Method and System for Integration of Businesses' Loyalty & Incentive Program Rewards by Digital Currency- Universal Complimentary Digital Currency (UCDC) System

Background and Overview:

Currently, most airline companies, hotels, casinos, restaurants, retail stores, credit cards (the businesses) have their own customer loyalty/incentive programs* (L/I Program). The businesses usually use POS systems that include loyalty program software to support their L/I program, but some use add-on loyalty program software. If a company has branches or chain stores and allows customers to utilize reward points, mileage, or other complimentary value units (Program Rewards) for all its branches/chain stores, we may call the program an intracompany system.

Some businesses contract with other businesses so their customers can utilize Program Rewards from the other's businesses. We may call the contractual joint L/I program an inter-companies system. For example, the airline companies Program Rewards can be redeemed for car rental companies and hotels and vice versa.

Universal Complimentary Digital Currency (UCDC) System is a system that utilizes digital currency* to integrate and unify all the reward units of businesses' L/I programs under one system.

After the integration and data conversion, the businesses' loyalty program software will only use UCDC as their Program Rewards. The initial public offering (IDCO/ICO) price of UCDC will be $1 (nominal value) in the USA if the patent(s) are approved in the USA first. The UCDC System accepts all local currencies in different countries (according to the currency exchange rate on the transaction date) but the UCDC System's Reserve Fund* only keeps U.S. Dollars, EURO, and Chinese Yuan.

The integration and system conversion processes are as follow:

1. Program Rewards Valuation process*

UCDC System hosting organization* (the organization) shall work with the businesses that already have existing L/I Programs to go through the valuation process. The valuation process is the process to determine the monetary value of each unit of the reward program (Program Rewards) that the businesses use. The Program Rewards includes, but is not limited to, points, mileage, frequency of consumption, and other complimentary units. Subsequently, the monetary value will become the basis to calculate the total reward program liability, and pay the organization's Reserve Fund to issue UCDC for the businesses.

Businesses often use cost basis (price subtract profit margin) to record the total outstanding Program Rewards as current liability on their books. When a business (the applicant) applies to enroll in the UCDC System, the organization shall first use the amount of the applicant's L/I Program liability divided by total outstanding Program Rewards to get the book value of the reward unit (B reward value). Then the organization shall establish a standalone market product price (the market price) for the

business. The market price considers the most recent year's average price for a single product, the weighted average price for multiple products, price fluctuations in different seasons, and different locations. After the market price is calculated and agreed upon by the business, the market price approach value of the reward unit (MP reward value) can be calculated by the market price divided by the number of reward units that can be exchanged (redeemed) for the product/service (the product).

In most cases, the average of the B reward value and MP reward value shall be the fair estimated value (FE reward value*) of the reward unit for the applicant's L/I Program. The FE reward value also will be the base price of Program Rewards that the business pays to the Reserve Fund of the organization when issuing UCDC to the businesses. After the payment, the businesses become Premium Members*. Each time UCDC is issued, the payment shall equal FE reward value multiplied by the outstanding Program Rewards.

The nominal exchange rate is equal to the nominal value ($1 in USD) divided by MP reward value. The quantity of issuance for UCDC is MP reward value multiplied by total outstanding Program Rewards and then divided by nominal value of UCDC.

The buy-back or credit-back guaranty rate (the G rate) of Program Rewards for the initial stage is equal to UCDC nominal value multiplied by the FE rewards value and divided by MP reward value. After the initial stage, the G rate shall be set by the Consumer Price Index (CPI) of the country of the organization issuing UCDC. For example, if the national CPI increased by 2% in February and the government announced the February CPI statistic report on March 10th, the organization shall use the most current G rate

multiplied by 102% for the new rate. The organization shall announce the floating G rate on UCDC system website monthly. The maximum amount that the organization can buy-back and credit-back the UCDC from businesses is the businesses' total payments to the Reserve Fund.

The formulas are the followings:

110 – B reward value= L/I program Liability/ total outstanding Program Rewards

120 – MP reward value=Standalone Market Price/ the amount of reward unit that can be exchanged (redeemed) for the product

121 – Standalone Market Price for Multiple products: {Average Sales price of Product 1 X (Product 1 Sales amount/total sales amount of all products) +Average Sale price of Product 2 X (Product 2 Sales amount/total sales amount of all products)…}

122 – Standalone Market Price for Single Product: Average Sale Price per Unit

130 – FE reward Value = (B reward value X 50%+ MP reward value X 50%)

Note: If some businesses' B reward value is more or less than the cost, the above percentage may vary.

140 – Quantity of initial issuance for UCDC = MP reward value/nominal value of UCDC X Total outstanding Program Rewards

150 – Premium Members' payment = FE reward value X Total outstanding Program Rewards

160 – Exchange rate = 1: ($1 (nominal value)/ MP reward value)

170 – The initial stage G rate (buy-back or credit-back guaranty rate) = nominal value X FE reward value/MP reward value

Example Valuation Process:

S Hotel has 300 of the same room types in California, USA, and the average room rate per night is $200. S Hotel uses S points for its L/I program, and consumer will be rewarded one S point for each $1 spent for the room rate. Consumers need 10,000 S points to redeem a room night. On March 31, 2019, S Hotel has $168,000 in L/I Program liability on the books, and 12 million outstanding S points are in its reward system.

The C System is a non-profit organization in the USA. It launches an UCDC system on 01/02/2019 in Las Vegas, Nevada, and it uses USA E Coin, a cryptocurrency, to unify all Program Rewards. S Hotel and the C System agree the cutoff date to convert S Hotel's Program Rewards to USA E Coin is 03/31/2019. The V process should be as follows:

110 - B reward value = L/I Program liability/ total outstanding Program Rewards
B reward value = $168,000/12,000,000 = $0.014

120 - MP reward value = Standalone Market Price/ the amount of reward units that can be exchanged (redeemed) for the product (122– Standalone Market Price for Single Product: Average Sale Price per Unit)
MP reward value = $200/ 10,000 = $0.02

130 - FE reward Value = B reward value X 50%+ MP reward value X 50%
FE reward Value = 0.014 X 50%+ 0.02 X 50%= $0.017

140 - Quantity of initial issuance for UCDC = MP reward value/nominal value of UCDC X Total outstanding Program Rewards
Quantity of issuance for UCDC = $0.02/$1.00 X 12M= 240,000 Unit

150 - Premium Members' payment = FE reward Value X Total outstanding Program Rewards

Premium Members' payment = 0.017 X 12M = $204,000

160 - Exchange rate = 1: ($1 (nominal value)/ MP reward value)
Exchange rate = 1 : ($1/$0.02) =1:50

170 - The G rate (buy-back or credit-back guaranty rate) = nominal value X FE reward value/MP reward value

The G rate = $1 X 0.017/0.02 = $0.85/UCDC
Based on the above calculation, S Hotel's payment of its outstanding 12 million S points to the C System's Reserve Fund would be $204,000 ($0.017*12M). The C System should issue 240,000 units of USA E Coin to S Hotel's customers based on the distribution list provided by S Hotel. The G rate in the initial stage is $0.85 per UCDC.

2. System Integration Process

After businesses go through the valuation process (one-by-one) with the organization, the businesses negotiate and sign the Premium Members' Agreement with the organization. The organization then performs the system integration process as follows:

210 - System Review: This procedure is to understand the capability of the

businesses' current loyalty program software. The businesses' loyalty program software could be a built-in function as a part of the POS system or an add-on software from third parties. In most cases, the add-on loyalty program software tends to be more of a turnkey design that would be more flexible than a built-in system to produce different reports as needed. However, the system review will provide more information to decide which jobs of the system integration process can be completed by businesses' loyalty program software and the associated time and cost.

220 - Initiate Data Conversion: The data conversion is the procedure to convert customers' information associated with the program rewards they have earned on the cutoff date. The procedures include:

221- Download Customer List: First set up a report format, then download the information from the businesses software. The information of the list includes customers' name, birthday, e- mail address and the balance of Program Rewards.

222 - Conversion Table and Distribution List: The organization uses the exchange rate (see procedure 160) to produce conversion tables, then integrate the customers' list with conversion table to the distribution list.

223 - Upload data: The organization helps businesses upload the distribution list to the member management function of UCDC system. The distribution list includes customers' name, birthday, e-mail address, and the balance of UCDC.

230 - Bridge Software and Application: After the initial data conversion,

the organization shall use the businesses' L/I Program software language to make a bridge software and App to make the distribution list automatically.

240 - Parameter set up and Produce Reports:
After the initial data conversion, the organization should understand the strengths and weaknesses of businesses' L/I Program software. The organization shall help businesses set up parameter for their L/I program software to produce real-time, weekly, monthly and yearly reports as needed.

3. UCDC System Operation:

310- Issue UCDC to Customers
After the organization receives payments or promissory notes, the organization shall obtain the Program Rewards distribution list provided by businesses to send notifications to the customers that UCDC were issued to their accounts. The notification includes, but is not limited to, the website address, login information, terms and conditions, and user manual to use UCDC. Once customers complete the registration, they become Consumer Members* of UCDC System.

320- UCDC Reward Ledger Update

At the initial stage after conversion, the Premium Members may not be available to provide timely updated UCDC reward records (the ledger) to the organization. The premium members shall at least provide the ledger not more than daily (24 hours).

After the initial stage, the organization shall help Premium Members with

bridge software which only needs the parameters to be set-up and receive timely updates of the ledger as needed.

321 - No Loyalty Reward on UCDC Transactions

The organization shall suggest that Premium Members not provide any loyalty rewards for consumers that use UCDC to purchase (exchange) their product because the transactions should be treated as redemption of Program Rewards. However, the Premium Members may make the decision by themselves if that would provide more incentives to consumers.

330 - General Members Operation and Upgrade

If the businesses currently do not have any L/I Programs, as most of them may be small to medium-sized businesses, they can become General Members* of UCDC system. They may register with hosting organization to accept UCDC payment for business transaction. They also allow selling and buying UCDC through UCDC exchange platform*. When General Members decide to establish L/I Program and use UCDC as their Program Rewards, they can also apply to upgrade their membership to Premium Membership after one year.

340-Consumer Members:

For the consumers who are currently enrolled in the businesses' L/I Program, once the businesses become Premium Members, the consumers will become Consumer Members of UCDC system, and their original Program Rewards will become UCDC. The Consumer Members can either use UCDC to purchase merchandise and services from all members in the UCDC system or sell UCDC at an exchange platform for legal tender.

350- IDCO/ICO

Once the organization believes that the system is running smoothly and the legal environment is well established, the organization may also consider starting an Initial Digital Currency Offering or Initial Cryptocurrency Offering to obtain more members.

4. Reserve Fund System and Circulation Process

410- Once the businesses become Premium Members, the businesses shall pay the Premium Members' payment (as defined in Program Rewards Valuation process) in full or with promissory notes that pay in installments to the UCDC Reserve Fund (the fund). The payments to the Fund are not the revenue of the organization but shall be booked as a current liability to the organization. The organization will record all the transactions for each Premium Member in the UCDC system.

420- On monthly basis, if businesses received UCDC more than they issued, businesses have the option to sell UCDC through UCDC exchange platform or request the organization to buy them (buy-back transaction).

430- If businesses issued UCDC more than they received, businesses can use the amount of UCDC they received as credit (credit-back transaction) and pay the balance in legal tender.

440- When the market price of UCDC depreciates below the standard set by the organization, the fund shall use its own discretion to buy-back UCDC (treasury coin*) at the exchange platforms to reduce the UCDC circulation.

450- If the market price of UCDC appreciates above standards set by the

organization, the fund shall use its own discretion to sell UCDC (treasury coin) at the exchange platforms to increase the UCDC circulation.

The organization shall use the G Rate for both buy-back and credit-back transactions. The G rate shall be set by CPI of the country of the organization issuing UCDC. The organization shall announce floating G rates on UCDC system website monthly.

The maximum amount that the organization can buy-back and credit-back UCDC from each Premium Member is equal to each Premium Member's total payments to the Reserve Fund.

5. Double-Record Method

To provide better services, UCDC System shall use both a decentralized system (public ledger) and a centralized system at the same time, which means the UCDC System shall record all transactions in its centralized system. The centralized system shall not only be a back-up record for public ledger but also provide classification and statistical reports for the public.

Conclusion:

In the past decades, some of the businesses filed bankruptcy which wiped out L/I Program liability. Some businesses shorten the Program Rewards' expiration period. Some of them reduce the value of Program Rewards. The UCDC system can protect consumers because it can prevent the business' L/I Program liability from being wiped-out due to bankruptcy, as well as prevent the business' expired Program Rewards from shorten expiration days or reduced value.

Specification:

1. Customer loyalty/incentive programs: the customer loyalty /incentive programs (L/I Program) are rewards program offered by businesses to customers who frequently make purchases. The L/I Program may give customers complimentary food and beverage, complimentary hotel stays, complimentary airline tickets, free services, free merchandise, reward points, discount coupons, and other benefits for consumers. Such loyalty reward values are set by the businesses and constitute a promise for future consumption and therefore count as current liabilities on the balance sheet for the businesses.

2. Digital currency: Digital currency (digital money or electronic money or electronic currency) is a type of currency available only in digital form, not in physical form (such as banknotes and coins). It exhibits properties similar to physical currencies, but allows for online transactions and borderless transfer of ownership. Digital currency includes, but is not limited to, virtual currencies, cryptocurrency, and other centralized or decentralized encrypted digital currency. The organization shall choose and maintain the most advanced digital currency technology to ensure all transactions are timely, well recorded and protected. All transaction digital ledgers are encrypted/or block chained, immutable, time stamped, and can be stored both centralized and decentralized.

3. Valuation process and FE reward value:
The valuation process is the process to determine the monetary value of each unit of the reward program (Program Rewards) that the businesses use. The Program Rewards includes, but is not limited to, points, mileage, frequency of consumption, and other complimentary units. Subsequently, the monetary value will become the basis to calculate the total reward program liability, and pay the organization's Reserve Fund to issue UCDC for the businesses. Subsequently, the value will be the basis to calculate total Reward Program liability, and pay the organization's Reserve Fund to issue UCDC for the businesses.
Ideally, the monetary value will be in between the middle of the product market price and the product cost, and it provides enough incentive to consumers while will not causing financial burden to merchant. The UCDC System utilizes the following formulas to provide with a fair estimated monetary value (FE reward value) for the Program Rewards.

110 - B reward value= L/I program Liability/ total outstanding Program Rewards

120 - MP reward value=Standalone Market Price/ the amount of reward unit that can be exchanged (redeemed) for the product

121 - Standalone Market Price for Multiple products: {Average Sales price of Product 1 X (Product 1 Sales amount/total sales amount of all products) +Average Sale price of Product 2 X (Product 2 Sales amount/total sales amount of all products)…}

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Note: If some businesses' B reward value is more or less than the cost, the above percentage may vary.

140 - Quantity of initial issuance for UCDC = MP reward value/nominal value of UCDC X Total outstanding Program Rewards

150 - Premium Members' payment = FE reward value X Total outstanding Program Rewards

160 - Exchange rate = 1: ($1 (nominal value)/ MP reward value)

170 - The G rate (Buy-back or credit-back guaranty rate) = nominal value X FE reward value/MP reward value

4. Hosting organization:
   UCDC System hosting organization can be a non-profit organization or for-profit business. The hosting organization's responsibilities includes, but is not limited to, providing UCDC full website services and website security, recruitment, member account management, customers' account management & audit, wallet and payment services, exchange platforms, developments and maintenances of smart phone app., initial public offering (IDCO/ICO), legal and regulatory compliance.

5. UCDC System Memberships:

Premium member:
The premium members are one of the merchant members. They must have an existing L/I Program more than a year before becoming members. The businesses normally have L/I Program liability on their balance sheet. The hosting organization and the businesses shall go through the Valuation process and decide the monetary value of the Program Rewards. Once both parties agree with the value, the businesses will pay in full or promise to pay by installments in full to the organization. The payments will be deposited to UCDC Reserve Fund. Then the hosting organization will issue UCDC to the businesses' customers (according to the distribution list provided by the businesses). The premium members shall provide a timely distribution list to the organization on a pay-as-you-go basis. The monthly payment for the new UCDC issued can be off-set (buy-back and credit-back) by the UCDC Premium Members received from the consumers.

General Members: The General Members are one of the merchant members. There are businesses that do not want to convert their Program Rewards to UCDC System or businesses that do not have a L/I Program but want to register and contract with hosting organization to accept UCDC as one of the payments for exchanging their products or services.
They also allow selling and buying UCDC through UCDC exchange platform.

Consumer Members: The Consumer Members can obtain UCDC from businesses. They can use their account at UCDC online system to use UCDC to purchase merchandise and services. They can buy and sell their UCDC on the UCDC exchange platform. They only need to provide their e-mail address, name, birthday and password to set up accounts with UCDC system.

The organization may create membership tiers for its memberships and provide more benefits to the members who have more transactions to use UCDC.

6. UCDC exchange platforms: The website(s) that UCDC can be bought and sold online at market price. The platforms can be UCDC System owned platforms or other contracted platforms.

7. UCDC Reserved Fund: UCDC Reserved Fund is the backbone of the UCDC System. The initial fund should be provided by the payments of Premium Members. The payments are not the revenue of the organization but shall be booked as a current liability to the organization. The total circulation of UCDC is based on the fund balance. The fund balance includes, but is not limited to, legal tender, CDs, bonds, and UCDC treasury coin. The fund also provides the minimum market price (The G rate) of UCDC to Premium Members. Nevertheless, the fund provides buy-back and credit-back services for Premium Members. When the market price of UCDC depreciates below the standard set by the organization, the fund shall use its own discretion to buy- back UCDC (become treasury coin) at the exchange platforms to reduce the UCDC circulation. If the market

price of UCDC appreciates above standards set by the organization, the fund shall use its own discretion to sell UCDC (treasury coin) at the exchange platforms to increase the UCDC circulation. The fund only maintains three major currencies; those are U.S. Dollars, EURO, and Chinese Yuan. For the security of the UCDC Reserve Fund, investment for the fund can only be in CDs and government bonds with AA rating or above.

8. Revenue Fund:

All incomes generated by the Reserve Fund should be transferred to the revenue fund. The incomes include, but are not limited to interest income, dividend income and Reserve Fund's Premium Members account closing balance. The revenue will be used for operating expenses of the UCDC system.

9. UCDC IDCO/ICO:

UCDC Initial Digital Currency Offering/Initial Coin Offering means by which Premium Members are invited and funds are raised for a new digital currency venture or cryptocurrency venture.

Claims:

1. A non-transitory computer-readable medium having stored thereon software instructions that, when executed by a processor, cause the processor to generate a universal complementary digital currency for loyalty and incentive reward programs, by executing the steps of:

(i) determining a book value (B value) and a market price value (MP value) for loyalty and incentive reward programs offered by each participating business;

(ii) determining an estimated monetary value (EM value) value for outstanding loyalty and incentive reward program liability for each participating business to be deposited as payment in a universal complementary digital currency reserve fund by the participating business;

(iii) determining a value of universal complementary digital currency (UCDC value) and a quantity (Q) of universal complementary digital currency to be initially issued;

(iv) determining a payment (P) to be deposited by the participating business for the issuance of universal complementary digital currency;

(v) determining a buy-back/credit back guarantee rate (G rate) for the participating business to sell universal complementary digital currency back to the universal complementary digital currency reserve fund;

(vi) converting and integrating customer lists of each participating business into a universal distribution list using the participating business' loyalty program software;

(vii) using the participating business' loyalty program software to produce a bridge software and application and make the distribution list automatically;

(viii) evaluating and modifying the participating business' loyalty program software strengths and weaknesses to produce real-time, weekly, monthly and yearly reports as needed; and

(ix) issuing universal complementary digital currency to customers of each participating business entitled to receive loyalty and incentive rewards from the business, thereby replacing loyalty and incentive reward programs of each participating business with universal complementary digital currency.

2. The non-transitory computer-readable medium of claim 1, wherein the software instructions further causes the processor to apply formulas to determine the values for loyalty and incentive reward programs, outstanding loyalty andincentive reward program liabilities, and buy-back credit guarantee rates.

3. The non-transitory computer-readable medium of claim 2, wherein the formula to determine the B value of loyalty and incentive reward programsof a participating business is:

B= (loyalty and incentive reward program liability)/(total outstanding loyalty and incentive reward program units),

wherein the loyalty and incentive reward program liability is a monetary value owed by the participating business to loyalty and incentive reward program customers; and

wherein the total outstanding loyalty and incentive reward program units are reward units owed by the participating business to loyalty and incentive reward program customers.

4. The non-transitory computer-readable medium of claim 2, wherein the formula to determine the MP value of loyalty and incentive reward programsof a participating business is:

MP= (Reward product standalone market price)/ (the amount of reward units that can be exchanged (redeemed) for the product);

wherein the standalone market price of a single reward product is the product’s most recent average sale price; and

wherein the standalone market price for multiple products is the multiple products’ most recent cumulative average sale price.

5. The non-transitory computer-readable medium of claim 2, wherein the formula to determine the EM value for outstanding loyalty and incentivereward program liability for each participating business is: EM= (B x 50%) + (MP x 50%).

6. The non-transitory computer-readable medium of claim 2, wherein the formula to determine the quantity (Q) of universal complementary digitalcurrency to be initially issued is:

Q=MP/UCDC value x total outstanding loyalty and incentive reward program units.

7. The non-transitory computer-readable medium of claim 2, wherein the formula to determine the payment (P) to be deposited by the participatingbusiness for the issuance of universal complementary digital currency is:

P=EM x (total outstanding loyalty and incentive reward program units).

8. The non-transitory computer-readable medium of claim 2, wherein the formula to determine the universal complementary digital currency'sexchange rate (ER) to a national currency is: ER= 1: (UCDC value/MP).

9. The non-transitory computer-readable medium of claim 2, wherein the formula to determine the G rate for universal complementary digital currencygenerated for outstanding loyalty and incentive reward programs is: G= (UCDC value x EM)/MP.

10. The non-transitory computer-readable medium of claim 9, wherein the software instructions further cause the processor to determine a floating G

rate for the universal complementary digital currency, by performing the steps of determining a consumer price index (CPI) of each country issuing universal complementary digital currency, and setting a floating G rate based on the country's CPI.

11. The non-transitory computer-readable medium of claim 2, wherein the software instructions further cause the processor to determine whether a participating business qualifies as premium member, by executing the step of determiningwhether the participating business has deposited payment in the universal complementarydigital currency reserve fund, prior to generating a universal complementary digital currency for loyalty and incentive reward programs offered by the participating business.

12. The non-transitory computer-readable medium of claim 11, wherein the software instructions further cause the processor to provide premium members with options to buy, sell or exchange universal complimentary digital currencyby determining whether the premium members have an excess of, or lack universal complimentary digital currency, and to keep records of all transactions.

13. The non-transitory computer-readable medium of claim 11, wherein the software instructions further cause the processor to provide the reserve fundwith options to buy, sell or exchange universal complimentary digital currency by determining appreciation or depreciation of universal complimentary digital currency ona timely basis, and by establishing whether there is a need to increase or decrease circulation of universal complementary digital currency, and to keep records of all transactions.

14. The non-transitory computer-readable medium of claim 2, wherein the software instructions further cause the processor to keep record of all

transactions, by performing the steps of (a) establishing a crypto-currency public ledger; (b) establishing a centralized universal complementary digital currency system; (c) issuing universal complementary digital currency to customers of participating businesses; (d) issuing crypto-currency to customers of businesses accepting crypto- currency; (e) establishing a conversion system to convert loyalty and incentive rewardprograms into crypto-currency or universal complementary digital currency; and (f) providing transaction reports.

15. The non-transitory computer-readable medium of claim 2, wherein the loyalty and incentive reward programs comprise one or more of frequent flyer miles, complimentary food and beverage, complimentary hotelstays, complimentary airline tickets, free services, free merchandise, reward points, and discount coupons.