ELECTRONIC INVOICING SYSTEM AND PROCESS

TECHNICAL FIELD

The present invention relates to a system and process for providing a customer with an electronic invoice in respect of a purchase made from a merchant.

BACKGROUND

The use of electronic payment services has increased dramatically in recent decades. In particular, credit and debit card-based payment services have become integrated into everyday life due to their ability to allow a customer to complete purchases via the electronic transfer of funds from a payment account to a merchant's account. Card-based payments offer many advantages over cash payments, including that the customer can transfer funds to a merchant in any currency without needing to transport physical denominations or having to manually perform conversions from one currency type to another, while retaining the efficiency of a cash exchange. When an electronic payment is made by a customer to a merchant for the purchase of goods and/or services the customer often requires verification of the purchase in the form of one or more documents that provide: 1) an itemized bill (i.e. an invoice) including the details of the purchased items; and 2) a payment receipt confirming that the payment for the purchase has been authorised by the financial institution issuing the customer's payment card. There is significant variation in the mechanisms used by merchant purchasing systems to provide payment feedback to customers. For purchases completed via online shopping invoice and/or receipt documents are typically delivered electronically to the customer via contact information provided in the customer's corresponding account or profile registration with the online store. By contrast, in-store purchases typically involve the generation of physical paper based invoice documents for the customer, even when the payment is made via a card-based or mobile payment service (such as a digital wallet) of the customer.

Accordingly, despite the convenience of these payment technologies, there remains room for improvement. It is desired to provide a system and process for electronically

invoicing payments that alleviates one or more difficulties of the prior art, or to at least provide a useful alternative.

SUMMARY

In a first aspect, there is provided a process for providing a customer with an electronic invoice for a purchase, including: receiving, from a device of a card association entity, transaction data representing a payment transaction for a purchase, the transaction data including at least: (i) purchase information data representing purchasing information of one or more items of the purchase; and (ii) payment data representing an indication of a payment card of the transaction, said payment card associated with the card association entity and issued by an issuer for a corresponding payment account of the customer; processing, at a device of the issuer, the transaction data to generate customer information data and purchase invoice data, said purchase invoice data including: (i) item invoice information of the one or more items of the purchase; and (ii) payment receipt information representing a payment receipt for the transaction; processing, at the device of the issuer, the customer information data and the purchase invoice data to generate electronic invoice data representing an electronic invoice and corresponding payment receipt for the transaction; and transmitting the electronic invoice data from the device of the issuer to a device of the customer.

There is also provided an electronic invoicing system, including at least one computing device of a card association entity, and at least one computing device of an issuer, the computing devices being configured to provide a customer with an electronic invoice for a purchase by carrying out the steps of: receiving, from a device of the card association entity, transaction data representing a payment transaction for a purchase, the transaction data including at least: (i) purchase information data representing purchasing information of one or more items of the purchase; and (ii) payment card data representing an indication of a payment card of the transaction, said payment card associated with the card association entity and issued by an issuer for a corresponding payment account of the customer; processing, at a device of the issuer, the transaction data to generate customer information data and purchase

invoice data, said purchase invoice data including: (i) item invoice information of the one or more items of the purchase; and (ii) payment receipt information representing a payment receipt for the transaction; processing, at a device of the issuer, the customer information data and the purchase invoice data to generate electronic invoice data representing an electronic invoice and corresponding payment receipt for the transaction; and transmitting the electronic invoice data from the device of the issuer to a device of the customer.

BRIEF DESCRIPTION OF THE DRAWINGS

Some embodiments of the present invention are hereinafter described, by way of example only, with reference to the accompanying drawings, wherein:

Figure 1 is a block diagram of an electronic invoicing system in accordance with some embodiments of the present invention;

Figure 2 is a block diagram of a computing device within the electronic invoicing system;

Figure 3 is a flow diagram of performing electronic invoicing in accordance with some embodiments of the present invention;

Figure 4 is a flow diagram of an acquirer processing procedure of the electronic invoicing process;

Figure 5 is a flow diagram of a card association entity processing procedure of the electronic invoicing process;

Figure 6 is a flow diagram of an issuer processing procedure of the electronic invoicing process;

Figure 7 is an example of an electronic invoice document produced by the electronic invoicing process rendered on a customer device; and

Figure 8 is a flow diagram of a banking transaction statement generation procedure of the electronic invoicing process.

DETAILED DESCRIPTION

Overview

The inventors have identified some specific shortcomings with existing electronic payment transaction systems and processes in relation to the provision of invoices and corresponding payment receipts to customers. Invoice information is particularly important in the context of commercial transactions, since merchants often require the customer to provide the invoice as proof of purchase for one or more items when making a claim for the return, maintenance or replacement of an item, or when registering for particular bonus offers or services associated with the items. Invoices and receipts of purchases are also important to the customer for the purpose of expense counting and taxation. Conventional approaches to invoicing a customer for a purchase made in-store involve the generation of paper documents on which the itemised bill and receipt details are printed, and the physical transmission of these documents to the customer by the merchant. The invoice and payment receipt information is often printed on a single document (referred to herein generally as an "invoice document"). For example, when a customer completes a payment for groceries using their credit card, the cashier typically prints a single physical docket listing the items purchased and the payment details. The merchant often retains a duplicate copy of the invoice and payment receipt document (which may be signed by the customer) for their own records in order to handle disputes, and/or to satisfy taxation regulations.

There are several disadvantages with these commercial approaches. First, it is often inconvenient for the customer to store and manage printed invoice documents. Customers often make frequent retail purchases using a card-based electronic payment method resulting in the accumulation of a large number of physical invoice documents. In many cases, these documents must be retained for at least some period of significant length (such as, for example, 30 days) as a proof purchase in order to make a warranty claim. Storing and managing the large number of

documents for such extended periods of time is often inconvenient and increases the likelihood that a receipt or invoice will be lost.

Second, the physical production of the invoice documents is often of low quality due to the printing techniques used by the merchant. For example, printing devices included within point of sale terminals often possess low resolution printing capabilities as a trade-off for their ability to produce physical invoices quickly and efficiently for a large number of purchase transactions. As a result, the details of the purchasing information may not be easily readable on the printed invoice and/or receipt documents causing inconvenience to the customer (such as, for example, when a warranty claim in relation to the purchase is refused because the merchant cannot verify the receipt).

Finally, the physical production of invoice documents results in a loss of resources for the merchant. The merchant bears the cost of supplying the printing equipment and the paper on which these documents are printed. Furthermore, since merchants are often required to retain a copy of the invoice, significant costs are incurred in relation to the management and storage of the large number of invoice documents associated with all purchases made for their items.

Electronic (or "digital") invoicing is an alternative to the provision of traditional physical invoice documents to the customer. In existing digital invoicing processes, such as those used for online shopping services, the contact information of the customer is used by the merchant to provide an electronic copy of the invoice and/or payment receipt. For example, the merchant may send invoice documents to an email address provided by the customer at the time of the purchase or earlier (i.e. during a registration or signup process of the customer with the merchant's store). However, this type of electronic invoicing process has the disadvantage of requiring the customer to disclose their contact information to the merchant in order to receive the invoice documents. Furthermore, the customer must distribute their contact information to each merchant , and this results in a significant increase in the probability of the customer's contact information being compromised or used inappropriately (such as, for example, by merchants who 'spam' the customer with unwanted product offers).

The described embodiments of the present invention include an electronic invoicing system and process for electronically providing a customer with item invoice and corresponding payment receipt information (together referred to as an "electronic invoice") in respect of a purchase from a merchant. Specifically, the electronic invoice is generated and transmitted to the customer by the financial institution issuing the payment card (referred to herein as the "issuer") that is used by the customer to complete the purchase. The customer makes a payment to purchase one or more items from merchant at a point of sale device (a "merchant device") via a payment card that is linked to a card association entity (such as MasterCard), and issued by an issuer in respect of an associated payment account. Financial authorisation and transaction messages are generated by the merchant device for the payment and are transmitted to the merchant's acquiring a financial institution (referred to herein as the "acquirer"). The financial transaction message contains purchase information including information about the customer's purchase, such as the name, description and price for each purchased item, to which the transaction relates. If the payment transaction is approved, the purchase information is forwarded, via the transaction message of the corresponding payment, to the card association entity, and subsequently to the issuer.

In the described embodiments, the purchase information data is included within the financial transaction message to form an 'invoice enabled transaction'. To facilitate processing, invoice enabled transactions can be sent by the merchant in the form of a batch file which groups the set of transactions made by the merchant over a particular predetermined period of time (such as, for example, a 24-hour period). Transmission of the invoice enabled transaction to the acquirer is performed in accordance with standard processes for the exchange of financial transaction information such that the described system and processes are compatible with the infrastructure of existing financial payment systems. Each invoice enabled transaction is received by the card association entity and the issuer, where either or both of these entities can be configured to process the purchase information.

The issuer receives the payment transaction and corresponding purchase information data and resolves this information to a particular customer. Based on the purchase information, the issuer is configured to perform invoicing for the purchase via an

electronic delivery method, such as email or SMS. Specifically, the electronic invoice documents are transmitted to the customer using contact information that is securely maintained by the issuer (such as that associated with the customer's payment account). The electronic invoice documents are transmitted and received via direct communication between the issuer and the customer without the involvement of the merchant. That is, the system and processes described herein are customer-driven and operate to establish a single channel of communication between a particular customer and an issuer for invoicing purchases made with the customer's issued payment card. It should be appreciated that the issuer can levy a charge for establishing the single channel of communication.

The transmission of an electronic invoice document to the customer can occur in conjunction with any pre-existing process implemented by the issuer and/or card association entity to notify the customer of, or seek authorisation for, payment transactions (such as via messages that are sent to a registered mobile phone or email address of the customer). Significantly, these existing systems typically provide only an indication of the identity of the merchant and the total value of the transaction, the combination of which is insufficient to constitute a transaction invoice.

In some embodiments, the system and process can be configured to provide an electronic invoice only when desired by the customer allowing them to opt out of receiving the digital document. In this case, the merchant can still issue a physical invoice and/or payment receipt if requested by the customer, or otherwise. Furthermore, the described system can be configured such that purchase information, in the form of invoice enabled transactions, is transmitted from the merchant to the acquirer, and subsequently to the issuer and card association entity, regardless of the customer's preference to receive electronic invoice documents from the issuer.

The card association entity and issuer can be configured to process purchase information within the invoice enabled transactions. Specifically, these entities can be configured to process purchasing information data of the purchased items associated with the payment transaction in order to analyse one or more of: the behaviour and/or characteristics of the customer; and the characteristics of the purchases of the customer.

For example, the issuer may analyse the purchasing history of the customer over a particular period of time to determine one or more products or offers that are likely to be of interest to that customer. Similarly, the card association entity can, as a non-limiting example, analyse purchasing habits to gain insight into the behaviour of customers with respect to a particular card for the purpose of improving or developing their credit card, debit card or other products.

The issuer can also be configured to display the purchase information of an invoice enabled transaction within the banking transaction statements generated for the customer's corresponding payment account. This allows the customer to view the details of the items that were purchased with a particular transaction via the banking platform provided by the issuer (such as, for example, via the issuer's Internet banking website or mobile application).

The electronic invoicing system and process described herein advantageously provides a payment solution that:

- provides a customer with electronic invoice documents in relation to a transaction, allowing the customer to conveniently manage invoices obtained from a large number of purchases over a period of time;
- improves the accessibility of invoice and payment receipt documentation for a customer by providing flexibility in the delivery method and/or the form of the invoice documents;
- increases the security and convenience associated with electronic invoicing by limiting the exposure of the customer's contact information to the trusted issuer, and by providing the customer with high-quality portable invoicing documents;
- provides card association entities and issuers with the purchase information associated with a customer's payment transactions, allowing the development of improved products and/or services; and
- increases the efficiency of invoice management for merchants, since electronic invoices are produced for in-store purchases automatically by the issuer which also allows payment disputes to be resolved without the inspection of physical documents (i.e. electronic validation methods can be implemented).

System

As shown in Figure 1, the electronic invoicing system 100 includes a merchant device 102, operated by a merchant 105, through which a customer 101 makes a payment for one or more items purchased from the merchant 105. In the described embodiments, the merchant device 105 is a point of sale (POS) device, such as an EFTPOS machine. However, in other embodiments the merchant device 102 can be an ATM machine configured to enable a customer to withdraw cash from the account associated with their payment card. The merchant device 102 includes a reader 109 configured to read the payment card used by customer 101 to pay for purchase (via a payment transaction), and a terminal 108 in local communication with the reader 109. The terminal 108 is configured to receive payment card details from the reader 109 and to authenticate the payment. The terminal 108 executes electronic invoicing software for the purpose of transmitting transaction and associated purchase information to the acquirer 110. The merchant 105 can configure the electronic invoicing software by interacting with the terminal 108, as described herein below.

The merchant device 102 communicates with the acquirer 110 via a first communications network 106. The first communications network 106 can be a local area network, or a wide area network such as the Internet, for the purpose of facilitating the exchange of transaction data between the merchant device 102 and the acquirer 110. In the described embodiments, a secure transport layer communications protocol, such as https, is used for the exchange of data between the respective devices.

In the described embodiments, the terminal 108 of the merchant device 102 is configured to transmit purchase information data to the acquirer 110 within a financial transaction messages corresponding to the payment transaction. Specifically, invoice enabled transaction data, including the payment and corresponding purchase information, is forwarded, by the acquirer 110, to the card association entity 112 associated with the payment card of the customer 101 for which the transaction was made. The transaction data is further forwarded to the issuer 118 of the payment account associated with the payment card. Communication between the acquirer 110,

card association entity 112 and issuer 118 occurs over a local network in the form of the existing infrastructure enabling the exchange of financial messages between these entities.

The card association entity 112 can consist of one or more devices configured to collectively receive transaction data from the acquirer 110 and process this data via a transaction processing module 114. The transaction processing module 114 processes the invoice enabled transaction data and determines the appropriate issuer 118 to forward this data to (as described below). In some embodiments, the transaction processing module 114 of the card association entity 112 is configured to process the purchase information within the invoice enabled transaction, and to transmit this information to an analytics module 116 which analyses the details of the purchase. The analysis of the purchase information can be used by the card association entity organization to assist with the development of new products or offers. The transaction processing module 114 and analytics module 116 are implemented as a software application executing on the one or more devices of the card association entity 112.

In the described embodiments, the issuer 118 is implemented as one or more computing devices that are configured to receive invoice enabled transaction data representing the payment transaction and corresponding purchase information, from the one or more devices of the card association entity 112, and to process this data via an electronic invoicing application consisting of: a logic module 120; an account interface module 122; a transaction processing module 124; an analytics module 126; a communications module 128; and an invoicing module 130. The transaction processing module 124 processes the invoice enabled transaction data and determines the customer for whom the electronic invoice and payment receipt is to be generated. The analytics module 126 can be configured to process the payment and purchasing information data using statistical analysis and/or classification techniques to profile particular transactions or customers (as described below).

Invoicing module 130 receives processed purchase information data from the transaction processing module 124 and generates the electronic invoice and payment receipt data for the transaction. In the described embodiments, electronic invoice documents are transmitted to a customer device 103 by the communications module

128. Communication between the customer device 103 and issuer 118 occurs over a second communications network 107. In the described embodiments, the second communications network 107 is a wide area network specific to the mode of delivery of the electronic invoice document. For example, if email or access at a pre-defined portal is used to provide the customer 101 with the document, then second communications network 107 is an Internet-based network (such as Wi-Fi). However, if the invoice document is provided via SMS, or other telephone communication protocols, then second communications network 107 may be a GSM network, for example. In alternative embodiments, second communications network 107 may be equivalent to, or constitute a subnetwork of, first communications network 106, or vice versa.

In the described embodiments, the issuer 118 is configured to allow the customer 101 to view transaction statements associated with their particular payment account. The account interface module 122 provides issuer functionality relating to the secure retrieval of transaction information, including payment and corresponding purchase information, for a customer's account. Account interface module 122 provides access to the transaction information of a customer's account by an application program interface (API) which is accessible from the customer device 103. The customer device 103 is configured to display transaction information (such as, for example, purchase items, discount, tax and so forth) via a software application, such as a generic web browser configured to render a particular website (such as a personal banking website) or a mobile banking application of the issuer 118.

In the described embodiments of the electronic invoicing system, the customer device 103, the acquirer 110, the card association entity 112, the issuer 118, and the terminal 108 of the merchant device 102 are implemented as one or more standard computer systems 200, such as, for example, an Intel IA-32 based computer system, as shown in Figure 2, and the process 300 executed by the system 200 is implemented as programming instructions of one or more software modules 202 stored on non-volatile (e.g., hard disk or solid-state drive) storage 204 associated with the computer system, as shown in Figure 2. However, it will be apparent that at least parts of the process 300 could alternatively be implemented as one or more dedicated hardware components, such as application-specific integrated circuits

(ASICs) and/or field programmable gate arrays (FPGAs), for example.

The system 200 includes standard computer components, including random access memory (RAM) 206, at least one processor 208, and external interfaces 210, 212, 214, all interconnected by a bus 216. The external interfaces include universal serial bus (USB) interfaces 210, at least one of which is connected to a keyboard 218 and a pointing device such as a mouse 219, a network interface connector (NIC) 212 which connects the system 200 to a communications network, such as the Internet, and a display adapter 214, which is connected to a display device such as an LCD or LED panel display 222.

The system 200 also includes a number of standard software modules 226 to 230, including an operating system 224 such as Linux or Microsoft Windows, web server software 226 such as Apache, available at http://www.apache.org, scripting language support 228 such as PHP, available at http://www.php.net, or Microsoft ASP, and structured query language (SQL) support 230 such as MySQL, available from http://www.mysql.com, which allows data to be stored in and retrieved from an SQL database 232.

Together, the web server 226, scripting language module 228, and SQL module 230 provide the system 200 with the general ability to allow users of the Internet 220 with standard computing devices equipped with standard web browser software to access the system 200 and in particular to provide data to and receive data from the database 232.

However, it will be understood by those skilled in the art that the specific functionality provided by the system 200 to such users is provided by scripts accessible by the web server 226, including the one or more software modules 202 implementing the process 300, and also any other supporting scripts and data 234, including markup language (e.g., HTML, XML) scripts, PHP (or ASP), and/or CGI scripts, image files, style sheets, and the like.

Process

The electronic invoicing system 100 and processes described herein provide an electronic invoice and payment receipt to a customer 101 via direct communication between the customer 101 and the issuer 118 of the payment card used for the corresponding transaction. Provision of the electronic invoice by the system 100 involves:

receiving, from a device of a card association entity, transaction data representing a payment transaction for a purchase, the transaction data including at least:

i) purchase information data representing purchasing information of one or more items of the purchase; and

ii) payment data representing an indication of a payment card of the transaction, said payment card associated with the card association entity and issued by an issuer for a corresponding payment account of the customer;

processing, at a device of the issuer, the transaction data to generate customer information data and purchase invoice data, said purchase invoice data including:

i) item invoice information of the one or more items of the purchase; and

ii) payment receipt information representing a payment receipt for the transaction;

processing, at the device of the issuer, the customer information data and the purchase invoice data to generate electronic invoice data representing an electronic invoice and corresponding payment receipt for the transaction; and

transmitting the electronic invoice data from the device of the issuer to a device of the customer.

Figure 3 illustrates the process 300 of providing an electronic invoice in accordance with the system 100. The customer 101 first makes an order with the merchant 105, at step 302, for the purchase of one or more items. The customer 101 initiates a card-based payment for the one or more items via the merchant device 102, such as for example a payment via an EFTPOS machine using a credit card associated with the card association entity 112 and issued by the issuer 118 in respect of a particular payment account. In such embodiments, the reader 109 is an EFTPOS card reader

configured to read the details of a standard financial magnetic stripe card according to the ISO/IEC 7813 protocol (such as an ATM card) that are required to perform the transaction including: the card owner name; the primary account number (PAN); the expiration date of the card; a service code; and a discretionary data value, such as a PIN verification key indicator, a PIN verification value, a card verification value (CVV) or a card verification code (CVC). The terminal 108 can be a computing device configured to receive the payment card details from the reader 109 via an application specific communications interface, such as for example the RS-232 serial interface, or other proprietary interfaces used in merchant POS and/or ATM systems.

Purchase item information is generated by the terminal 108 during the purchase order. In some embodiments, the terminal 108 is fitted with a scanning device allowing purchase item information to be generated by the scanning of an identification tag (such as a barcode or QR code) associated with each item selected for purchase by the customer 101. The terminal 108 executes a software application configured to identify the item associated with the scanned tag, and to determine its corresponding purchase information based on the contents of a merchant item data repository, or the like. In the described embodiments, the purchasing information for each item includes: an identifier uniquely identifying the item; a name of the item; a description of the item; a purchase price of the item; and a value of the discount applied to the item price for the purchase. In other embodiments, the purchasing information can include only the identifier, name and price of each item (i.e. where it is desirable to reduce data storage overheads, and/or to limit the text generated in the invoice document).

The skilled addressee will also appreciate that the purchasing information for an item may include additional information as obtained from the merchant device 102, or another source, in other embodiments of the system and process. Alternatively, or in addition, the merchant 105 can interact with the terminal 108 of the merchant device 102 in order to manually enter the purchasing information for a purchased item. For example, in the case of a purchase for grocery items the merchant 105 can enter information manually into the terminal 108 (such as the weight of an item) in order to determine particular purchasing information (such as the item’s purchase price as calculated based on the item weight).

At step 304, the merchant 105 obtains authorisation to transact the payment card of the customer 101 in respect of the purchase. The authorisation check is made to the issuer 118 of the customer's payment card to ensure that adequate funds are available in the associated payment account. The merchant device terminal 108 generates an authorisation message in the form of a standard ISO 8583 financial transaction message, where the transaction data field values are set by the particular POS application of the merchant device 102 generating the payment request. Table 1 illustrates some exemplary fields of the ISO 8583 transaction. Specifically, data field 2 contains an indication of a payment card (i.e. the card number) linked to a corresponding payment account of the customer that is to be used for the payment. Data fields 4-10 are set to represent the amount and currency of the payment, any associated conversion fees that are required, and the timing information of the transaction. The values of data fields 18-21 represent the merchant type, the acquiring institution country code, the PAN extended country code value, and the forwarding institution country code respectively.

ISO 8583 Data Field	**Type**	**Description**
2	n .. 19	Primary account number (PAN)
4	n 12	Amount, transaction
…		
5	n 12	Amount, settlement
6	n 12	Amount, cardholder billing
7	n 10	Transmission time
8	n 8	Amount, cardholder billing fee
9	n 8	Conversion rate, settlement
10	n 8	Conversion rate, cardholder billing
…		
18	n 4	Merchant type
19	n 3	Acquiring institution country code
20	n 3	PAN extended country code
21	n 3	Forwarding institution country code

Table 1: ISO8583 Transaction example fields.

The message type identifier field is set to '0100', indicating a standard authorisation request. The authorization message is transmitted to the acquirer 110 via the first communications network 106, in accordance with the protocols described above. For the sake of illustration, while sending any transaction for authorization, merchant uses an 0100 message and receives a response from the issuer 118. A detailed summary of a transaction can either be sent along with an authorization message or in clearing batch messages. The clearing messages are not real time but a batch file that is submitted by merchant on daily basis or multiple times in a day depending on, for example, volume of transactions. As such, there will be minimal development to support this change.

If the payment is authorised then, at step 306, the merchant device 102 generates a transaction message to complete the payment for the purchase. The transaction message is an invoice enabled transaction that extends a standard financial transaction message by including the purchasing information of the corresponding purchased items. Specifically, in the described embodiments, the invoice enabled transaction consists of: 1) payment information, as contained with a standard ISO 8583 financial transaction message; and 2) purchase information indicating the one or more items of the purchase to which the transaction information corresponds. The payment information specifies the identity of the merchant, the personal account number (PAN) corresponding to the payment account of the customer 101, the total value of the payment of the purchase, and other data indicating the timing and processing specific details of the transaction (as described above for the ISO 8583 message). The message type identifier field is set to '0200', indicating a request for a complete transaction.

In the described embodiments, the purchase information is in the form of a list of the purchasing information for each purchased item, as described hereinabove. The list consists of text based data entries for a plurality of fields including: 'Item ID', which is an integer uniquely designating the item for the merchant; 'Name', which is set to a descriptive identifier of the item; 'Description', which is contains an extended text based description of the item; 'Price', which is a fixed point floating number

representing the purchase price of the item in the local currency of the merchant; and 'Discount', which is an integer representing the percentage discount that has been applied to the item's regular price for the purpose of the purchase (i.e. to produce the purchase price). Table 2 shows an example of the purchase information of an invoice enabled transaction for a customer purchasing three items from a pharmacy store merchant.

Item ID	Name	Description	Price	Discount
212388	CG Whitening Paste	Colgate Extreme Whitening Toothpaste (260ml)	$3.50	10%
439905	GT Razor 12 pk	Gillette Disposable Razors (12 Pack)	$10	0%
523466	KL Tissues 120 pk	Kleenex Soft-touch Facial Tissues (120 pack)	$1.20	50%

Table 2: Purchase information entries for example items.

In the described embodiments, the invoice enabled transaction is formed by appending the purchase and payment information components, such that the transaction resembles that of an ISO 8583 financial transaction. The purchase information is transmitted by the merchant device 102 in IPM file format. For example, at least one new batch file can be created to include detailed information of a purchase, information such as, for example, transaction submission, fee collection, dispute data and so forth. Accordingly, the payment processing devices of the acquirer 110 are configured to recognise the invoice enabled transaction message as an ISO 8583 type payment transaction for the purpose of processing the transaction. At step 308, the invoice enabled transaction message is transmitted by the merchant device 102 to the acquirer 110. The transaction message can be received by the acquirer 110 as part of a transaction batch containing one or more individual standard ISO 8583 payment transactions or invoice enabled transactions from a plurality of different merchants.

At step 310, the acquirer 110 processes each received invoice enabled transaction

according to the steps shown in Figure 4. The acquirer 110 first extracts the payment information from the invoice enabled transaction (at step 402). At step 404, the acquirer 110 resolves (or 'maps') the transaction to the appropriate card association entity 112 of the customer's payment card. In the described embodiments, the mapping is performed based on the card number specified by the payment information. The acquirer 110 is configured to extract the payment card number and perform a card resolution operation using all, or a subset of, the card number (such as for example the first four digits). In some embodiments, the acquirer 110 maintains a 'card association entity information' table, or other data structure, which is used to determine the card association entity 112 of the payment card based on the card number. The card association entity information table may specify the subset of the card number used to perform the resolution operation, and one or more entries each for a known card association entity and containing the number subset value that corresponds to the entity. For example, an entry with fields of "5606-XXXX-XXXX-XXXX; MasterCard" may indicate that a value of '5606' for the subset defined by positions 1-4 in the card number denotes MasterCard as the card association entity responsible for the transaction. Alternatively, the issuer 118 notifies the customer soon after a transaction is approved via sms/email and include information like, for example, last 4 digits of card, merchant time, value and so forth. The same can be used to create a unique key to match the record with transaction detail and detailed summary record.

Once the appropriate card association entity 112 for the invoice enabled transaction is resolved, at step 406 the acquirer 110 prepares the invoice enabled transaction for transmission to this card association entity 112. A consolidation process is performed which groups a plurality of transactions that have been resolved to the particular card association entity 112 for the collective transmission of these transactions. In the described embodiments, the grouping is performed by the generation of a batch file which is specific to the particular card association entity 112. For example, a R111 Presentment Batch file is generated to consolidate the transactions to be transmitted to MasterCard. The format and type of the batch file used for consolidation are predetermined and known to the acquirer 110 before the commencement of the process, such as in the form of data stored in one or more of the acquirer 110 devices. Alternatively, or in addition, in some embodiments the acquirer 110 can be configured

to dynamically receive batch file information from the card association entity 112, either in response to a request for such information, or otherwise. In the described embodiments, invoice enabled transactions and standard ISO 8583 financial transactions are treated in the same manner by the acquirer 110 during the consolidation process. This allows the invoice enabled transactions to be processed without significant modification to existing transaction processing methods employed by the acquirer 110.

The acquirer 110 forwards the transaction to the card association entity 112, at step 408, by transmitting the generated batch file. The batch files are transmitted via a call to a function defined by a card association entity API. The card association entity API is stored in the card association entity information table, or similar data structure, within the acquirer 110. For each generated batch file containing the consolidated transactions for a particular card association entity 112, a table or data structure lookup operation is performed by the acquirer 110 to determine the corresponding API. Transmission of the batch file is subsequently performed in a similar manner as the R111 Presentment Batch file .

At step 312, the card association entity 112 processes the invoice enabled transaction as illustrated by Figure 5. In embodiments where the card association entity 112 receives transactions in the form of an acquirer consolidated batch file (as described above), each transaction included in the batch file is processed individually. Processing commences at step 502, where the particular transaction being processed is received by the transaction processing module 114. Processing of an invoice enabled transaction by the card association entity 112 involves the sub processes of transaction forwarding and transaction analysis. Transaction forwarding involves identifying the issuer 118 of the payment account associated with the transaction. At step 506, the transaction processing module 114 performs an issuer resolution process which maps the payment card number contained within the payment information of the invoice enabled transaction to the corresponding issuer 118. The resolution process is based on the contents of an ‘issuer allocation table’, or similar data structure, which records the issuer 118 that is allocated the card number at the issuance of the card. The individual invoice enabled transaction is transmitted to the issuer 118 via a call to a function defined by an issuer specific API. In the described

embodiments, the issuer API is maintained by the card association entity 112 in local or remote storage devices. However, in other embodiments the card association entity 112 can be configured to dynamically request the issuer API during the transaction forwarding process, or at any other time. The card association entity 112 can use the same data to perform data analytics on behaviour pattern/ target marketing and share the same with the issuer 118 on demand.

In the described embodiments, the analysis module 116 of the card association entity 112 is configured to perform transaction analysis for one or more of the received invoice enabled transactions. The analytics module 160 can be configured to process the invoice enabled transaction data to determine one or more characteristics that apply to any one of: the purchase; and the customer. Transaction analysis involves the extraction of the payment and purchase information, at step 504. The extracted purchase information is subject to an iterative process involving the extraction of the purchasing information for each item (at step 514), and the processing of each data field, as described above, included within the entry (at step 516). The analytics module 116 of the described embodiments is configured to process the payment information and/or the purchase information field values to perform analysis (at step 518). The analytics module 116 performs statistical analysis or pattern classification operations on the transaction data, in order to characterise the purchase and/or determine the likely future purchasing behaviour of the customer 101. Since the card association entity 112 may not have knowledge of the identity information of the customer 101 (such as their name, address, etc.), the characterisation of the customer 101 is performed with respect to the details of the payment card (e.g. the card association entity identifies the customer 101 by their card number). For example, card association will map transaction record with the purchase enabled transaction record and enhance the data at card number level. In this regard, after receiving this data, MasterCard would know that, cardholder A is spending more frequently on Amazon for a particular product. This data can be monetized by the issuer 118 for marketing purposes.

The card association entity 112 is configured to utilise the determined characteristics and/or classifications in order to construct, or adapt previously constructed, models

(or profiles) for one or more products. This analysis can be performed based on the payment and purchase information contained within the transaction data, and on corresponding characterisations for other cards. For example, analysing the purchase information included within invoice enabled transactions made with a particular credit card product may reveal that this type of card is typically used by customers to purchase items that are of "small value" or carry a "low risk of default". The analytics module 116 may then interpret the characterisation and subsequently prompt a modification of the card association entity's debit card product in order to make that product more attractive for customers. Alternatively, or in addition, the analytics module 116 can be configured to determine one or more promotions or offers that are suitable for the customer. The determination of the promotions or offers that are suitable for the customer can be based, at least in part, on any of the characteristics that are determined to apply to the purchase and/or the customer. The card association entity 112 can be configured to transmit an indication of the availability of an offer or promotion for a particular payment card to the issuer 118 via the issuer API, as described above. The issuer 118 can then forward the offer to the customer 101 for their consideration. Generally, the issuer 118 is provided with a holistic view of cardholder spend patterns. Information on the analytics can either be shared in reports or by sharing API. The issuer 118 can use the information to offer benefits/upgrade/downgrade any product to customers.

The card association entity 112 can be configured to forward the invoice enabled transaction to the issuer 118, at step 508, before, during, or after the completion of the transaction analysis process. In embodiments where the invoice enabled transaction is forwarded to the issuer 118 before the completion of the data extraction or corresponding analysis steps, the transaction processing module 114 can be configured to buffer the transaction data in local storage to ensure that the data is available to the analysis module 116. Alternatively, or in addition, the card association entity 112 can be configured to store a copy of the invoice enabled transaction within one or more local or remote devices accessible by the entity (such as within a transaction data warehouse, or similar).

Following the receipt of the invoice enabled transaction by the issuer 118, the

transaction is processed, at step 314, as shown in Figure 6. The payment and purchase information are first extracted at step 602. At step 604, the transaction processing module 124 of the issuer 118 processes the payment information of the transaction data to determine an indication of the payment account associated with the payment card used to perform transaction. In the described embodiments, the issuer 118 maps the payment card number specified in the payment information to the corresponding payment account for which the card was issued. The issuer 118 can be configured to perform a lookup operation on an 'accounts' table, or a similar data structure, for this purpose.

Customer information data is generated by the transaction processing module 124 based on the determined payment account, including an indication of the identity of the customer 101 associated with the account (such as their first name, last name, address, etc.), and an indication of one or more electronic contact details of the customer 101 (such as an email address or mobile telephone number). In some embodiments, the customer information data represents information constituting part of a customer profile, or model, representing one or more characteristics determined to apply to the customer 101. The determination of the characteristics that apply to the customer 101 is performed based on transactions previously made with one or more payment cards associated with this customer, and/or other information relating to the customer (such as the personal or demographic information of the customer, or one or more other customers).

The transaction processing module 124 is configured to process the payment information in accordance with the methods used to process a standard ISO 8583 financial transaction message. The transaction processing module 124 consolidates the invoice enabled transaction against the authorisation request message previously received in relation to the purchase, and schedules the settlement of the transaction for the specified payment amount. For example, data can be consolidated from clearing batch (transaction submission by merchant) and invoice enabled transaction feed. This can provide the issuer 118 a holistic view of transactions for better reporting/reconciliation and so forth. The issuer 118 transfers the required funds from the payment account of the customer 101 to the acquirer 110 during the settlement process, which proceeds according to standard transaction settlement procedures.

The transaction processing module 124 transmits the payment information, purchase information and corresponding customer information data to the analytics module 126 of the issuer 118. At step 607, the issuer 118 processes the purchase information of the invoice enabled transaction. In the described embodiments, the processing involves for each purchased item (at step 608), extracting the purchase item entry (at step 610) and processing the entry data (at step 612). The purchase item entry data includes 'Item ID', 'Name', 'Description', 'Price', and 'Discount' fields, as described above. In some embodiments, the issuer 118 maintains a record of the one or more items purchased for each particular transaction made with a payment card of the customer 101. At step 614, the logic module 120 performs an update of the recorded transaction information using the processed purchase item entry data. Following the update, the recorded transaction information for the customer 101 is interpretable by the account interface module 122 of the issuer 118 to generate transaction statements indicating the items purchased for each recorded transaction conducted with a customer's payment card (as described below).

In the described embodiments, the analytics module 126 is configured to perform statistical analysis and pattern classification, at step 615, on the payment and/or purchase information in order to determine one or more characteristics that apply to the purchase and/or to the customer 101. In the described embodiments, this can include the classification or a categorisation of the purchase and the determination of the current, or likely future behaviour, of the customer 101. The issuer 118 is configured to generate additional customer information based on the determined characteristics (such as, for example, in the form of models or profiles), or to update existing customer information, for the customer 101 and/or for one or more products offered by the issuer 118. The analytics module 126 can be configured to generate this data in relation to specific payment cards and corresponding payment accounts of the customer 101. For example, if a customer purchases a series of high cost items with their platinum credit card account, then the analytics module 126 may characterise this account as a "luxury purchase" account of the customer 101.

Alternatively, or in addition, the analytics module 126 can be configured to perform 'customer level' characterisations based on one or more transactions made by the

customer 101 over any of their associated payment accounts. The generated customer information data can include behavioural traits assigned to the customer 101 based on: the payment information and purchase information of one or more invoice enabled transactions; characterisations previously determined to apply to the customer (either at the account or customer level); and/or characterisations determined to apply to one or more of the customer's purchases. The analytics module 126 can also be configured to determine particular offers, promotions or bonuses of the issuer 118 that are applicable to the customer 101 based on their customer information data. For example, the analytics module 126 may determine that a customer will save on total interest payments over a 5 year period if the customer switches to an alternative credit card product, based on the customer's current product and their predicted future spending (as determined from the customer information data).

The issuer 118 is configured to provide an electronic invoice of the purchase to the customer 101. The payment information and processed purchase information is transmitted to the invoicing module 130, which is configured to generate purchase invoice data, including: item invoice information of the one or more items of the purchase; and a payment receipt for the payment of the one or more items of the purchase. The generation of the purchase invoice data by the invoice module 130 is based on the invoicing preferences of the customer 101, as determined at step 616. The issuer 118 can be configured to obtain the invoicing preferences of the customer 101 during the creation of the customer's account, the issuance of a particular payment card to the customer, or at any other time when the customer's information is updated within the issuer 118 (such as when the customer updates their details voluntarily).

In the described embodiments, the invoicing preferences of a customer indicate the desired timing for which electronic invoices are transmitted. For example, the customer can specify that invoices are to be transmitted at regular predetermined intervals of arbitrary length, such as for example a day, week, or month, for all purchases occurring within the interval. Alternatively, the customer 101 can express a preference to have the invoice provided to them as soon as possible following their payment for the purchase. In some embodiments, customer invoicing preferences are determined for each specific payment account. For example, the customer 101 may

elect to receive electronic invoices for purchases made with their platinum credit card, but not for purchases made from their everyday debit card.

In the described embodiments, the customer invoicing preferences specify the electronic delivery mode and corresponding electronic contact information to be used by the issuer 118 to provide the customer 101 with the invoice documents. The delivery modes available include email delivery and mobile phone-based SMS text delivery, where the corresponding electronic contact information is an email address and mobile phone number, respectively. The delivery mode and corresponding electronic contact information for the customer 101 is indicated within the associated customer information data, as extracted from a customer profile, for example.

In some embodiments, the electronic contact information is determined automatically by the electronic invoicing software application of the issuer 118 based on the delivery mode preferences of the customer. For example, if the customer 101 elects to receive invoices via email, then the invoicing module 130 can be configured to automatically use the customer's registered email address as the electronic contact information. Alternatively, the invoicing module 130 can be configured to use electronic contact information that is specified by the customer as the contact information for the delivery of their invoice documents. For example, the customer may nominate a different email address from the address registered to their payment account in order to receive the electronic invoices. The skilled addressee will appreciate that other embodiments of the system may involve the use of a specialised application, or other mobile communication program, to deliver the invoice documents.

If the purchase associated with the invoice enabled transaction is to be invoiced (at step 618), then the invoicing module 130 generates purchase invoice data, including item invoice information and payment receipt information (at step 620). In the described embodiments, the item invoice information consists of an itemized list of the purchasing information of each purchased item. However, the invoicing module can be configured to generate item invoice information including a subset of the purchasing information available for each item in combination with other information (such as any of the determined characteristics of the customer or purchase). The payment receipt information represents details of the purchase transaction that are to be included in

the invoice, such as the card for which the transaction was performed, an indication of the merchant's identity, the time of the transaction, and the value of the transaction in the merchant's local currency.

The customer information data and the purchase invoice data (as described above) are processed to produce electronic invoice data representing an invoice and corresponding payment receipt for the purchase. In the described embodiments, the electronic invoice data represents a single text-based document containing an invoice and payment receipt for the purchased items. The invoicing module 130 can be configured to generate the text based electronic invoicing document in the form of any one of a PDF, Word, TXT, or markup language document. In other embodiments, the invoice and purchase receipt information can be generated within distinct documents, which are separately transmitted to the customer 101 in accordance with the methods described herein.

The form and structure of the electronic invoice document is determined, at least in part, based on the delivery mode. For example, in the case of email delivery the invoice document may be a mark-up language document interpretable by a web-based email client application to render a graphical representation of the invoice and receipt within an email message transmitted to the customer 101. Alternatively, or additionally, the invoice document may be a PDF, Word, or other text document which is provided to the customer 101 by attachment to an email message.

Figure 7 shows an example of an electronic invoice document 700 rendered within the body of an email message. The electronic invoice document 700 includes: a title pane 702 characterising the invoice, such as for example by representing the name and/or logo of the issuer 118; a text body 704 containing information describing the transaction level details, such as the card for which the transaction was performed, the merchant, the time of the transaction, and the total value of the transaction (in the merchant's local currency); an itemised list of the purchased items 706 including elements of the purchasing information of each item (e.g. item name, description, price, etc.); and other information relating to the transaction or issuer 708, such as a link allowing the customer to receive help or advice. Alternatively, in the case of SMS delivery the generated electronic invoice document is a plain text document, the

contents of which is transmitted in SMS form to deliver the invoice and receipt document to the customer.

In the described embodiments, the invoicing module 130 stores the generated electronic invoice document in an 'invoicing document' table, or similar data structure. A separate 'invoice record' table, or similar data structure, is maintained by the issuer 118 to store records of the invoicing activity for a particular transaction performed with an account of a customer. Each entry in the invoice record table includes: an invoicing record identifier, which uniquely identifies the invoice record; a transaction number field which uniquely identifies the transaction to which the invoicing activity relates; a link to the invoice document (and a separate receipt document if applicable) generated for the transaction; a generation time field representing the time at which the electronic invoice document was generated; a scheduled transmission time field indicating the time at which the electronic invoice document is scheduled to be transmitted; a transmitted time field indicating the time at which the electronic invoice document was actually transmitted to the customer; a delivery mode indicating the delivery mode used to perform the invoicing; and a contact information field containing the electronic contact information used by the invoicing module 130 to deliver the electronic invoice document. The invoicing module 130 creates an entry in the invoicing record table to record the invoicing activity following the generation of the invoice data and corresponding electronic invoice document.

The invoicing module 130 implements a scheduling application which transmits electronic invoice documents to customers as close as possible to the scheduled time, and taking into account each customer's invoicing preferences. The transmission of an electronic invoice document to the customer 101 in respect of a particular transaction is performed by comparing the current time, as known by the issuer 118, to the scheduled transmission time of the corresponding entry in the invoice record table. If the current time is equal to or later than the scheduled transmission time, then the transmission of the transaction to the customer (as described at step 316 below) is initiated. The invoicing module 130 subsequently updates the transmitted time field of the invoice record table entry with the actual time at which the electronic invoice document was transmitted to the customer 101.

At step 316, the electronic invoice document is transmitted from the issuer 118 to the customer device 103. The invoicing module 130 passes the stored electronic invoice document information to the logic module 120 with an indication of the delivery mode and electronic contact information to be used for the transmission. The logic module 120 generates data to encapsulate the electronic invoice document according to the delivery mode, and invokes the communications module 128 to perform the transmission. The electronic invoice document data is received by the customer device 103, and is processed by one or more software applications executing on the device, such as an SMS messaging or email client application for respective SMS and email delivery modes. The customer 101 can interact with the customer device 103 to perform one or more functions in relation to the received electronic invoice document, such as viewing the document in another application (e.g. a word processor, or a PDF viewer), saving the document to remote or local storage, and printing physical copies of the document.

In the described embodiments, the issuer 118 is configured to allow the customer 101 to view the purchase information associated with the invoice enabled transactions made with their payment account. The customer 101 can view the integrated transaction and purchase information for their payment account by generating a banking transaction statement for the account according to the process shown in Figure 8. The customer 101 logs into the banking platform of the issuer 118, for example by the use of a website or mobile banking application, via a login operation, at step 802. The login operation involves the customer 101 providing a customer and/or payment account identifier (such as a username or PAN) and corresponding authentication information (such as a password or PIN) to the issuer 118 in order to obtain authorisation to access the banking platform. The account interface module 122 is configured to process the login information and, if the customer 101 is authorised, to transmit data to customer device 103 which facilitates the generation and display of a banking transaction statement.

At step 804, the customer 101 selects the account for which the transaction statement is to be generated. In the described embodiments, the issuer 118 is configured to allow the customer 101 to search for a subset of the transactions recorded for an account in order to generate the transaction statement. At step 806, the customer

101 enters search data corresponding to criteria used to perform the transaction search, where the criteria can include: the date of the transaction; the type of the transaction; the total value of the transaction; and a description of the transaction. The account interface module 122 is configured to process the search data entered by the customer, and to search the transaction records of the issuer 118 to select a matching transaction set, which includes the transactions that satisfy the supplied search criteria. The matching transaction set is encapsulated in a form specific to the web browser or mobile application used to access the issuer platform. At step 808, the encapsulated data is received by the customer device 103 which processes the data to produce a transaction statement. The transaction statement has a particular form and layout which enables the customer 101 to view the payment and corresponding purchase information for any invoice enabled transactions within the matching transaction set.

Many modifications will be apparent to those skilled in the art without departing from the scope of the present invention.

Throughout this specification, unless the context requires otherwise, the word "comprise", and variations such as "comprises" and "comprising", will be understood to imply the inclusion of a stated integer or step or group of integers or steps but not the exclusion of any other integer or step or group of integers or steps.

The reference to any prior art in this specification is not, and should not be taken as, an acknowledgment or any form of suggestion that the prior art forms part of the common general knowledge in Australia.

CLAIMS

1. A process for providing a customer with an electronic invoice for a purchase, including:

receiving, from a device of a card association entity, transaction data representing a payment transaction for a purchase, the transaction data including at least:

i) purchase information data representing purchasing information of one or more items of the purchase; and

ii) payment data representing an indication of a payment card of the transaction, said payment card associated with the card association entity and issued by an issuer for a corresponding payment account of the customer;

processing, at a device of the issuer, the transaction data to generate customer information data and purchase invoice data, said purchase invoice data including:

i) item invoice information of the one or more items of the purchase; and

ii) payment receipt information representing a payment receipt for the transaction;

processing, at the device of the issuer, the customer information data and the purchase invoice data to generate electronic invoice data representing an electronic invoice and corresponding payment receipt for the transaction; and

transmitting the electronic invoice data from the device of the issuer to a device of the customer.

2. The electronic invoicing process of claim 1, wherein the transaction data is encoded as a financial payment transaction message.

3. The electronic invoicing process of claim 2, wherein the financial payment transaction message is an ISO 8583 payment transaction message.

4. The electronic invoicing process of any one of claims 1 to 3, wherein processing the transaction data includes matching the indication of the payment card to the

corresponding payment account of the customer.

5. The electronic invoicing process of any one of claims 1 to 4, wherein the indication of the payment card includes, at least, the payment card number.

6. The electronic invoicing process of any one of claims 1 to 5, wherein the purchasing information of the one or more items includes, for each item: an identifier uniquely identifying the item; a name of the item; and a purchase price of the item.

7. The electronic invoicing process of any one of claims 1 to 6, wherein the customer information data includes an indication of the identity of the customer.

8. The electronic invoicing process of any one of claims 1 to 7, wherein the customer information data includes an indication of whether the customer desires to receive electronic invoice and payment receipt documents.

9. The electronic invoicing process of any one of claims 1 to 8, wherein the customer information data includes an indication of an electronic delivery mode to be used to provide the electronic invoice and payment receipt documents to the customer.

10. The electronic invoicing process of any one of claims 1 to 9, wherein the customer information data forms part of a customer profile associated with the customer.

11. The electronic invoicing process of any one of claims 1 to 10, wherein the processing of the customer information data includes determining electronic contact information of the customer.

12. The electronic invoicing process of claim 11, wherein the electronic contact information includes one or more of: an email address of the customer; and a mobile telephone number of the customer.

13. The electronic invoicing process of any one of claims 11 to 12, wherein the

electronic invoice data is transmitted to the customer using the electronic contact information.

14. The electronic invoicing process of any one of claims 1 to 13, wherein the invoice and corresponding payment receipt is an electronic text based document in the form of any one of a PDF, Word, TXT or markup language document.

15. The electronic invoicing process of claim 14, wherein the invoice and corresponding payment receipt is provided to the customer by an attachment or link within an email or SMS message transmitted to the customer.

16. The electronic invoicing process of any one of claims 1 to 15, wherein the processing of the transaction data includes determining one or more characteristics that apply to any one of: the purchase; and the customer.

17. The electronic invoicing process of claim 16, wherein the determination of the one or more characteristics that apply to the customer is performed based, at least in part, on one or more of: the purchase information data and the customer information data.

18. The electronic invoicing process of any one of claims 1 to 17, wherein the customer information data includes an indication of the characteristics previously determined to apply to the customer.

19. The electronic invoicing process of any one of claims 18, wherein generating the customer information data includes updating the characteristics previously determined to apply to the customer.

20. The electronic invoicing process of any one of claims 16 to 19, wherein the determination of the one or more characteristics includes performing statistical analysis or pattern classification on the transaction data.

21. The electronic invoicing process of any one of claims 16 to 20, wherein the processing of the transaction data includes determining one or more promotions or

offers that are suitable for the customer.

22. The electronic invoicing process of claim 21, wherein the determination of the one or more promotions or offers that are suitable for the customer is based, at least in part, on any of the characteristics that apply to the purchase and/or the customer.

23. An electronic invoicing system, including at least one computing device of a card association entity, and at least one computing device of an issuer, the computing devices being configured to provide a customer with an electronic invoice for a purchase by carrying out the steps of:

receiving, from a device of the card association entity, transaction data representing a payment transaction for a purchase, the transaction data including at least:

i) purchase information data representing purchasing information of one or more items of the purchase; and

ii) payment card data representing an indication of a payment card of the transaction, said payment card associated with the card association entity and issued by an issuer for a corresponding payment account of the customer;

processing, at a device of the issuer, the transaction data to generate customer information data and purchase invoice data, said purchase invoice data including:

i) item invoice information of the one or more items of the purchase; and

ii) payment receipt information representing a payment receipt for the transaction;

processing, at a device of the issuer, the customer information data and the purchase invoice data to generate electronic invoice data representing an electronic invoice and corresponding payment receipt for the transaction; and

transmitting the electronic invoice data from the device of the issuer to a device of the customer.

24. The electronic invoicing system of claim 23 configured to execute the process of any one of claims 2 to 22.