



eCommerce B2B and B2C

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Essential Document-Based Applications and Markets

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Table of Contents

1	Introduction	1
2	Definition and Sizing	1
3	eCommerce and the B2B - B2C Split.....	2
4	Electronic Invoicing and Payment Application (EIPP)	3
5	New Forms of B2B eCommerce	5
6	Growth Forces and Benefits	5
7	eCommerce / Internet – What Is Selling	6
8	eCommerce Forecast for Electronic Payment Systems	10
9	Global Analysis of eCommerce Payments	11
10	EBPP Supports the Merchandising of New Information Services	12
11	Other Electronic Payment Trends	13

List of Exhibits

Exhibit 1: Online Shopping/Payments: The Global Opportunity: 1998–2005.....	2
Exhibit 2: B2B / B2C Breakout of Major eCommerce Markets – 1998-2005.....	3
Exhibit 3: How Businesses and Consumers Settle Total Commercial Transactions: 2005	4
Exhibit 4: Major eCommerce/Internet Product and Service Categories.....	9
Exhibit 5: Internet and Bank Card Transactions: 1998, 2000, 2003, 2005	10
Exhibit 6: Internet/eCommerce Transaction Analysis: 1998, 2000, 2003, 2005	11
Exhibit 7: Global Analysis of eCommerce Payments: 2000, 2003, 2005.....	11



eCommerce B2B and B2C

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1 Introduction

Decision makers throughout global enterprises grapple with thoughts such as the size of both the B2B eCommerce and B2C eCommerce markets. We and many other research companies have put values on these markets; for example, Internet commerce is forecast to be 2.2T in 2005, while total remote will be \$10.45 trillion in 2005 (see Exhibit 1).

In this report, we provide the most comprehensive analysis of eCommerce available today. This analysis extends the work that Killen & Associates has provided its clients on EBPP and ESP applications over the years. With this study, we strive to help our valued customers think clearly about the B2B and B2C eCommerce marketplace, including the essential document-based applications and markets for products and service that facilitate these applications. We produce this study for subscribers of the Killen & Associates EBPP/ESP Strategic Communications and Research subscription service and the EIPP: Automating the Supply Chain subscription service.

2 Definition and Sizing

Definitions

eCommerce is the procurement (business) and purchase (consumer) of goods and services remotely through electronic systems, primarily the Internet. Electronic payments generally settle the charges for goods and services acquired through electronic systems.

B2B commerce is generated by businesses providing other businesses with products and services. B2C commerce is generated by businesses providing good and services to consumers.

Consumers are persons who make purchases for their personal or household use. We also include small businesses in this category. We do so because small business requirements and characteristics are similar to those of households. Both groups make relatively small purchases and both are relatively numerous.

eCommerce will drive both the B-to-B and B-to-C selling processes to convert existing sales personnel exchanges into automated remote information exchanges and formatted bidding.

Essential Commerce Documents are documents that are required for an enterprise to generate commerce. We restrict the list of documents to those that initiate transaction and tracking (purchase orders), facilitate payments (bills and invoices), and apprise customers of account status (statements).

Electronic Invoicing and Payment (EIPP) includes Internet eCommerce, EDI, and other online procurement services.

Sizing

People will increasingly use the Internet to purchase goods and services. By 2005, total Internet purchases will reach \$2.2 trillion. This will equal nearly 9% of global retail/wholesale/services purchases, as shown in Exhibit 1 below.

If the EBPP application (mostly conducted via the Internet) is added to the eCommerce figure, we estimate that 33% of all global commerce will be conducted via the Internet in 2005, as shown in Exhibit 1.

Exhibit 1: Online Shopping/Payments: The Global Opportunity: 1998 – 2005 (\$Trillions)

	1998	2000	2003	2005	AARG
Value of Global Sales* (\$Trillions)	\$17.6	\$20.0	\$22.8	\$25.3	5%
Share Generated by Remote Channels (\$Trillions)					
Catalog Mail Order +	.430	0.50	0.60	0.65	6%
CATV/TV +	.240	0.40	0.55	0.65	15%
EBPP **	.480	.850	3.40	6.10	44%
EDI	.370	.450	.555	.600	7%
Internet eCommerce	.180	0.60	1.30	2.20	43%
Other Online	.165	0.20	0.22	0.25	6%
Total Remote	1.865	3.00	6.62	10.45	28%
Percent Share Remote	11%	15%	29%	41%	
Percent Share Internet	1%	3%	6%	9%	
Percent Share Internet, including EBPP	4%	7%	21%	33%	

* Retail / wholesale / service sales – all channels included ++

** From Exhibit 2

+ These numbers show only the paper- or phone-based forecasts.

SOURCE: KILLEN & ASSOCIATES & UN/US DEPARTMENT OF COMMERCE/CIA

3 eCommerce and the B2B - B2C Split

Buyers and sellers generated almost \$1.9 trillion of remote purchases worldwide in 1998. This accounted for 11% of total commerce for that year. We believe that buyers and sellers will generate about \$10.5 trillion of remote purchases by 2005. In that year, remote purchases will account for 41% of all commerce.

In 1998, the B2B market accounted for 54% of total eCommerce revenues measured as retail value at POS. The remainder is B2C as shown in Exhibit 2. B2B and B2C breakouts are also shown for major eCommerce channels.

By 2005, the Business and Consumer shares of eCommerce will change with B2B dropping to 40%-45% and B2C rising to 55%-60%. This shift is due to the rapid growth in eCommerce usage among consumers and other non-business sectors.

Later in the report, we show the specific products and services purchased by consumers over the Internet that will keep the B2C market segment in the lead after 2000.

Exhibit 2: B2B / B2C Breakout of Major eCommerce Markets – 1998-2005 (\$Billions)

eCommerce Markets	POS Level of Revenue			
	1998	2000	2003	2005
Value of Global Sales (\$Trillions) *	\$19.6	\$20.0	\$22.8	\$25.3
EBPP	0.480	0.850	3.40	6.10
▪ B2B	0.160	0.290	1.30	2.10
▪ B2C	0.320	0.560	2.10	4.00
Internet eCommerce	180	600	1,300	2,200
▪ B2B	18.0	90.0	325	880
▪ B2C	162	510	975	1,320
Other Online **	535	650	770	850
▪ B2B **	470	570	670	725
▪ B2C	65	80	100	125
Total eCommerce Markets	1,195	2,100	5,470	9,150
▪ Total B2B	648	950	2,295	3,705
▪ Total B2C	547	1,150	3,175	5,445
% B2B	54%	45%	42%	40%
% B2C	46%	55%	58%	60%

* Total of Retail, Wholesale, and Services Sales at POS

** Includes EDI

SOURCE: KILLEN & ASSOCIATES

4 Electronic Invoicing and Payment Application (EIPP)

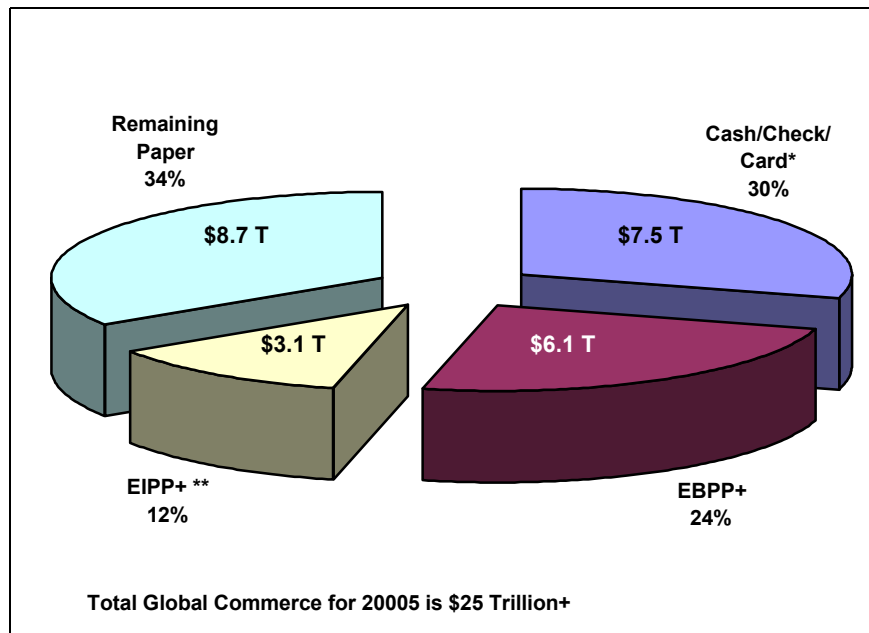
There exists another major source of paper transactions in global commerce that will be converted to electronic processing. This is electronic invoicing and payments (EIPP). Thus, the full scope of paper transaction conversion covers the following:

- EBPP: Bills for repetitive transactions
- ESP: Statements for account status
- EIPP: Invoices to facilitate eCommerce over the Internet or other online networks.

EIPP is an application that business buyers and sellers use to automate the supply chain. (EIPP also supports consumer of products and services.) EIPP actually refers to the package of business forms that transmit information between buyer and seller for purchases over the Internet or other remote channels. These forms range from purchase orders to payment advisories. EIPP is what will facilitate the growth of eCommerce, enabling a complete solution for settlement of non-cash global commerce transactions; EIPP includes EDI, the initial attempt at eCommerce services.

Exhibit 3 presents early findings (subject to possible revision) from Killen’s new EIPP research program. EIPP represents a major expansion opportunity for those vendors offering EBPP and ESP.

Exhibit 3: How Businesses and Consumers Settle Total Commercial Transactions: 2005



* These systems use existing networks for transaction settlement
 ** EIPP includes Internet eCommerce, EDI, and other online services (from Exhibit 1)
 + Non-cash Internet transactions

SOURCE: KILLEN & ASSOCIATES

Other preliminary findings for the EIPP market include:

- Number of global invoicers
 Globally, out of 3.5 million firms with 10 or more employees, about two-thirds invoice their customers for a large share of their revenues, but less than 200,000 of these firms are important. Up to one-third of these firms also are billers and statement issuers.
- B2B and B2C breakout
 Number of total invoices presented is about two-thirds B2B and one-third B2C.

5 New Forms of B2B eCommerce

The Internet facilitates new forms of trading and information exchange for businesses. This includes, together with key suppliers involved:

- Industry-wide buying groups or trading exchanges: oil, auto assembly parts, power, electronic parts, non-ferrous metals, etc.
Vendors: Oracle, CommerceOne, Ariba, General Motors, EMETRA
- Competitive bidding for supply contracts
Vendors: Industry-to-Industry, Inc., i2 Technologies, IBM
- Automated customer orders via computer-to-computer connections
Vendors: Web Methods, Inc., Manugistics, i2 Technologies
- Online auctions for supplies and services contracts
Vendors: EDS, Free Markets, Inc.,
- Reverse Auctions
Vendors: PriceLine, Oracle
- Independent ordering, buying, and payment systems
Vendors: GPN (GE and Thomson Publishing), Amex

Expect more varieties of the above list and more innovations, as well. Businesses of all sizes are scrambling to find economic solutions that fit and save money over manual-based approaches.

6 Growth Forces and Benefits

Major growth forces will provide an environment in which online shopping procurement will grow very rapidly, surprising many. These range from savings in procurement time and costs to advantages of scale economics, the ability to leverage existing systems and customer databases, and the opportunity for improved customer service.

The major force accelerating eCommerce growth is the number of Internet sites that substantially reduce the cost of procurement and the elapsed time to complete the entire purchasing transaction cycle. One obvious saving will be the reduction of paper handling, including publishing, mailing, storage, retrieval of store/retailer catalogs, business and topical references like the Thomas Register, and hundreds of other individual company documents or mail-order catalogs.

Another major saving will be that, as direct connections increase from manufacturers or service vendors to customers, the need for middlemen, such as wholesalers, distributors, or licensed representatives in local areas, will decline or be eliminated. That will result in lower quoted prices from manufacturers who do not have to pay wholesale commissions.

Moreover, scale economics will apply throughout the entire online shopping procurement activity. Once a standard approach has been achieved and accepted, the repetitive nature of the activity will yield substantial savings.

Killen & Associates field research has shown that eCommerce order management and electronic payments can reduce paper-based transaction costs by about 70%-80%.

Merchants and manufacturers will find opportunities to leverage or mine their existing operations. These include mining customer transaction databases for merchandising information in order to find new markets or new products quickly and implement more responsive product development programs to increase overall revenue and profits.

Telcos and hardware/software vendors find online shopping and procurement an excellent way to leverage their customer bases and PC installations to earn additional revenues. Microsoft's announcements since 1995 confirm this trend. Ditto now for America Online (AOL) and Amazon.com.

Another driving force is that value-added networks (VANs) and telcos appreciate the new data transport markets that are possible through online shopping and procurement services. They implement special data and multimedia groups and arrange for high-speed application services. They are also participating in interactive ventures in which online shopping often is one of the essential applications.

MCI/Worldcom and other telcos/VANs also appreciate that the demand for high-speed digital communications will increase substantially with the demand created by online shopping/procurement customers. This, in turn, will lead to improved methods of network access and the multimedia applications that will gobble up even more bandwidth, allowing telcos to increase their revenues and services dramatically.

The use of multimedia applications will create more demand and use by online shopping services, particularly to better illustrate manufacturers' and retailers' products.

We predict that almost every industry will find some advantageous way to use the Internet for online shopping/procurement for these kinds of benefits – or totally reinvent the industry as Intel and others will seek to accomplish.

Globally, there will be increasing demand on smaller economies and lesser-developed countries to approach the larger developed countries in terms of economic infrastructures. eCommerce systems can be installed and implemented much more quickly where little or no existing eCommerce infrastructure needs to be integrated or displaced.

Even Japan, notorious for an old, inefficient retail and wholesale distribution infrastructure, will undoubtedly use this online technology to streamline operations much more quickly than could have been possible through normal industrial evolution. We are probably talking about eight to ten years versus what took 20 to 30 years to accomplish in the United States and other developed countries.

7 eCommerce / Internet – What Is Selling

Tremendous momentum for eCommerce continues building on the vendor side as well as the user side.

1995 to Present

In a previous report, Killen & Associates identified a variety of equipment and services sold on the Internet during its first years, including:

- PC- and computer-related merchandise
 - Equipment (Dell, Web Market)

- Software packages (Microsoft, Oracle)
- Manuals
- Help services
- Supplies (Consumer Direct Warehouse).
- Magazine subscriptions
- Publications, books (Amazon.com, Barnes & Noble)
- NIS (network information services) and government databases – public access. The Securities Exchange Commission, a federal government agency, has put public corporate financial filings online.
- Movies and recorded media (Music Boulevard, CP Connection)
- Apparel and accessories (GAP, Lands' End, Sharper Image)
- Major appliances (Sears)
- Consumer/business standard services and products such as gift services, candy, flowers, travel and event reservations, stationery and office supplies, auto parts, medical supplies, and consumer non-durables (1-800-Flowers, Gift Tree, See's Candy, Avon)
- Travel and event reservations, ticketing, directories, and maps (Sabre, Travelocity, MapQuest, AAA, HotWire.com)
- News and sports updates (New York Times, Wall Street Journal, and most city dailies)
- Radio broadcasts (RealPlayer.com)
- Telephone services
- Food, primarily packaged goods (WebVan, Peapod, Home Run, The Kitchen Collection, Garden.com)
- Pet Services (pets.com)
- Consumer durables (Sears)
- Toys and Novelties (eToys, Amazon.com)
- Electronic yellow pages (Yellowpages.com)
- Catalog access/companies (Excite, Bottom Dollar)
- Service manual access
- Sporting Goods (REI, Campmor, Int'l Golf Outlet)
- Used-car prices (Blue Book, Emmunds)
- Cars and trucks: sales and financing (AutobyTel, AutoMall USA, CarPoint, AutoTrader.com)
- Real property: homes and mortgages (RECA BHG.com, MLS.com, Quicken Mortgage, HomeShark, Countrywide)
- Securities via brokers and company direct (Charles Schwab, E*Trade)
- Insurance quotes and placements (auto.com, quotesmith.com)
- Personal services (yes, erotic, too).
- Auctions (eBay, BidCom, FreeMarkets, Inc.).

In addition, more retailers are expanding to eCommerce like Tupperware, Amway, Rite-Aid, and Avon.

Killen & Associates estimated that by the end of 1995 online purchases totaled as much as \$10 billion in retail value of goods and services. By 1998 year-end, the total was \$180 billion.

Payments were made by unsecured credit cards, checks, EFT, etc.

2000-2003

In 2000, eCommerce activity has increased in all the previously mentioned product areas, as vendors like Amazon.com, Autobytel, CheckFree, Microsoft, AOL, and Open Market make it relatively easy for manufacturers/retailers to sell their products online.

In addition, more consumers and businesses are using portal companies' search engines to find information easily on products, retail purchases, and payments.

A new series of information products are available on the Internet. Generally called micro-publishing, this category refers to articles in magazines and publications or book chapters that are available "by the byte" at a substantially reduced cost than the entire publication itself. Moreover, it refers to online newspapers that meet individual reader requirements identified by subject matter, including maps and travel directions.

The range of new information products goes far beyond micro-publishing. It now includes specific information searches, consulting advice on various topics, 'buy, sell, hold' recommendations on individual stocks and bonds, and a whole host of information partitions, citations, and accumulations not yet specified.

Information sales of this type are growing rapidly and will occupy an important niche in the total eCommerce market. Newer innovative payment systems, such as stored-value cards, coupons, and script, are better suited to handle payment for these transactions. In fact, they will enable this marketplace to take off and grow; EBPP will be a major facilitator.

2003-2005

By 2005, the relatively low transaction-priced information services products will account for more than 40% of all eCommerce transactions. The standard products identified earlier also will enjoy rapid, steady growth. There will be increasing room for transactions that require tailoring and customized responses by vendors. This market will be small compared to standard products and services.

High-traffic eCommerce applications will stimulate the demand for advertising time, revenues from which will help build customer merchandising information.

Exhibit 4: Major eCommerce/Internet Product and Service Categories

Major Product & Service Categories	B or C	Growth Rates		Primary Payment Types						2000	2003	2005	
		2000	2005	Cards & Checks	Secure Cards & Checks	ATMs & Derivatives	Electronic Funds Transfer	Other	Smart Cards & Stored-Value Media	Retail Value Range, \$ per Transaction	\$Billions	\$Billions	\$Billions
PC & Computer-Related	B / C	++	+	√	√					\$10-100	\$110	\$180	\$240
Publications/ Subscriptions	C	++	++	√		√			√	1-100	40	100	120
NIS/Govt. Databases	B	+	+++	√		√			√	>1-10	40	90	150
Consumer/Business Std. Products/ Services	B / C	+	++	√	√			√		>100	60	140	200
Consumer Durables	C	+	++	√		√				>100	30	80	180
Food & Household	C	+	++	√		√		√	√	1-100	30	90	200
Catalog Access	B / C	++	++	√		√		√	√	0.5-1.5	30	70	130
Automobiles, includes loans	C	+	+	√		√				>100	50	100	20
Insurance	B / C	+	++	√			√			>100	30	90	18
Real Estate & Mortgages	C	+	++				√			>100	30	100	20
Securities Trading	C	+++	+++		√		√			>100	40	110	360
Micro-publishing	B / C	+++	+++	√		√		√	√	0.5-1.5	10	40	120
Other, including auctions	B / C	+++	+++	√	√		√	√	√	N/A	100	90	111
Total											\$600	\$1,300	\$2,200

Growth Key: CAGR +=5%-15% ++=15%-25% +++=>25%

SOURCE: KILLEN & ASSOCIATES

Exhibit 4 shows, most EC/Internet product and service categories established initial market position by 1995-1996. However, in micro-publishing and related services, some technology remains to be implemented on the Internet to permit this product category to flourish. For rapid growth in the future, micro-publishing relies substantially on an electronic cash payment system such as smart cards and pre-authorized EFT. EBPP payments will also play an important role.

Certainly, unsecured credit cards or account transfers can be used to settle micro-publishing charges. These are relatively expensive solutions and the transaction costs can equal or exceed the costs of the delivered information. Thus, for the long term, only electronic solutions will allow this product category to grow rapidly.

Exhibit 4 also indicates that rapid growth will occur over the next five years in the categories of PC/computer-related equipment, catalog access, securities trading, and standard publication services and subscriptions—all highly standardized categories. From 2000 to 2005,

information-related products and services will clearly be the leader, including securities trading and stock quotations.

Our analysis and fieldwork indicate that customers will favor different payment types for each product and service category. For example, secured-media, stored-value systems will be used primarily for lower-value transactions. And, traditional payment systems specially enhanced with security and flexibility of use will continue to be the primary method of settling a large portion of EC/Internet product and service purchase transactions.

Furthermore, we conclude that electronic payment systems will not revolutionize the global payment environment. Rather, electronic payment systems will evolve from existing systems with additions of security features amid ease-of-use features, e.g., Secure Electronic Transaction (SET) software for payments.

8 eCommerce Forecast for Electronic Payment Systems

Exhibit 5 shows the revenue potential of processing Internet payments. By 2000, about 8.8 billion payments will support eCommerce over the Internet. This will generate revenues of \$13.2 billion at \$1.50 per transaction. By 2005, that will grow to \$51 billion, more than half the size of today's total credit card market.

Exhibit 5: Internet and Bank Card Transactions: 1998, 2000, 2003, 2005 (Billions)

Payment Type	1998	2000	2003	2005
Bank Credit Card Transactions (Billions)	12.8	16.5	23.5	30.5
US	6.5	7.5	8.5	9.5
Non-US	6.3	9.0	15.0	21.0
Global Internet Transactions (Billions)	2.4	8.8	19.0	34.0
Source of Internet Transactions				
Transaction Growth	0.6	4.0	11.0	18.0
Conversion from Credit/Debit Cards	1.0	2.5	4.7	7.0
Conversion from Cash/Checks	0.8	2.3	3.3	9.0
\$Volume @ \$1.50 per eCommerce Transaction	\$3.6	\$13.2	\$28.5	\$51.0

SOURCE: KILLEN & ASSOCIATES

Average transaction values for Internet/eCommerce are shown in Exhibit 6. Additional revenues are possible as more shopping is conducted online. A degree to which this occurs will depend on the ease with which new online shopping procurement services can be used.

Exhibit 6: Internet/eCommerce Transaction Analysis: 1998, 2000, 2003, 2005

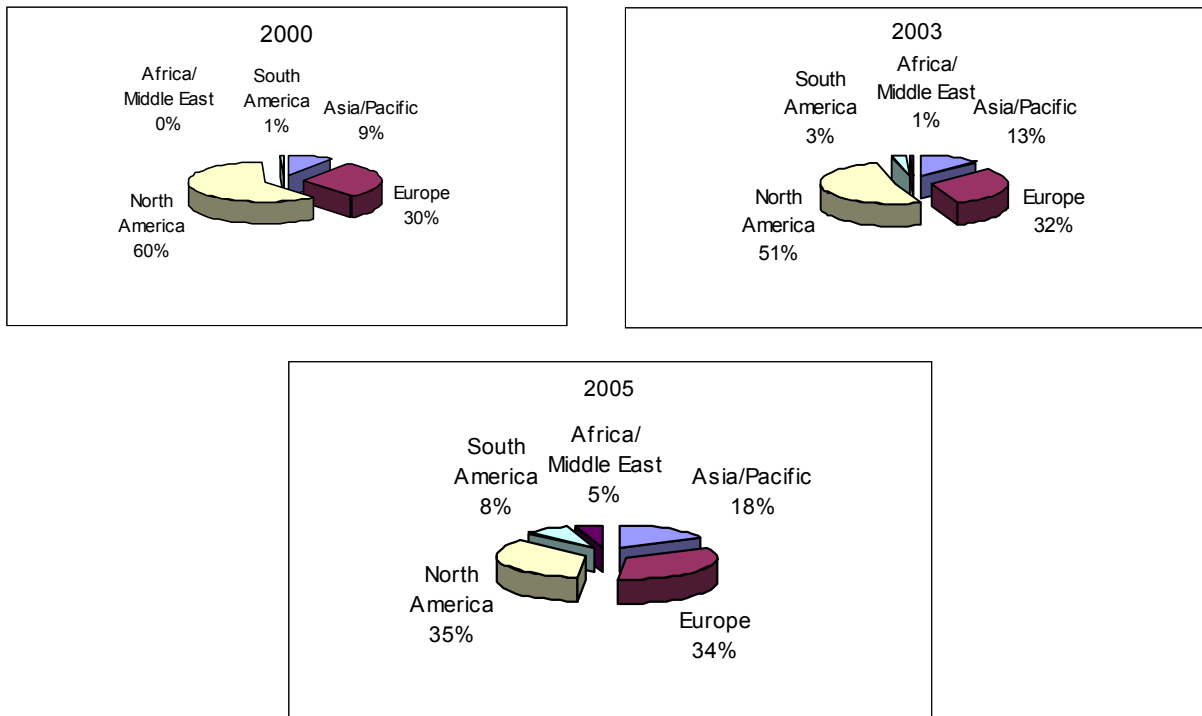
	1998	2000	2003	2005
Global Expenditures on Retail/Wholesale Distribution Products (\$Trillions)	\$17.6T	\$20.0T	\$22.8T	\$25.3T
Remote Purchases	\$1.652T	\$2.15T	\$3.22T	\$4.35T
Internet/eCommerce Purchases	.180T	\$0.6T	\$1.30T	\$2.20T
Average Transaction Values	\$73-\$78	\$70-\$75	\$67-\$70	\$62-\$65
@ <\$1.00	N/A	1.0 (Avg. 75¢)	4.5 (Avg. 60¢)	9.5 (Avg. 50¢)
@ \$1-\$10	N/A	1.0 (Avg. \$5)	2.8 (Avg. \$6)	5.0 (Avg. \$7)
@ \$10-\$100	N/A	5.8 (Avg. \$60)	9.5 (Avg. \$65)	16.0 (Avg. \$70)
@ >\$100	N/A	1.0 (Avg. \$250)	2.2 (Avg. \$280)	3.5 (Avg. \$300)
Number of Transactions (Billions)	2.4 B	8.8 B	19.0 B	34.0 B

SOURCE: KILLEN & ASSOCIATES

9 Global Analysis of eCommerce Payments

North America has the jump on eCommerce usage, as shown by the analysis in Exhibit 7. North America's 60% in 2000 is based on early adoption of EDI and wide Internet use of websites for eCommerce access.

Exhibit 7: Global Analysis of eCommerce Payments: 2000, 2003, 2005



SOURCE: KILLEN & ASSOCIATES

10 EBPP Supports the Merchandising of New Information Services

Secured-media, stored-value payment systems (smart cards and script) can provide transaction payment functions at a very low price, typically less than 1¢ to 5¢ per transaction, even after accounting for the additional equipment and/or software requirements that provide transaction security. This means that it is economical to distribute chapters of books, sections of articles, newspaper citations/sections, specific ads, and a whole series of variations on the traditional databases such as credit information. This is nominally called micro-publishing.

However, information is dispensed in other ways as well; for example, radio and TV broadcasts, stock quotation networks, and increasingly on the Internet, opinions and recommendations via PCs. The low cost of secured-media, stored-value payment systems and ease of use will increasingly enable users to acquire information by the byte. We envision consulting firms that currently sell reports for thousands of dollars selling individual tables, items of data, summary chapters, conclusions about specific, detailed markets or products, or other recommendations on a one-time basis.

Furthermore, such purchases will be automated and customer-initiated, thus lowering transaction costs and improving access. In 1997, Ernst & Young's consulting division announced Ernie®, a Web-based information service of this type.

Similarly, securities analysis firms will have to re-evaluate and restructure their whole approach to existing markets. They will enjoy the access to a new market, based on the segmentation and breakdown possible because payment systems are available at a cost low enough to make the business change feasible and profitable.

Value Line, one of the most popular stock recommendation services, now sells subscriptions with hundreds of pages of weekly updates. However, individual investors may be in the market for a highly segmented service that only provides selected information on a single stock or a family of stocks.

The popularity of 'buy, sell, or hold' programs on the various financial TV networks, which are now a free item, suggests that individual investors, might be willing to purchase the 'buy, sell, or hold' recommendations if priced by the unit. We expect such information to be available for \$1.00 to \$5.00, perhaps even less. However, with payment via credit card or check, minimum transaction costs could be close to \$1.00 per payment, which leaves no profit.

However, with stored-value cards the transaction costs are well under \$1.00, even under 10¢ on a volume basis, this type of information dissemination suddenly becomes viable and profitable.

Bill Washburn, vice-president of MicroMedia, in a 1995 presentation, perhaps said it best: "Micro-payments are to the commercial Internet what irrigation technology was to the Homestead Act."

Sales of merchandising database information and Web-enabled innovations in customer service are two important additional eCommerce applications. Merchandising information is based on analysis (data-mining) of Web visits and sales data. Web customer service options available to merchants can lead to lower-cost customer care operations and improved results.

11 Other Electronic Payment Trends

This report has focused on eCommerce as the long-term application and usage driver for EIPP. However, Killen & Associates is aware that several of the electronic systems currently exist for reasons other than for settling purchase/procurement transactions among consumers and businesses. Examples are funds transfer among businesses, banks, and governments as well as emergency cash-type transactions for the benefit of consumers in the private sector.

Electronic payment applications with electronic cash features will grow in popularity and, in many cases, be integrated with eCommerce applications.