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Why Hasn't Electronic Bill Presentment and Payment Taken Off?

Chris Stefanadis

The delivery and payment of bills over the Internet could offer many advantages—low processing costs and enhanced marketing opportunities for billers, savings in time and postage for customers. Nevertheless, electronic billing has not found favor with potential users. A lack of coordination among billers and customers, combined with the high fixed costs of the new technology, may help account for the cool reception.

In recent years, innovative financial service providers have introduced an array of new instruments that allow consumer and business bills to be delivered and paid electronically. The operators of these systems contend that the new electronic bill presentment and payment (EBPP) technology creates considerable efficiencies and is thus superior to traditional paper-based solutions. Nevertheless, despite the promise of significant benefits to participants, EBPP systems have yet to be widely adopted in the United States.

One of the main reasons that firms and households have been slow to embrace the new technology is the presence of coordination problems in the electronic payments sector. An EBPP system involves significant upfront costs for billers and customers. As a result, if billers believe that most of their customers will not establish connections to an EBPP system, they will refrain from purchasing it for fear that they will be unable to recover their fixed investment. Similarly, customers who believe that many of their billers will not use the systems may be reluctant to invest the time needed to familiarize themselves with the technology. Thus, it appears likely that a lack of coordination among potential users has discouraged interest in the technology and delayed its adoption.

In this edition of *Current Issues*, we offer an in-depth look at the new EBPP systems and the impediments to their widespread implementation. After reviewing the different models of electronic delivery and payment, we consider the benefits that might arise from the use of this technology and the coordination problems that make the realization of those benefits very difficult.

The analysis concludes with an examination of various strategies for mobilizing potential users of the EBPP systems and coordinating their participation. Providers and billers could take the lead by forming standard-setting committees to promote uniformity in EBPP systems, mounting an aggressive advertising campaign to alert customers to the availability and benefits of electronic billing, or offering customers financial incentives to enroll in EBPP networks. Providers could also devote more resources to research and development, with the goal of creating electronic billing systems so superior to conventional paper-based systems that they would speed acceptance of the new technology. Nevertheless, even with such initiatives under way, experience with other forms of electronic payment suggests that the growth of EBPP may be slow.

How EBPP Works

EBPP entails the delivery of bills and the placement of bill payment orders over the Internet or through a proprietary electronic network. In a typical transaction, a customer receives a bill electronically, together with a hyperlink to payment options. After reviewing the bill, the customer clicks on the link, selecting a method of payment and initiating the transfer of funds.[1] Electronic bill presentment can also be conducted separately from electronic bill payment; indeed, some providers offer only presentment or payment services. The technology can be used in business-to-consumer transactions, such as the payment of utility and credit card bills, or business-to-business transactions, such as the payment of procurement bills and invoices.

As a medium for bill payment, EBPP systems offer a direct alternative to paper checks. By contrast, a complementary relationship exists between EBPP and the traditional mechanisms of electronic payment—for example, credit card networks or the Automated Clearinghouse (ACH), a nationwide network for transferring funds between banks. Once a payment order is placed in an EBPP system, it is usually posted to a credit card account or processed through the ACH.

Electronic billing and payment systems conform to one of three basic models—direct, customer consolidator, and biller consolidator. In the first model, customers enter the biller's Internet or proprietary electronic site to receive and pay their bills directly. In the second model, customers subscribe to the services of a consolidator, a provider that pulls together bills on behalf of customers and allows individual subscribers to receive and pay all their bills on a single web site. The main source of revenue for customer consolidators is usually a monthly fee paid by each subscriber.

In the third model, billers subscribe to the services of a biller consolidator, a provider that allows its subscribers to present their bills and receive payments from customers on its Internet site. Because different billers subscribe to different consolidators, a customer may need to enter several web sites to gain access to all of his or her bills. Biller consolidators draw most of their revenue from the fees paid by biller subscribers; they often give customers access to their web site free of charge.

Benefits of EBPP Technology

The new EBPP technology has the potential to generate significant benefits for billers and customers. Benefits for billers might include lower processing and customer service costs, as well as improved marketing capabilities. EBPP can lead to lower processing costs by eliminating the need to print and mail paper bills and to handle customer checks. According to some estimates, the biller's average processing cost in a paper-based system is $1.25 per bill. The use of the Internet (or of proprietary electronic networks) may reduce this cost by 50 percent (Fassnacht and Archibold 2000).

Customer service costs are likely to drop with EBPP because errors tend to occur less frequently in electronic transactions than in paper transactions. With fewer errors, customers place fewer service calls, and billers can economize on personnel time and effort.[2] Billers can further lower their service costs by presenting interactive bills that make it possible to settle disputes electronically. Such interactive bills may eliminate the lengthy telephone conversations and fax messages that often accompany the resolution of disputes in traditional paper-based transactions.

In the long run, EBPP may also expand billers' marketing capability by enabling them to initiate and maintain communication with their customers over the Internet. Thanks largely to click-to-buy features, sales promotions are often more effective on the Internet than on paper. Furthermore, the use of the Internet may allow the biller to present marketing material tailored to individual customers.

EBPP's benefits for customers range from lower bill payment costs to improved money management capabilities. Customers are spared all postage costs and may be able to make payments through an Internet site free of charge.[3] Moreover, paying bills with one or two clicks of the mouse is clearly more convenient than writing checks, affixing stamps to envelopes, and using the postal service. The amount of time a customer spends on paying bills is likely to be markedly reduced.

The electronic systems may also save customers considerable time and effort by expediting inquiries and simplifying the resolution of errors and disagreements. Moreover, because bill information in an electronic form can be readily integrated in personal finance software packages, EBPP may help individuals manage their money more effectively.

How Electronic Billing Systems Have Been Received

The benefits expected from electronic billing would seem to guarantee a very favorable reception for the new technology. Indeed, when EBPP technology first emerged in the mid-1990s, it was widely expected to become a highly successful application. Many analysts viewed EBPP as a phenomenon analogous to electronic trading. Internet trading had caught fire during this same decade as investors sought to save on trading costs by bypassing their personal brokers and placing orders electronically. In the years that followed, equity trades over the Internet continued to claim a significant share of total industrywide trades—ranging, for example, from 15 percent to 30 percent in the period from first-quarter 2000 to first-quarter 2002 (Townsend 2002). EBPP, like electronic trading, offered the promise of cost savings through automation and thus appeared poised to capture a similarly large share of industry operations.

Expectations that EBPP systems would find immediate favor with firms and households were never realized, however. The adoption rate for the new systems remains low. In 2001, according to some industry estimates, less than 1 percent of consumer and business-to-business bills in the United States were presented and paid via an Internet roundtrip (TowerGroup 2001). Electronic bill payment has fared somewhat better than electronic bill presentment: 8.7 percent of U.S. consumers, for example, are reported to have paid at least one bill over the Internet in 2001 (Yankee Group 2001).

Impediments to EBPP Technology

What accounts for the low adoption rate of electronic billing systems? One key cause appears to be a lack of coordination among industry participants—a problem brought to the fore by the substantial fixed-cost requirements of EBPP. Although EBPP generates considerable operating efficiencies for every bill paid, it also requires billers to make a large initial investment in the technology. It is estimated that a biller has to incur an up-front fixed cost ranging between $150,000 and $1 million to develop EBPP capabilities; the average cost is approximately $400,000 (McVey and Brown 2000a). Because the ensuing benefits per bill are relatively low, a biller needs to issue a significant number of bills to recover its fixed investment. Customers also incur a fixed cost in the form of time since they must learn how to use one—or perhaps more—electronic billing and payment systems.

The cost and time commitments required to launch an EBPP system create a quandary for potential participants. Given the high fixed cost of the technology, a biller will invest in EBPP technology only if it expects that the number of customers using the new service will be sufficiently large to enable it to recoup its up-front expenditures. Similarly, customers will invest time and effort in familiarizing themselves with EBPP systems only if they believe that they can recover their fixed costs by gaining electronic access to a significant number of bills.

Adding to the pressure on billers is the high cost of operating two different bill presentment and payment systems—one electronic and the other paper-based—at the same time. Billers will be reluctant to adopt EBPP unless they are confident that they can sharply reduce their paper-based system by having most of their customers switch to the new technology. Customers are in a similar bind, seeking some assurance that they will not need to use two different forms of bill presentment and payment.

In short, new EBPP systems face a chicken-and-egg problem. If a biller or a customer believes that most other billers or customers will not adopt new EBPP solutions, it will not adopt them either. The spread of EBPP systems thus depends largely on a coordinated response among billers and customers.

It is precisely the lack of such coordination that appears to account for the failure of the new billing and payment technology to take hold. In the absence of any assurance that most customers will accept the technology, billers have refrained from adopting it. Similarly, customers have resisted the new systems in the belief that only some of their billers will implement EBPP. The hesitant behavior of billers and customers fits a pattern seen in other cases of technological change: When coordination among industry participants is weak, those participants may display "excess inertia" in the adoption of innovation, falling back instead on old, inferior technologies (Farrell and Saloner 1985).

Our analysis helps to clarify why EBPP has not had the same success as electronic trading. Electronic trading faces no chicken-and-egg problems, since it involves a one-to-many (broker-to-investors) relationship, rather than a many-to-many (billers-to-customers) relationship. If an investor believes that placing orders electronically is more efficient than using a personal broker, he or she will adopt electronic trading regardless of the decisions of other investors. As a result, coordination among participants is not required for electronic trading to succeed. The need for coordination in the adoption of EBPP technology, by contrast, makes the introduction of electronic billing systems a particularly difficult undertaking.

Past Efforts to Achieve Industry Coordination

EBPP providers have experimented with different strategies to try to solve the chicken-and-egg problem. To date, however, these strategies have met with only limited success.

One strategy is to offer "present-everyone" and "pay-everyone" services that allow customers to receive and pay all their bills on a single web site. To ensure access to billers that lack electronic capabilities, the provider can scan paper bills and present them electronically to customers (present-everyone capability). After receiving the customers' electronic authorization to pay, the provider can then cut paper checks as payments to these billers (pay-everyone capability). Proponents of this approach believe that EBPP providers may overcome inertia on the customer side by providing customers with electronic access to all their bills. A favorable response from customers will, in turn, eventually induce more billers to invest in EBPP.

While the logic behind this strategy appears sound, the high cost of implementing the strategy has limited its effectiveness. Scanning paper bills on the Internet and writing paper checks to billers are expensive tasks. In 2000, for example, a major EBPP provider spent between $.45 and $.50 to process each nonelectronic payment—considerably more than the $.07 spent to process each electronic payment. Furthermore, the average cost of error resolution for nonelectronic transactions was $.17 per bill, compared with $.03 for electronic transactions (McVey and Brown 2000b).

Those EBPP providers that charge customers a fee to receive and pay bills on their web sites may in part be seeking to recover the extra cost of nonelectronic transactions. Such fees can run as much as $15 per month (CheckFree 2002). Since high fees are likely to discourage customers from adopting EBPP, however, providers that impose them may undercut their own efforts to remedy

the chicken-and-egg problem. In a recent survey, 59 percent of customers indicated that they were unwilling to pay a fee for EBPP services (Kerr and Litan 2000).

A second strategy for overcoming the chicken-and-egg problem is to give away electronic billing and payment services to customers. Several biller consolidators, for example, offer customers free EBPP services for all bills issued by the consolidators' subscribers. Furthermore, customers can sometimes receive and pay bills free of charge on a biller's own web site. Supporters of this approach believe that free EBPP services will encourage many more customers to adopt the new technology and hence give billers a stronger incentive to develop electronic capabilities.

This strategy, too, has not been as successful as expected. While free services are attractive, customers still hesitate to spend time and effort familiarizing themselves with a technology that will give them access to only a fraction of their bills. Thus, the chicken-and-egg problem remains unresolved. Customers refrain from joining EBPP sites because the number of bills available electronically is small; billers refrain from joining because the number of registered customers is inadequate.

Other Solutions

Given the limited success of past efforts to resolve participants' coordination problems and to bring about broad acceptance of electronic billing, more aggressive tactics may be needed. Two different approaches suggest themselves. At a technological level, EBPP providers can try to achieve extreme innovation, capturing the industry by completely transforming the way billing is conducted. Alternatively, at a strategic level, providers can seek to overcome user resistance gradually by establishing standard-setting committees, providing financial incentives to customers, and heavily advertising electronic services (see table).

The Technological Approach

If EBPP providers introduce new services that are far more advantageous than paper-based services, billers and customers may embrace electronic billing. Andrew Grove, the chief executive officer and chairman of Intel Corporation, often refers to the "10X" rule of thumb: a new technology needs to offer performance that is ten times better than the existing product if it is to be readily adopted. When this condition is met, chicken-and-egg problems may be more easily resolved because users form self-fulfilling beliefs in the inevitable success of the technology (Shapiro and Varian 1999).

In its present form, however, EBPP technology may not be perceived as being far superior to traditional paper-based billing methods. As one analyst of EBPP issues has observed, "current services lack the compelling advantages to attract customers in large numbers" (Bills 2002). To achieve rapid and widespread acceptance of electronic billing, providers may need to intensify their research and development efforts. Such efforts might be directed, for example, at simplifying enrollment processes, refining dispute resolution mechanisms, minimizing product costs, or resolving customer privacy and security concerns. By developing products whose technological sophistication brings exceptional benefits, EBPP providers may overcome the inertia that has characterized the response of firms and households in the past and attract large numbers of new users.

While the technological approach could mobilize broad support for EBPP, it has some drawbacks. Research and development initiatives are inherently risky and do not always lead to the creation of successful products. Furthermore, technological innovation can take considerable time and often entails substantial up-front expenditures.

The Strategic Approach

EBPP providers may also overcome the lack of industry coordination by following a strategic approach. Studies

The Strengths and Weaknesses of Select Strategies for Achieving Industry Coordination

Strategy	Strengths	Weaknesses
Technological innovation	Provides huge reward for the innovator—control of the new technology Offers spillover benefits to other users	May entail substantial up-front expenditures Requires considerable time Difficult to guarantee successful outcome of R&D efforts
Standard-setting committees	Ensures compatibility of EBPP systems Facilitates coordination among users	Difficult to get potential competitors to agree May curb innovation and reduce choices for users
Subsidization of customers	Induces customers to adopt EBPP Easy to implement	May not be possible to recover subsidies
Aggressive advertising	Easy to implement Eliminates need for customers to seek out EBPP providers	Must be supplemented by other strategies

suggest that the chicken-and-egg problem can be alleviated by improving communication between participants (see, for example, Farrell and Saloner [1985]). Since providers and billers are far fewer in number than are customers, better communication may be easier to achieve in these groups.

One possible strategy that providers and billers might employ to enhance communication is the formation of standard-setting committees for EBPP solutions. At present, there are several incompatible EBPP standards. As a result, some customers have to maintain simultaneous connectivity to different systems or familiarize themselves with a variety of formats to gain access to most of their bills. Similarly, some billers need to join more than one system to reach most of their customers. A single EBPP standard, negotiated by provider or biller representatives, could eliminate these problems and facilitate coordination (Farrell and Saloner 1988).

Credit cards are a good example of a payment instrument that gained favor rapidly with suppliers and customers once industry associations such as Visa and MasterCard successfully set common standards. The associations created widely recognized trademarks, enabling local member banks to issue cards that could be used nationally (Evans and Schmalensee 1993).

A weakness of standard-setting committees, however, is the difficulty of getting potential competitors to agree on a common standard. Conflicts and delays may occur as parties jockey for the right to determine parts of the standard that are favorable to their organizations. Furthermore, a common standard may reduce product differentiation, curbing innovation and narrowing the choices for users.

A second strategy is for providers and billers to offer strong financial incentives to induce customers to adopt EBPP. Since the provision of free services has not proved to be a sufficient spur to customer action in the past, providers and billers may need to go a step further, effectively subsidizing customers to use the new technology. Billers, for example, may give enrollment bonuses or deduct a small amount from each bill that is delivered and paid electronically. Credit card issuers have used this approach very successfully to court customers. They often offer enrollment bonuses, free use of cards when bills are paid on time, and various other perks, such as frequent flyer miles. Such strategies do have a downside, however: if an unsuccessful technology is subsidized, these bonuses and discounts may never be recovered.

Finally, providers and billers can alleviate the chicken-and-egg problem by engaging in aggressive advertising campaigns to convince customers to embrace EBPP solutions. At present, the promotion of electronic billing is unsystematic and sporadic. Customers usually have to search by themselves for providers or billers offering EBPP services. In addition, it is usually up to the customers to initiate contact with a provider or biller in order to enroll in an EBPP plan.

The gains to be realized from intensive advertising are illustrated by the experience of credit card issuers. In the early 1970s, when credit cards were a relatively unknown instrument, credit card associations and card-issuing banks began actively promoting their products through direct mail campaigns and other initiatives. Visa and its members reportedly spent between $612 million and $1.1 billion (in constant 1991 U.S. dollars) on marketing and product promotion from 1971 to 1991 (Evans and Schmalensee 1993). Such efforts increased public awareness and induced a large number of consumers to use credit cards.

Nevertheless, marketing campaigns alone cannot resolve the EBPP industry's coordination problems. Advertising must be supplemented by other strategies.

Lessons from the Past

While technological innovation and strategic approaches may increase acceptance of electronic billing, past experience with comparable systems suggests that the widespread adoption of the technology may still be a long way off. The Automated Clearinghouse and other traditional electronic payment systems, introduced in the early 1970s, invite comparison with EBPP in many respects. Like EBPP, these systems encountered considerable resistance when they first entered the market. Moreover, they also entail serious chicken-and-egg problems: a payer will decide to gain connectivity to the system only if a large number of payees participate in the same system, and vice versa.[4] Finally, these systems resemble EBPP systems in the benefits they can offer participants. The unit cost of processing a check, for example, may be 150 percent higher than the unit cost of an ACH payment (NACHA 2002).

Owing largely to the existence of coordination problems, the spread of traditional electronic payment systems has been gradual despite the advantages that they can offer. Even in 2000, only 37 percent of noncash retail payments were completed electronically; the remaining 63 percent were made by check. Since the share of electronic payments was 14 percent in 1979, it took electronic instruments twenty years to gain 23 percent of the market (Federal Reserve System 2002).

If electronic billing follows the same course as other electronic payment systems, then it will find favor only gradually—even if EBPP participants exhibit better coordination. Thus, the benefits of automation are likely to accrue slowly as adoption rates improve by degrees over the years.

Conclusion

New EBPP systems aim at transforming the way that bills are presented and paid in business-to-consumer and business-to-business transactions. Although checks are still the primary instrument for bill payment in the United States, EBPP providers appear confident that they will become important players in the financial services sector. Their optimism stems from the significant efficiencies that the new technology can potentially provide: better communication links between the biller and the customer, lower processing costs, and greater convenience.

Nevertheless, the spread of EBPP has been very slow, falling far short of initial projections. One key reason is the lack of coordination among potential participants. Although providers and billers can mitigate this problem by intensifying their research and development efforts, establishing standard-setting bodies, and marketing electronic billing aggressively, past experience with electronic payment systems suggests that even if the shift to EBPP technology is successful, it will not be accomplished quickly.

Notes

1. Radecki and Wenninger (1999) offer a detailed, step-by-step description of the billing and payment process in EBPP systems.

2. Fassnacht and Archibold (2000) point out that a service call from customers can cost between $5 and $15.

3. Note, however, that several EBPP sites charge a flat monthly fee that can be higher than $10. Such EBPP services may be more costly for customers than the traditional paper-based method of delivering and paying bills.

4. The empirical study of Gowrisankaran and Stavins (2001), for example, demonstrates the importance of user coordination in the ACH network.

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About the Author

Chris Stefanadis is an economist in the Payments Studies Function of the Research and Market Analysis Group.

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