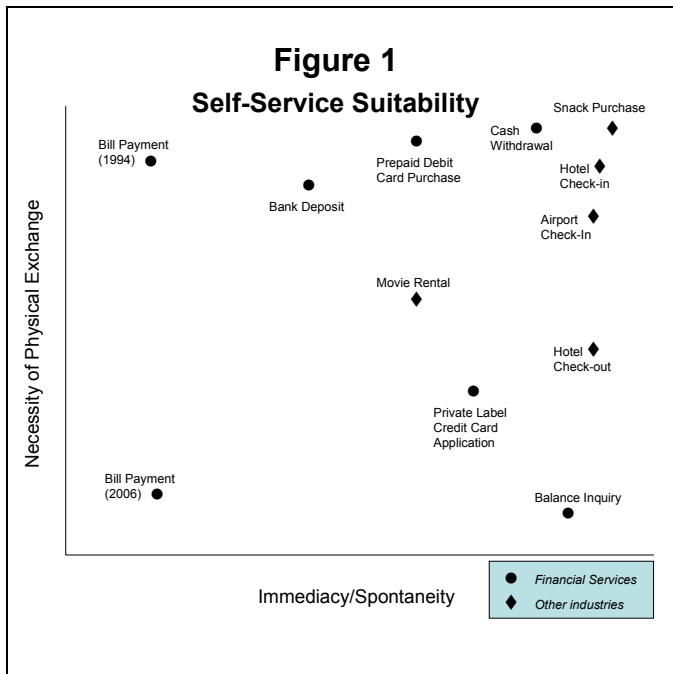
Physical Transaction

The most successful self-service devices all simplify tasks in which an item is transferred, either from the device to the customer or from the customer to the device. This item can take the form of cash, a ticket, a product, or a receipt, but the key is that the customer must give it to or take it from the device. The reason for this is fairly intuitive: If no exchange is necessary, why go to a kiosk? Consumers today have a range of communication channels open to them—phone and internet, in particular—and there is no reason to travel to the physical location of a self-service device if the only requirement of a task is the transmittal of information, as in registrations, subscriptions, or inquiries. Such tasks can usually be performed better or more comfortably by telephone or internet.

Immediacy or Spontaneity of Transaction

Equally important in determining the viability of self-service is the timing of a transaction. If the transaction is one the consumer needs to do when he or she is in proximity to the self-service device, as is generally the case with airport check-in, hotel check-in and movie ticket purchase, among others, the device will be used regularly. Similarly, if consumers are likely to spontaneously want to purchase the product or service, the self-service device can operate as a sales tool, generating incremental revenue that would otherwise not have been captured. Conversely, where there is no immediacy or spontaneity to the transaction, there is no reason for the prospective customer to use the self-service device. He or she can do it by mail, wait until he or she is at the store or branch to bundle it with other products or services, or simply never make the transaction. Devices created for such tasks are likely to gather dust.

Figure 1 (see next page) shows several tasks commonly performed by self-service. The criterion of immediacy and spontaneity is represented on the x axis, while that of the necessity of a physical transaction is on the y axis. According to the framework laid out above, the tasks most appropriate for self-service would be located in the uppermost right of the chart. The presence of "snack purchase" in this position bears this out. Snack and beverage vending machines were the first self-service successes. It is clear why. There is an obviously necessary physical transaction involved in the purchase of a snack; no digital substitute has yet been invented. Further, the purchase of snacks is generally spontaneous, and consumers want them when the urge strikes—no one wants to wait for a snack. This combination of factors made such machines a sure-fire success.



Application to Financial Services

In the realm of financial services, the success of the ATM for cash withdrawal was also to be expected. While there may be substitutes for cash, nearly everybody needs actual paper bills to some extent. The need for cash also happens spontaneously, and a person with an empty wallet is rarely willing to wait.

It is useful to examine other financial services in Figure 1. Balance inquiries are often needed immediately, as when an account-holder wants to know if a check will clear or whether a credit card payment went through. But there is no physical item being transacted in a balance inquiry, and the account-holder can often more conveniently perform the task using a telephone or the internet.

Bill payments are interesting in that their appropriateness for self-service has evolved in recent years. Bill payment is a particularly unspontaneous transaction, considering the several weeks of notice a customer is generally given. Even if a rush payment is necessary, an actual teller would be the preferred method. However, a decade ago customers needed a stub from their bill in order to pay it at a financial institution. This necessitated a physical transaction and allowed the ATM some middling success for bill payments—it offered similar convenience to the other option (mail) but no serious advantages over it. However, recent years have seen a shift away from the requirement of the presence of the stub and a panoply of new payment options has thus arisen: Payment by internet or by phone, through a credit card or bank account. The ATM holds no distinct

advantage over these and the use of it for bill payment thus seems destined to become a narrow niche.

It is important to note that tasks that perform poorly on either or both criteria can still be offered in self-service form. What the criteria indicate is that usage is likely to be limited for such functions. Thus, a stand-alone device offering this service would probably not be economically viable. This is not, however, a barrier to incorporating the service into existing devices, as with balance inquiries and bill payments in ATMs, or hotel check-out in hotel check-in kiosks. In evaluating a given function for delivery through a self-service device, it may be worthwhile to consider potential synergies with other functions that may not merit a stand-alone machine.

In considering whether to invest in self-service technology, it is important to understand that a function's position on the above chart can change with time and technological advances, as was the case with bill payment. This is particularly true for the physical transaction criterion, as the digitization and networking capability that provides such functionality to kiosks begins to provide similar functionality to the home and mobile devices of consumers. Prior to undertaking a deployment of self-service devices, firms need to consider whether the physical aspect of the transaction will continue to exist for the projected useful life of the machines (or at least until the breakeven point is reached).

Other Factors

While the presence of a physical transaction and immediacy/spontaneity may be the most important criteria, other factors also contribute to the success or failure of a given self-service device.

Security can be a very important criteria for certain tasks, and particularly for those in financial services. The customer's desire to put checks or cash into a sturdy secure device and receive explicit confirmation of receipt has led to the extensive use of ATMs for check and cash deposits. Banks are currently attempting to further drive such deposits by enhancing security on self-service deposits, using scanning technology to confirm the deposit and provide the customer with a receipt showing an image of the deposit.

Privacy concerns also factor in when dealing with financial services transactions. Retailers—furniture stores in particular—have seen great success by deploying kiosks that allow customers to apply for private label credit cards on-site prior to purchase. Such kiosks have appealed greatly to customers who would otherwise be reluctant to divulge their social security number or

income to a clerk or who feared embarrassment if they were refused credit.

CREDIT CARD KIOSKS

In recent years, the virtualization of many financial services has reduced the number of functions for which a self-service device would be appropriate, as the number of required physical transactions has decreased. However self-service opportunities do remain in one important unexploited area of financial services in which a physical exchange continues to play a key role: Credit cards. This creates a potential opportunity for financial services firms to deploy kiosks at which prospective cardholders could apply for and immediately receive credit cards.

Credit Card Kiosks — Appeal

Despite many technological advances, credit card holders will—at least for the medium term—continue to need plastic cards. Although great inroads have been made in internet and RFID purchases, all major credit card issuers still issue cards to all customers and only a minority of merchants accept non-card transactions. This physical transaction means that credit card kiosks would strongly satisfy the first condition cited in the above framework.

The other condition, that of spontaneity or immediacy, while less obvious, would also be fulfilled. Existing channels for credit card offers such as direct mail have become saturated as consumers receive dozens of such offers each year, most offering similar features.⁵ Companies send multiple offers to any given consumer, under the belief that often when the customer makes the spontaneous decision to apply for a credit card, he or she will use the most recent offer received. By installing credit card kiosks in strategic locations, a financial institution can take advantage of this spontaneity and multiply it by several orders of magnitude, since the impulse to apply for a credit card is most likely to be felt contemporaneously with the impulse to purchase. Department stores have been capitalizing on this for decades with specialized salespeople pushing their credit cards in-store. Doubtlessly, there exists a subsegment of prospective applicants who will deliberate over multiple credit card offers for days or even weeks before applying. However, there also exists a substantial subsegment that “hasn’t gotten around” to making an application and if presented with the opportunity to do so

specifically when it occurs to them, these individuals could drive applications through a self-service option.

In fact, the concept of card-dispensing kiosks has already been implemented by many retailers and financial institutions and retailers, who have used them to offer stored-value cards that can be used on a credit card network. For instance, in early 2006, 7-Eleven announced plans to partner with Citibank to install stored-value card dispensing ATMs in over 5,500 of its stores. In 2005, Cashworks, a division of GE Consumer Finance, introduced kiosks that allowed individuals to exchange (cash) their paychecks in return for prepaid debit cards. These kiosks differ greatly from the proposed credit card kiosks, however, in that they merely “sell” payment cards, while credit card kiosks would provide a real financial service by actually offering credit.

Credit card kiosks would present several attractive opportunities to credit card issuers. The most important would be their ability to open up a new distribution channel for credit card acquisitions. As mentioned above, direct mail channels are highly saturated and present little incremental opportunity. The use of branches as a distribution channel has lost its attractiveness as internet and ATM use have severely reduced branch visits. Moreover, branches are of limited

⁵ In 2005, credit card issuers sent out 6 billion offer through direct mail. However, just 0.3% of such offers generated responses, down from 2.8% in 1992: “Time for Credit-Card Offers to Get Lost”, Chicago Sun-Times, August 9, 2006.

<p>Customer Value Proposition</p>
<ul style="list-style-type: none"> • <i>Access to credit in emergency situations.</i> • <i>Access to credit for spur-of-the-moment purchases.</i> • <i>No waiting.</i> • <i>Confidential access to credit.</i> • <i>Immediate and convenient replacement card in case of loss or theft.</i> • <i>Ability to convert loyalty rewards to merchandise near the store.</i> • <i>Ability to conveniently purchase stored-value cards.</i>

use for targeting individuals who aren’t already customers (since customers would presumably have already been extensively marketed to) and are of no use to financial services firms that do not have a branch network. Attractive and attention-getting kiosks with the promise of instant issuance could attract a significant

number of individuals to apply because they suddenly want to purchase something or simply because they are waiting around and have the free time.

In addition to the long-term income generation provided by new cardholders, kiosks have the opportunity to generate incremental discount revenue on spending that would not have been placed on the card if it were issued through traditional means. For one, 3 to 10 incremental days of spending can be achieved simply by placing the card in the approved applicant's hands immediately rather than asking him or her to wait for it to be mailed. More importantly, kiosks in such locations could offer credit precisely when the consumer is most likely to want or need it. The issuance of cards under these circumstances would lead to near-immediate purchases in most cases, as applicants make impulse purchases. In the case of one of the furniture retailers mentioned above, the introduction of credit card application kiosks gave rise to 30% increases in average transaction size.⁶

Other functions that might not be suitable for stand-alone devices could be added to generate additional income from credit card kiosks. For instance, the ability to issue temporary cards would make the kiosks ideal for card replacement in case of loss or theft. Such use would allow the issuer to capture spending that would otherwise have been lost while the cardholder waited for a replacement card. In other situations, it could allow the issuer to avoid the high costs—express delivery and/or bank personnel time—involved in making an expedited emergency card replacement.

Credit card kiosks could also be used to issue loyalty rewards, driving down the cost of such rewards. While most rewards points issued by financial institutions are redeemed for rewards that do not involve a physical item, such as travel, a substantial minority of points are redeemed for gift certificates or cards redeemable at various retailers. Most importantly, the average cost to the financial institution of such gift certificates generally falls far below that of travel rewards. By placing kiosks in locations where they would encourage spontaneous redemptions for lower-cost gift certificates, financial institutions could reduce the average cost of rewards redemptions, while increasing engagement among cardholders.

Rewards redemption kiosks could issue gift cards in the same way the credit card kiosks described above would issue credit cards. Resistance might be felt from retail rewards partners fearing sales cannibalization, but negotiations could take place to devise a scheme to

compensate them, if deemed necessary. An equally compelling argument can be made, however, that such redemptions will drive foot traffic and encourage further sales for the retailer. Such kiosk use would also reduce the use of non-automated channels for rewards redemptions, thus decreasing servicing costs.

Yet another prospective use of the credit card kiosks would be to sell stored-value cards, potentially for use as gifts or travelers checks. As discussed above, stand-alone kiosks used to dispense prepaid debit card have already experienced a wide rollout in places such as convenience stores.

Credit Card Kiosks — Feasibility

While a hypothetical self-service credit card kiosk would be attractive, it would need to be practical. A survey of current technological advances indicates that although such credit card kiosks would likely fall at the higher end of the complexity scale, they could be built to the necessary specifications.

Achieving a certain level of speed and simplicity would be a key requirement in any successful credit card kiosk. Fortunately, card issuers have spent years addressing these issues in attempting to drive card applications to the internet. On the aspect of simplicity, financial institutions have refined their processes to the point that prospective cardholders can apply for cards online, with an acceptable minimum of necessary data points to be entered, such as name, address, and Social Security Number. A similar interface could easily be incorporated into a web-enabled kiosk. As for speed, these internet processes are now able to complete a credit check and approve a card within less than two minutes. Such a wait is less than what is typical at the checkout counter at most stores.

Of course, a prospective applicant is unlikely to take advantage of this streamlined process away from home unless it provides him or her with an account that can soon be used and a card with which to use it. The first part of that equation has already been solved by credit card issuers⁷ who provide an immediately usable credit card number upon approval through their online process.

The production of the actual card through a self-service kiosk would require a more innovative use of technology. The ideal machine would be able to print and emboss a permanent card for the approved applicant, identical to the card that would otherwise be sent by mail. Technology for such a device currently exists, but it is still in its infancy and thus presents certain problems. For one, the presence of such capability could add several

⁶ "Versatile Systems Launches Private Label Credit Solution for Retailers", Market News Publishing, 24 May 2006.

⁷ Capital One, for example.

thousand dollars to the cost of the kiosk. Second, there is great operational risk in using such an untested technology in an unsupervised setting, as embossing errors and “card jams” could occur and lead to significant down time for the kiosk.

A less risky alternative would be to stock the kiosks with unembossed temporary cards like those provided at the opening of a bank account or as emergency card replacements. The production of such cards would require only equipment to print on plastic and magnetize the cards, technology that currently exists and is readily available to kiosk manufacturers. Such machines could, upon approval, dispense a personalized and immediately usable card with a set expiration date one to four weeks in the future. A regular card would follow by mail.

Such a set-up would also assist in addressing another key issue with a payment card kiosk, that of security. Fraudulently obtained temporary cards would be difficult or impossible to use beyond the set expiry date. Temporary cards would also hold much less appeal to potential thieves than embossable blank cards.

The use of temporary cards would not be a panacea, and additional measures would need to be taken to prevent theft and fraud. The credit card kiosks would need to be sturdy and safe repositories for blank temporary credit cards. In order to prevent theft and subsequent fraudulent use of the cards, security measures similar (although not necessarily as stringent) to those used for ATMs would need to be implemented, such as a theft-proof and tamper-proof casing, and the use of bonded security personnel to restock the kiosks.

A greater risk than theft would be the approval through fraudulent means of a card that could be immediately used. This risk could be mitigated through the judicious use of expiration dates and credit limits, but it would still be present. Additional measures to confirm the identity of the applicant with a high degree of security would be necessary. The risks presented by the issuance of an actual card that can be immediately used are greater than those present in the issuance of an immediately usable account number—for one, the card allows purchases without providing an address. Still, a combination of the use of personal information and physical identification could reduce the risk to acceptable levels. One option would be to combine the use of an existing bank or credit card⁸—similar to the way airport kiosks use such items to confirm identity—and social security number.

⁸ The simple requirement that the thief stand by the machine for up to two minutes while awaiting approval may be a strong deterrent if he is required to use stolen (and possibly reported) identification.

Credit Card Kiosks — Implementation

Theoretically, self-service credit card kiosks could be integrated into ATMs, although good ATM locations may not be good locations for credit card or rewards redemption kiosks, and the unexciting and purely functional aesthetics of current ATM designs would probably not drive spontaneous applications and redemptions to the extent envisaged above.⁹ Indeed, the institutions with the most to gain from such devices may be those that currently lack a significant branch or ATM network, as the kiosks could help remedy the strategic disadvantage that the absence of such a network currently presents.

The number of additional cardholders a kiosk could acquire will vary greatly with the location in which it is situated. Consideration of several criteria will lead to the choice of successful locations. One such criterion is the level of foot traffic in a given location. One goal of the kiosks is to spur spontaneous applications, and placing them in areas with high foot traffic (and with high visibility) would allow them exposure to a high number of prospective applicants.

It should be remembered, however, that the goal for card issuers will not be to maximize applications, but rather to maximize approved applications. In fact, the issuer incurs costs—particularly credit report costs—with each application. The issuer should thus aspire to minimize the number of rejected applications while maximizing approved applications. To do this, locations with foot traffic with above-average incomes should generally be targeted, considering the correlation between creditworthiness and income¹⁰ and the fact that most credit card issuers have a minimum income requirement. This is not a hard-and-fast rule, however, as products specifically targeting a sub-prime market and placed in a location with average or below-average income foot traffic might be able to generate income sufficient to offset to higher costs.

To generate spontaneous applications, attractive locations would also include those where consumers spend considerable waiting time. Such locations would allow the prospective applicant time to consider his or her choice and make the application, and prompt idle consumers to apply.

⁹ Interestingly, at least one national bank has recently piloted making credit card offers to selected customers at ATMs. While the results of the pilot program have not been publicized, it is difficult to see how it could meet with any success. Such offers gave customers neither an actual card nor a usable card number, leaving completely absent the aspects of a physical transaction and spontaneity.

¹⁰ See, for instance, “Hitting the Wall: Credit as an Impediment to Homeownership”, R. W. Bostic, Paul S. Calem, and S. M. Wachter, Feb. 2004, Joint Center for Housing Studies, Harvard University. There is debate on this point and some studies have suggested that the correlation between credit score and income is very small or nonexistent.

Another important consideration would be the presence of merchants, specifically those that accept the credit card in question. Such kiosks would be mutually beneficial to merchant and card issuer: The products offered by the merchant would spur the application for credit, and the availability of credit would spur purchases at the merchant. Additional benefits could be garnered by offering gift cards as rewards redemptions, as mentioned above.

Using these criteria, several high-potential locations can be identified. Airports, for instance, have high foot traffic, long waiting times, and a largely higher-income clientele. They are not the ideal locations to drive impulse purchases with merchants, but for a large portion of passengers, such impulse purchases are imminent as they head off for vacations. Similarly, high-end malls and hotels offer a fortunate confluence of conditions. Specific locations must be chosen on a case-by-case basis, evaluating considerations such as the target applicant, merchant penetration, and occupancy costs.

Credit Card Kiosks — Economics

If properly implemented, a credit card kiosk rollout stands to generate substantial incremental income for a credit card issuer, considering that costs could be kept at a reasonable level.

The monthly occupancy costs for such a kiosk could range from \$500 to \$1,000, while maintenance would be approximately \$500, for a total of \$12,000 to \$18,000 annually. The design and production of such kiosks on the medium scale of 200 to 500 units would cost somewhere in the range of \$5,000 to \$12,000 per unit.

The revenue generated by such kiosks—be it discount revenue, fees, financing charges, or operational savings—would vary wildly depending on the credit cards offered, consumers targeted, and locations chosen. However, if one makes the conservative assumption that the average new card can be expected to generate \$50 in income annually, then by acquiring 300 new cardholders a year—less than one per day—these kiosks can be expected to reach their breakeven point before the end of their second year. Any revenue or savings from functions other than issuing credit cards would be purely incremental.

CONCLUSION

Self service has been a boon to the financial services industry, allowing its personnel to reduce the time spent on routine tasks and focus on high-value-added functions that drive new business, such as loans and

investments. To date, however, inside-the-box thinking has restricted the use of self-service to executing formerly branch-performed functions like cash dispensing and bill payment. The expansion of consumer financial services beyond the traditional branch model should cause executives in the industry to think more broadly and explore other avenues in which self-service could present opportunities to develop a competitive advantage.

Given the physicality and spontaneity of the application for and issuance of credit cards, it is clear that this function presents an opportunity for self-service, which can be captured through the use of credit card kiosks placed in strategic locations. Such devices could be produced and maintained for costs that are very reasonable relative to their potential to acquire cardholders that will generate income regularly for an indefinite amount of time. Given the declining success and increasing cost of direct mail, decision-makers at credit card issuers need to consider the potential use of credit card kiosks as an additional distribution channel.

About FischerJordan

FischerJordan, headquartered in New York City, is a boutique management consulting firm founded in 2004 by alumni of the Mitchell Madison Group and Inductis. FischerJordan has delivered hundreds of millions of dollars of bottom line impact to Fortune 100 financial services companies through its focus on analytics-driven marketing strategy, rewards/loyalty strategy, and reengineering strategy.

About Zoltan Ambrus

As a senior associate at FischerJordan, Zoltan Ambrus has executed several high impact projects involving new payment products, operations offshoring strategy, credit card distribution channels, and reengineering strategy. Before joining Fischer Jordan, Mr. Ambrus was a tax attorney, representing Fortune 500 companies in international tax matters. Mr. Ambrus holds an MBA from the Ross School of Business at the University of Michigan.

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