Blockchain Case Study
Customer Loyalty Programs

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Today we are presenting the research that was carried out on customer loyalty programs and blockchain technology trends. The research also includes how blockchain can improve current customer loyalty programs.

Blockchain in Customer Loyalty Programs

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These are the eight topics that will be covered in the research.

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Current market trends in loyalty programs

1. Current rebate/cashback/reward programs work in silos

2. Lack of integration of different loyalty networks

3. Low customer participation leads to low customer retention

4. Programs owners are not proactive in promoting rewards

Current loyalty programs are centralised in nature. Centralisation leads to single point of failure and abuse of trust. Due to the centralised nature, loyalty programs fail because of these four common trends. Every company develop their own loyalty network with their own digital infrastructure and are unwilling to share proprietary information on their infrastructure and valuable customer information. Sharing of customer information are also govern by law, e.g PDPA in Singapore. Customers need to join different loyalty networks to get points or exchange for perks exclusive only in that network. Customers will lose interest in participation after getting those exclusive points or perks and leave the program. Program owners are then discouraged to promote more rewards.

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Limitations in existing loyalty programs

1. Programs unwilling to collaborate and share information to protect proprietary competitive information.

2. Integration of different loyalty networks incurs costs in implementation and maintenance and out run the benefits.

3. Lack of program maintenance by program providers

4. Inconsistency in rewards, processes to receive rewards and processes to redeem rewards deters customer participation.

5. Limited channels to redeem rewards also affect customer participation.

6. Lack of peer to peer exchange of reward points

Trends in slide 3 causes these limitations

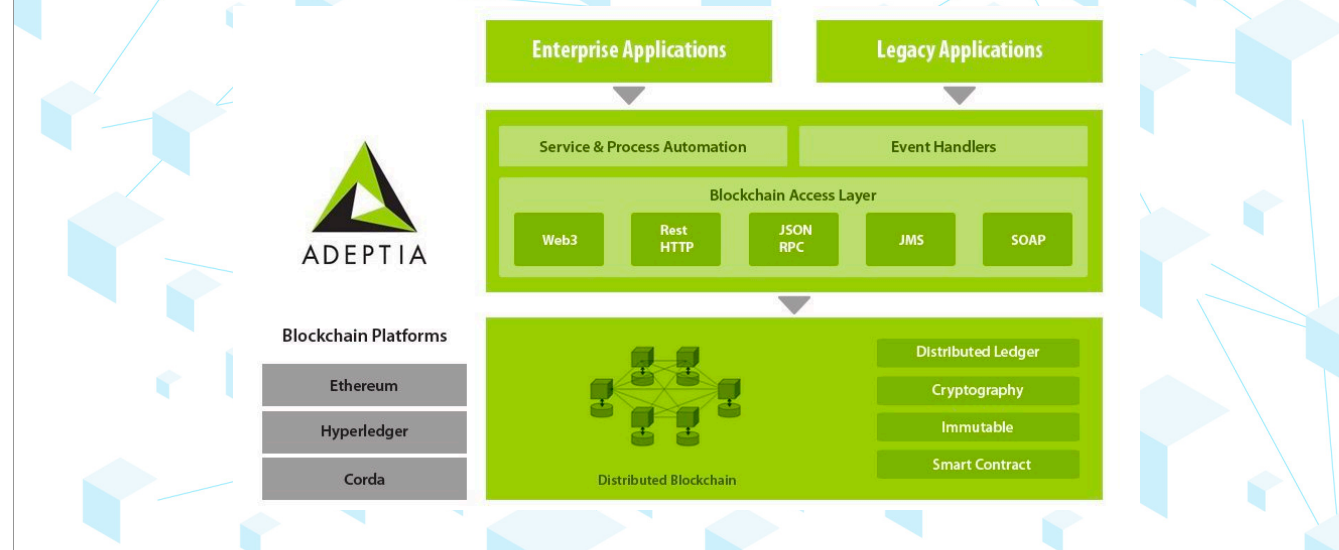## Blockchain in Customer Loyalty Programs

Integration of blockchain technology into loyalty programs

1. Decentralisation

2. Transparency and Trust

3. Security

4. Smart Contracts

5. Immutable ledger

6. Tokenisation

7. Cross-border and peer to peer payments

Blockchain introduces these advantages into the loyalty programs. Point 6 and 7 shall be most beneficial to customers in the loyalty network. Loyalty points can be tokenised and used for cross-border and peer to peer payments. Blockchain by nature emphasise security and privacy so is ideal in transactions of loyalty points.
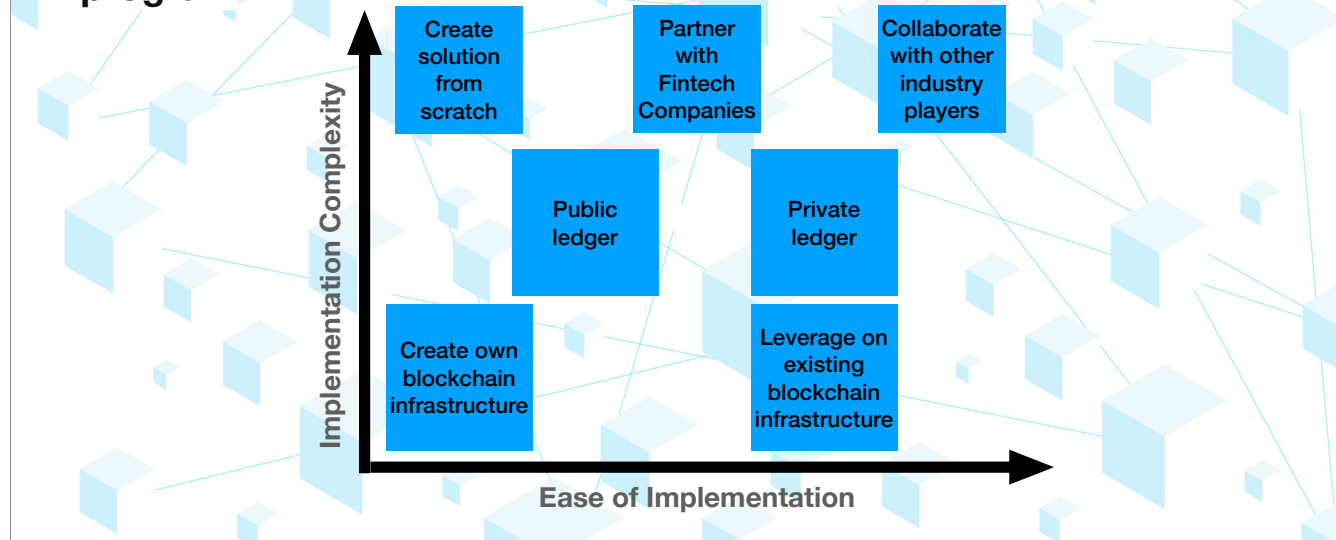
Companies planning to integrate blockchain into their loyalty programs need to understand the blockchain business architecture. This architecture can be separated into three layers. The first or bottom layer is the blockchain platform where the distributed ledger and the loyalty points smart contracts are. The second or middle layer are the middleware programs between the user interface and the blockchain platform and assist communication between the top and bottom layers. The third or top layer is the user interface that interacts with the customer. They could be a mobile app or a cloud app running in a web browser.

This slide shows the strategies for implementing a blockchain-based loyalty program. On the horizontal axis is the ease of implementation, left being most difficult and easier towards the right. On the vertical axis is the implementation complexity, bottom being the least complex and more complex moving upwards. Leveraging on existing blockchain infrastructure for a public ledger is what we will be implementing in our loyalty program.

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Detailed plan for implementing the smart loyalty program on the blockchain

1. Conduct feasibility studies on current trends and use cases

2. Use case PoC

3. Develop an implementation strategy

4. Evaluate the technical and functional requirements

5. Develop program ROI metrics

6. Develop the program in phases with the Agile methodology

7. Pilot roll out to a selective group of members before fully go live

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Features and Functionalities in the Smart Contract

1. Customers can create an account and receive an initial number of loyalty points.

2. Customers can earn additional loyalty points by making purchases.

3. Customers can check their loyalty point balance.

4. Customers can redeem loyalty points for rewards.

5. The contract owner (the retail company) can add rewards to the program and manage customer accounts.

6. Implement appropriate security measures to prevent fraud and ensure the integrity of loyalty point

transactions.

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Technical capabilities and infrastructure evaluation needed for deploying the smart contract

1. Familiar with the fundamentals of blockchain technology.

2. Understand key differences between centralised and decentralised applications.

3. Familiar with the available blockchain platforms in the market and assess which platform best suits the program

4. Knowledge of a smart contract programming language used to write smart contracts on the selected blockchain platform.

5. Familiar with blockchain terminologies.

6. Ensure that a blockchain wallet is set up.

7. Familiar with some testnet faucet to cover the fees for deploying your smart contract on the testnet.

8. A suitable text editor or an integrated development environment that allows developers to write and test smart contracts.

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1. Distributed ledger, private, public, consensus mechanisms, immutability.
2. Decentralized consensus, peer-to-peer networks, significance of smart contracts.
3. Hyperledger Fabric, Ethereum Enterprise, R3 Corda, Ripple are examples of private blockchain platforms for deploying smart contracts
4. For example Solidity, the programming language used to write smart contracts on the Ethereum Blockchain.
5. For example wallets, gas, block explorers, PoS, PoW, addresses etc.
6. For example Metamask
7. For example Sepolia testnet faucet here to enable us to cover the gas fees for deploying our smart contract on the Ethereum testnet.
8. For example REMIX, a development environment that allows you to write and test smart contracts. It provides a user-friendly interface and a range of features to facilitate the development and deployment of smart contracts.

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Clear objectives and metrics for measuring the program's success

1. Increase in points redemption.

2. Increase in membership.

3. Increase in participating merchants.

4. Allow peer to peer trading of points

5. Improvement in customer experience and satisfaction via positive reviews.

1. More customer participation
2. More customer sign up the program
3. Merchants want to tap on the growing pool of customers in the program
4. Customers can exchange points with each other without going through the program owner

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Credits

1. https://www2.deloitte.com/content/dam/Deloitte/us/Documents/financial-services/us-fsi-making-blockchain-real-for-loyalty-rewards-programs.pdf

2. https://www.vecteezy.com/free-vector/blockchain-background

3. https://connect.comptia.org/content/infographic/7-phases-of-blockchain-implementation

4. https://medium.com/@ajaotosinserah/a-practical-guide-for-developers-to-deploying-their-first-smart-contract-on-ethereum-3378f190600d

5. https://www.adeptia.com/blog/integrating-blockchain-technology

Thank you

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