Documentation of the Research paper

Introduction:

Loyalty reward programs represent the strategic investments for all type of organisations. They play a crucial role in companies success as customer loyalty and engagement can make or break companies. According to the industry benchmark COLLOQUY Loyalty Census, enrollment in loyalty programs across various industries in the US grew by 20 percent to 3.32 billion in 2015 from 2.65 billion in just three years.

Issues faced by Loyalty programs:

Amid the growth of the loyalty programs, these programs are not realising full potential due to account inactivity, low redemption rates, time delays, high transaction and system management and customer acquisition costs. The main possible reasons for these inefficiencies are lack of uniform management systems and lack of adequate digitalisation across loyalty programs.

Possible solutions for the inefficiencies:

Potential solution would be to integrate programs into an interlinked loyalty network but such collaboration is not easy in an industry with inconsistent digital infrastructure and to protect their customers personally identifiable information (PII), most of the program operators will be reluctant to this solution, especially large program operators with scaled and developed management system.

Blockchain as a distributed ledger maintains records in a secure, trustless and digitally interlinked network which can eliminate a lot of inefficiencies faced by loyalty programs. This can be possible because loyalty rewards are also a type of digital currency and this can be done as any other cryptocurrency network such as Bitcoin.

Blockchain as a solution:

Blockchain has the potential to streamline the execution and administration of the programs with real time transparency resulting in cost savings. Blockchain can be deployed through social media. Digital wallets can interact with existing loyalty reward programs through smart contracts. For

programs with competitive advantage, using blockchain will be a worthy trade-off for them as they can join on their own terms, controlling how they wish their customers to interact with their reward programs and others. For small operators, an interlined network provides them an unprecedented scale.

Blockchain will allow near instantaneous and secure creation, redemption and exchange of loyalty reward points across programs, vendors and industries through a trustless environment using cryptographic proofs instead of trusted third parties and administrators. Through a rigorous online protocol, well-programmed building blocks, and smart contracts, blockchain has the capability to operate without intermediaries. The key elements of such a blockchain solution are a loyalty network platform, reward applications and loyalty tokens.

Advantages of using blockchain:

Connecting a disconnected world

Blockchain can accommodate multiple organisations loyalty programs by facilitating their interaction especially in terms of the convertibility and exchange of their points.

Digital Wallets

Digital wallet will be the point of entry into the loyalty network. Rewards will be stored in it in the form of digital signatures (digital tokens). Program providers will program their reward applications such that it connects the loyalty network and they control exactly how their customers access and redeem their rewards.

Loyalty tokens

On initiation of a loyalty transaction—issuance, redemption, or exchange—the blockchain protocol creates an algorithm-generated loyalty token, which is a base for all types of rewards, including points and this token's existence are updated on each participant's ledger and made available across the network. These records can be made accessible to permissioned users using the private blockchain.

Cost reduction

A blockchain-based loyalty rewards program should reduce system management costs with smart contracts that report secure, tracked, transparent transactions to legacy systems, reducing costs associated with errors and fraud. This reduction in costs can help in dropping the minimum points required at which customers are allowed to redeem points thereby increasing the customer participation in loyalty programs.

Ease of management

Loyalty providers decide how the user will use these rewards and from consumer perspective, their ability to access and manage the rewards are practically frictionless by giving them better control of their rewards. In a blockchain based loyalty network, adding (and dropping) partners and vendors is relatively simple and this gives customers wide opportunities for redemption of their rewards.

Making the process near real time

Rewards are sometimes not credited to customers accounts in a timely manner and one common reason for this is the lack of coordination between a loyalty rewards program issuer and the program provider. Blockchain can enable a transaction to be recorded and accessed by multiple involved parties in near real time and this helps in increasing the speed of the process.

Secure environment

Blockchain creates an immutable and time-stamped distributed database entry of every single transaction ever made, making each transaction and its record easily traceable, but also rendering them irreversible, preventing double spending, fraud, abuse, and any other type of manipulation of the transactions. All points are tokenized, which gives them unique identities that are extremely difficult to counterfeit. To access or corrupt information recorded on a blockchain, more than 51 percent of its nodes must be hacked which is nearly impossible. Customer information is also not affected as blockchain does not hold this information as this just records the transaction in it in a secure manner.

Roadmap to implement Blockchain:

Loyalty programs are a relatively low-risk way for most businesses to test the security and efficacy of a decentralised, distributed ledger solution as they are not core to those businesses' operations, but, rather, a value-added service. Yet, moving from a traditional loyalty management system to a blockchain-based network still requires making strategic choices.

Create own infrastructure versus leveraging existing infrastructure

Several technology players have threaded niche blockchain paths to particular types of business operations, particularly in financial services, by developing distributed ledger platforms on the back of a protocol that has been developed by leaders in the space, such as Ethereum. An optimal scenario would be to leverage this expertise through some type of partnership.

Permissioned versus non-permissioned blockchain

Loyalty program service providers can theoretically base their platform on either a permissioned or a non-permissioned distributed ledger. As reward points do not require mining as they are issued by the loyalty reward program providers, instead encrypted proofs by several designated agents within a defined network is sufficient. So a permissioned blockchain with smart contracts that can provide links to permissioned users to secure, proprietary databases, provides the necessary fraud proof record of transactions.

Conclusion:

Fragmented and clunky systems that depend on centralised administration requiring the coordination of multiple parties through trusted intermediaries to move processes along the value chain affects the efficiency of the loyalty reward programs. Blockchain solves this issue by taking the trust out of the process.

In a distributed ledger solution, all of the loyalty rewards program participating agents operate in a contiguous network without intermediaries and without compromising privacy. By design, blockchain provides streamline execution and administration of loyalty programs and gives all participants near real time transparency and results in significant future cost savings.

****