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**A GREEN TRANSACTION TAGGING AND A METHOD OF ASSIGNING GREEN
SCORE FOR CARDS**

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TECHNICAL FIELD

[0001] The present subject matter is related to the field of cardholder analytics, more particularly to estimate green transaction tagging and provide a green score for cards using expenditure data associated with the cards.

BACKGROUND

[0002] As people become environmentally conscious, there is a higher need for financial products that provide carbon-sensitive solutions. The carbon (CO₂) footprint is the amount of carbon dioxide emitted due to daily activities. Estimating the CO₂ footprint of businesses is difficult without benchmark and standardized data. Therefore, there is a need for a scorecard to rank the activity of green businesses and attach that to quantify green consumer behavior using expenditure data.

BRIEF DESCRIPTION OF THE DRAWINGS

[0003] The accompanying drawings, which are incorporated in and constitute a part of this disclosure, illustrate exemplary embodiments and, together with the description, serve to explain the disclosed principles. In the figures, the left-most digit(s) of a reference number identifies the figure in which the reference number first appears. The same numbers are used throughout the figures to reference like features and components. Some embodiments of device or system and/or methods in accordance with embodiments of the present subject matter are now described, by way of example only, and with reference to the accompanying figures, in which:

[0004] Fig. 1 illustrates an exemplary environment of a green system architecture for implementing embodiments consistent with the present disclosure.

[0005] Fig. 2 shows a flowchart illustrating a process for estimating a green merchant scorecard and green score for cards based on expenditure data.

[0006] Fig. 3 shows a chart illustrating a keyword-based green merchant search based on a green transaction.

[0007] Fig. 4 illustrates a green engagement scoring approach and green bands along with bonus cashback.

[0008] Fig. 5 shows a graph which illustrates green spend in Singapore based on identified merchants.

[0009] Fig. 6 shows a graph which illustrates green spend characteristics of business cards and consumer cards.

[0010] Fig. 7 shows an example of green personas with respect to consumer and business.

[0011] Fig. 8 shows an example of a green business scorecard card view with respect to spending data.

[0012] Fig. 9 shows an example of a green business scorecard merchant view with respect to external data.

[0013] Fig. 10 illustrates a block diagram of an exemplary computer system for implementing embodiments consistent with the present disclosure.

[0014] The figures depict embodiments of the disclosure for purposes of illustration only. One skilled in the art will readily recognize from the following description that alternative embodiments of the structures and methods illustrated herein may be employed without departing from the principles of the disclosure described herein.

DESCRIPTION OF THE DISCLOSURE

[0015] In the present document, the word "exemplary" is used herein to mean "serving as an example, instance, or illustration." Any embodiment or implementation of the present subject matter described herein as "exemplary" is not necessarily to be construed as preferred or advantageous over other embodiments.

[0016] While the disclosure is susceptible to various modifications and alternative forms, specific embodiment thereof has been shown by way of example in the drawings and will be described in detail below. It should be understood, however that it is not intended to limit the disclosure to the particular forms disclosed, but on the contrary, the disclosure is to cover all

modifications, equivalents, and alternative falling within the spirit and the scope of the disclosure.

[0017] The terms “comprises”, “comprising”, or any other variations thereof, are intended to cover a non-exclusive inclusion, such that a setup, device or method that comprises a list of components or steps does not include only those components or steps but may include other components or steps not expressly listed or inherent to such setup or device or method. In other words, one or more elements in a device or system or apparatus preceded by “comprises... a” does not, without more constraints, preclude the existence of other elements or additional elements in the device or system or apparatus.

[0018] The terms "an embodiment", "embodiment", "embodiments", "the embodiment", "the embodiments", "one or more embodiments", "some embodiments", and "one embodiment" mean "one or more (but not all) embodiments of the invention(s)" unless expressly specified otherwise.

[0019] The terms "including", "comprising", “having” and variations thereof mean "including but not limited to", unless expressly specified otherwise.

[0020] The present disclosure proposes a method and a system for developing a green merchant scorecard and calculating a green score for cards based on expenditure data. The proposed method uses server data, uniquely combined with external emissions data, to identify consumer’s green bands based on how green businesses are eventually used by the consumers. Thereafter the emission data may be used for underwriting and cross-selling of green bonds/green loans by targeting green spenders. Further, the proposed method provides a solution for identifying personas with green propensity by combining the green merchant scorecard with VisaNet transaction data. Thus, the present disclosure provides the solution which addresses the issue of lack of quantitative data to provide a green score for consumers.

[0021] **Fig. 1** illustrates an exemplary environment 100 of a system for implementing embodiments consistent with the present disclosure. In an embodiment, the exemplary environment 100 may include, without limiting to, a user 101, a merchant 103, a green merchant scorecard 105, a carbon (CO₂) scoring engine 107, and a carbon emission 109. The user 101 initiates a card transaction with a merchant (and/or a retailer) for the purpose of purchasing products in-store or online. The card may be a debit card, credit card or a reloadable

prepaid card which is issued for transactions by the cardholder/user 101. The purchased products may include without limiting to, food products, organic products, and so on. The merchant 103 receives the transaction data from the user 101. The merchant's bank gathers all transactions to calculate how much to pay the retailer and transmits each transaction to the bank that issues the card for that transaction. Green merchants are included in the selected merchant list to help customers make carbon-emissions-conscious purchasing decisions.

[0022] In an embodiment, merchant 103 may also identify a green merchant based on an identified transaction at green business and generate the green merchant scorecard (new IP) 105. The green merchant scorecard 105 contains a merchant name (for example, a Burger Merchant XYZ), an emission score (for example, high or low or medium), CO₂ level of product offerings (for example, high CO₂ level or medium CO₂ level or low CO₂ level) and CO₂ reduction (for example, 0% to 100%) as shown in Table 1.

Merchant Name	Scope 1-3 Emissions	Product Offerings	CO₂ Reduction
Burger Merchant 1	High	Medium CO ₂	10%
Burger Merchant 2	High	High CO ₂	0%
Burger Merchant 3	Low	Low CO ₂	50%

Table 1

[0023] In an embodiment, after generating the green merchant scorecard 105, carbon score is computed using Carbon (CO₂) scoring engine 107 by combining green merchant scorecard data with transaction data obtained from merchant 103, wherein the green merchant scorecard data is multiplied with CO₂ reduction. The carbon (CO₂) emission 109 determines carbon emission spent based on data obtained from CO₂ scoring engine 107. For example, if user 101 purchases and/or spends money on fast food, organic products, or a vegan restaurant, the merchant gathers each spending information to determine the CO₂ reduction value on the acquired products. Following that, CO₂ emissions are estimated using the CO₂ reduction value of the acquired items. For example, the resultant value may indicate that the total CO₂ emissions are 320 kg for every 100 USD spent in a month.

[0024] **Fig. 2** shows a flowchart illustrating a process for estimating a green merchant scorecard and a green score for cards based on expenditure data. **At block 201**, the method comprises transmitting transaction information from a user to a merchant. For example, a purchase may be done in-store or an online store by using a payment card. Once the user 101 initiates the payment, the system transmits expenditure data to a merchant 103 to collect the carbon intensity of the purchased products/goods. **At block 203**, the method comprises generating a green merchant scorecard 105 based on transaction data, wherein the green merchant scorecard 105 includes the merchant's name, CO₂ offers, and CO₂ reduction for the purchased products. The transaction data are acquired from merchant 103 based on the user consumption, either which is spent or engaged at green merchants. **At block 205**, the method comprises computing carbon score using a Carbon (CO₂) scoring engine 107 by combining green merchant scorecard data with transaction data. Further, **at block 207**, the method comprises determining total carbon emission spent based on information/data obtained from CO₂ scoring engine 107. For example, data obtained from the green merchant scorecard 105 is multiplied by the total number of carbon reductions to determine carbon emission 109, say 320 kg CO₂ emission for 100 USD spent for a current month.

[0025] A keyword-based green merchant search approach based on a green merchant search using green transactions is shown in **Fig. 3**. The green transactions of the user 101 are detected based on identified transactions at businesses through keywords such as 'money spent in vegan restaurants', 'purchasing organic products', 'Electric Vehicle (EV) charging stations', and investment in solar power plants etc. The main goal is to identify cross-cell opportunities by tagging green spenders based on green loans and green investments. Further, green credentials (e.g., greenhouse gas emission profile) of sampled merchants are determined and compared and appropriate emission factors are assigned. For example, top green merchants by total spending in any country may be identified as solar power plant merchants, Vegan Restaurants, Organic product merchants and so on, and top green merchants by transaction count may be identified as solar energy production merchants, Vegan merchants. Other interesting green merchant transactions in the country may be identified as electric vehicle charging stations, organic food product merchants and restaurants etc.

[0026] **Fig. 4** illustrates a green engagement scoring approach and green bands along with bonus cashback. In an embodiment, a green spend engagement may be assessed on a quarterly basis depending on user consumption, i.e., expenditure and/or engagement with green

merchants, as illustrated in **Fig. 4**. The green engagement score approach is divided into four quarters: Merchant Diversity (D), Frequency of Spend (F), Consistency of Spend (C), and Monetary Volume of Spend (M). The first quarter represents Merchant Diversity (D), which refers to the number of various green merchants where cardholders spent money throughout the quarter. The second quarter represents the Frequency of Spend (F) at green merchants. The third quarter represents Consistency of Spend (C) at green merchants (for example, month 1, month 2, month 3 etc.) and the fourth quarter represents the actual amount spent at green merchants. Based on the green engagement score, three green bands are assigned along with bonus cashback, wherein the first green band is for the advance level, which offers 3% cashback to the top 20% of cardholders, the second green band is for the medium level, which offers 2% cashback to the middle 30% of cardholders and the third green band is for the basic level, which offers 1% cashback to the rest of cardholders. Thus, the green engagement score approach helps to identify the green business from spending data.

[0027] **Fig. 5** shows a graph which illustrates green spending in Singapore based on identified merchants for a period of one month i.e., August-2021, in which total green spend is <1% and non-green spend is 99.9%. **Fig. 6** shows the green spend profiles for business cards and consumers cards spent in Singapore for a period of one year i.e., from September-2020 to August-2021. Based on the observations of the customer card spend profile, there is an opportunity to recommend green merchants to consumers, such as organic products, vegan restaurants, and electric charging stations, and an opportunity to cross-sell solar energy plans to businesses based on the observations of the business card spend profile. For example, green personas are identified based on consumer transactions at a green merchant, where green merchants are i.e., eco-spenders (conscious shoppers looking for organic and zero-waste options), vegans (highly engages in plant-based restaurants, reducing CO₂ footprint), electric car drivers (electric vehicle renters or owners of electric cars) and environmentalists (highly engaged in several green spend categories, to the core) as shown in **Fig. 7**. According to business, a solar-powered business is an example of a transaction at a green merchant, where solar power businesses include Small and Medium Enterprises (SMEs) or SME probable individuals who have subscribed to solar energy plans.

[0028] In an embodiment, a green SME scorecard – card view with respect to spending data helps to identify green businesses, as shown in **Fig. 8**. The card view includes transactions at green businesses, green suppliers, green transport choices (for example, air travel), electricity

consumption relative to peers, electric car ownership, and solar energy plan. Further, cross-sell opportunities including green loans and green investments can be identified from spend data.

[0029] In an embodiment, a green business scorecard – merchant view helps to identify green businesses from external data, as shown in **Fig. 9**. The merchant view includes a target set for carbon emission 109, selling options related to low-carbon products, plastic-free products, local sourcing/manufacturing for green transport choices, identifying low-carbon initiatives, external energy ratings, and so on with respect to an Issuer. Further, transparency in sustainable businesses includes green merchant segmentation and may also apply CO₂ discounts.

[0030] In an embodiment, based on green credentials, relevant and material merchants are identified to assign a green merchant CO₂ value to their emissions factor. This includes the following steps.

[0031] Step 1: Filter Merchant Category Codes (MCCs) and merchants (including green merchant exceptions):

1. Shortlist “relevant and material” merchants for assessment and comparison based on tiered filtered approach, where tiered filter approach is dependent on pre-agreed criterion, for example, spend, likely emissions impact, and necessity/availability of alternate merchants available (for example, government services, etc.).
2. Identify additional merchants like exceptions, which are to be added for analysis based on criteria including Visa green merchants and direct consumer relevance (visibility/perception).

[0032] Step 2: Assess green credentials of key merchants:

1. Conduct research on green credentials, for example, emissions intensity and targets of shortlisted merchants.
2. Compare merchants to assign a green merchant CO₂ value for their green efforts based on their data availability:
 - Option 1- if actual data is available, then use actual emissions intensity data for direct comparison of CO₂/\$_{revenue} between peers.
 - Option 2 – green scorecard if actual data is not available, then create a green merchant scorecard 105 with pre-agreed weighted criteria and score

merchants without data to create a green score. Further, the green score may be informed to the merchants.

Data Observations:

[0033] In an embodiment, based on data observations, merchants may be combined and compared with comparable offers wherever possible, and to begin the study with "cross-sector merchants" which are present in several MCCs. The data observations are a) MCC categories and merchant type and b) %PV share. In an embodiment, under MCC categories and merchant type observation, the MCC for certain merchants is defined by their name ("name-based MCC") instead of their offering name. For example, offering name for Hotels: 'Hotels/Motels/Resorts' MCCs, whereas XYZ Hotels is another name-based MCC. Similarly, offering names for Airlines include 'Airlines, Air Carriers' MCCs, whereas additional name-based MCCs include Airlines A, and offering names for Car Rental include 'Automobile Rental Agency' MCCs, whereas additional name-based MCCs include Hertz Rent-a-Car. Many MCCs contain two types of merchants say "pure play" merchants, who only provide offerings for that market segment, and "cross-sector" merchants, whose offerings are in multiple market segments. In an embodiment, under %PV share observation, a large number of merchants (for example, 2416 merchants in the latest data set), the %PV of MCCs (say 294 MCCs) varies significantly. For example, %PV of MCC ranges from 6.41 percent (for Advertising Services) to 0.003 percent (for Airlines B), with an average of 0.238 percent. %PV of MCC will increase when merchants with different MCCs but similar offerings are grouped for analysis.

[0034] In an embodiment, major recommendations for the analysis approach are a) group and compare merchants and b) create cross-sector merchants. Grouping and comparing merchants in name-based MCCs with merchants in MCCs which offer comparable services. %PV of MCCs may also increase after grouping to ensure name-based MCCs with immaterial %PV, wherein %PV are not eliminated from comparison to similar peers. A cross-sector merchants' groups may be created, and the analysis may be performed by creating a merchant modifier for cross-sector merchants that may be applied to MCCs with pure play merchants.

[0035] In an embodiment, grouping MCCs for analysis is recommended, where group name-based MCCs with similar offerings are grouped together for analysis and comparison. Consider the example of airlines, where 1 MCC "Airlines, Air Carriers" with %PV of 1.046% and 33 merchants; and 45 other airline merchants with MCCs based on their name (name-based MCCs) with their individual %PV. Thereafter, all 46 merchants' airline offerings, and their

green credentials are compared to each other. For the analysis, it is thus recommended grouping of all name-based airline MCCs together to compare airline merchants between relevant MCCs to each other. Further, the final deliverable with merchant-specific green score, the MCC, and merchant categorization in Visa's system may be used (i.e., 45 name-based airline merchants with their own MCCs).

[0036] In an embodiment, two categories of merchants are identified, namely: a cross-sector merchants and a pure-play merchants. Performing distinct analysis for each type is proposed. In cross-sector merchants, merchants with products/services used across multiple MCCs i.e., different across different MCCs. Initially, a list of cross-sector categories is created (for example, payment platforms, E-commerce sites, logistics/sharing economy, and so on) and their merchants. Thereafter merchants are compared within a cross-sector category to obtain their merchant-specific green score (i.e., cross-sector merchants may not be compared against pure-play merchants). After comparing merchants, the merchant-specific green score is multiplied by the carbon offerings of the MCC to obtain the merchant's new green credentials based on carbon offerings for that particular MCC. In pure-play merchants, merchants with products/services are used, i.e., the green merchant CO₂ value is created by comparing the green credentials of retailers (for example, restaurants, insurance and hotels).

[0037] In an embodiment, a merchant-specific green score may be created by comparing similar cross-sector merchants to each other, rather than comparing with the pure play merchants in an MCC. In step 1, cross-sector merchants (for example, payment platforms) are compared against each other to generate a merchant-specific green score. In step 2, after including in an MCC, the cross-sector merchant may not be compared with pure-play merchants as they are likely to have differences in operations and emissions. Thereafter, new carbon offering value is obtained for MCC for the cross-sector merchant by multiplying the carbon offerings of the MCC with the merchant-specific green score.

[0038] In an embodiment, merchants were filtered through a four-step process to create a final shortlist of merchants (for example, shortlisted 200 merchants out of 2264 merchants covering ~50% PV in both business and consumer list), which may be evaluated based on their green credentials. Utilizing insurance as an example (testing case), the present disclosure proposes adopting a scorecard approach to evaluate merchants' green credentials and create a green score. As an example, the insurance MCC ("INSURANCE SALES/UNDERWRITE") may be

used to test the different types of data available and its associated implications for the merchant to obtain green score.

[0039] There are challenges in comparing retailers and developing a merchant modifier simply based on publicly accessible emissions data. As a result, the present disclosure suggests that all merchants use a scorecard method, of which emissions is a component, to rectify anomalies in emissions data and holistically evaluate merchants based on a range of factors.

[0040] In an embodiment, the score card will assess merchants based on the overall quality of their sustainability reporting, objectives, and measures to reduce emissions based on publicly accessible data. The preliminary sample scorecard is tabulated in Table 2. Once merchants have been tagged, green transactions may be identified by tagging them with qualitative criteria within VisaNet. A merchant may obtain a green score percentage (say, any value between 1% to 100%) based on the CO₂ level of product offerings (for example, low CO₂ level or very low CO₂ level). Assuming the basic low CO₂ offerings represent a score of 0 points, the green score is capped at 0%. Similarly, very low CO₂ offerings represent a score of 100 points, such that the green score is 100%.

Green Transaction Tagging Criteria	Example	Point Scale	*Qualitative Criteria	Output
Does the merchant have a green business model?	Share of low CO ₂ offerings	*/100	1. Merchant business model has low carbon offerings, for example, 0 points 2. Merchant business model has some low carbon offerings, for example, 50 points	Based on any one of qualitative criteria, merchants may obtain a green score of value between 1% to 100%

			3. Merchant business model has very low carbon offerings, for example, 100 points	
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Table 2

[0041] The major considerations of the scorecard approach are based on a data-only approach. The scorecard may require customization on a case-by-case basis for questions which are only applicable for certain MCCs. For example, policies for investing in fossil fuel industries for insurance merchants. Another example is green procurement and local production policies for manufacturers, e-commerce platforms, department stores, and so on. Another consideration is based on emission intensity, where the scorecard may not use emissions intensity for comparison as footprint varies significantly between merchants. However, emphasis on data quality, targets, and progress may result in emissions-intensive merchants getting an equal or higher score than merchants with lower absolute emissions. Further, the scorecard may penalize merchants whose sustainability initiatives are constrained by geography, industry, or size. For example, merchants in emissions-intensive or asset-heavy industries such as utilities may contain lower emissions reduction progress and smaller companies may have fewer resources to dedicate for emissions reduction.

General computer system:

[0042] **Fig. 10** illustrates a block diagram of an exemplary computer system for implementing embodiments consistent with the present disclosure.

[0043] In an embodiment, the computer system 1000 may be used to implement the system. The computer system 1000 may include a central processing unit (“CPU” or “processor”) 1002. The processor 1002 may include at least one data processor developing a green merchant scorecard 105 and calculating a green score for cards. The processor 1002 may include specialized processing units such as, integrated system (bus) controllers, memory management control units, floating point units, graphics processing units, digital signal processing units, etc.

[0044] The processor 1002 may be disposed in communication with one or more Input/Output (I/O) devices (1012 and 1013) via I/O interface 1001. The I/O interface 1001 employ communication protocols/methods such as, without limitation, audio, analog, digital, monoaural, radio corporation of America (RCA) connector, stereo, IEEE-1394 high speed serial bus, serial bus, universal serial bus (USB), infrared, personal system/2 (PS/2) port, bayonet neill-concelman (BNC) connector, coaxial, component, composite, digital visual interface (DVI), high-definition multimedia interface (HDMI), radio frequency (RF) antennas, S-Video, video graphics array (VGA), IEEE 802.11b/g/n/x, Bluetooth, cellular e.g., code-division multiple access (CDMA), high-speed packet access (HSPA+), global system for mobile communications (GSM), long-term evolution (LTE), worldwide interoperability for microwave access (WiMax), or the like, etc.

[0045] Using the I/O interface 1001, the computer system 1000 may communicate with one or more I/O devices such as input devices 1012 and output devices 1013.

[0046] In some embodiments, the processor 1002 may be disposed in communication with a communication network 1009 via a network interface 1003. The network interface 1003 may communicate with the communication network 1009. The network interface 1003 may employ connection protocols including, without limitation, direct connect, ethernet (e.g., twisted pair 10/100/1000 Base T), transmission control protocol/internet protocol (TCP/IP), token ring, IEEE 802.11a/b/g/n/x, etc. The communication network 1009 may include, without limitation, a direct interconnection, local area network (LAN), wide area network (WAN), wireless network (e.g., using Wireless Application Protocol), the Internet, etc. Using the network interface 1003 and the communication network 1009, the computer system 1000 may communicate with a database 1014, which may be the enrolled templates database 1013. The network interface 1003 may employ connection protocols include, but not limited to, direct connect, ethernet (e.g., twisted pair 10/100/1000 Base T), transmission control protocol/internet protocol (TCP/IP), token ring, IEEE 802.11a/b/g/n/x, etc.

[0047] The communication network 1009 includes, but is not limited to, a direct interconnection, a peer to peer (P2P) network, local area network (LAN), wide area network (WAN), wireless network (e.g., using Wireless Application Protocol), the Internet, Wi-Fi and such. The communication network 1009 may either be a dedicated network or a shared network, which represents an association of the different types of networks that use a variety of protocols, for example, hypertext transfer protocol (HTTP), transmission control

protocol/internet protocol (TCP/IP), wireless application protocol (WAP), etc., to communicate with each other. Further, the communication network 1009 may include a variety of network devices, including routers, bridges, servers, computing devices, storage devices, etc.

[0048] In some embodiments, the processor 1002 may be disposed in communication with a memory 1005 (e.g., RAM, ROM, etc. not shown in Fig. 10) via a storage interface 1004. The storage interface 1004 may connect to memory 1005 including, without limitation, memory drives, removable disc drives, etc., employing connection protocols such as, serial advanced technology attachment (SATA), integrated drive electronics (IDE), IEEE-1394, universal serial bus (USB), fiber channel, small computer systems interface (SCSI), etc. The memory drives may further include a drum, magnetic disc drive, magneto-optical drive, optical drive, redundant array of independent discs (RAID), solid-state memory devices, solid-state drives, etc.

[0049] The memory 1005 may store a collection of program or database components, including, without limitation, user interface 1006, an operating system 1007, etc. In some embodiments, computer system 1000 may store user/application data, such as, the data, variables, records, etc., as described in this disclosure. Such databases may be implemented as fault-tolerant, relational, scalable, secure databases such as Oracle or Sybase.

[0050] The operating system 1007 may facilitate resource management and operation of the computer system 1000. Examples of operating systems include, without limitation, AppleTM MacintoshTM OS XTM, UNIXTM, Unix-like system distributions (e.g., Berkeley Software Distribution (BSD), FreeBSDTM, Net BSDTM, Open BSDTM, etc.), Linux distributions (e.g., Red HatTM, UbuntuTM, K-UbuntuTM, etc.), International Business Machines (IBMTM) OS/2TM, Microsoft WindowsTM (XPTM, Vista/7/8, etc.), Apple iOSTM, Google AndroidTM, BlackberryTM operating system (OS), or the like.

[0051] In some embodiments, the computer system 1000 may implement web browser 1008 stored program components. Web browser 1008 may be a hypertext viewing application, such as MicrosoftTM Internet ExplorerTM, Google ChromeTM, Mozilla FirefoxTM, AppleTM SafariTM, etc. Secure web browsing may be provided using secure hypertext transport protocol (HTTPS), secure sockets layer (SSL), transport layer security (TLS), etc. Web browsers 1008 may utilize facilities such as AJAX, DHTML, AdobeTM Flash, Javascript, Application Programming

Interfaces (APIs), etc. In some embodiments, the computer system 1000 may implement a mail server stored program component. The mail server may be an Internet mail server such as Microsoft Exchange, or the like. The mail server may utilize facilities such as ASP, ActiveX, ANSI C++/C#, Microsoft .NET, Common Gateway Interface (CGI) scripts, Java, JavaScript, PERL, PHP, Python, WebObjects, etc. The mail server may utilize communication protocols such as Internet Message Access Protocol (IMAP), Messaging Application Programming Interface (MAPI), Microsoft Exchange, Post Office Protocol (POP), Simple Mail Transfer Protocol (SMTP), or the like.

[0052] In some embodiments, the computer system 1000 may implement a mail client stored program component. The mail client may be a mail viewing application, such as Apple Mail, Microsoft Entourage, Microsoft Outlook, Mozilla Thunderbird, etc.

[0053] Furthermore, one or more computer-readable storage media may be utilized in implementing embodiments consistent with the present disclosure. A computer-readable storage medium refers to any type of physical memory on which information or data readable by a processor may be stored. Thus, a computer-readable storage medium may store instructions for execution by one or more processors, including instructions for causing the processor(s) to perform steps or stages consistent with the embodiments described herein. The term “computer-readable medium” should be understood to include tangible items and exclude carrier waves and transient signals, i.e., be non-transitory. Examples include Random Access Memory (RAM), Read-Only Memory (ROM), volatile memory, non-volatile memory, hard drives, Compact Disc (CD) ROMs, DVDs, flash drives, disks, and any other known physical storage media.

[0054] The described operations may be implemented as a method, system or article of manufacture using standard programming and/or engineering techniques to produce software, firmware, hardware, or any combination thereof. The described operations may be implemented as code maintained in a “non-transitory computer readable medium”, where a processor may read and execute the code from the computer readable medium. The processor is at least one of a microprocessor and a processor capable of processing and executing the queries. A non-transitory computer readable medium may include media such as magnetic storage medium (e.g., hard disk drives, floppy disks, tape, etc.), optical storage (CD-ROMs, DVDs, optical disks, etc.), volatile and non-volatile memory devices (e.g., EEPROMs, ROMs, PROMs, RAMs, DRAMs, SRAMs, Flash Memory, firmware, programmable logic, etc.), etc.

Further, non-transitory computer-readable media may include all computer-readable media except for a transitory. The code implementing the described operations may further be implemented in hardware logic (e.g., an integrated circuit chip, Programmable Gate Array (PGA), Application Specific Integrated Circuit (ASIC), etc.).

[0055] The illustrated steps are set out to explain the exemplary embodiments shown, and it should be anticipated that ongoing technological development will change the manner in which particular functions are performed. These examples are presented herein for purposes of illustration, and not limitation. Further, the boundaries of the functional building blocks have been arbitrarily defined herein for the convenience of the description. Alternative boundaries can be defined so long as the specified functions and relationships thereof are appropriately performed. Alternatives (including equivalents, extensions, variations, deviations, etc., of those described herein) will be apparent to persons skilled in the relevant art(s) based on the teachings contained herein. Such alternatives fall within the scope and spirit of the disclosed embodiments. Also, the words "comprising," "having," "containing," and "including," and other similar forms are intended to be equivalent in meaning and be open ended in that an item or items following any one of these words is not meant to be an exhaustive listing of such item or items, or meant to be limited to only the listed item or items. It must also be noted that as used herein, the singular forms "a," "an," and "the" include plural references unless the context clearly dictates otherwise.

[0056] Furthermore, one or more computer-readable storage media may be utilized in implementing embodiments consistent with the present disclosure. A computer readable storage medium refers to any type of physical memory on which information or data readable by a processor may be stored. Thus, a computer readable storage medium may store instructions for execution by one or more processors, including instructions for causing the processor(s) to perform steps or stages consistent with the embodiments described herein. The term "computer readable medium" should be understood to include tangible items and exclude carrier waves and transient signals, i.e., are non-transitory. Examples include random access memory (RAM), read-only memory (ROM), volatile memory, non-volatile memory, hard drives, CD ROMs, DVDs, flash drives, disks, and any other known physical storage media.

[0057] Finally, the language used in the specification has been principally selected for readability and instructional purposes, and it may not have been selected to delineate or

circumscribe the inventive subject matter. Accordingly, the disclosure of the embodiments of the disclosure is intended to be illustrative, but not limiting, of the scope of the disclosure.

[0058] With respect to the use of substantially any plural and/or singular terms herein, those having skill in the art can translate from the plural to the singular and/or from the singular to the plural as is appropriate to the context and/or application. The various singular/plural permutations may be expressly set forth herein for sake of clarity.

A GREEN TRANSACTION TAGGING AND A METHOD OF ASSIGNING GREEN SCORE FOR CARDS

ABSTRACT

The present disclosure relates to a method and a system for developing a green merchant scorecard and calculating a green score for cards based on expenditure data. The present disclosure uses server data, uniquely combined with external emissions data, to quantify how green businesses are eventually consumed by the consumers. Thereafter the emission data may be used for underwriting and cross-selling of green bonds/green loans by targeting the right consumers. The present disclosure provides a solution for identifying green brands and is used directly to compute carbon reduction in a purchase.

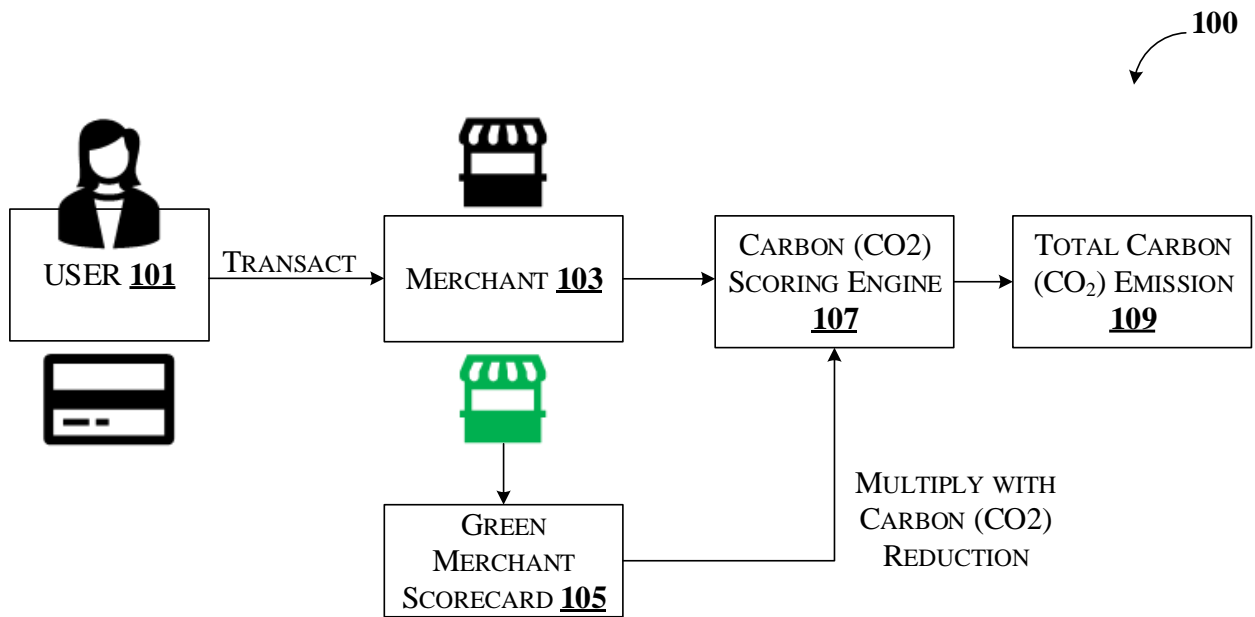


Fig. 1

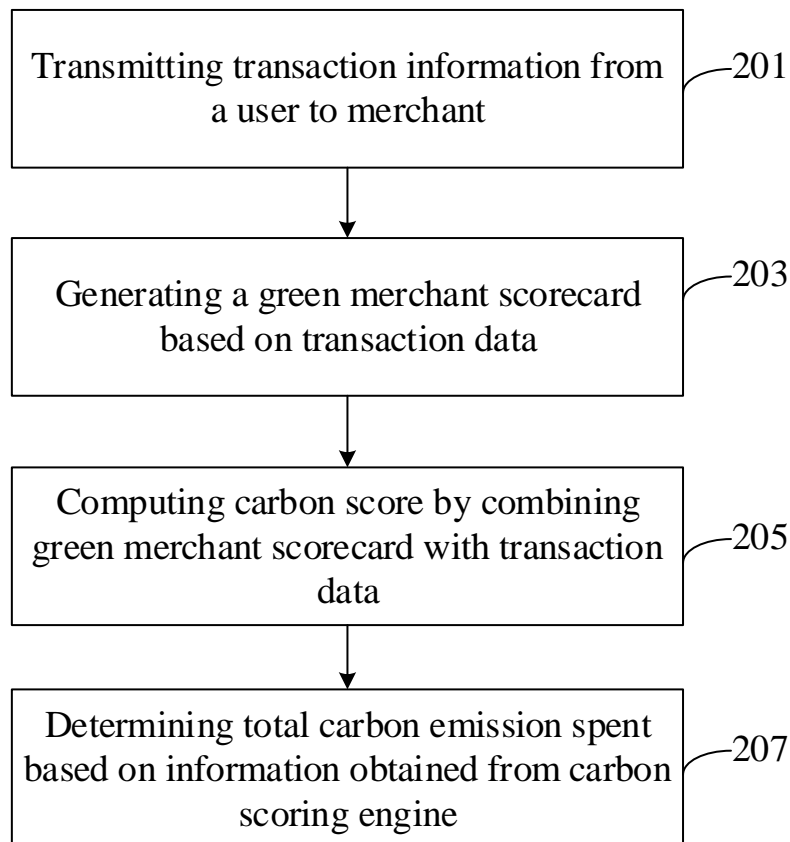


Fig. 2

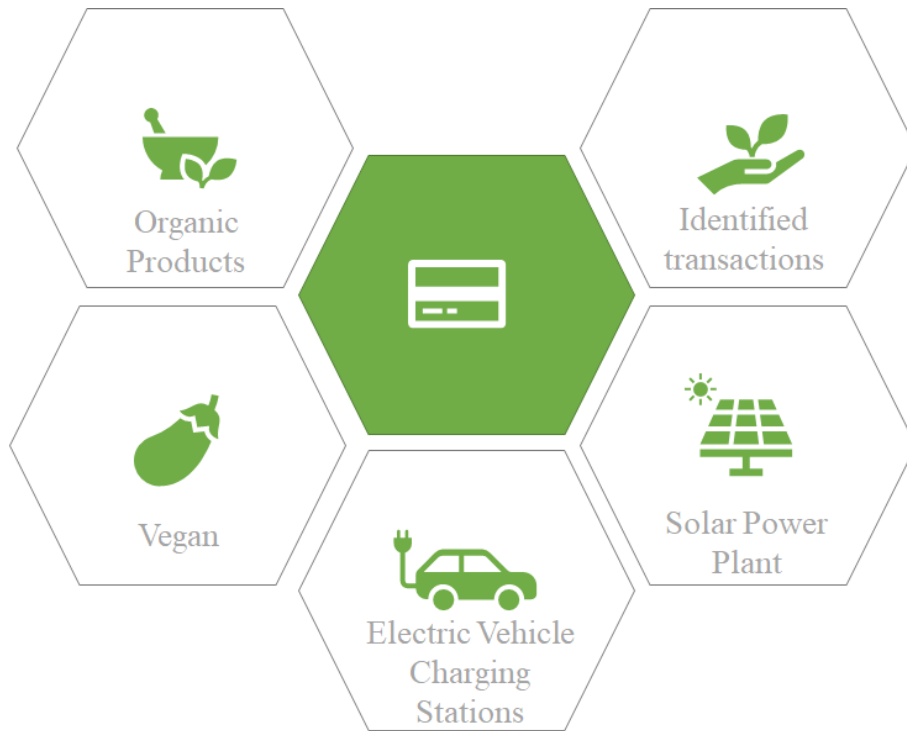


Fig. 3

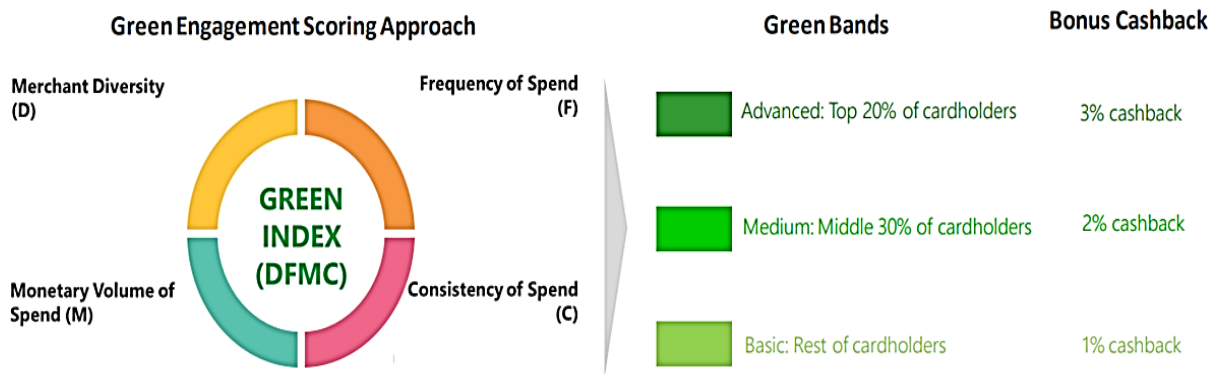


Fig. 4

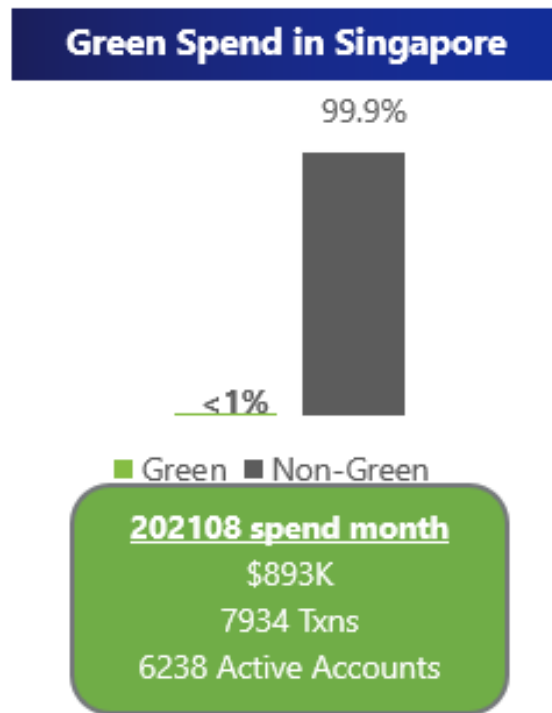


Fig. 5

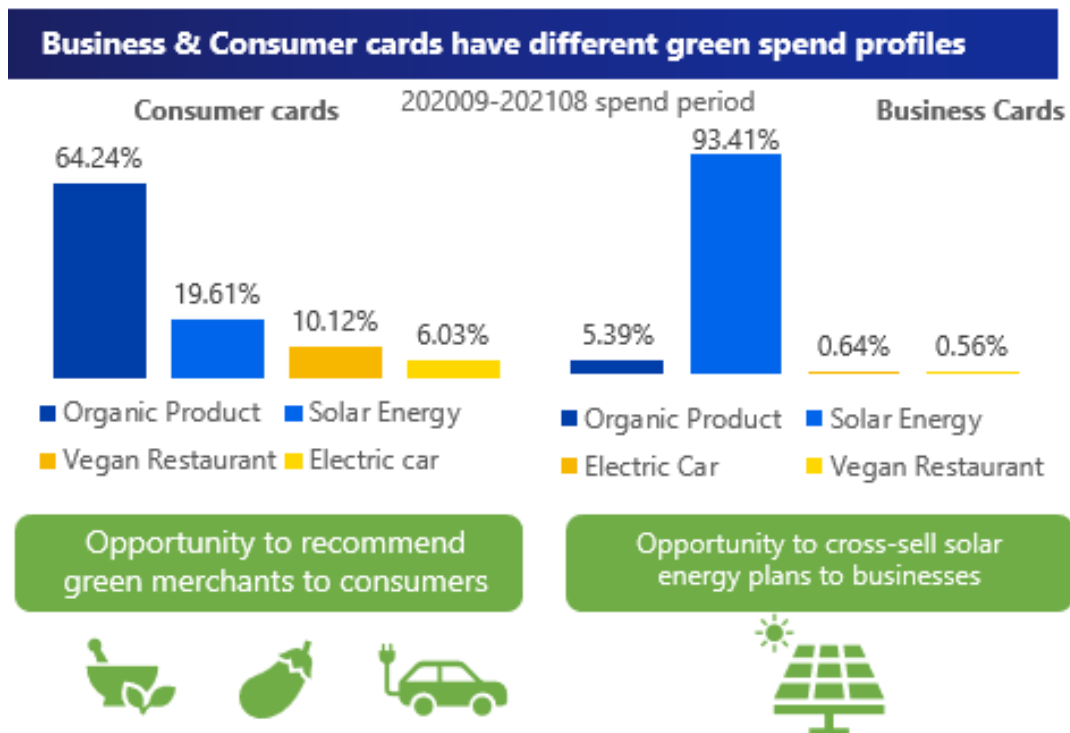


Fig. 6

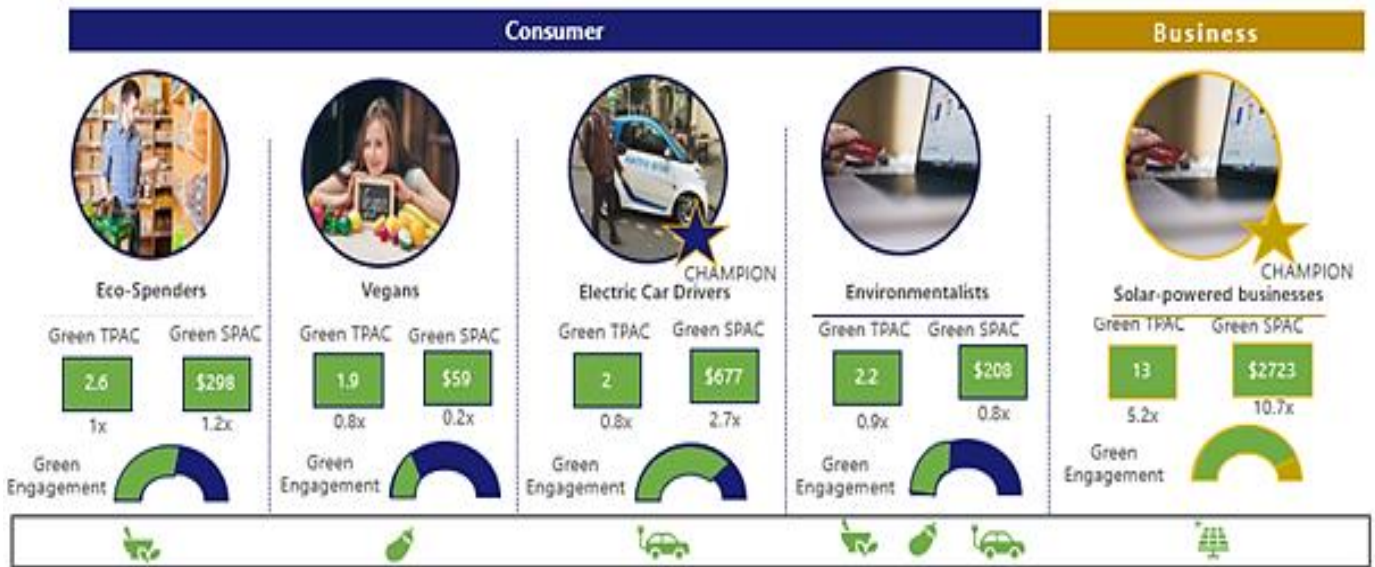


Fig. 7

Green SME Scorecard – Card View

- Transactions at green businesses
- Green suppliers
- Green transport choices
- Electricity consumption relative to peers
- Electric car ownership
- Has solar energy plan?

Identify cross-sell opportunities

- Green Loans
- Green Investments



Fig. 8

Green Business Score Card– Merchant View

CO2 Emissions Target Set?

 Sells low-carbon options?

 Plastic Free?

 Local Sourcing/Manufacturing?

 Known low-carbon initiatives?

 External Ratings?

Transparency in Sustainable Businesses

Green Merchant Segmentation



Fig. 9

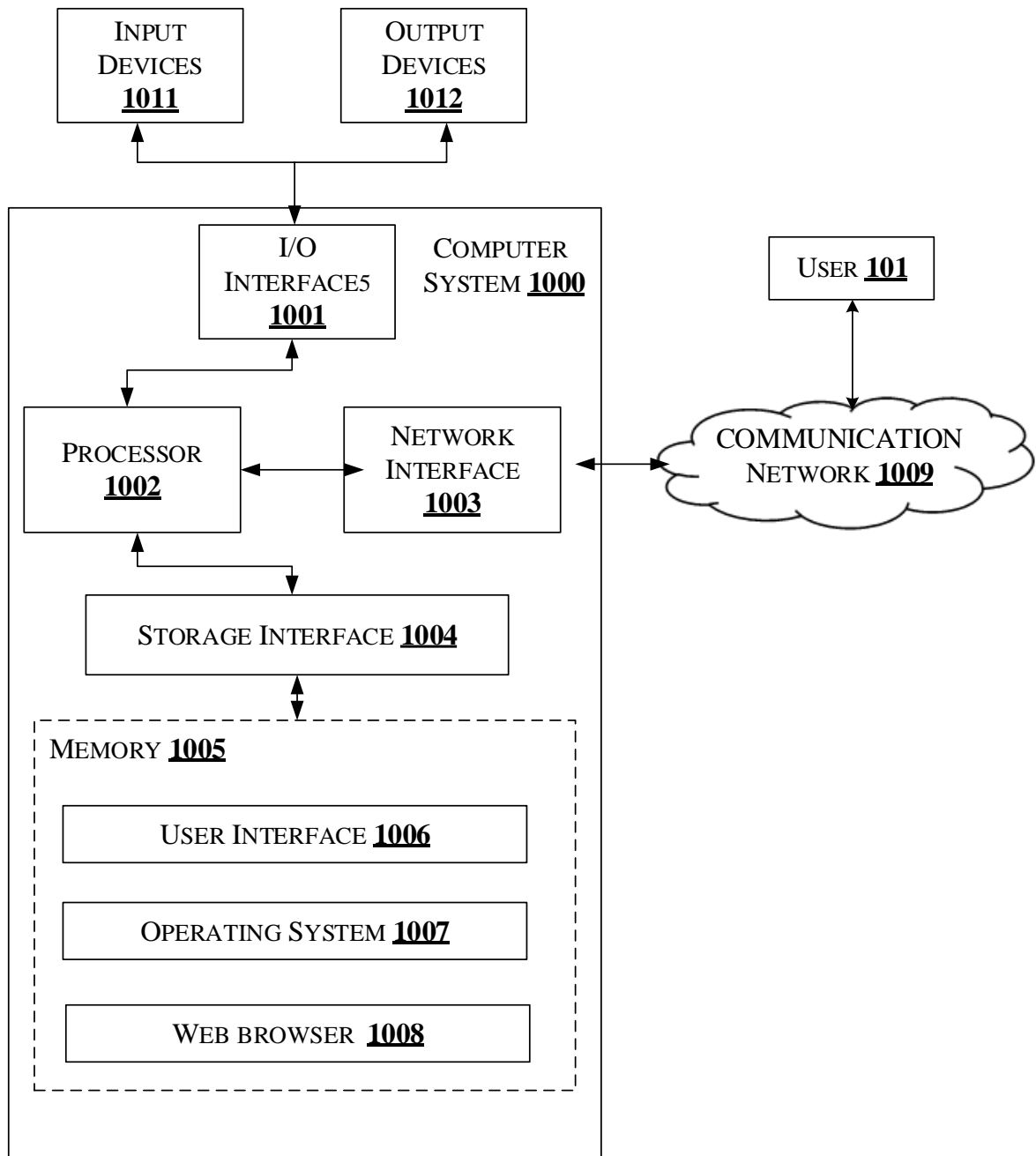


Fig. 10