

## Chapter 3.12

# On-Line Credit Card Payment Processing and Fraud Prevention for E-Business

**James G. Williams**  
*University of Pittsburgh, USA*

**Wichian Premchaiswadi**  
*Siam University, Thailand*

### **ABSTRACT**

As the volume of purchases for products and services on the Internet has increased and the chosen method of payment is a credit or debit card, e-commerce merchants must be capable of accepting such payment methods. Unfortunately, cyber-criminals have found ways to steal personal information found on credit cards and debit cards and fraudulently use this information to purchase products and services which costs merchants lost revenue and fees for chargebacks.

DOI: 10.4018/978-1-60960-587-2.ch312

This article discusses the process by which credit card payments are processed beginning with the e-commerce merchant's web site to a credit card processor or service gateway to the credit card company's network to the issuing bank's network with an accept or decline response being returned to the merchant's shopping cart system via the same networks. The article addresses the issue of credit card fraud in terms of how the cyber-criminals function and the potential solutions used to deter these attempts by the cybercriminals. A list of preventive measures that should be used by e-commerce merchants is provided.

## INTRODUCTION

Consumers in the United States spend nearly 1 trillion dollars each year using a credit card over the internet (Woolsey and Schulz, 2009). Accepting credit cards is essential for any e-commerce Web site. Processing credit cards over the Internet is one of the fastest growing segments of business transactions today. This type of transaction or “card-not-present” transaction requires a special type of merchant account. In the early days of credit card usage, to accept credit cards, a merchant needed a merchant account through a bank. But today there are a number of services, generally referred to as credit card processors or merchant account services, which will permit a merchant to accept credit card payments online without their own merchant account. There are actually three different methods for processing credit card payments using a merchant account service. These are:

1. **Real-Time Processing:** Real-time processing allows e-commerce merchants to link their e-commerce shopping cart with a gateway merchant service which will automatically process credit card payments.
2. **Virtual Terminal (Online Interface):** An e-commerce merchant can also process credit card transactions, manually, 24 hours a day by logging in online and submitting a secure form through a merchant account interface. A merchant can use this to process credit card payments while taking the customer’s information over the phone if the merchant is able to access the Internet at high speed while talking to the customer.
3. **Automated Recurring Billing (ARB):** Some e-commerce merchant services need to charge customers on a monthly or account threshold basis. Some merchant account services allow the merchant to set the time interval or account threshold level and some services allow a merchant to upload multiple

subscriptions using a batch file like Microsoft Excel.

PayPal is generally accepted as the most widely used online merchant account service with more than 150 million users across the world. VeriSign operates a competing service called Payflow that is typically used by merchants with a high volume of transactions each month. Although the number of merchant account service providers continues to increase, some of the more popular one are listed below (TopTenReviews, 2009):

Flagship Merchant Services  
Gomerchant Merchant Accounts  
Merchant Accounts Express  
MerchantWarehouse  
Electronic Transfer Inc.  
E-Commerce Exchange  
NorthAmericanBancard  
Total Merchant Services  
Charge  
Merchant Credit Card  
Free AuthNet  
Merchant Credit Card

Companies that sell merchandise and services over the Internet are referred to as e-tailers or e-commerce merchants. These credit card processing services make it easy for e-tailers to start accepting credit cards for purchases of their products and services.

## BACKGROUND

### Who Are the Participants in On-Line Credit Card Purchases?

#### Consumers and Merchants

The consumer is an individual or organization that has the intent of making a purchase. They have money or credit and they desire goods

17 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:

[www.igi-global.com/chapter/line-credit-card-payment-processing/54801](http://www.igi-global.com/chapter/line-credit-card-payment-processing/54801)

## Related Content

---

### Commitment-Trust Dynamics in the Internationalization Process: A Case Study of Market Entry in the Brazilian Market

Antônio Moreira and Carolina Batista Alves (2016). *International Business: Concepts, Methodologies, Tools, and Applications* (pp. 1206-1229).

[www.irma-international.org/chapter/commitment-trust-dynamics-in-the-internationalization-process/147905](http://www.irma-international.org/chapter/commitment-trust-dynamics-in-the-internationalization-process/147905)

### Public Policy Makers: Export Promotion Programmes and Global Competitiveness in Sub-Saharan Africa

Gloria Sraha (2015). *Handbook of Research on Global Business Opportunities* (pp. 199-212).

[www.irma-international.org/chapter/public-policy-makers/119735](http://www.irma-international.org/chapter/public-policy-makers/119735)

### Factors Affecting Big Data Adoption: An Empirical Study in Small and Medium Enterprises in Vietnam

Nguyen Xuan Truong (2022). *International Journal of Asian Business and Information Management* (pp. 1-21).

[www.irma-international.org/article/factors-affecting-big-data-adoption/315825](http://www.irma-international.org/article/factors-affecting-big-data-adoption/315825)

### Using ERG Theory as a Lens to Understand the Sharing of Academic Tacit Knowledge: Problems and Issues in Developing Countries – Perspectives from Vietnam

Ta Van Can and Suzanne Zyngier (2016). *International Business: Concepts, Methodologies, Tools, and Applications* (pp. 2012-2040).

[www.irma-international.org/chapter/using-erg-theory-as-a-lens-to-understand-the-sharing-of-academic-tacit-knowledge/147944](http://www.irma-international.org/chapter/using-erg-theory-as-a-lens-to-understand-the-sharing-of-academic-tacit-knowledge/147944)

### Malliavin Calculus for the Estimation of the U.S. Dollar/Euro Exchange Rate When the Volatility is Stochastic

Ahmed Abutaleb and Michael Papaioannou (2006). *Global Information Technology and Competitive Financial Alliances* (pp. 71-101).

[www.irma-international.org/chapter/malliavin-calculus-estimation-dollar-euro/19219](http://www.irma-international.org/chapter/malliavin-calculus-estimation-dollar-euro/19219)