

## Intelligent Payment System

### Field of the Invention

[001] The present invention relates to a system and method of providing an automated payment selection capability for payment transactions using an electronic  
5 device.

### Background

[002] Increasingly, competitiveness between financial institutions has resulted in a wide variety of new financial products or packages created by financial institutions to attract customers. Among other facilities, bank credit facilities, such as  
10 credit cards, are often packaged with attractive promotional offers, reward systems, cash back incentives, gift vouchers and the like. Often, these enticements are tied up with respective merchants, retailers and businesses to encourage use of payment products for specific facilities. Accordingly, an individual customer may possess many of these facilities from various financial institutions in order to enjoy these  
15 enticements.

[003] With the large variety of available payment facilities on hand, it may be difficult for a consumer to identify which facilities to use at the point of sale for the best benefit. While sales personnel may be able to advise on currently available incentives with the respective facilities, the advise may not always be reliable in  
20 choosing a best facilities that is able to offer the best possible rewards for the consumer. Such rewards are often presented for the benefit of the business and not always for the consumer.

**[004]** US Patent Application published as US2008/0167017 discloses a method for managing mobile payments in a mobile phone. The method includes receiving data associated with a plurality of issuer specific payment services at a mobile phone, selecting one of the issuer specific payment services, and conducting a transaction using the mobile phone. The method further includes an offer engine that allows consumers to redeem an offer (coupon, discount, promotion etc.) that may be delivered in a suitable message format on the mobile phone.

**[005]** US Patent Application US2008/0121687 discloses a system and method for a contact-less transaction validation suitable for use in a mobile device through near field communication (NFC). The system includes an NFC application for monitoring data communication and an NFC-Universal Integrated Circuit Card (UICC) toolkit application for providing proactive command support to the mobile device. Similarly, the NFC-UICC application that stores data and banking information associated with one or more credit cards and also allows the user to select a credit card for the contact-less transaction.

### Summary

**[006]** In one aspect of the present invention, there is provided an intelligent payment system provided for an automated payment method selection in a payment transaction for a user. The intelligent payment system comprising an electronic device, wherein the electronic device that includes a mobile phone or a portable electronic device, wherein the electronic device is operably used to initiate the payment transaction; a merchant-to-processor module locating at a merchant, wherein the merchant-to-processor module operably transmits a payment request to the electronic

device; a remote server for containing a database of information in relation to promotional offers, rewarding schemes, transaction, incentives offering by various financial institutions and/or merchants, wherein the remote server is accessible by the electronic device to transmit the payment method thereto; and a plurality of rule sets  
5 defining rules and criteria for evaluating and determining a best payment method for payment transaction; wherein upon receiving the payment request from the merchant-to-processor module, the payment request is processed based on the rule sets and the database to determine the best payment method for the payment transaction, wherein the best payment method is output on the electronic device.

10 **[007]** In one embodiment, the rule set comprises a local rule set, wherein the local rule set is stored in the electronic device; and a server rule set, wherein the server rule set resides in the remote server. The local rule set is updated from the server rule set.

**[008]** In another embodiment, the merchant-to-processor module operably  
15 communicates with the electronic device wirelessly to transmit the payment request. The electronic device communicates with the merchant-to-processor module through a contactless communication technology such as near field communication.

**[009]** In yet another embodiment, the intelligent payment system further comprises a stored data module for storing data and information associated to a  
20 plurality of payment evaluation criteria and results from previous payment transaction, and a location assisted input for providing data inputs that includes a geographical location obtained through a positioning system, wherein the information stored in the stored data module and obtained from the location assisted input is used as evaluating

criteria for determining a best payment mode. The plurality of payment evaluation criteria includes a user-defined type, a server-defined type, an analytics defined type, and a Point of Sale (PoS) type. The payment evaluation criteria provide data and information that the user inputs via a direct user interface.

5 [0010] In yet another embodiment, the direct user interface is a local application that includes a user-specific profile created on the electronic device or a web portal. The direct user interface is provided for the user to access, and input data and information associated to the payment evaluation criteria. The direct user interface operably communicates with the remote server and the stored data module to provide  
10 the data and information input by the user.

[0011] In another embodiment, the intelligent payment system further comprises a payment decision engine. The payment decision engine resides locally on the electronic device for processing the payment request based on the rule sets and the stored data module to determine a preferred payment method. The payment decision  
15 engine activates a fallback payment method when it is unable to determine a preferred payment method from the rule sets and the stored data module. The fallback payment method is defined by the user or determined from the remote server.

[0012] In another aspect of the present invention, the intelligent payment system may further be deployed wirelessly at a plurality of payment points via the  
20 electronic device, wherein the payment points include a computer and a self-service payment kiosk or a media device such as an internet connected television.

### Brief Description of the Drawings

[0013] This invention will be described by way of non-limiting embodiments of the present invention, with reference to the accompanying drawings, in which:

[0014] FIG. 1 illustrates a block diagram of an intelligent payment system as one embodiment in the present invention;

[0015] FIG. 2 exemplifies a process-flow diagram of the intelligent payment system;

[0016] FIG. 3A illustrates a process-flow diagram of the intelligent payment system in greater detail;

10 [0017] FIG. 3B exemplifies the communication between the user and the intelligent payment system as shown in FIG. 3A;

[0018] FIG. 3C exemplifies the communication between the intelligent payment system and the payment method process as shown in FIG. 3A; and

[0019] FIG. 3D exemplifies the communication between the payment method process and the server-side, and between the intelligent payment system and the server-side as shown in FIG. 3A.

### Detailed Description

[0020] The following descriptions of a number of specific and alternative embodiments are provided to understand the inventive features of the present invention.

20 It shall be apparent to one skilled in the art, however that this invention may be practiced without such specific details. Some of the details may not be described in

length so as to not obscure the invention. For ease of reference, common reference numerals will be used throughout the figures when referring to same or similar features common to the figures.

**[0021]** FIG. 1 illustrates a block diagram of an intelligent payment system **100** as one embodiment of the present invention. The intelligent payment system **100** is adaptable to work with a user's electronic device for automating a preferred possible payment method according to the user's interest. The payment method is used for a payment transaction initiated by the user with a merchant. The user includes a customer or any individual who owns one or more payment options from a variety of financial institutions or payment card providers. The electronic device includes a mobile phone, portable electronic device, or the like. The merchant may include a Point of Sale (PoS) merchant (e.g. restaurants, clothing store), an online merchant (e.g. blogshops, online stores) or a payment intermediary. The point of sale may refer to a retail premise or location, an electronic retailer such as a web site, or a point of sale situated in a users home such as an Internet enabled television, a personal computer or other such equipment. It may also include other payment locations such as ticketing points, tolls or such places as electronic payments are made.

**[0022]** The intelligent payment system **100** comprises a merchant-to-processor module **101**; a payment decision engine **102**; a local rule set **103**; a server rule set **104**; a server side logic module **105**; a location assisted input **106**; a stored data module **108**; and a direct user interface **109**. The payment decision engine **102** may be available to the user's electronic device, either as a software application resided locally on the electronic device or located remotely over a data connection. In the case where the payment decision engine **102** resides on the user's electronic device, the local rule set

**103** is stored in the user's electronic device and accessible directly by the payment decision engine **102**. The merchant-to-processor module **101** is generally located at the merchant side and communicates with the payment decision engine **102** through the user's electronic device. It is desired that the payment decision engine **102** residing in

5 the user's electronic device and the merchant-to-processor module **101** communicate through a wireless communications, such as near field communication (NFC) technology or the like. The server rule set **104** is dynamically updated from the server side logic module **105**, which runs on a remote server. It is also desired that the user's electronic device is able to communicate with the remote server so that the payment

10 decision engine **102** is accessible the server rule set **104**. The data exchange between the user's electronic device and the remote server can be carried out through communication means, preferably wireless communication means, such as 3rd generation mobile telecommunications (3G), Wi-Fi or the like. The location-assisted input **106** provides location information of the user's electronic device to the payment

15 decision engine **102**. This is to provide input on relevant information such as a country's location as well as to improve the analytics data captured. The stored data module **108** stores data and information related to the user, available payment cards as well as data regarding transactions that can be passed to the server side logic module **105** for inclusion in payment decisions and analytics. The data and information are

20 also accessible by the payment decision engine **102** for payment processing. The direct user interface **109** is a local application that includes a user-specific profile created on the user's electronic device or a web portal. The user accesses the direct user interface **109** and inputs all the data and information into the user-specific profile as required by the intelligent payment system **100**. The direct user interface **109** operably

25 communicates with the server side logic module **105** and the stored data module **108** to

provide the data and information. The user interface **109** is also used for user prompted input.

**[0023]** The server side logic module **105** may have data communication with the financial institutions to acquire updates on variables that affect payment choices.

5 These data from the financial institutions can be an additional input to data that is collected and stored in the remote server. The data may be collected via research. Examples of data collected are public information on web sites or in product terms and conditions, press or publicity information or information provided directly by payment card, ticketing or voucher companies.

10 **[0024]** The server side logic module **105** also considers all the data input from the stored data module **108** to evaluate the preferred payment method. Once the preferred payment method is determined, the preferred payment method is updated in the server rule set **104** and is provided to the payment decision engine **102**. The server rule set **104** is also updated regularly by the server side logic module **105** whenever  
15 there are changes or updates in the promotional packages, payment product details or offers from the payment card providers.

**[0025]** In another embodiment of the present invention, the server rule set **104** can either be pushed to the payment decision engine **102**, or pulled by the payment decision engine **102** to update the local rule set **103**. The updated local rule set **103**  
20 provides the same end result for future similar payment requests. The server rule set **104** is updated when criteria change that would affect the payment method decision process and changes are either pushed to the local rule set **103**, or are requested by the payment decision engine **102** on the users device. The process to push or pull of the

local rule set **103** may be influenced by access to data and other influences, such as a desire to delay updates due to expensive roaming charges. Keeping the local rule set **103** allows the intelligent payment system **100** to determine a preferred payment method with lower latency and when there is no network access (e.g. when the server  
5 side logic module **105** is non-accessible, and etc).

**[0026]** In a further embodiment, the user's electronic device may not always have wireless communication with the remote server. Therefore, the local rule set **103** may be updated at scheduled intervals or on an ad-hoc basis. This process may be driven by a schedule, availability of data connectivity or a combination of the two.

10 **[0027]** The local rule set **103** is evaluated with the payment request to identify the preferred payment method for the user. The local rule set **103** is derived from a generated rule set created on the server side logic module **105**. It is a set of rules that is created using various inputs, including the data and information from the server side logic module **105** and the payment evaluation criteria. The local rule sets **103** may also  
15 contain actions based on location data, such as preferring a certain payment method at a certain PoS.

**[0028]** The local rule set **103** and the server rule set **104** is also desired to contain data with an expiry criteria. Expiration of data will allow a time-limited payment decision data, such as offers to expire without access to network. Expiry data  
20 can also be used to ensure that stale data is removed if a connection is not made to synchronize the server rule set **104** within a defined period. Expiry data will generally be defined in the server side logic module **105** and then stored in the remote server, the local rule sets **103** or in the stored data module **108** in the electronic device.

[0029] If the payment decision engine **102** is unable to identify a locally preferred payment method and there is no access to the server side logic module **105** to provide the server rule set **104**, a fallback payment method stored in the electronic device may be activated. The fallback payment method may be associated but it is not limited to the data input from the location assisted input **106**, and provides the payment decision engine **102** a payment method to use if no other matches are found in the local rule set **103**. The fallback payment method may be one determined from the server side logic module **105** or defined by the user, or it may be a mixture of both. For example, a payment method may be determined by the server side logic module **105** but is influenced by the payment evaluation criteria as provided by the user. In another embodiment, the fallback payment method may simply be a selected payment method selected by the user. For example, the user may set a specific credit card to be used as the fallback payment method.

[0030] The location assisted input **106** provides data inputs that includes a geographical location obtained through a positioning system, such as a Global Positioning System (GPS), a wireless access point or any other known positioning systems. The geographical location can be used by the payment decision engine **102** as one of the payment evaluation criteria in deciding the best payment mode. In the event that the location assisted input **106** is unable to obtain the data inputs from the positioning system, the location assisted input **106** obtains data based on a last known location. For example, a saved merchant information (the merchant information has been utilized in the past), or on the information previously provided by the merchant-to-processor module **101** may be used to determine the last known location.

**[0031]** The stored data module **108** gathers and stores information related to the user, available payment cards as well as data regarding transactions that can be passed to the server side logic module **105** for inclusion in payment decisions and analytics. The data and information are also accessible by the payment decision engine **102** for  
5 payment processing.

**[0032]** Data and information may further be provided by various sources (e.g. remote server, direct user interface **109**, etc.) according to a plurality of payment evaluation criteria. The payment evaluation criteria are assessed to assist the payment decision engine **102** and passed to the server side logic module **105**. The data may  
10 include transaction data, merchant data, payment method acceptance data or instances of user interaction with the payment decision on the electronic device (e.g., when a user selects to override or intervene with the recommended payment selection). The payment evaluation criteria may include a user-defined type, a server defined type, an analytics defined type, and a Point of Sale (PoS) type.

**[0033]** In the user-defined type criteria, the user may define many criteria to  
15 assist in the payment decision. The user inputs all the relevant or required data accordingly to the user-defined type criteria in the profile. As the user inputs more data, the evaluation of the type of payment method suggested to the user will be better. The user-defined type criteria may include but not limited to the following: available  
20 payment methods; available credit or balance limits on the payment methods; user-defined manual payment rules; and user-defined targets or goals.

**[0034]** In the available payment methods, the user inputs the various types of payment methods that he or she have. This may include a variety of credit or debit

payment cards, travel cards or payment vouchers that the user may have access to. In the available credit or balance limits on the payment methods, the user defines the limits of the various payment methods in the profile accordingly. In the user-defined manual payment rules, the user may define a specific payment method to use during specific instances. In the user-defined targets or goals may include the following: a spending target limit; a preferred reward type, such as mileage points, cash back rebate, etc.; a preference to increase cash flow for a payment method; an interest rates and repayment dates information of the various payment methods; a lowest cost card; a preference to use bonus or introductory offers of a payment method; a preference to use a payment method that has a most value for money, wherein the most value for money is determined based on a scoring evaluation by the server side logic module **105**; a preference to balance the usage of the payment methods equally; a preference to use a payment method to maximize a credit score (e.g. to use payment methods that support credit scores); and a preference to use a payment method that first meets the user-defined goals and targets.

**[0035]** In the server defined type criteria, the criteria are incorporated in the server side logic module **105** to assist the payment decision in the payment decision engine **102**. The server defined type criteria may include but not limited to the following: payment types; interest rate; payment brands; payment card providers; offers and bonuses; and partner and merchant discounts or offers as well as payment acceptance and location information.

**[0036]** The server defined type criteria are obtained via the remote server from the corresponding financial institutions, etc. In the payment type, the payment type may include credit or debit cards, travel cards, electronic vouchers or other forms of e-cash

etc. In the payment brand, the payment brand includes Visa, MasterCard, and etc. In the payment card provider, the payment card providers are those financial institutions offering the payment facilities under the payment brand. In the offers and bonuses, the various financial institutions having different offerings (e.g. mileage points, cash back rebate) are provided. In the partner and merchant discounts/offers, the server may obtain the updated or available discounts or offerings from the merchants. These may include but not limited to discounts, rebates, vouchers, bonus, offers, promotions or the like.

**[0037]** In the PoS type criteria, the data is input during the evaluation process about the location and type of transaction. This data is used by the payment decision engine **102**, in conjunction with the local rule set **103** to make the best payment decision. Additionally, the data may be transmitted to the server side logic module **105** to be used by the analytics to further improve the decision process. If access to the server logic module **105** is not available, then the data may be stored in the stored data module **108** for transmission later. The PoS criteria may include but not limited to the following: geographical location; acquirer information; merchant information; date or time information; currency; and PoS or merchant provided information, such as offers or electronic vouchers.

**[0038]** In the geographical location, information of user's location is provided (e.g. the country, place, and etc.). In the acquirer information, the information includes a type of transaction processor that is processing the transaction. In the merchant information, the information includes name of the merchant and the type of the merchant's business. In the date or time information, the date and time of the transaction is provided. In the currency, the type of denomination for the transaction

(e.g. US dollar, Japanese Yen) is provided. In the PoS or merchant provided information, the various offerings, discounts, advertisements, and etc. may be provided.

**[0039]** In the analytics defined type criteria, the criteria assists the payment decision based on the user's target or goals defined in the user-defined type criteria.

5 The data inputs in these criteria are analyzed in the server side logic module **105** to identify the preferred payment method of the user and why the payment method is preferred. The analytics defined type criteria may include but not limited to the following: black and grey list data; automated selection of payment method; user backlog information; and approval request.

10 **[0040]** In the black and grey list data, the user or the server side logic module **105** inputs a payment location into a black list or a grey list. The black list includes a list of locations black listed by the user. The grey list includes a list of locations defined by the user or identified by the server side logic with specific criteria. The location may be black listed for several reasons as desired by the user. The user may also remove the

15 locations from the black list or the grey list whenever preferred. In the automated selection of payment method, the user may define that the locations listed in the grey list use a certain payment method that is automatically selected as the preferred payment method. In the user backlog information, previously preferred payment method is stored in a history of payment methods that have been used previously. In the

20 approval request, the user may prefer to first approve the payment method prior to making the payment transaction. Additionally, the grey or black list may be utilized to help prevent fraudulent transactions. For example if a certain location or PoS is known to suffer from, or contribute to a high level of fraud, then the electronic device can recommend that cash is used and that a payment card is not offered. This may help to

reduce card fraud that a user is subjected to and alert a user to potentially risky Points of Sale.

**[0041]** All the individual data input from the payment evaluation criteria are useful information. However, these data input becomes valuable when assessed in the server side logic module **105**. The more data that is collected, the more valuable the analytical data produced, both in terms of offering users the best decision but also in terms of value to payment providers.

**[0042]** Based on all the data inputs from the payment evaluation criteria, the payment decision made by the payment decision engine **102** may be suggested to the user through the electronic device as the preferred payment method. In another embodiment of the present invention, the user may select the payment method themselves from a list of payment methods. The user may then enable the electronic device to execute the selected preferred payment method (or preferred payment method) with the merchant to complete the payment transaction. The electronic device may also present a manual selection along with a “recommended” tag to inform the user as to the payment method that would be chosen, should the payment decision be automated. This can provide the user the flexibility to use a manual payment selection but also provide information that the user may find useful.

**[0043]** The intelligent payment system **100** may also be applied as a payment intermediary process, or by an implementation of a mobile payment technology at a user end point. The payment intermediary process includes transactions or payment requests completed over the Internet website. Such payment requests may also require the user to complete payment details at the time of transaction. It is optional whether

the payment decision engine **102** acts as a broker or a referrer to the payment intermediary process, i.e. data and information from the server side logic module **105** may or may not need to be accessible to the payment decision engine **102**. Being the broker provides greater visibility of the results of the payment transaction but may attract certain regulatory requirements. Payment details may include the data input from the payment evaluation criteria.

**[0044]** Further, the payment intermediary process may be implemented as an end user client or a server side client. The end user client's payment decision engine **102** identifies a remote point of sale and runs the local rule set **103**, in conjunction with other data, such as merchant location based information to identify the preferred payment method. The end user client may be a standalone client or a plug-in to the Internet browser to the end user's device. The source of identification may be directly in-line with the Internet browser interaction, or by the user defining a transaction detail, this may include such detail as retailed information, value of transaction and the date the payment will be made, prior to the suggestion of the preferred payment method. The server side client implements the server side logic module **105** as a "payment processor" service. A payment method selection is made by the user as a "payment logic", and the server side logic module **105** interacts with the server over a secure connection to identify the user and the PoS information. This creates a rule set result calculation of the end result that is returned to the user or to the Internet website directly. Further, payment details that may be required by the user or the Internet website may also be completed. This is similar to the interaction between the user's electronic device and the server side logic module **105** as discussed earlier.

[0045] The intelligent payment system **100** may further be deployed at a plurality of payment points adapted with a wireless technology such as NFC via the electronic device. Examples of the payment point include a computer, a self-service payment kiosk, a media device such as an internet connected television and from any  
5 electronic point of sale equipment that may reside in a users home. These home based electronic point of sale systems may include hand held devices, tablets, computers or internet connected house hold appliances, such as televisions, fridges or similar. The use of wireless technology such as NFC via the electronic device allows contactless payment transactions to be made at an electronic or online merchant in the same way as  
10 a physical point of sale. Security of the actual payment is handled by the wireless technology deployed, such as NFC technology, and the payment method selection works as if the user were at the point of sale.

[0046] The intelligent payment system **100** is activated when the user initiates the payment transaction via the electronic device at the merchant's point of sale  
15 counter. The payment transaction can be activated by placing the electronic device close to the merchant-to-processor module **101** so that the electronic device can communicate with the merchant-to-processor module **101** through NFC. Once the NFC is established, the merchant-to-processor module **101** transmits a payment request to the payment decision engine **102**. The payment decision engine **102** processes the  
20 payment request based on data from the local rule set **103**, the server rule set **104**, the location assisted input **106**, and the stored data module **108** to determine a preferred payment method. Once the preferred payment method is determined, the payment decision engine **102** then transmits the necessary data in association with the preferred

payment method to the merchant-to-processor module **101** for processing the payment transaction. If desired, user interaction can be included in the process.

**[0047]** For simplicity, the terms “payment card” or “credit card” are provided herewith for illustration only, not limitation. The present invention is adaptable for any non-cash or e-cash transactions, which also include charge card, ticketing or electronic voucher facilities. Desirably, it is adapted as digital wallet system for electronic commerce transactions. It is suitable for adaptation on digital wallet systems utilize wireless technologies such as Near Field Communication (NFC) for carrying out the payment transactions. Further, the present invention is also adaptable in any electronic payment facilities, such as those provided by third parties.

**[0048]** **FIG. 2** exemplifies a process-flow diagram of the intelligent payment system **100**. A user may first request to make a payment transaction with a PoS merchant in step **201** or with an online merchant in step **202**. In step **203**, the PoS merchant communicates with the user’s electronic device via NFC technology or a similar wireless mechanism. In step **204**, the online merchant communicates with the user’s electronic device via a wireless technology such as NFC or an online interface, such as a plug-in to the Internet browser on the end user’s electronic device. After step **203** or step **204**, the intelligent payment system **100** determines which payment method should be suggested to the user in step **205**. This can then be executed automatically, or may be used in conjunction with the input from the user, depending on preferences set.

**[0049]** In step **206**, the intelligent payment system **100** selects a payment method based on a cached profile. The cached profile may be the local rule set **103** derived and created from the server rule set **104** with the data input from the stored data

module **108**. In step **207**, the intelligent payment system **100** selects a payment method based on the server rule set **104**, which is derived from the server side logic module **105**. The selected payment methods from step **206** and step **207** are added in a list of preferred payment method in step **208**.

5 **[0050]** In step **209**, the intelligent payment system **100** assesses the data inputs from the payment evaluation criteria and checks if the user has defined a preferred payment method that is found in the list of preferred payment method from step **208**. If the user has not defined a preferred payment method in the list of preferred payment method from step **208** and the local rule set **103** includes a preference for manual  
10 intervention, the intelligent payment system **100** seeks a manual approval from the user in step **210**. If the user has not defined that manual interaction is required and a preferred payment method in the list of preferred payment method from step **208** can be identified as a best payment method, the intelligent payment system **100** automatically chooses the preferred payment method in step **211**. After the user has manually  
15 approved a payment method in step **210**, or after the intelligent payment system **100** automatically chooses the payment method in step **211**, the payment method is selected in step **212** and used to execute the payment.

**[0051]** After the payment method is selected, the intelligent payment system **100** checks if the Point of Sale accepts the payment method in step **213**. If the Point of  
20 Sale does not accept the selected payment method in step **213**, the process returns to step **208** through step **213** until the payment method selected is acceptable.

**[0052]** Once the payment method selected is accepted, the payment method selected is processed with the merchant to complete the payment transaction in step

214. Thereafter, the intelligent payment system **100** stores the payment method selected as an analytics data in step **215**, and also records information regarding any user interaction or payment method failures that occurred so that the information can be used by the server side logic module **105**. This data is stored in the stored data module  
5 **108** and passed back to the server side logic module **105** when appropriate.

[0053] **FIG. 3A** provides an overall illustration of the intelligent payment system **100** communicating with a user, a server-side and a payment method process. The intelligent payment system **100** communicates with the user through the direct user interface **109** located in the user's electronic device in step **31** and processes the  
10 payment method within the electronic device in step **32**. The intelligent payment system **100** also communicates with the server-side via a data network in step **33**. The server-side provides information to the intelligent payment system **100** in step **37**. Information from the server-side may also be provided to the user in step **34**, or the user may also input data to the server-side in step **35**. After the intelligent payment  
15 system **100** processes the payment in step **32**, the result is stored in the electronic device's stored data module **108** and sent to the server-side in step **36**. The result includes data regarding attempted, successful or failed transactions.

[0054] **FIG. 3B** exemplifies the communication between the user and the intelligent payment system **100** as shown in step **31** and step **28** in **FIG. 3A**. The user is  
20 provided a Point of Sale (PoS) data input through the direct user interface **109** in steps **310-313**. The PoS data input includes information on a merchant, a user's location, and a payment transaction detail. In step **311**, the information is collected on the merchant including such details as the merchant's name and merchant number. In step **312**, the user's location may include such details as a country or other geographical data. In step

**313**, the payment transaction detail includes the payment transaction amount, and a type of goods and/or services to be provided. In step **314**, a payment profile data including all the information from steps **310-313** is provided in a Point of Sale profile.

**[0055]** Further, a subscriber's data input is provided in step **315** from step **A**.

5 Step **A** will be explained in further details from step **337** in **FIG. 3D** below. In step **316**, the payment methods include the various types of payment, credit or debit cards, electronic ticketing or vouchers etc available to the user. In step **317**, the user may input data that includes the user's targets and goals. In step **318**, the user further provides data inputs associated to a plurality of payment evaluation criteria from step

10 **B**. Step **B** will be explained in further details from step **343** in **FIG. 3D** below. Data may be input by the user via a variety of methods, including, but not limited to a web portal, via the direct user interface **109** or even via a telephone help desk. In step **319**, a payment option profile data that includes all the information from steps **315-318** is provided.

15 **[0056]** The information in the payment profile data in step **314** and the payment option profile data in step **319** is collated and provided to the intelligent payment system **100** as shown in **FIG. 3B**. Thereafter, the intelligent payment system **100** will process the payment method in step **C** and also communicate with the server-side in step **D**. Step **C** will be explained in further details from step **320** in **FIG. 3C** and step **D**

20 will be explained from step **341** in **FIG. 3D**.

**[0057]** **FIG. 3C** exemplifies the communication between the intelligent payment system and the payment method process as shown in step **32** in **FIG. 3A**. Step **E** includes the steps **310-319** as shown in **FIG. 3B**. From step **E**, the intelligent

payment system **100** processes the payment methods available and lists the payment methods accordingly in step **320**. In step **321**, the intelligent payment system **100** decides if the payment method is selected automatically or should be assisted by the user based on the user's data input in the payment evaluation criteria.

5 **[0058]** If the user prefers the automated selection of the payment method, the payment method is sent straight to the merchant in step **322**. If the user prefers to assist in the payment method selection, the user is asked if the payment method recommended by the intelligent payment system **100** is acceptable in step **323**. If the payment method recommended is not acceptable to the user, step **324** asks if the next  
10 payment method option in the list of payment methods from step **320** is to be shown, or if a payment method from the list of payment methods is to be manually selected. If the user prefers to manually select a payment method from the list of payment methods, the manually selected payment method is then sent to the merchant in step **322**. If the user prefers to be shown the next payment method option, steps **320-321** are repeated till a  
15 payment method is selected and sent to the merchant in step **322**.

**[0059]** Step **325** checks if the payment method sent to the merchant is successful. If it is successful, the payment method is stored in the stored data module **108** in step **326**. If it is not successful, step **327** checks if the payment method is not  
20 from step **327** are stored in the stored data module **108** in step **326** and another payment method from the list of payment methods in step **320** is used. When another payment method is to be used, steps **320-321** is repeated till a payment method is sent to the merchant in step **322**. If a failure occurs in step **327**, the process is repeated until a success occurs in step **325** or the process is halted as it runs out of option from the list

of payment methods. If options run out, the user is presented with an appropriate notification. From step 326, the results stored in the stored data module 108 can be retrieved in step F. Step F will be explained in further details from step 328 as shown in FIG. 3D

5 [0060] FIG. 3D exemplifies the communication between the payment method process and the server-side in step 36 and between the intelligent payment system 100 and the server-side in step 33 and 37, as shown in FIG. 3A.

[0061] From step F as shown in FIG. 3C, after the results from steps 325 and 327 are stored in step 326, the data from the results are retrieved in step 328. In step 10 329, the user specific results are retrieved and added to a user's profile in step 330 and to a global stored analytics in step 331. Data from the global stored analytics are therefore output from an analytical data output in step 332.

[0062] In step 333, a research data entry is input from the server-side and the data is gathered on the payment methods in step 334. In step 335, intelligent scoring of 15 the payment methods according to the plurality of payment evaluation criteria is provided. In step 336, a user-entered data is input into a user-configured profile in step 337.

[0063] All the data obtained from steps 333-335, step 330 and steps 336-337 are therefore processed with the user's profile and are evaluated against a scoring 20 criterion in step 338. Thereafter, a user specific data input associated to the plurality of payment evaluation criteria and payment method is stored in the server-side in step 339. These data input and payment method are then stored in the user's electronic

device in step 340. Further, the results from step 338 are stored in the global stored analytics in step 331.

[0064] When attempting to process a payment method in step 341, the intelligent payment system application 100 running on the user's electronic device checks with the server-side logic module 105 if there is an available server connection and compares the server rule set 104 and the local rule set 103 to verify if the local rule set 103 is current. If connectivity is available, the server rule set 104 is retrievable and the server rule set 104 is newer than the local rule set 103, a current payment method order is fetched from the server side logic module 105 in step 342. The current payment method is retrieved from step 339. Thereafter, the result is transmitted through the server connection in step 341 and sent to the intelligent payment system 100. If there is no server connection or if the local rule set 103 is current, the data input and payment method stored in the user's electronic device in step 340 is retrieved and the result is used by the intelligent payment system 100 to enable the decision process.

15 [0065] Further, the data input from the user's configured profile in step 337 is provided to the subscriber's data input in step 315 and to a value added profile in step 343. The value added profile includes information provided by the user from step 318. This data is output and contributes to the payment option profile.

[0066] The above description illustrates various embodiments of the present invention along with examples of how aspects of the present invention may be implemented. While specific embodiments have been described and illustrated it is understood that many changes, modifications, variations and combinations thereof could be made to the present invention without departing from the scope of the

present invention. The above examples, embodiments, instructions semantics, and drawings should not be deemed to be the only embodiments, and are presented to illustrate the flexibility and advantages of the present invention as defined by the following claims:

## Claims

1. A intelligent payment system for an automated payment method selection in a payment transaction for a user, the intelligent payment system comprising:
  - an electronic device, wherein the electronic device that includes a mobile phone  
5 or a portable electronic device, wherein the electronic device is operably used to initiate the payment transaction;
  - a merchant-to-processor module locating at a merchant, wherein the merchant-to-processor module operably transmits a payment request to the electronic device;
  - a remote server for containing a database of information in relation to  
10 promotional offers, rewarding schemes, transaction, incentives offering by various financial institutions and/or merchants, wherein the remote server is accessible by the electronic device to transmit the payment method thereto; and
  - a plurality of rule sets defining rules and criteria for evaluating and determining a best payment method for payment transaction;
  - 15 wherein upon receiving the payment request from the merchant-to-processor module, the payment request is processed based on the rule sets and the database to determine the best payment method for the payment transaction, wherein the best payment method is output on the electronic device.
2. The intelligent payment system according to claim 1, wherein the rule set  
20 comprises a local rule set, wherein the local rule set is stored in the electronic device; and a server rule set, wherein the server rule set resides in the remote server.

3. The intelligent payment system according to claim 2, wherein the local rule set is updated from the server rule set.
4. The intelligent payment system according to claim 1, wherein the merchant-to-processor module operably communicates with the electronic device wirelessly to  
5 transmit the payment request.
5. The intelligent payment system according to claim 4, wherein the electronic device communicates with the merchant-to-processor module through a contactless communication technology such as near field communication.
6. The intelligent payment system according to claim 1, wherein the intelligent  
10 payment system further comprises a stored data module for storing data and information associated to a plurality of payment evaluation criteria and results from previous payment transaction, and a location assisted input for providing data inputs that includes a geographical location obtained through a positioning system, wherein the information stored in the stored data module and obtained from the location assisted  
15 input is used as evaluating criteria for determining a best payment mode.
7. The intelligent payment system according to claim 6, wherein the plurality of payment evaluation criteria includes a user-defined type, a server-defined type, an analytics defined type, and a Point of Sale (PoS) type.
8. The intelligent payment system according to claim 6, wherein the payment  
20 evaluation criteria provide data and information that the user inputs via a direct user interface.

9. The intelligent payment system according to claim 8, wherein the direct user interface is a local application that includes a user-specific profile created on the electronic device or a web portal.
10. The intelligent payment system according to claim 8, wherein the direct user interface is provided for the user to access, and input data and information associated to the payment evaluation criteria.
11. The intelligent payment system, according to claim 8, wherein the direct user interface operably communicates with the remote server and the stored data module to provide the data and information input by the user.
12. The intelligent payment system according to claim 1, wherein the intelligent payment system further comprises a payment decision engine.
13. The intelligent payment system according to claim 12, wherein the payment decision engine resides locally on the electronic device for processing the payment request based on the rule sets and the stored data module to determine a preferred payment method.
14. The intelligent payment system according to claim 12, wherein the payment decision engine activates a fallback payment method when it is unable to determine a preferred payment method from the rule sets and the stored data module.
15. The intelligent payment system according to claim 14, wherein the fallback payment method is defined by the user.

16. The intelligent payment system according to claim 14, wherein the fallback payment method is determined from the remote server.
17. The intelligent payment system according to claim 1, wherein the intelligent payment system may further be deployed wirelessly at a plurality of payment points via  
5 the electronic device, wherein the payment points include a computer and a self-service payment kiosk or a media device such as an internet connected television.