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Alea Fairchild  
Tilburg University

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## Possible Disintermediation: What Role for Banks in Electronic Invoicing (EIPP)?

Alea M. Fairchild

Tilburg University, The Netherlands  
A.M.Fairchild@uvt.nl

### Abstract

*“Driven by a desire to get paid more quickly, companies are moving more of their invoices and payment to the internet. Businesses care more about faster cash flow than they do about cutting costs.” (GartnerGroup, 2001).*

*Electronic Invoice Presentment and Payment (EIPP) is targeted to the needs of corporates and can be integrated with e-marketplaces and B2B financial settlement for bank-neutral global payment services. Its interactive approach to dispute resolution and robust payment options are critical if corporates are to secure the advantages of B2B marketplaces and straight through processing (STP). This research examines the possible role for banks in EIPP, and what might drive bank EIPP adoption. Case studies are examined from industry.*

### 1. Introduction

Electronic Invoice Presentment and Payment (EIPP) allows for the electronic delivery of complex business invoices while accommodating highly variable billing data and wide-ranging global regulations. Through the electronic delivery of invoices, EIPP solutions offer a secure, interactive system for B2B transactions that allows organizations to cut costs by delivering significant efficiencies to the Financial Supply Chain. Example of cost efficiencies include being able to provide online dispute resolution, automatically match invoices to purchase orders, create internal audit trails, accept payments over the Internet and post the results to their accounting systems. According to the Aberdeen Group, business to business (B2B) invoicing in the United States was estimated to cost bank corporate customers \$90 billion in 1999 due to the continued use of outdated and cumbersome processes. This enormous cost appears to be shared almost evenly with sellers (\$42 billion) and buyers (\$48 billion) (Young, 2002).

Compared to business to consumer (B2C) transactions, B2B transactions differ in that they include procurement, contract administration, fulfillment, financing, insurance, credit ratings, shipment validation, order matching, payment authorization, remittance

matching and general ledger accounting. Each of these steps may be governed by complex business rules. For example, trading

partners may require multiple invoice accounts per customer, with a separate workflow review process for each. However, B2B is traditionally transactions between known customers, where identification provides a higher level of trust/security versus thousands of B2C faceless transactions.

The wide applicability of B2B e-billing also brings a number of different players to compete in the market – vendors of billing systems for telecom and utilities, specialist EBPP/EIPP system suppliers, EDI system specialists, e-marketplace enablers and e-business infrastructure providers. All of these players compete with the traditional financial institution in its role as a neutral third party payment provider.

In an effort to assess the growth opportunities of B2B EIPP for financial services organizations, this research paper discusses the market drivers, benefits, and barriers to adoption for financial services institutions in the EIPP market. This paper examines possible value propositions in three current EIPP models: Seller Direct, Buyer Direct, and Consolidator.

The strength of the traditional role of banks can be seen in both components, in particular as a BPP, as billers and consolidators, as defined in the EPP value chain, still do not have the fiduciary powers of banks to actually pay the invoice. However, banks face the possibility of disintermediation in the value chain by non-bank BSPs. Level of payment process complexity also plays an important part in the bank’s involvement in EIPP.

The structural difference between EPP for B2C and B2B is the difference between a bill and an invoice. Typically, bills are used by cyclical businesses to request payment for goods and services that are provided on a regular basis and where it is not necessary to itemize each cost item (n.b. telephone bills are an exception). These bills are relatively easy for Accounts Payable (A/P) to recognize and may be covered by EBPP (i.e. B2C) functionality. This is still a growing market, as shown in Figure 1.

**Global Repetitive Bills Projection**

(Units in billions)	2000	2003	2005
Total global repetitive bills	66	77	80
-- Bills electronically presented	6	30	56
-- Bill electronically paid	10	38	64

Source: Killen & Associates

**Figure 1: Global Repetitive Bills Projection (Source: Killen and Associates)**

EIPP comes into its own with non-cyclical businesses, i.e. those which provide irregular products such as manufactured goods or materials. Often the services delivered are different each time and so payment is requested using itemized invoices. These invoices are more difficult for A/P to recognize and so it is necessary to identify who was responsible for ordering the goods in the first instance, these people must in turn check the accuracy of the invoice and match it to delivery receipts and purchase orders. B2B transactions are also more likely to be disputed than B2C transactions. Invoices are often "not paid as billed," and transactions often need to account for discounts, promotions, and special buyer relationships. It is therefore not only the process that is different for B2B invoicing, but the context of the transaction and the timing of the outcome.

## 2. Research Approach

Automation of EPP services is expected to reduce the need for financial intermediaries while there will be continued demand for nonstandard, differentiated transactions and services (Emmons & Greenbaum, 1998). Technology is enabling non-bank financial service providers to enter the payments arena and as payments become increasingly commoditized there is a risk that the banks will be disintermediated by more cost effective, added-value offerings.

The current consolidation in banking (Davis, 2000; Mishkin, 1998), together with an expected technology driven globalization of banking infrastructure, threaten to marginalize the parties who choose not to participate.

In addition, the banks face the challenge to their traditional payments revenue, emanating from the provisions of an EU Directive on cross-border payments that effectively require that intra-EU payments need to be priced as per domestic transactions. Any investment in EIPP activities has to be seen with an eye to higher margins and revenue opportunities.

As the banks are assessing growth opportunities in B2B markets, as well as creating barriers to fight disintermediation by non-bank financial services participants, the research addresses the following question:

- *What are the drivers and opportunities for banks in the EIPP activity for banks?*

This research question on the banks' drivers and opportunities is addressed in this paper by case study methodology, examining what successful roles banks have taken in EIPP, to provide an exploratory guidance for IS managers interested in promoting EIPP in their financial services organization.

Due to the complex, contextual and contemporary nature of EIPP processes, a case study research design was deemed appropriate (Benbasat et al., 1989; Yin, 1994). The specific research design is an exploratory multiple case study approach. The case studies were sampled across European geographies to reflect variability in environmental contingencies, with the explicit purpose of analytical validation (Yin, 1994). American banking systems are quite different, so for the initial study, we limit the domain to the European banking environment.

The remainder of the paper is divided into four sections. First, the theoretical background includes a review of topics that are central to the role that banks play in EIPP. The next section examines current business models, and the following section applies these models with case study examples. The analysis of the case studies follows, and the conclusion briefly discusses implications for future research and practice.

## 3. Literature Review

The review of literature includes three main areas that are deemed important in conceptualizing a framework for a bank's role in EIPP. First, literature in strategy, particularly about firm level value creation (e.g. Stabell & Fjeldstad, 1998) combined with bank specific issues (e.g. Crane & Bodie, 1996) provides a basic understanding of bank strategic issues. Second, literature on trust and risk, as well as disintermediation, allows us to discuss the bank's position in the EIPP value chain. Finally, the literature on IT integration enables us to discuss the implications of EIPP demands on technology processes and its implications on the bank's core competencies.

### **3.1 Bank Strategic Issues**

To create a viable EIPP solution, banks need to create a value network of alliance partners and technology solution providers to add the necessary desirability for electronic invoicing to the customer base. A Value Network is a web of relationships that generates economic value and other benefits through complex dynamic exchanges between two or more individuals, groups or organizations. The Value Network models mediating firms as creating value through three basic primary activities: Network promotion and contract management; Service provisioning; and Infrastructure operations (Stabell and Fjeldstad, 1998). In a network firm (Economides, 1996) the customers are offered direct access to each other, as in payment mediation, or indirect access to a common pool, as in saving and loan services (Stabell and Fjeldstad, 1998) through the set of mediation activities performed by the firm.

Both value and cost are postulated as driven mainly by network characteristics (Stabell and Fjeldstad, 1998). Value and costs depend on the number of access points (network size effects), nodes or users that can be reached (positive demand externalities), and the variety of links between users (services provided). The costs for the users are in terms of charges for access to and use of the network, while the value is determined by the possibility to reach a large and relevant number of nodes through a variety of links. To provide greater value, value networks can increase their range of services offered by layering new services on top of the contract set and the infrastructure, (vertical expansion of service range) or increasing access to a larger pool of users (horizontal expansion of network scope). For example, a bank may introduce trusted third party services for Internet transactions over its own network.

The propositions advanced in this paper are derived by assuming the extreme perspective of the banking firm not creating and delivering products but rather only facilitating and managing multiple levels of financial inter-customer relationships.

### **3.2 Trust and Risk**

Banks are financial intermediaries that mediate financial exchanges in the economy. In terms of risk and trust, the bank as an institution has a solid track record in providing dispute mechanisms, prepayment liquidity, and transaction instruments for electronic payment. Therefore, the issue of disintermediation may be addressed by the bank's role as a trusted party, reducing transactional risk.

To explain why individuals cannot do the asset transformation (maturity, denomination, risk and liquidity) activities by themselves, Benston and Smith (1976:215) introduce transaction costs. They attempt to explain why individuals do not perform asset transformation themselves as a function of the transaction costs incurred in conducting such activities. It follows that the exploitation of economies of scale and scope in the asset transforming technology justifies the existence of financial intermediaries.

Trust and risk are closely interrelated (Mayer et al., 1995). Trust can be seen as the coordinating mechanism that binds the relationship together, provide the necessary flexibility (Buttery and Buttery, 1994; Fukuyama, 1995; Larson, 1992), reduce transaction costs (Reve, 1990; Cummings and Bromiley, 1995; Fukuyama 1995) and reduce the complexity of the relationships. Zucker (1986) discusses three forms of trust: institutional-based trust that flows from legal and financial systems that feature safeguards against and punishments for malfeasance; process-based trust that flows from past interactions and reputation; and characteristic-based trust that is tied to ethnicity or familial ties, or in this case, to corporate ties to a particular banking institution. On the

dyadic level, Uzzi (1999) has demonstrated bankers' practice of developing this type of trust and their heavy reliance on the implicit pressure for conformity to expectations.

### **3.3 Disintermediation**

With cross-border Euro transaction being pushed towards the same free cost of domestic transactions, banks are looking for other opportunities to utilize their value network infrastructure for a higher margin activity. But with the evolving value chain for EIPP, a possibility exists for the bank to be partially disintermediated from EIPP activities by billing service providers (BSPs) entering the market. These include telecom and utilities companies, e-marketplace enablers and e-business infrastructure providers who can assist billers in creating their own web-oriented invoicing alternatives.

Disintermediation is "a result of direct relationship between consumers and producers where intermediate steps or processes make it more difficult to use efficiently the information feedback which occurs when a close loop is engaged" (Zlatuška, 1997). This is an important element when payment on demand is used. Areas will remain where the buyer or seller avoids the intermediary because no added value, no added knowledge, or information enrichment occurs (Zlatuška, 1997). Bank risk being seen as adding no additional value to the invoicing activity, whereas they have the ability to add value within the customer relationship.

### **3.4 IT Integration**

Financial services organizations have found that they do not have a core business competence in IT integration, but in relationship management. These can be evidenced by the recent outsourcing of all IT operations by ABN AMRO (to EDS), Deutsche Bank (to IBM), and JP Morgan Chase (to IBM). This is a continuing trend, as cost reductions by outsourcing to an IT vendor provide a more efficient running of a side of the business that is more IBM's core capability than that of JP Morgan, or that of Deutsche Bank. Deutsche Bank, in their press release announcing the deal, stated that "...we see the operation of the mainframe and data center as not the core competence of the bank."

As some might say that EIPP is all about ERP integration or financial EDI, this may create a case for financial service providers to need to partner with others in the financial supply chain to actively take part in EIPP. An innovative application like EIPP can allow new organizational arrangements that can ultimately change the shape of the supply chain (Segev and Gebauer, 2001).

At present, given the level of partnership needed and the complexity, only three countries have widespread EIPP offerings (US, Canada, Australia), with other smaller implementations taking place in places like Switzerland, New Zealand, the Scandinavian countries, Hong Kong and the United Kingdom. Some of these successes and failures in bank EIPP implementations are discussed in the case study research.

## **4. Current EIPP Models in Industry**

Financial Electronic Data Interchange (EDI) provides only a limited solution to electronic payment and, due to the cost involved, remains the exclusive preserve of very large corporates. This is because EDI takes time and effort to create fixed links between established trading partners and its functionality is limited because it does not allow the

interactive exchange of data. This means it is not possible, for example, to dispute invoices electronically. And when a large corporate wants a SME to provide a service, the infrastructures are not as tightly coupled and as similarly organized to make it feasible.

EIPP will allow suppliers and buyers, regardless of size, to send and receive invoices on-line to their entire customer base in a many-to-many environment. An EIPP solution can lead to the ability for banks to utilize straight through processing (STP) of clearing, settlement and information reporting as a competitive weapon without the need for corporates to continue to invest in expensive EDI technology.

In understanding the drivers for bank participation in possible EIPP models, we examine the current three EIPP models used in industry today.

#### 4.1. Seller Direct

The seller controls the EIPP application in the Seller Direct model (Figure 2). This model comprises a one-to-many relationship, linking one seller to its multiple buyers for invoice electronic delivery. A seller deploys this model by requesting – or requiring – that its buyers view invoices on the seller EIPP system (NACHA, 2001).

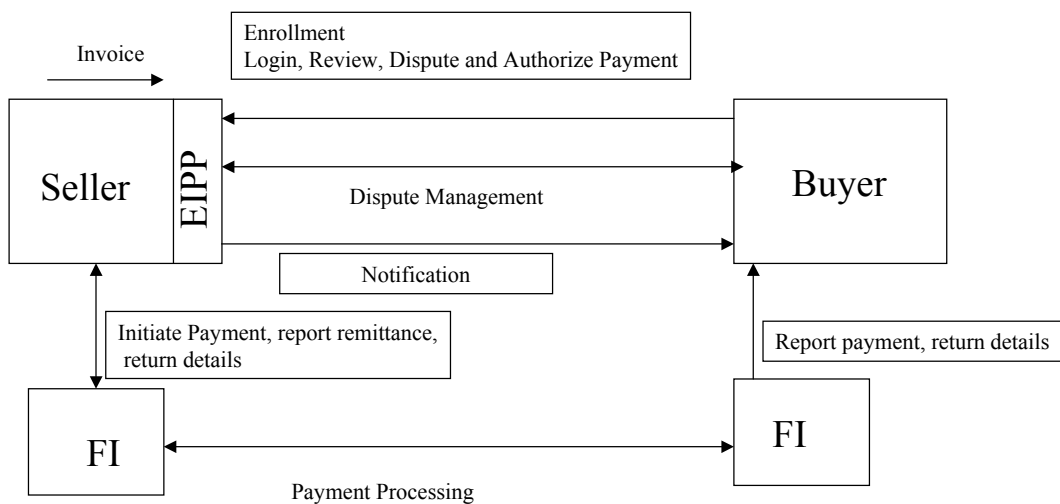


Figure 2: Seller Direct Model (NACHA, 2001)

The Seller Direct process is an established model. The difficulty with this model is in how a supplier can force its main buyers to accept invoices in the seller's chosen EIPP format(s). Certain buyers may choose to purchase from an alternative supplier that does not insist on sending its invoices out electronically. This may be too much of a commercial risk for the seller to invest in EIPP technology.

#### 4.2 Buyer Direct

The buyer controls the EIPP application in the Buyer Direct model. This model comprises a one-to-many relationship – with one buyer providing an interface for many sellers (Figure 3). A buyer deploys this model by requesting – or requiring – that its sellers post invoices to the buyer EIPP system (NACHA, 2001).

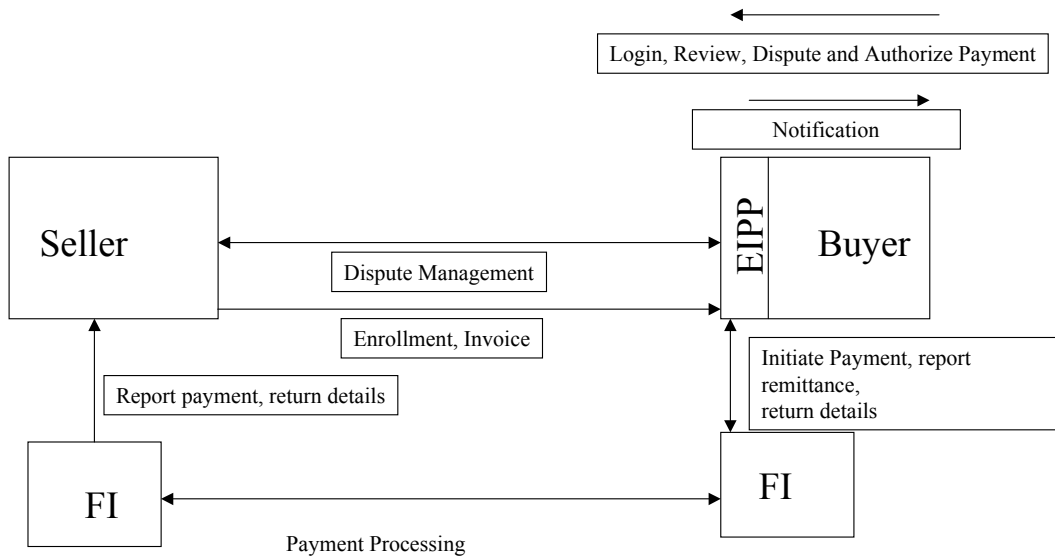


Figure 3: Buyer Direct Model (NACHA, 2001)

Buyer centric models will be key to the successful deployment of EIPP regardless of whether the technology is made available by the buyer itself i.e. buyer-direct or through an external ‘consolidator’ solution i.e. hosted on behalf of the buyer. Large corporate buyers will have the ability to require that suppliers use the buyers EIPP solution, if they want the sale.

### 4.3 EIPP Consolidator

The consolidator controls the EIPP application in the Consolidator model. This model comprises a many-to-many relationship – providing an interface between multiple sellers and buyers (Figure 4). A consolidator acts as an intermediary, collecting or aggregating invoices from multiple sellers for multiple buyers, eliminating the need for point-to-point connections. The structure of a consolidator may vary from market to market based on the needs of buyers and sellers in each industry served by the consolidator. Consolidators are generally third parties and may provide, directly or through partners, a variety of additional financial services such as factoring, escrow, insurance, credit ratings and payment processing (NACHA, 2001).



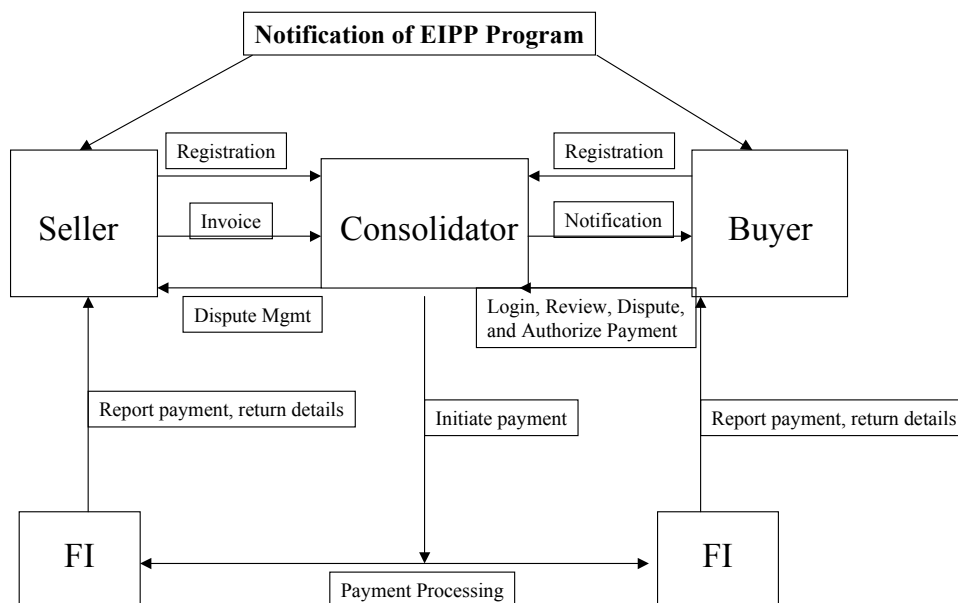


Figure 4: Consolidator Model (NACHA, 2001)

## 5. Initial Case Studies

### 5.1 Seller Direct

The Royal Bank of Scotland (RBS) announced in March 2000 their agreement with Microgen, the UK's leading business-to-business (B2B) e-Billing Service Provider, under which Microgen will supply e-Billing services to RBS and NatWest customers. Under the terms of the agreement the banks will promote Microgen to their corporate customers as their recommended supplier of B2B e-Billing services.

Through this agreement with Microgen, RBS offers its customers a solution that brings together key players in the process of issuing and settling invoices – supplier, service provider, customer and bank. As a service based solution charged on a usage basis, it could help to eliminate many of the risks in choosing electronic invoicing.

Microgen's e-Billing service is a fully outsourced solution. Customers send data from their billing systems to Microgen for processing into e-Bills. The e-Bills are presented to the bill recipient via a hosted web site both as a PDF image viewable via Adobe Acrobat and as a data file that can be downloaded and imported into recipients financial or ERP systems. The service can be used to distribute any related financial documents e.g. statements, credit notes, remittance advice, etc. and can be enhanced by indexing and linking related documentation. Microgen's ability to provide a managed transition for customers from print and mail into electronic media using the same customer datastream is a key strategic differentiator (Microgen, 2002).

### 5.2 Consolidator / Invoice Housing

Deutsche Bank originally entered the EIPP market in July 2000 to meet corporate customers' needs to streamline their payables and receivables processes. The first

generation of db-eBills was successfully deployed in Asia, where the service facilitated secure funds transfers and settlement between business partners over the Internet.

Deutsche Bank is a good example of the invoice housing model. A range of services is available where the invoicer provides invoice summary data to be presented by Deutsche Bank. Payers can access invoice details through an embedded URL at Deutsche Bank's web site, hyper-linked to the biller's web site.

At the more complex end Deutsche Bank's model offers complete storage of invoice information and payment authorization. The solution has been designed to be compatible with ERP systems so that information generated from invoices and payments can be downloaded into accounting systems.

The bank planned to implement its service with a few pilot clients with substantial invoice volume. Corporations were slow to adopt the first versions of EIPP which were too biller-centric and thus of little value for the payers.

By offering a system that provides a distinct value proposition for both billers and payers, Deutsche Bank hopes to accelerate the acceptance of e-commerce by its customers. The bank plans to attract customers by emphasizing the working capital and efficiency gains that companies will experience when db-eBills is combined with other Deutsche Bank cash management products already in use (Celent, 2001).

### 5.3 Consolidator - Initial Failure

Telekurs Holding and the Swiss financial institutions UBS, Credit Suisse and Postfinance invested five years of development work and almost 100 million Swiss Francs in Paynet, their EPP system. In April 2001, the joint venture was suddenly abandoned. It had not attracted enough users to make it economic. (Swissmoney Research, 2001).

Although this bank's B2B consolidator approach could be considered a failure due to cost infrastructural reasons, the Electronic Bill Presentment and Payment Solution (EBPP) developed by PayNet is now integrated in mySAP Financials as SAP Software FSCM Biller Consolidator and is internationally marketed by SAP, as well as used by the PayNet consortium for B2C activities. PayNet focuses on its Payment Solution Provider (PSP) role, as well as that of a consolidator, as shown in Figure 5.

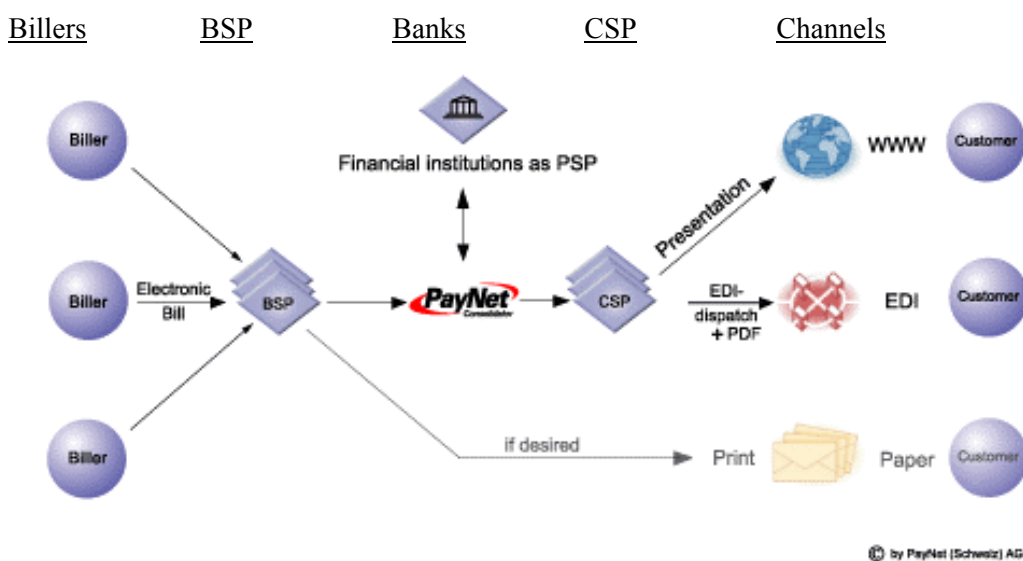


Figure 5: PayNet EBPP Solution (source: PayNet AG)

## 6. Analysis of Case Studies and Literature

It appears from the case research that integration to current architectures, broader range of information depth, and packaging to add a unique value proposition (e.g. storage, usage pricing model) can be considered key components of a successful EIPP offering.

Banks need to integrate to current architectures to address the levels of complexity in the back office that is caused by the number of layers that an inter-company invoice has to go through before settled. Reconciliation alone requires an EIPP product to interact with the general ledgers of both parties, so that original quotes and purchase orders can be matched with the payment (Kersnar, 2002).

Given this complexity, it is understandable why banks and technology vendors need to work together in order to develop global EIPP offerings. Such partnerships include: ABN Amro and BillingZone; Citibank and Bottomline Technologies; Deutsche Bank and iPlanet; and JPMorgan Treasury Solutions and BCE Emergis. The PayNet / SAP example also shows the need for a strategic alliance partner in technology.

In other cases around Europe, banks and technology vendors at country-specific levels are offering e-invoicing. In France, for example, the two dominant local players so far are Post@xess, which is a subsidiary of the French post office, and B-Process, which is jointly owned by various French financial institutions such as AXA, Bred Banque Populaire, Caisse des Dépôts & de Consignation, and Natexis Banque Populaire. Between them, they can count among their clients a handful of major names in corporate France, including Danone, the food giant that has signed on Post@xess, and EDF, the electricity firm that is a customer of B-Process (Kersnar, 2002).

*Usage Analysis*

	<b>Seller Direct</b>	<b>Buyer Direct</b>	<b>Consolidator</b>
<b>Model status</b>	Established	Emerging	Emerging
<b>Trade relationship</b>	Existing relationship	Existing relationship	Existing Relationship
<b>Buyer profile</b>	Buyers required to use seller's system	Dominant company	Varies
<b>Seller profile</b>	Dominant company	Sellers required to use buyer's system	Varies

**Figure 6:** Usage Analysis of Three EIPP Models (NACHA, 2001)

In looking at what EIPP models have value creation for the banks, the Seller Direct and Consolidator/Invoice Housing models are the prevalent ones in industry currently. Both models are based on existing relationships, and provide a further entry for the bank to help streamline the financial processes of client companies. Buyer Direct (& biller-centric as provided by a consolidator/Invoice House) are still relatively new concepts but are gaining credibility as buyers & FSIs look at the practical issues with securing successful EIPP roll-outs.

## 7. Conclusions and Directions for Future Research

This research indicates a need for collaboration between banks and technology providers, given the level of complexity involved, to create the necessary processes, standards and infrastructure to make EIPP a success. The current body of academic literature in EPP is

focused more on the B2C portion of billing. Unlike EBPP, EIPP is still a relatively new proposition in the marketplace. Moreover, there is still the need to distinguish between true EIPP solutions and re-branded EBPP (B2C) solutions.

When Greenwich Associates, the financial-services consulting firm, asked 100 Financial Times (FT) 500 companies in October 2001 whether they saw a role for banks in billing and invoicing, only about 15 percent said 'yes'. Banks can be seen to be approaching EIPP solutions mainly as a defensive move, to protect the services they offer their clients (Kersnar, 2002). The key driver is new revenue either from the increased volume of electronic payments or from the ability to charge for an added-value service or from the ability to capture new corporate customers and cross-sell additional bank solutions such as factoring services and corporate cash management.

The question is whether banks do this in co-operation or acting alone. Success factors will depend on the solution-suite adopted and its appropriateness for broad adoption in the marketplace to create the necessary critical mass for the infrastructural cost, as per PayNet. For these reasons banks should consider buyer-centric propositions. Buyers will effectively sell the proposition on behalf of the banks by encouraging their supplier base to use EIPP to send invoices. This means the banks need to focus on identifying and educating appropriate corporate 'buyer' customers on the benefits of EIPP.

Directions for future research include additional case study research to create a definitive list of success factors of EIPP implementations once the installed base of EIPP is larger.

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