

Appendix



Prototype and UI Design

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[Our Web Prototype](#)

[Landing Page \(Screenshot of Web Prototype\)](#)

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Full Deck

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Smart Contract Deployed (On Ropsten Testnet)



Smart Contract Address

0x8dCEDE30c2a8bD175654b67e010F898061fF0072



Transactions Record – Etherscan

<https://ropsten.etherscan.io/address/0x8dCEDE30c2a8bD175654b67e010F898061fF0072>

All data and records are on Blockchain (except for Product Images)

Testing Accounts

12-word Seed Phrase

churn drift kind explain jeans weird give pipe draw style speak vivid

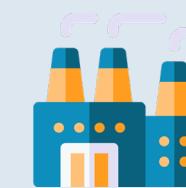
⚠️ This account is created for demonstration purposes only, for your own safety, please DO NOT use it for other purposes.

0xDE37A3dce5249C31b12e45F46988fc30b50e19FD

0xEfA8901C15007db0b19B17cEF667120397143239

0x6c4d9360e36B1a59daCF7FB9d71AaFB68b9657b8

Manufacturer



0xDE37A3dce5249C31b12e45F46988fc30b50e19FD

Retailer



0xEfA8901C15007db0b19B17cEF667120397143239

Consumer



0x6c4d9360e36B1a59daCF7FB9d71AaFB68b9657b8

Available Functions

Add New Product

Add Sales Record

Add Comment

Add Procure Record

View Sales Data

View Comments

View Products

View Comments

View Spending History

View Retailer's Inventory Level

Webpage Prototype



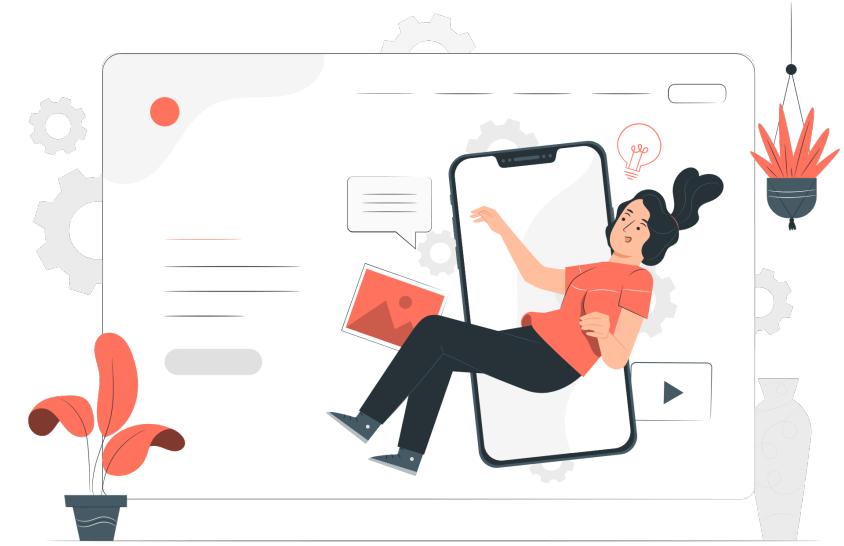
Visit Our Web Prototype: <http://tinkwaiki.pythonanywhere.com/SharpBargain/index/>



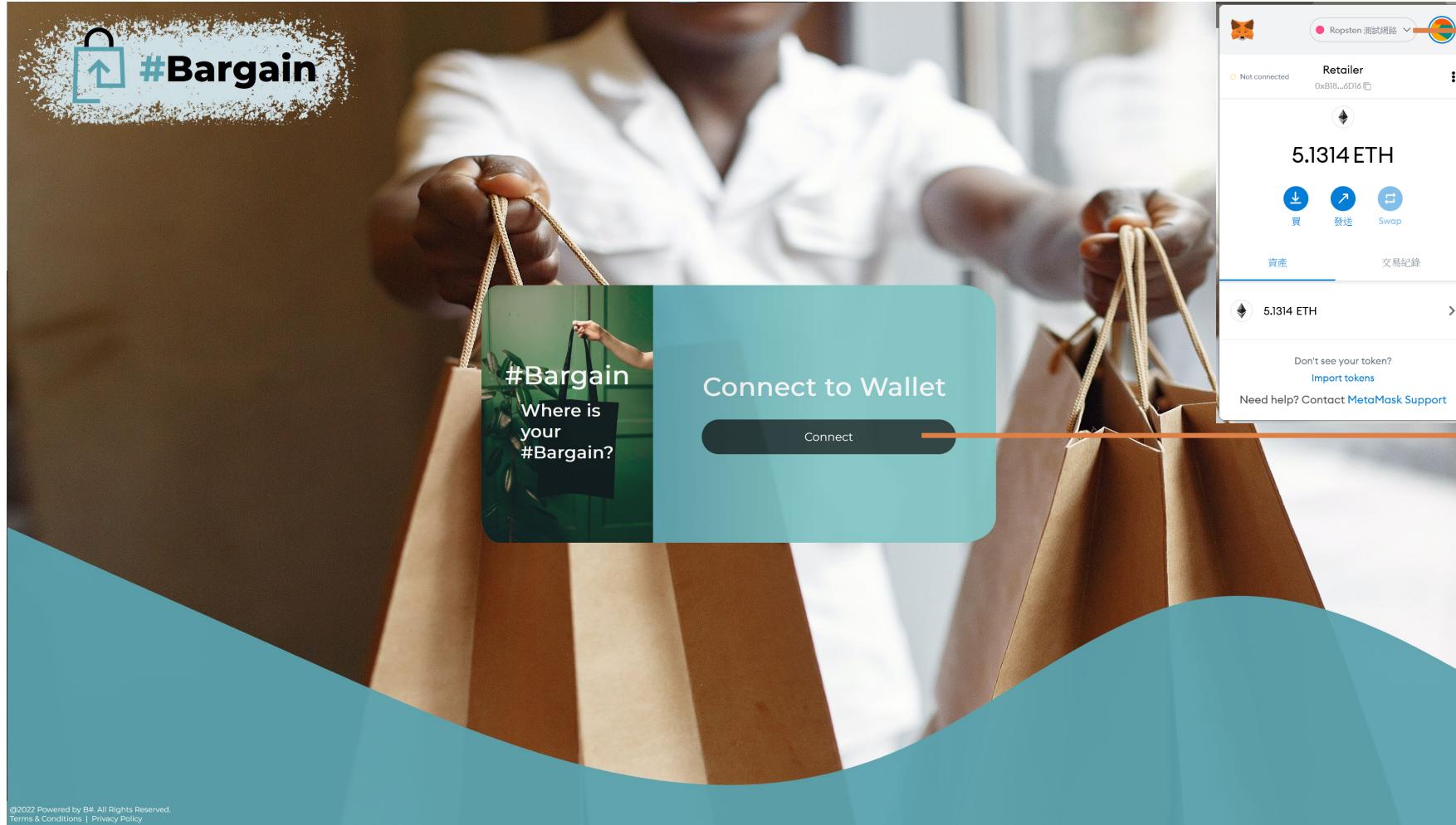
This website is currently designed for Desktop View only.
The mobile version will be developed in Phase Two.



For MetaMask Test Accounts
set up, please refer to the
tutorial on README.md



Landing Page



Network

- The Web is on Ropsten Test Network currently for testing.
- All data and records are on Blockchain (except for Product Images)



Connect to Wallet

- Current available wallet: MetaMask



Manufacturer's Dashboard



#Bargain

- Home
- Product Data Input
- Wholesale Sale Input
- View Data
- Logout

Critical Data

You total made...

50

products.

The best item is ...

Yellow T-shirt

You have designed ...

3

product type.

Best Selling Item

- Manufacturer's Production Planning
- May need to produce more of this product (for Make-to-Stock Production)

No. of Product Types Designed

- Production Variety

Quantity Produced

- Keep track of production efficiency

Customisable Data Presentation

- Further Development
- Charts and Graphs
- Any other relevant information

Create New Product Entries



Product Entry System

The screenshot shows a user interface for a 'Product Entry System'. On the left is a sidebar with a logo, navigation links (Home, Product Data Input, Wholesale Sale Input, View Data, Logout), and a search bar. The main area has a title 'Product Entry System' and two forms. The top form contains fields for 'Product Type', 'Wholesale Price', and 'Quantity', each with a text input field and a 'Submit' button. A large black arrow points from this form down to a second, larger form below it. This second form also has fields for 'Product Type', 'Wholesale Price', and 'Quantity', with sample values 'White T-shirt', '30', and '20'. It includes a 'Prod img:' field with a placeholder '瀏覽... 未選擇檔案.' and a 'Submit' button. A 'Success!' message is displayed near the bottom right of this form.

Product Type

- Product Description



Wholesale Price

- Manufacturer's Price
- Will not disclose to Consumer/other parties.



Quantity

- Total Quantity Produced in this Batch



Add Product Image

- After data entry to the blockchain, Manufacturers can upload product image as reference (on database)



Commit Purchase Order



#Bargain

Home Product Data Input Wholesale Sale Input View Data Logout

Wholesale Sale Entry System

Retailer Address
Product Type
Quantity

Submit

Retailer Address

- Identify who to sell to



Product Type

- Product Description



Quantity

- Quantity Sold to Retailer



Product Catalogue



#Bargain

- Home
- Product Data Input
- Wholesale Sale Input
- View Data**
- Logout

View Data



Product Type: Red T-shirt
In Stock: 10
Total Made: 20
Sell Rate: 50.0%

[View Data](#)

Product Type: Yellow T-shirt
In Stock: 5
Total Made: 20
Sell Rate: 75.0%

[View Data](#)

Product Type: Sport Shoes White
In Stock: 5
Total Made: 10
Sell Rate: 50.0%

Product Summary

- Manufacturer's Performance
- Inventory Turnover



Button: View Details



Details of a Specific Product



#Bargain

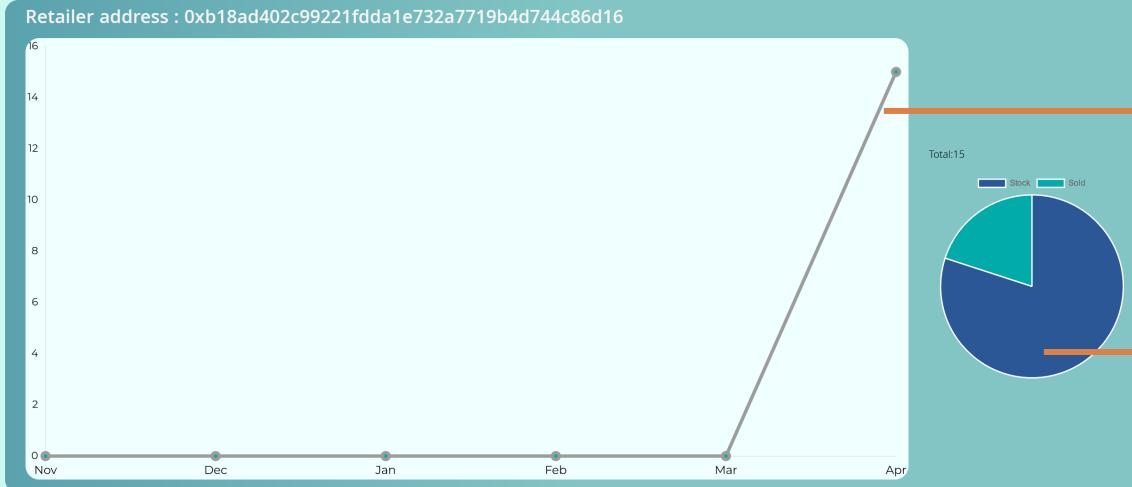
- [Home](#)
- [Product Data Input](#)
- [Wholesale Sale Input](#)
- [View Data](#)
- [Logout](#)

Yellow T-shirt

Overview



Condition of Stock



Product Statuses

- In Manufacturer Stock
- In Retailer Stock
- Sold to Customer



Retailer Inventory Level

- For manufacturer auto replenishment



Product Sold VS In Stock

- Retailer's Inventory Turnover Rate



Retailer's Dashboard



#Bargain

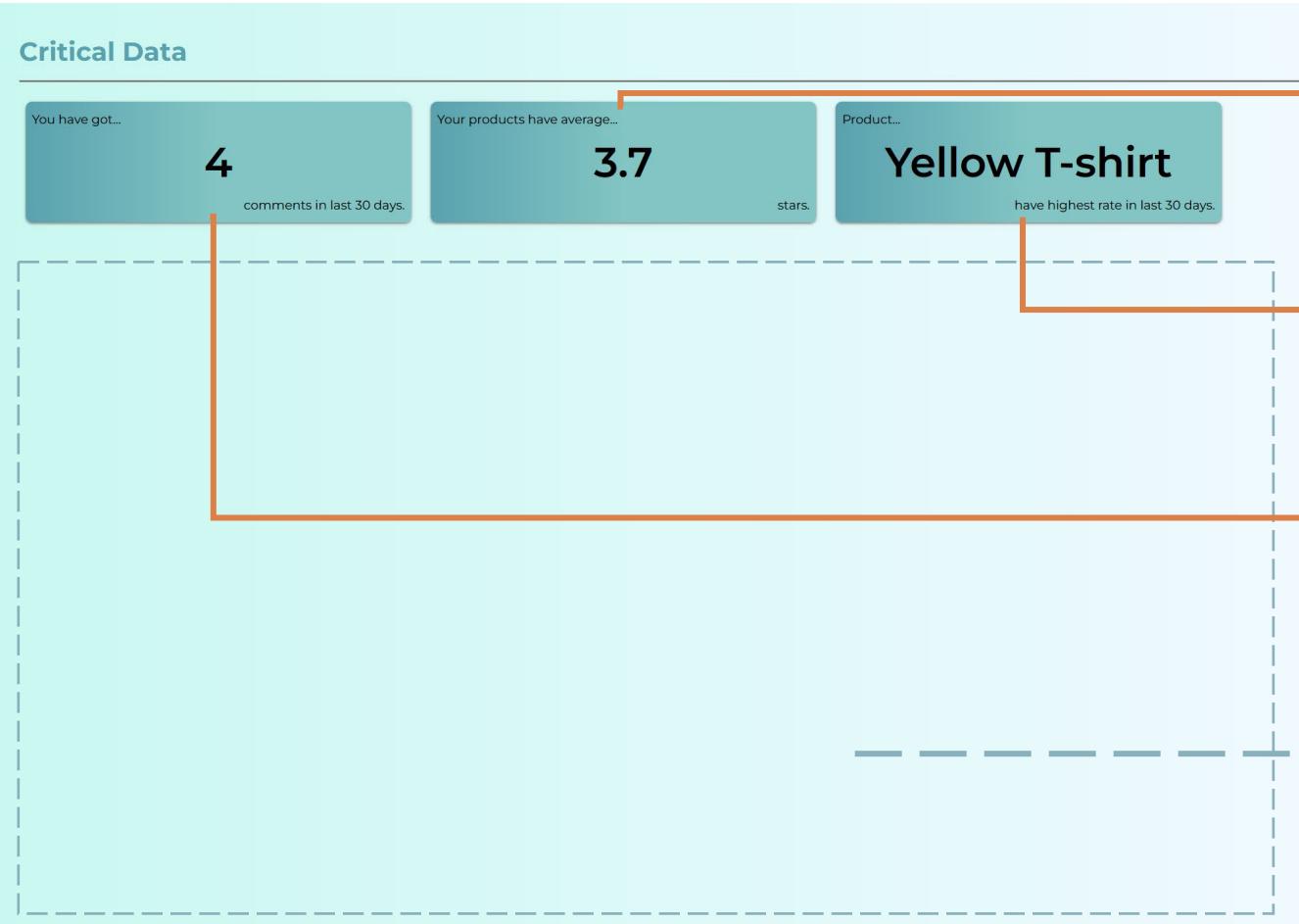
Home
POS System
View Data
Logout

Critical Data

You have got... 4 comments in last 30 days.

Your products have average... 3.7 stars.

Product... Yellow T-shirt have highest rate in last 30 days.



Average Rating

- Retailer's KPI

Best Rating Product

- Popular Product

New Comments

- Reminder for checking comments

Customisable Data Presentation

- Further Development
- Charts and Graphs
- Any other relevant information

Point-of-Sales System



The screenshot shows a mobile application interface for a Point-of-Sales system. At the top, there is a header bar with the text '#Bargain' and some icons. Below the header, the screen is divided into two main sections.

Left Section (Customer Address):

- Customer Address: 0xF5EB01007e46c3296087063a155b5F68d9D72157
- Product ID: Add (button)

Middle Section (Carts):

Carts

| # | Product ID | Product Type | Price | Remove |
|---|------------|-------------------|-------|--------|
| 1 | 49 | Sport Shoes White | \$168 | X |
| 0 | 23 | Yellow T-shirt | \$84 | X |

Right Section (Payment):

Total: \$252

Payment

300
Change \$48

Confirm

Customer(Consumer) Address

- Record WHO bought the products
- Cashier scans Consumer's Public Key found inside MetaMask App



0x6c4d9360e36B1a59daC7FB9d71Aa
FB68b9657b8

Payment Method

- By Cash/Octopus Card/ Credit Card
- Change provided for Cash Payment



Purchase Products

- Simulate As-Is Point-of-Sales System



Products Procured



#Bargain

- Home
- POS System
- View Data**
- Logout

View Data



Product Type: Sport Shoes White
Manufacturer Address: 0xcEB45891F0b9761D9d7D950710aA5f9d785F87d6



Product Type: Red T-shirt
Manufacturer Address: 0xcEB45891F0b9761D9d7D950710aA5f9d785F87d6



Product Type: Yellow T-shirt
Manufacturer Address: 0xcEB45891F0b9761D9d7D950710aA5f9d785F87d6

All Procurement Record

- All products that Retailers sourced
- Manufacturer's Address Indicates where the products sourced from



Contact Suppliers

- Further Development



View Comments



#Bargain

- Home
- POS System
- View Data**
- Logout

Comment for Red T-shirt

Purchase Date: 4/4/2022

Very Good



Purchase Date: 4/4/2022

Poor Quality!



Ratings and Comments from Individual Consumer

- Consumer's Genuine Feedback
- Real-time Updated



Consumer's Dashboard



#Bargain

- Home
- History
- View
- Comment
- Logout

Shopping Habits (In last 7 days)

You have bought... 6 products.

You have spent... \$532.0 HKD

You have ... 2 products to be commented.

History (Recent Purchase)

Product Type: Red T-shirt |
Product ID: 10
Purchase Date: 4/4/2022
Price: \$ 70

Product Type: Red T-shirt |
Product ID: 11
Purchase Date: 4/4/2022
Price: \$ 70

Timely Spending Summary

- Consumer's reminder



Recent Purchases

- Purchase Record



Lifetime Purchase History



#Bargain

Home
History
View
Comment
Logout

Full History

Product Type: Red T-shirt
Product ID: 10
Purchase Date: 4/4/2022
Price: \$ 70

Product Type: Red T-shirt
Product ID: 11
Purchase Date: 4/4/2022
Price: \$ 70

Product Type: Yellow T-shirt
Product ID: 25
Purchase Date: 4/4/2022
Price: \$ 84

All Purchase Records

- Consumers can view what they have purchased
- Better Spending Management



View Others Comments



View

Search by ID Search



Product Type: Sport Shoes White
Purchase Date: 5/4/2022
Comment: I can run faster with this.

★★★★★

Comment(s)

- Consumers can view other comments before purchasing



Add Rating and Comment for Purchased Product



#Bargain

- Home
- History
- View
- Comment**
- Logout

Comment System

Search by ID

Search

Status: Get product data! Please comment below!



Product Type: Red T-shirt
Product ID: 19
Purchase Date: 4/4/2022
Price: \$ 70

Comment Section



Product Summary

- Consumer can refer to which product he/she is commenting on

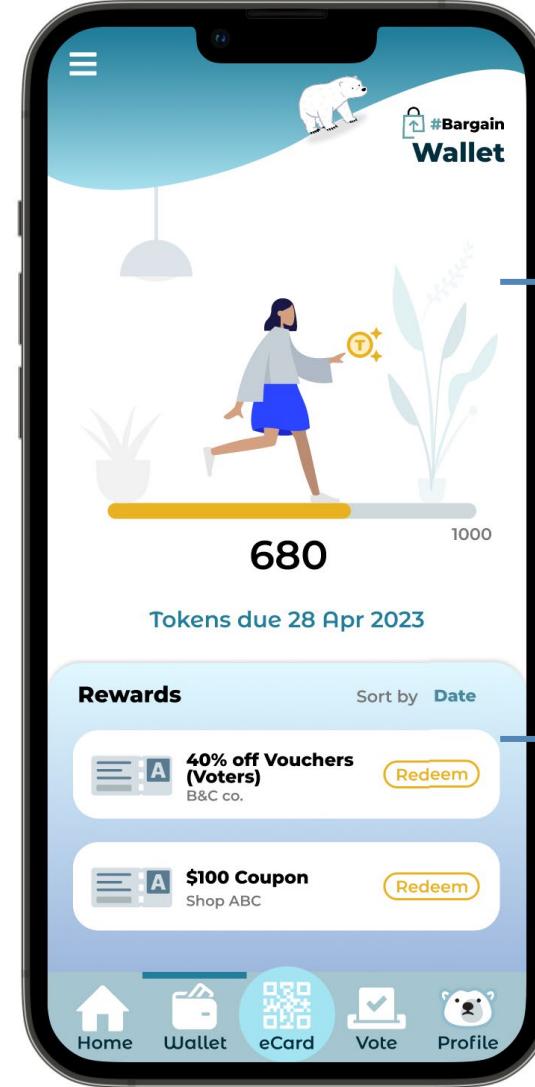


Rating and Comment

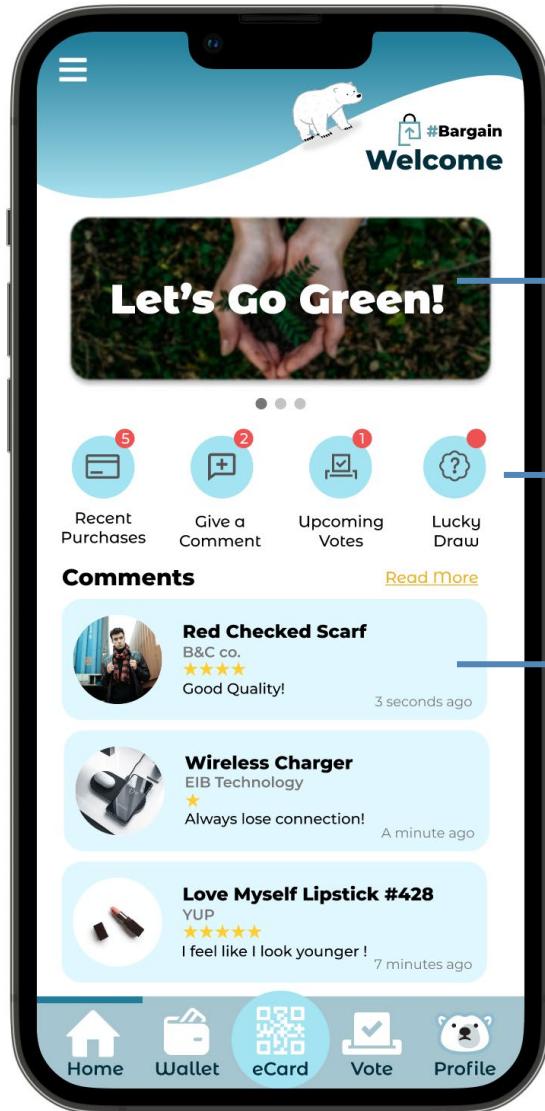
- Consumer gives his/her own rating and comments to the above product.



Mobile App – Customer Loyalty System (Phase 2)



Mobile App – Customer Loyalty System (Phase 2)

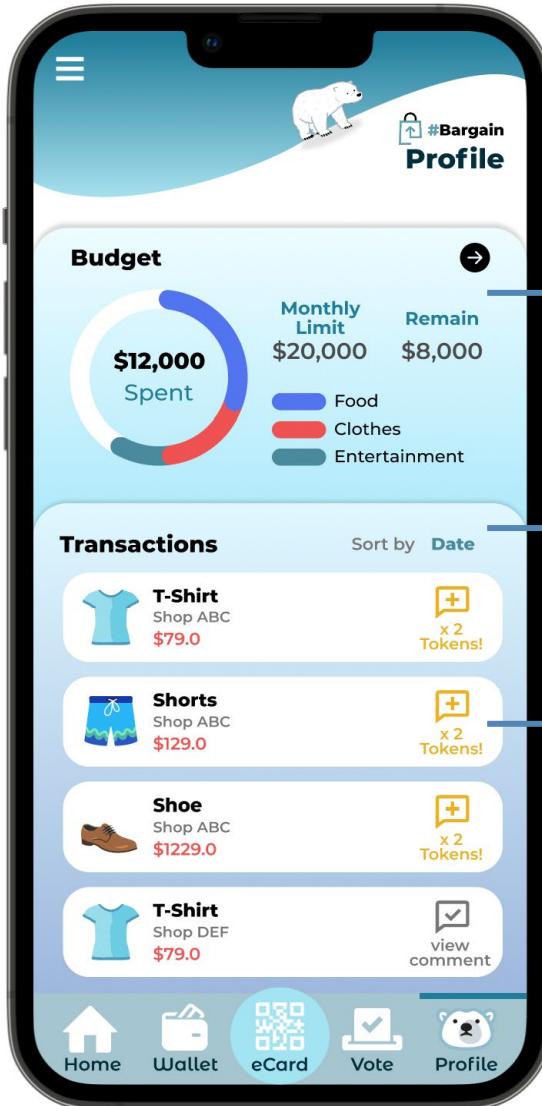


Home Tab

- Promotion Banner
- Potential Ad Section
- Shortcut Keys



Comments from other Consumers

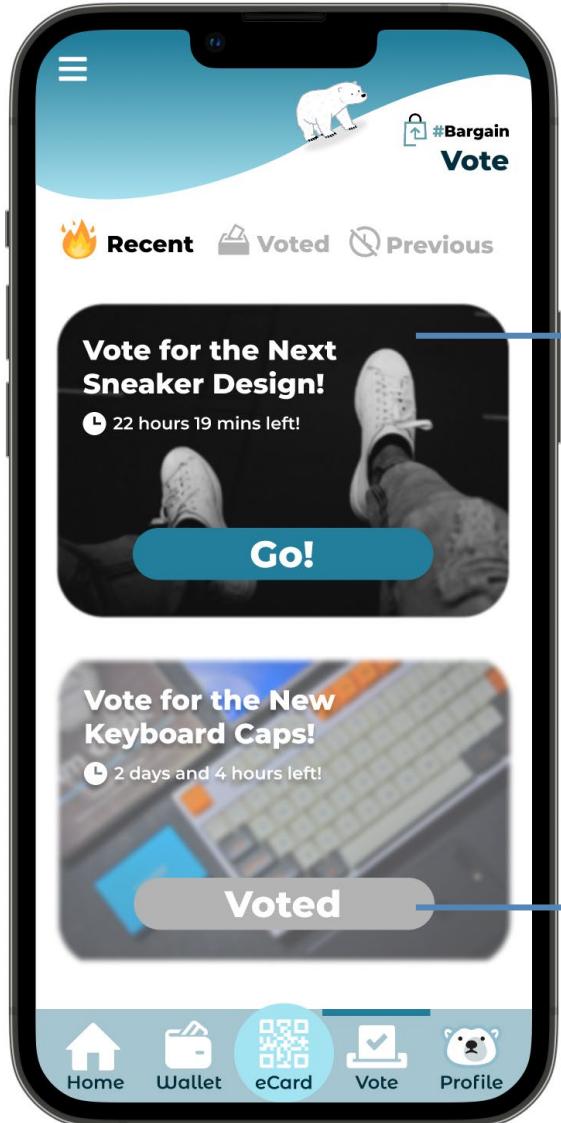


Profile Tab

- Budget Planning (Integrate with the Spending Summary)
- Transactions Details
- Rewards for writing comments
- Token issuing



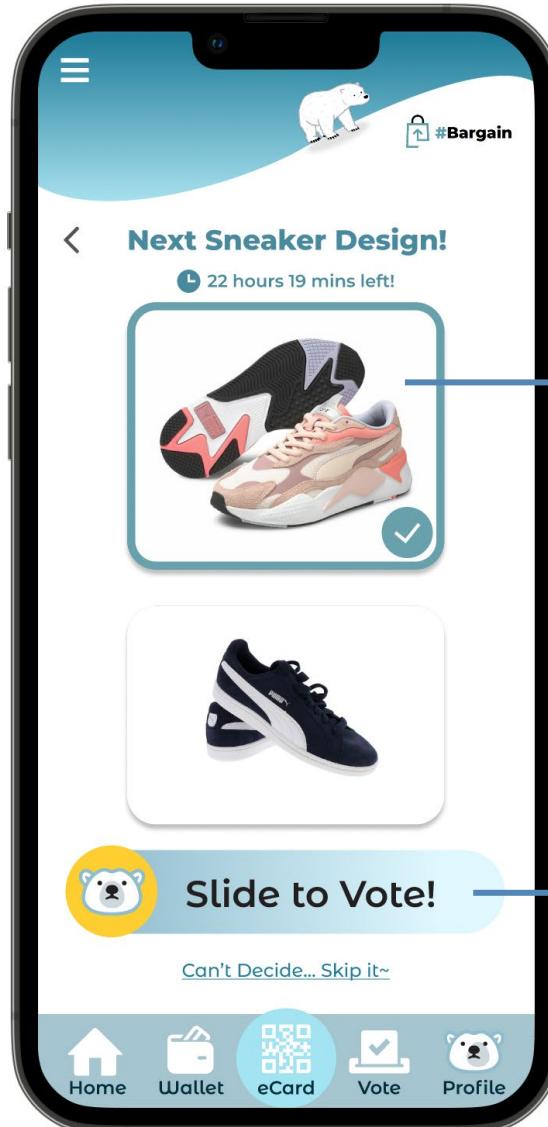
Mobile App – Customer Loyalty System (Phase 2)



Vote Tab

- Recent Voting Events Summary
- Countdown Feature

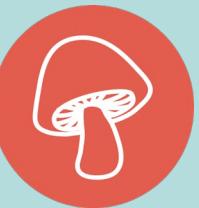
- Button Disabled for Joined/Outdated Voting Events



Voting Event

- Chosen Candidate

- Confirmation of the designated choice
- More Tokens Earned = Higher Rating in the Voting Events



#Bargain

REINVENTS SHOPPING EXPERIENCE

Team B#



Problem Identification

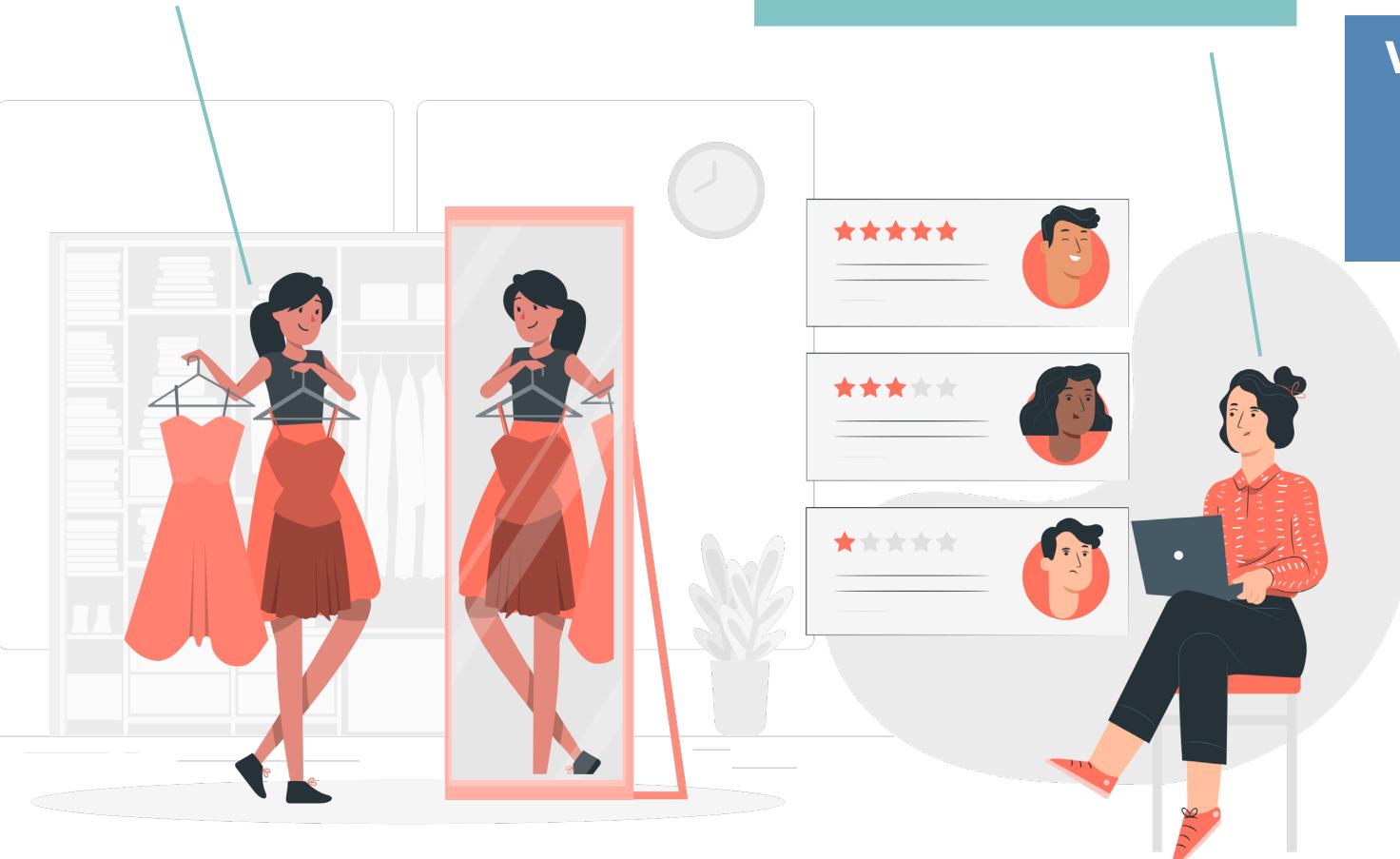


Do I have a similar dress at home?

Are Online Reviews reliable?

What kind of products should we launch in the next season?

What is the demand from my downstream customers? How much should we produce?





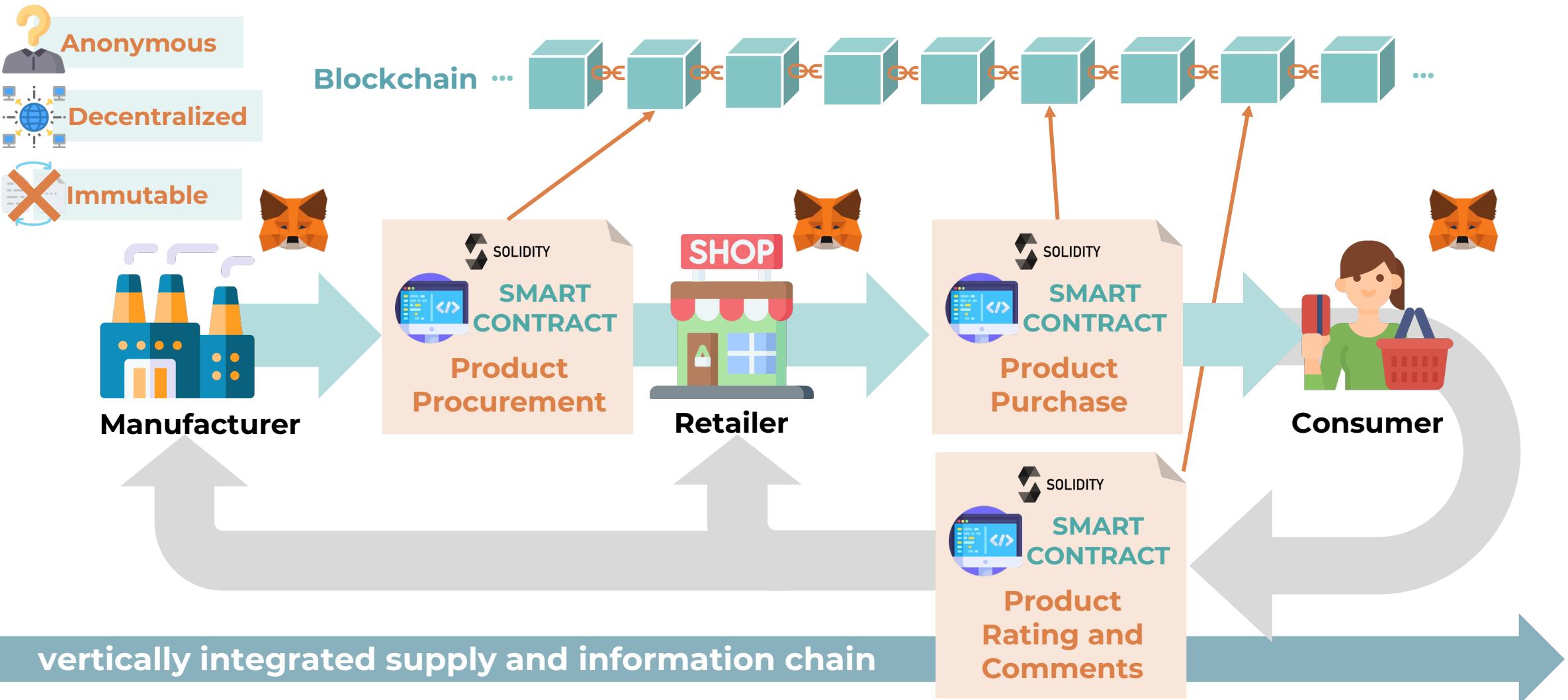
*Web 3.0
initiated
Smart
Shopping
Experience*



Solution Overview



#Bargain is a Decentralised Supply Chain Management Application (SCM DApp)



1. Consumer Records Purchase History at Ease



3-step Approach



Our Solution



2. Online Reviews become Reliable



Online Reviews

Why are they important?

93%

of consumers say that online reviews influenced their purchase decisions.*

Impacts on fake reviews

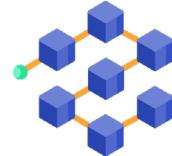
 Decrease reviews informativeness


 Lose Brand Credibility

After-sale Product Rating Mechanism



Consumer can only make 1 Comment on each product they purchased



All comments are recorded on Blockchain



Ensure Comments from REAL Consumers



Records are Immutable on Blockchain



Prevent counterfeit comments or “review spam”



Prohibit malicious modification of reviews



Reliable Online Reviews

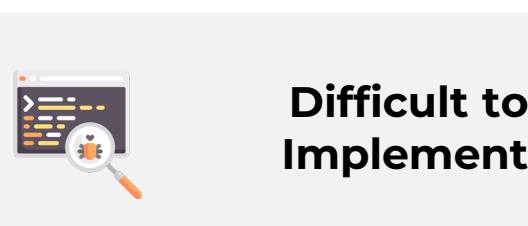
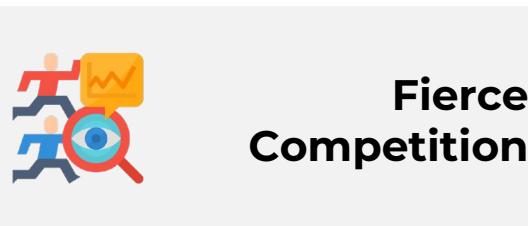


Improve future shopping experience

3. Business Data Disclosure minimise Information Silos



Current Obstacles



Low Incentive to Share

Supply Chain and Information Flow



Our Solution



Full Control on own data

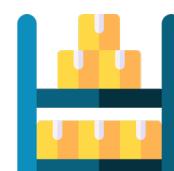


Data Security

Incentive to Share



Better Demand Forecasts

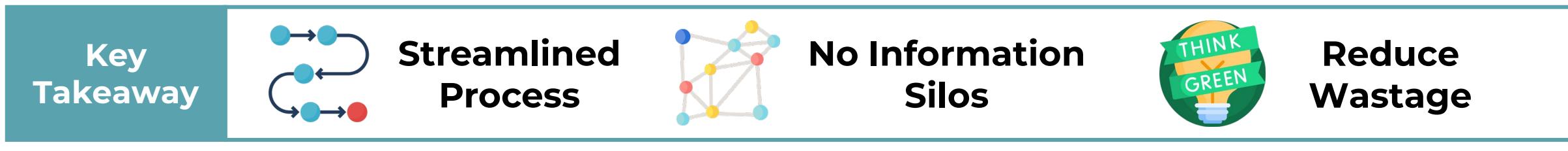
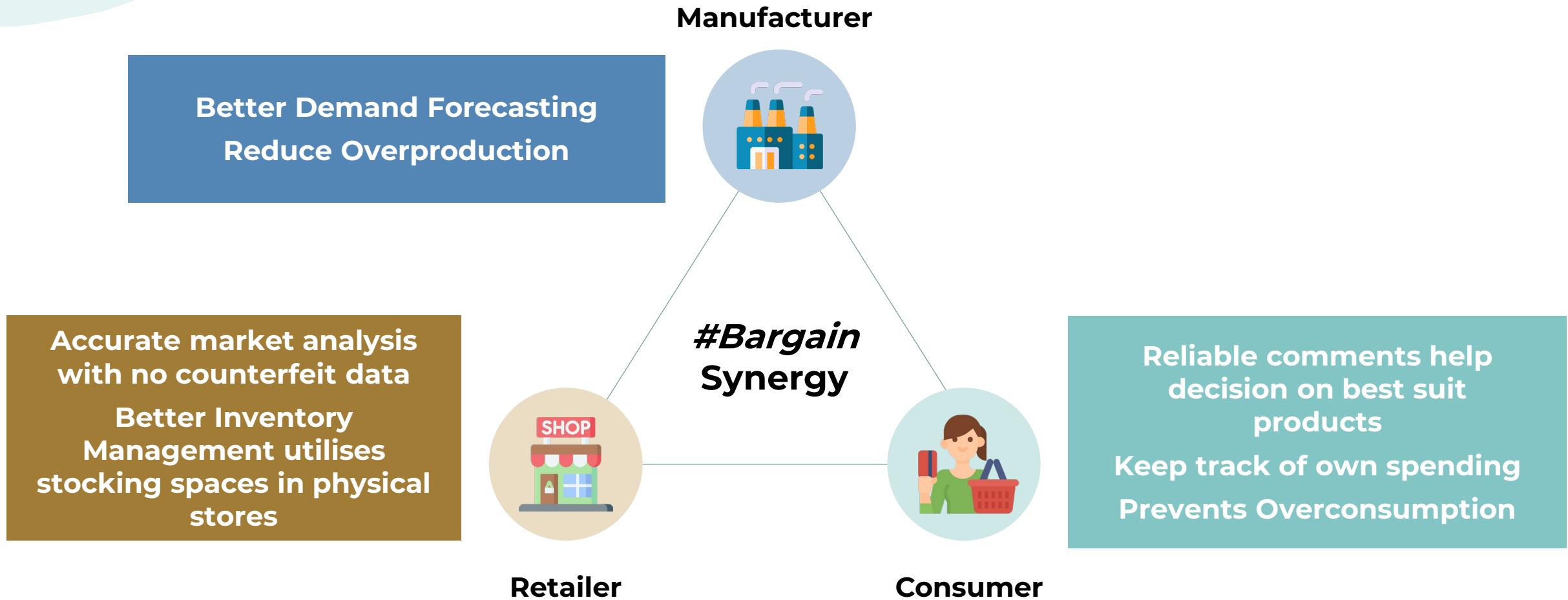


Capacity Utilisation



Production Sustainability

Outcome



Market Potential – Prevalence of Web3.0



MetaMask's Popularity



MetaMask is a crypto wallet & gateway to blockchain apps

30M*

Monthly Active Users on



METAMASK

*in January 2022

Apply Pay Integration



from 29 March 2022

The new version of MetaMask app on iOS integrates Apple Pay to pay for crypto

High Market Potential in developing Decentralised Applications.

* Roberts, J. J. (2022, March 29). Ethereum Wallet MetaMask passes 30m users, plans Dao and Token. Decrypt. Retrieved April 4, 2022, from <https://decrypt.co/95039/metamask-consensys-30-million-users>

^Thomas, D., James, R. (2022, March 30). iPhone users score Apple pay integration with popular crypto wallet MetaMask. BeInCrypto. Retrieved April 4, 2022, from <https://beincrypto.com/iphone-users-score-apple-pay-integration-with-popular-crypto-wallet-metamask/>

Market Competition



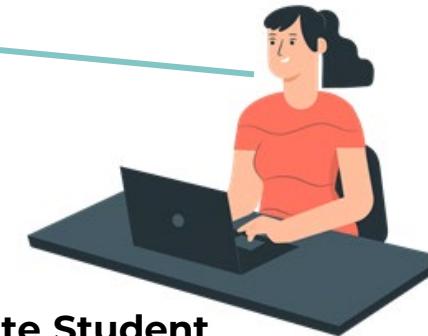
| | #Bargain | SAP IBP | ORACLE NETSUITE | 用友 yonyou | Competitive Advantages |
|------------------------------|---|---|---|---|---|
| External Partners Engagement | High (With Information Sharing and Consumer Feedback Features) | Mid (Collaboration with external partners) | Mid (Collaboration with supply chain partners) | Low (only Supplier Management) |  End-to-end Transparency |
| External Data Reliability | High (Tamper-free transactions on Blockchain) | Depends on Data Provided by the Partners | N/A |  Consumer Engagement | |
| Data Privacy and Ownership | Data fully owned by Users | Data owned by Users, having trust on the system vendors who are Centralised Parties | |  Connected Community | |

Reviews from Target Users



Consumers and Individuals

I need this application to manage my spending! Also, I love the user-only comments section!



(21, female)
Undergraduate Student



(39, male)
Office worker

I struggle less when choosing clothes with reference to reliable ratings.



(49, female)
Housewife

The purchase record can help me to price out the goods I have bought before. Good money saver!

Interview with Mr. Luke Ng, Esquel's Representative

Current Common Production Practice



On-demand
Production
(Make-to-Order)



Smaller, more frequent
batch replenishment

Obstacles

Inaccurate Demand Forecasts

Difficult Materials Planning

Disclose Inventory Level to upstream partners

To Manufacturer/ Supplier



Real-time
Production
Planning

To Retailer



Save storage
spaces and
holding costs in
the retail stores

Revenue Model



Usage Model

0.5%

per transaction

Recommended for start-ups, small-scale businesses

Maximum \$0.5/transaction



Scales Cost



Pay only for what is used



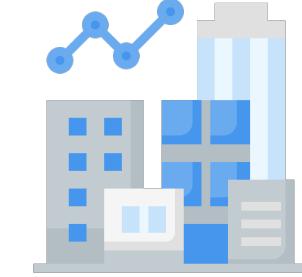
Reduce Barrier to Try

Subscription Model

\$25,000

per month

Recommended for large-scale businesses, corporates



Predictable Cost

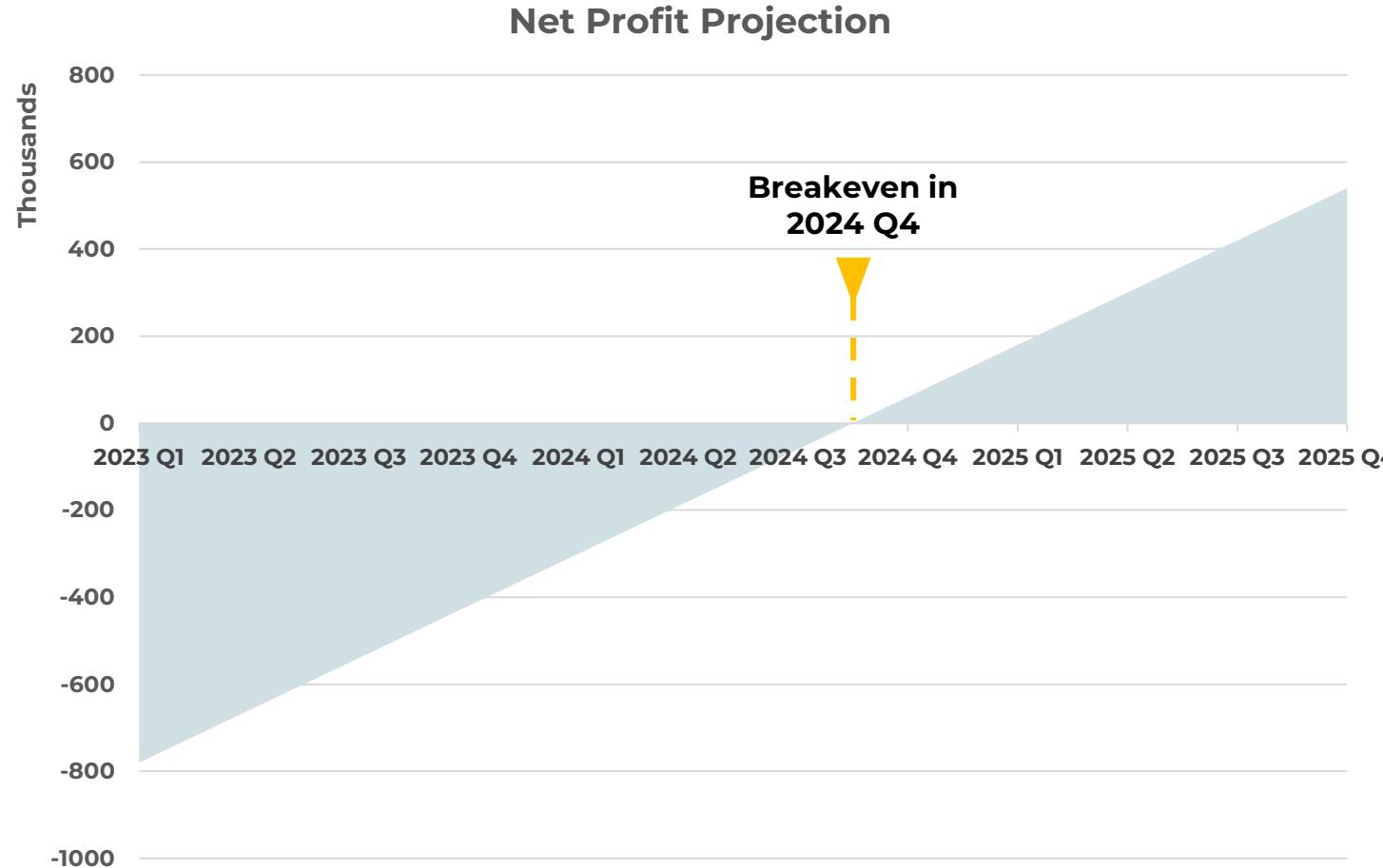


Spreads cost over time



Buy a plan that fits

Financials



Key assumptions

| | |
|-----------------------------|----------------|
| Predicted Revenue | 300k per month |
| Predicted Operational Costs | 180k per month |
| Predicted Set-up Cost | 900k |

#Bargain is expected to breakeven in 2 years

Financials



Predicted Revenue

| | HK\$ |
|---------------------------|---------|
| Subscription Revenue | 250,000 |
| Per-Transactional Revenue | 50,000 |
| Total Monthly Revenue | 300,000 |

Predicted Cost (Operation Costs)

| | HK\$ |
|--------------------|---------|
| Maintenance Cost | 120,000 |
| Marketing | 60,000 |
| Total Monthly Cost | 180,000 |

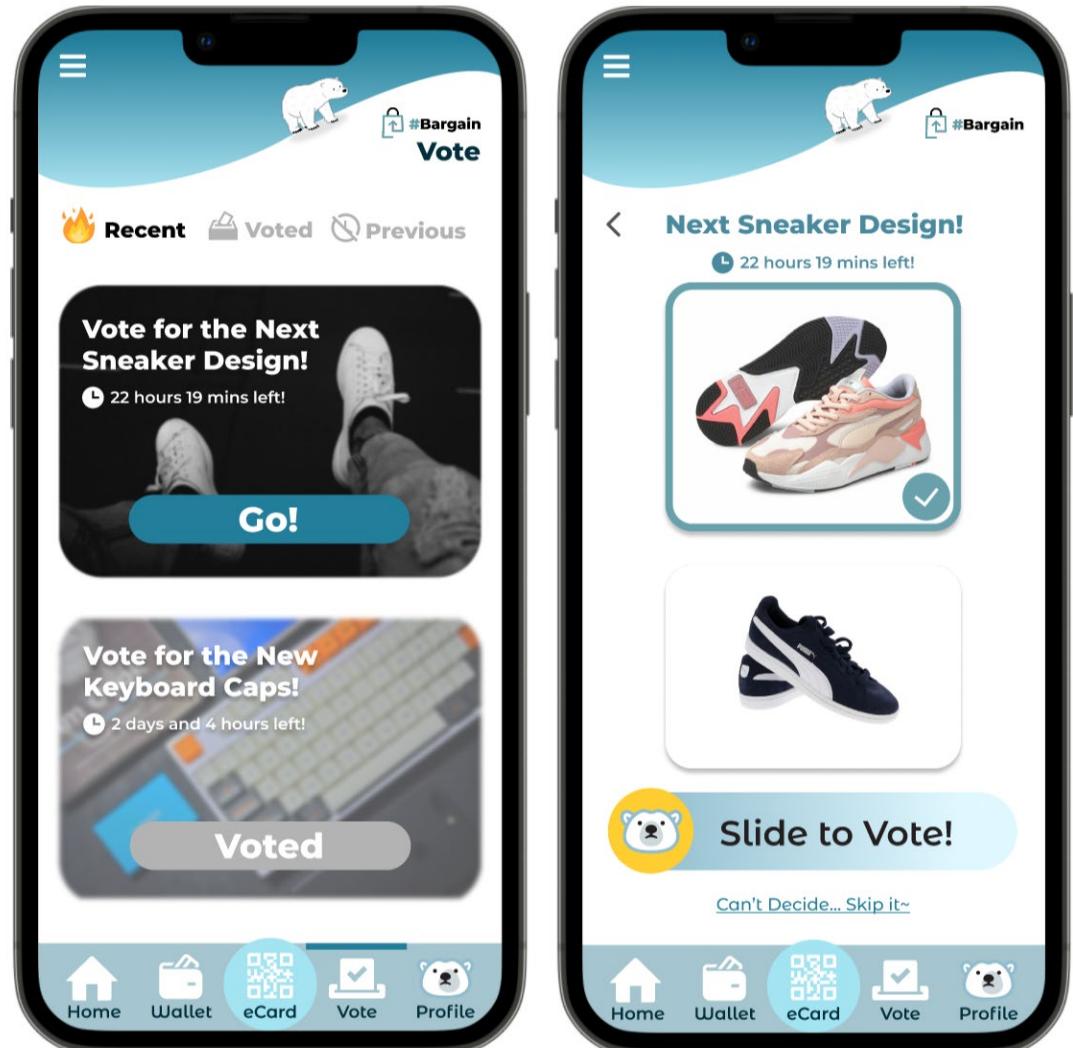
Set-up cost projection

| | HK\$ |
|--------------------|---------|
| Strategic Analysis | 50,000 |
| Design Thinking | 90,000 |
| Web Development | 280,000 |
| App Development | 420,000 |
| Testings | 60,000 |
| Total | 900,000 |

Key Assumptions

10 Subscription Clients 100 Usage-based Clients 500+ Transactions per month

Phase 2: Customer Loyalty System



Phase 2: Online Shop Integration



Online Shops Cooperation

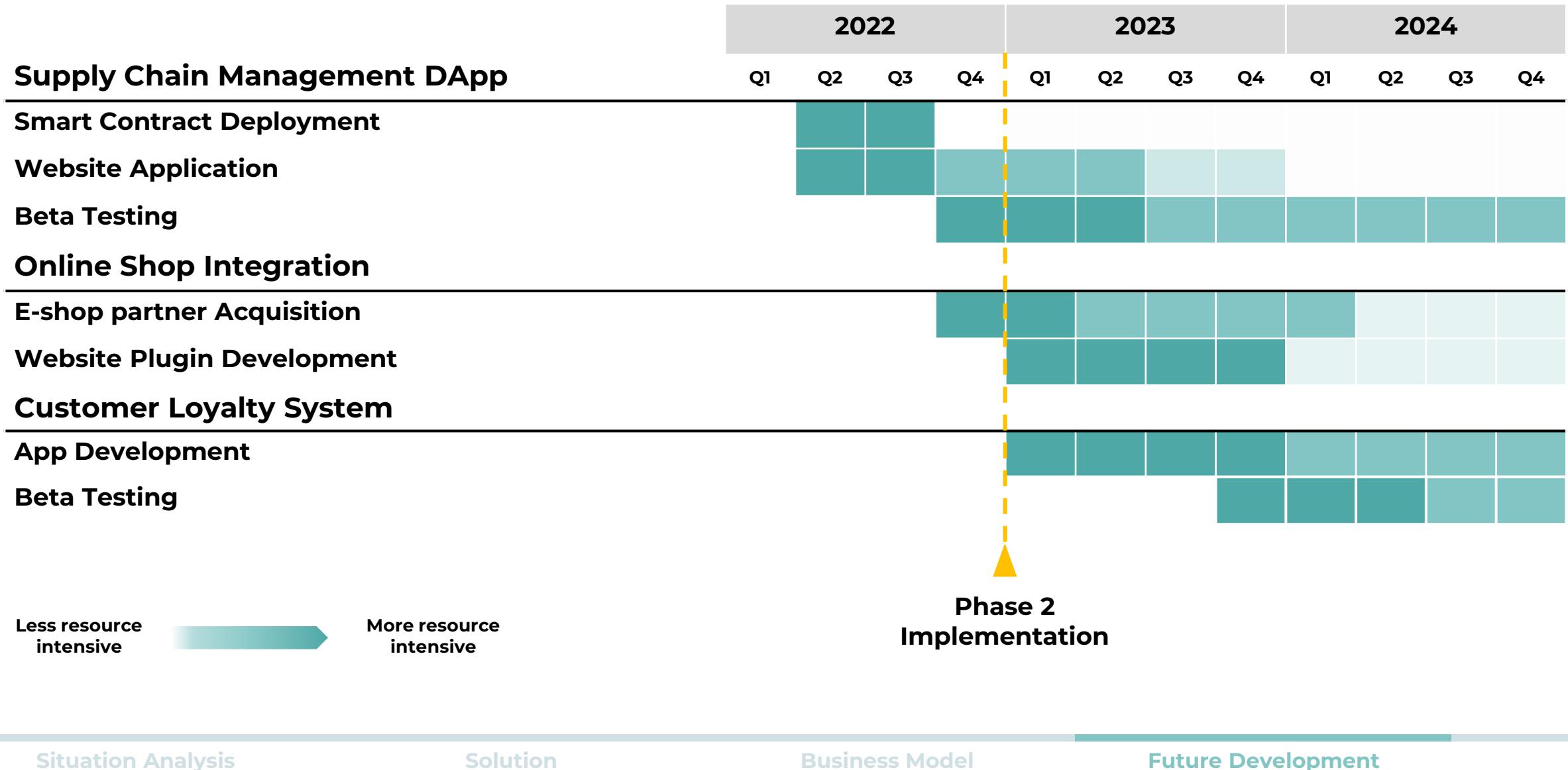


**Web Extensions/
Plugins**



**Expand the smart shopping
experience to online stores.**

Timeline



Team



Chris Mok

HKUST
BEng in
Civil Engineering

{Editor}



Hayley Sham

HKUST
BBA in
Information Systems and
Operations Management

{Business Analyst}

{System Auditor}



Gary Tin

HKUST
BEng in
Computer Engineering

{Project Manager}

{Full Stack
Developer}



Kelvin Yau

CIHE
BS in
Digital Entertainment
Technology

{Web Developer}

{UI/UX Designer}



Samson Chan

CUHK
BA in
English

{Writer}

Thank You



B#
BE SHARP!

Attribution



**ILLUSTRATIONS
FROM STORYSET**
**ICONS FROM
FLATICON**
**POLAR BEAR
ILLUSTRATION**
METAMASK ICON