



Chapter 14

Internet Payment Mechanisms: Acceptance and Control Issues

Ulric J. Gelinias, Jr. and Janis L. Gogan
Bentley College, USA

Internet online sales totaled \$7.8 billion for 1998, with the average online shopper spending \$629 (Fasig, 1999). During the 1999 holiday season, online sales were reportedly double that of 1998 at many “e-tailers” (although final statistics had not been published as this chapter went to press). As Web-based consumer sales grow, so does interest in new online payment mechanisms. This paper reviews several mechanisms that were in use in fall 1999. We assess control issues associated with each and use Diffusion of Innovations theory to assess perceived payment mechanism benefits and risks. We do not pretend to offer the “latest word” on any particular forms of payment, since by the time of publication, new or improved mechanisms will have emerged.¹

DIFFERENT CONVENTIONAL PAYMENTS FOR DIFFERENT TRANSACTIONS

To understand the likely paths of acceptance for new forms of payment, it is helpful to recognize that different payment mechanisms, be they conventional or online forms of money, serve different consumer needs. In the “dirt world,” when Americans pick up the lunch tab for friends, they are likely to be reimbursed (individual to individual) via cash or personal check. The payment to the restaurant (individual to business) is usually via credit card, whereas the subsequent payment to the card issuer (also individual to business) will usually be via personal check. A purchase at a local retail store (individual to business) is paid in cash,

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check, credit card or debit card. The consumer's choice of payment is based on a combination of perceived convenience and security. For small amounts, most consumers still prefer cash because of the convenience of a speedy conclusion of the transaction. For larger amounts, Americans prefer credit cards. If the consumer is purchasing an item that is at risk of breakage, they might use the American Express card because of the Buyer Protection plan. Should the buyer subsequently return merchandise, the merchant might reimburse them (business to individual) via cash, check, or credit card refund. The merchants tend to have different payment preferences. For example, the restaurant owner prefers cash payment, since each credit-card transaction costs the restaurant about \$1.50 in processing fees.

INTERNET PAYMENT MECHANISMS FOR ELECTRONIC COMMERCE

Internet payment mechanisms can entail the issuing of software that is stored on the client side and/or on a merchant's or payment intermediary's server. A card (conventional credit card, smart card, or other physical storage "token") may also be issued. Many payment mechanisms use existing infrastructures (e.g., checks, banks, credit cards). Merchants receive payment at different times for different categories of payment mechanisms (either at the time of the sale or after the sale).

Four basic categories of Internet payment mechanisms are currently in use, as described below.

- *Direct Online Credit/Debit Payments*: A consumer provides a conventional credit card number online, either directly or via an intermediary. The transmitted number is usually secured either by SSL (Secure Sockets Layer, an encryption protocol that is included in browser software such as Netscape Navigator) or SET (Secure Encryption Technology, a security standard that is promoted by MasterCard, Visa and others). SSL provides for secure transmission of data, while SET adds a digital certificate that authenticates the consumer, merchant, and bank. Either way, the merchant receives payment following conventional clearing. Examples: Visa, MasterCard
- *Mediated Credit/Debit Payments*: Consumers may also provide account numbers via an intermediary. In February 1999, CyberCash introduced the InstaBuy service; consumers register credit or debit card numbers with InstaBuy (for free), and thereafter do "one-click" shopping with participating online merchants². The merchant software, upon recognizing a registered consumer, sends a digitally-signed message to the InstaBuy server. This server examines the digital signature to determine merchant validity, then returns a message containing the consumer's shipping and billing addresses, shipping method, order ID,

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