

BLOCKCHAIN PROJECT PROPOSAL & REAL ESTATE MARKET

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SEMESTER B 2025



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MARKET RESEARCH

Based on

DESIGN THINKING

1.1. Emphathize

Medium/Retail Investor Empathy Map

(TheInvestor 2025; Vietnamnet 2025a; Vietnamnet 2025b).

Think & Feel

Bank debt pressure for property investment.

Fear of risks of violating land/housing/property business laws.

Prefer portfolio diversification, not relying entirely on one project/property type.

Concerned about lower profits & illiquid secondary market when a proposal to tax 10-20% of property transfer income is made.

Hear

Pressure to make fast decisions to avoid missing chances, but afraid of investment mistakes.

Investor sentiment has improved significantly as many plans have been approved & projects can be launched on the market.

See

Low rental yield & savings interest.

Property prices are rising in both primary & secondary markets.



Say & Do

"Property prices are booming, it's hard to buy a whole house."

Speeding up home buying decisions because of concerns that prices will rise.

"I want to invest but don't want to put all my capital into one option."

Attend seminars, sales events to probe market.

"If there are transparent investment channels with small capital & high liquidity, I'm willing to join."

"If I continue to invest, I will have to choose a product that has real use value, can exploit cash flow or is easy to liquidate. At this time, short-term investment is very easy to get stuck."

Find capital-raising ways (bank loans, relatives, selling other assets).

Compare potential profits between channels (Bitcoin, stocks, etc.).

"Listing seem fake/inflated... it's hard to tell what's real & what's bait."

Consider mid-range or high-end projects in good locations for both living & investment.

"Currently, housing prices in big cities are too high, making it hard to make a profit if you only invest in short-term investments."

1.1. Emphathize

Nguyen Van Hung



Demographics

- Hanoi
- 35 years old
- Office worker
- Stable income of ~VND 45 million (USD 1,800) per month & saved ~VND 3 billion (USD 120,000).

Medium/Retail Investor Persona

(Vietnamnet 2025b)

Motivation

- Family safety/happiness, sufficient education, healthcare, leisure.
- Effective savings for crucial issues in the future.

Behavior & Goal

- Plan to purchase an apartment in Long Bien district to lease.
- Seek for suitable investment options → secure the future.
- Acquire fresh skills in finance & tech → adapt to contemporary work trends & foster active income streams.

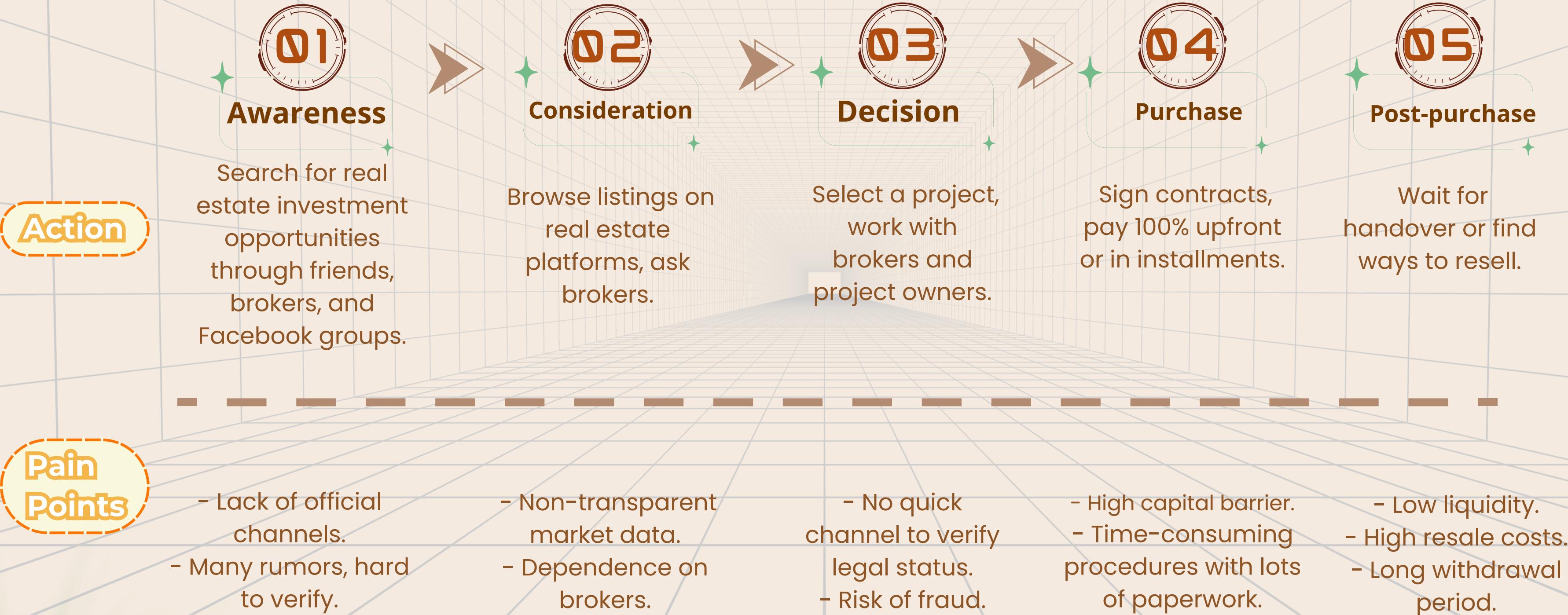
Frustration

- Mid-range apartment in Hanoi averages ~VND 4 billion (\$160,000) & higher in prime locations.
- Hesitant: Commit such large capital is risky given sluggish rental returns. Charging high rent may deter tenants, whereas bank deposits offer modest interest (3-6%/year) that can erode value over time.
- The widening gap between income growth & living costs.
- "Without efficient savings, my family can struggle when my kids grow."

1.1. Emphathize

Medium/Retail Investor Journey

(TheInvestor 2025; MarketResearchVietnam 2025; VnEconomy 2025a; Vietnamnews 2024a; Vietnamnews 2024b)



1.1. Emphathize

Home Buyer Empathy Map

(TheInvestor 2025; MarketResearchVietnam 2025; ACASH n.d.; VnEconomy 2025a; Vietnamnews 2024a; Vietnamnews 2024b)

Think & Feel

Stagnated annual income, declined savings.

Have to rent unsafe, mini apartments or shabby lodgings.

Have to incur large borrowing or liquidate long-term savings to buy a home.

Worry that living expenses are increasing faster than earnings, making debt repayment more stressful.

Preferential loan packages & social housing are chances but processes are hard to access & supply is limited.

Hear

Skyrocketed property prices & inflation & consumer goods prices.

Cautious about legal risks & potential disputes with property owners.

From partner: "I don't want to worry about rent increases or being displaced."

From friends: "I worry about job loss due to cost-cutting dismissal/AI replacement."

Declined affordable house/apartment supply.

High interest rate, short repayment period of social housing loan & financial constraints (equity <20%).

Slow progress in social housing building.



Say & Do

"I want to find an apartment/home that is conveniently located for work, schools & hospitals."

"If I can't purchase a home, I will consider renting in the long run."

"Preferential loan & social housing support programs need to be more accessible."

Hesitant to purchase presently to reserve or waiting for prices to fall.

Prefer security, stability & monthly repayment capabilities.

Underdeveloped rental housing market.

A 60m² apartment is priced at VND 2.5-3.5 billion.

Calculate cash flow carefully to afford home periodically.

Compare projects carefully regarding location, price, amenities & developer reputation.

1.1. Emphathize

Home Buyer Persona

(VnExpress 2024; Vietnamnet 2025a; VietnamPlus 2024).

Huy Dang



Demographics

- Hanoi's Gia Lam District
- 35 years old
- Office worker
- Possess savings of VND1.5 billion (US\$59,000)

Motivation

- Family safety/happiness, sufficient education, healthcare, leisure.
- Effective savings for crucial issues in the future.

Behavior & Goal

- Plan to get a loan to buy a home yet remains cautious despite low mortgage rates (8-8.5%).
- Like a 54m² two-bedroom apartment.
- Find suitable investment options to boost savings

Frustration

- Need to borrow almost VND 3 billion to purchase.
- Even with 0% interest for the first two years & 10% price discount, the payment remains a heavy burden on a family with two kids.
- Buying sentiment has further declined as developers can no longer offer sales incentives (e.g., subsidise mortgage interest expense) due to financial hurdles.
- Skyrocketed gold prices due to global geopolitical volatility → costly investment channel.
- Wages are failing to keep pace with surging inflation.
- "Without sufficient savings, my family will struggle more when my kids grow."

1.1. Emphathize

Home Buyer Journey

(TheInvestor 2025; MarketResearchVietnam 2025; VnEconomy 2025a; Vietnamnews 2024a; Vietnamnews 2024b)



Awareness

- Identify needs: family housing, settlement
- Find project information via social media, brokers, websites

Action

Consideration

- Compare projects regarding location, amenities, price, legality
- Calculate bank loan, support programs, installment payment capabilities
- Meet brokers, visit model home

Purchase

- Prepare loan application, complete legal documents, sign purchase agreement
- Deposit & progress payment

Post-purchase

- Receive handover, check quality
- Move in, register for utility services

Ext/Advocacy

- Resell/rent out the home to change residence or restructure finances
- Share home-buying experiences on forums, with friends/family

Pain Points

- Scarce affordable housing
- Rumors, misleading advertising cause confusion
- Concerns about project legality

- Insufficient equity (bank requires 20-30%)
- Interest rates have decreased but are still high for many
- Concern about project/home owners' delay in handover

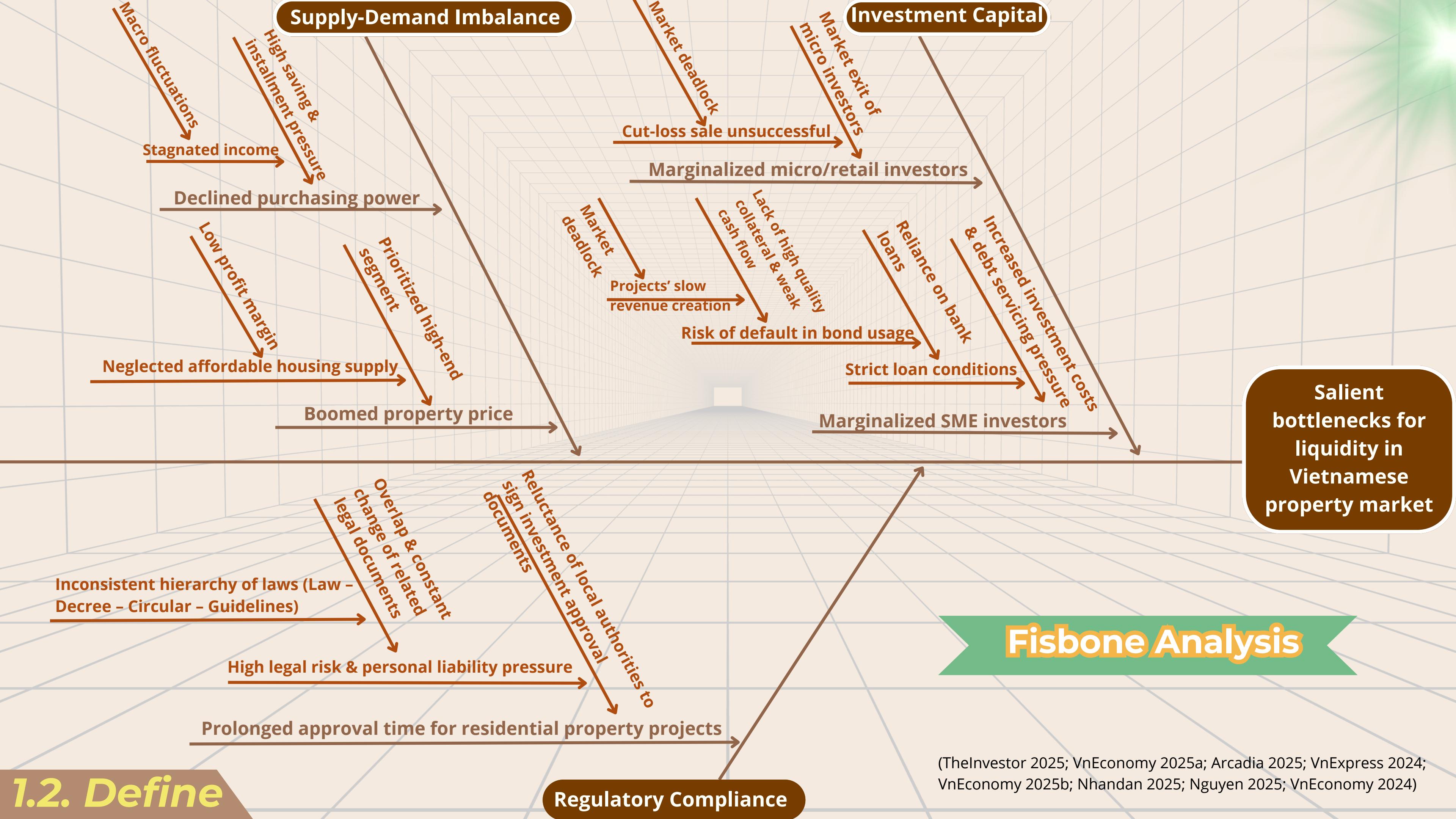
- Financial pressure with fluctuated income & low sales incentives
- Unexpected fees (taxes, maintenance, etc.)
- Risk of waiting for long-time issuance of Land use right certificate

- Disputes with project owners/building management
- Hard to resell at desired prices in a sluggish market
- Complex transfer procedures: document requirements, high brokerage fees
- Delay in issuing Land use right certificate causes delay in transfer

Individual Part



Bao Ngoc



1.2. Define

Problem Statement

Although cities are promoted as modern and dynamic, promise of livability remains beyond many. Vietnam's property market is in a stalemate: homebuyers face shrinking affordability, limited supply, and opaque legal procedures, while retail property investors struggle with low yields, poor liquidity, and regulatory ambiguity. Both sides are hindered by macro volatility, developers' luxury-first focus, limited capital access, and overlapping legal frameworks — issues no single business proposal can fully address.

Still, a solution that enhances market access for either homebuyers or small-scale investors can **partially unlock** opportunities for the remaining side, fostering capital and housing mobility, which in turn eases market deadlock.

1.2. Define

Significance of the problem

Impact on sectors

- Property businesses: Overlooking mass-market demand forfeits access to largest customer base, undermines long-term revenue stability, boosts higher insolvency risk during macro downturns.
- Cross-sector: Lower consumer needs for homebuying savings gradually harm retail & service sectors.

Social impact

- Without stable living conditions, many young people postpone marriage or opt out of having child, which is quite wasteful with current young population (>70% under 45).
- In the next 10-20 years, Vietnam will face a rapidly aging population, and if birth rates keep falling, Vietnam risks becoming stuck in middle-income trap - "getting old before getting rich".

Economic impact

- Vietnam's economy has long benefited from young, low-cost labor force — a key draw for global manufacturing relocation.
- Yet much of these operations are labor-intensive, and once the labor advantage erodes, supply chains can readily shift to other emerging markets → impacting property sector, along with many others.

Solving the problem can contribute to moving Vietnam's property market toward a more transparent, liquid, and inclusive future, which facilitate converting Vietnam's demographic advantage into sustainable urban development.

1.2. Define

“How Might We” Question



TECHNICAL

- HMW apply technology (AI, blockchain, big data) to make legal procedures & property project status transparent?
- HMW establish a digital platform to directly connect homebuyers & retail investors with reputable projects?
- HMW create real-time project & investor credit rating system to limit legal & financial risks?
- HMW leverages digital finance model (e.g., fractional ownership) to boost liquidity for micro investors?
- HMW create realistic home valuation & price forecasting tools to assist buying/selling decisions?



PROCEDURAL

- HMW simplify & digitalize legal processes to shorten project approval time?
- HMW foster coordination between regulatory agencies to limit legal overlap?
- HMW develop a fast feedback mechanism between investors, buyers & authorities when facing legal issues?
- HMW standardize forms, contracts & procedures to limit risks of ambiguous contracts?
- HMW develop a regular dialogue channel between buyers, investors & developers to reflect market demands timely?
- HMW raise buyer awareness of more flexible types of ownership & investment?

VS

1.3. Ideate

SCAMPER Ideas

Substitute

Replace manual paperwork procedures with a completely digital legal platform from filing to approval **VS** Replace traditional brokerage model with **P2P connection platforms** between buyers & micro investors **VS** Replace subjective valuations with **AI valuation systems** that integrates transaction, legal & planning data.

Combine

Combine blockchain & smart contracts → **make payments and ownership transfers transparent & automated** **VS** Combine national legal database with digital planning map to show project legal status in real time **VS** Combine **credit analysis tools** to suggest optimal loan packages as soon as buyers select a project.

Adapt

Modify

Expand property portal function into a **multi-service** platform: legal - finance - investment - transaction **VS** Upgrade legal due diligence procedure into an **automated system that alerts regulators & buyers about project risks** **VS** Customize project management dashboard for each user group: investors, regulators, home buyers.

Put to use

Leverage **fintech apps** that serve payments to implement micro-investment in property **VS** Leverage AI databases that analyze consumer behavior to **forecast housing demand** by segment & location.

Eliminate

Eliminate repetitive legal validation stages by **synchronizing data across authorities** **VS** Eliminate requirement for physical filing for transactions that already have valid electronic records **VS** Reduce reliance on intermediaries with **secure direct trading mechanism** on platform. **VS**

Reverse

Reverse the project appraisal process: appraise legal & financial aspects from the planning stage instead of when the project is almost completed
Reorganize approval procedures to **parallel processing** instead of sequential to reduce time.

Preliminary Screening & Prioritization

CRITERIA	DESCRIPTION
Implementation Feasibility 	<ul style="list-style-type: none">• Align with business technical & financial capabilities (e.g., ERP/CRM, digital data available)?• Reasonable intervention levels in current processes of stakeholders (developers, local authorities, etc.)?• Levels of safeguarding buyer, investor, and project-related information data?
Value Improvement 	<ul style="list-style-type: none">• Levels of limiting costs & time of transaction, legal approval, marketing, project operation?• Levels of enhancing data quality/transparency among stakeholders & coordination efficiency (limit errors, boost response speed)?• Contribution levels to SDGs (e.g., optimize land resource use, save energy, limit material waste)?
Market Scalability 	<ul style="list-style-type: none">• Levels of familiarity with users?• Can apply throughout property value chain: from planning, deployment, sales, to asset management?• Can expand the model to many different kinds of projects (mid-end, luxury) & regions?

1.3. Ideate

Scoring Matrix Heatmap for SCAMPER ideas

Digital platform for legal procedures

P2P platform connecting homebuyers & small-scale investors

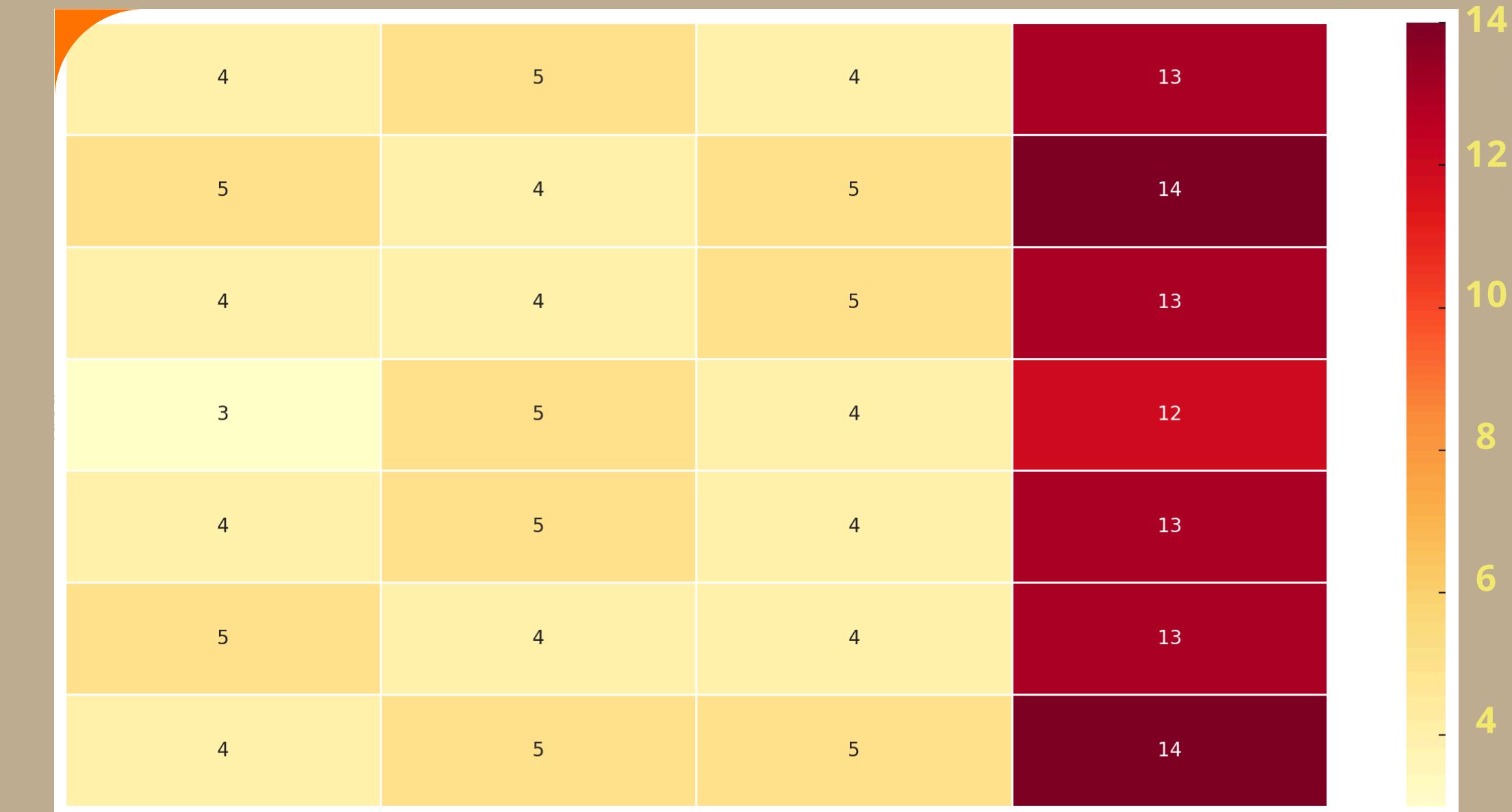
Real-time AI property valuation system

Blockchain & smart contract for payment & ownership

Legal database & digital planning map

Parallel legal approval procedure

Automated project risk alert system



Implementation
Feasibility

Value
Improvement

Market
Scalability

Total score

1.3. Ideate

Proposed Solution

1. Platform concept

- P2P PropLink: Directly **connects homebuyers** (with settle-down focus, potential rental consideration later) & **retail property investors** (risk-averse, seeking for fractional ownership) through a **safe, transparent web/mobile platform** — integrating with **automated project risk alert mechanism** for informed decision-making.

2. Key features

Verified Project Listings

Only projects with transparent legal documents, updated status & verified developer KYC are listed – validated through blockchain for tamper-proof records.

Fractional Investment Options

Enable users to invest small amounts (e.g., 5-10 million VND), with clear division between ownership for investing & living - processed through digital certificates.

Direct Matchmaking

Match homebuyers needing more capital with investors (co-investment). Investors contributing capital will earn a share of returns from property's value appreciation or periodic income created via homeowners' rentals.

Live Monitoring Dashboard

All participants can access latest-update project progress, legal changes, market prices & risk indicators.

AI-powered engine

Often evaluate assets' legal status (e.g., red flags in disputes, permits), market conditions (price patterns, local absorption rates) & automated alerts for parties if new red flags arise or risk scores fall.

Security & Compliance Check

Smart contracts streamline investment agreements, payment timelines, profit transfers & social layer enables user feedback, project ratings, Q&A function to limit asymmetric information for homebuyers/investors.



1.3. Ideate

Proposed Solution

3. How it works?

Real-Time Data Feeds

Collect industry-related data from public sources (e.g., market feeds, reports, social media, forums) & developers' offerings.

Project Onboarding

Developers/homesellers list assets with related documents on PropLink; platform runs automated legal & market verification.

Investor-Buyer Matching

Algorithm suggests matches based on expected asset value, capital demand, available upfront budget, risk tolerance, location & show fractional buy-in possibilities to investor groups - when enough investors co-fund, escrow is established

Transaction Execution

Smart contracts lock terms, while escrow secures funds until agreed milestones are achieved.

Ongoing Monitoring & Risk Alerts

Automatically notify abnormal or positive signs of transactions or market status & funds can be locked or withdrawn before exposure.

Exit Matching

Suggest secondary transactions between investors who want to sell their fractions.

4. Intended Impact

Homebuyers

Limit loan/funding burden.
Better-informed purchase decisions.
Digitalized workflows → quicker transaction procedure

Retail Investors

Flexible entry points & multiple-property commitment instead of one deal.
Greater transparency & investment collaboration → lower fraud risk.
Liquidity via fractional share resale.



Market Deadlock

Shorten gaps between homebuyers (demand) & idle capital of retail investors (supply) & enable shared risk & returns.
Help capital flow even during market slowdowns.
Partially solve market distrust due to information asymmetry.
Motivate diversified development of property segment.



1.3. Ideate

Proposed Solution

5. Uniqueness & Innovation

Integrated AI & Blockchain

Have big-data market analysis & tamper-proof verification → surpass siloed features of existing PropTech platforms.

Dual-Sided Impact

Simultaneously tackle both investor liquidity & buyer affordability — current PropTech space often focus on just one side.

Localized Design

Customized for Vietnamese legal environment, market dynamics, and user behavior.

Continual Risk Intelligence

Real-time asset/project monitoring instead of static due diligence.

Secondary Liquidity

Support investment exit via resale marketplace → capital recover for other financial intents.

6. Practicality & Feasibility

Technology

Blockchain & modular AI risk systems, already proven in PropTech & fintech → viable for developing MVP in Vietnam.

Legal

Vietnam's government has issued National Strategy on Digital Economy & Digital Society Development to 2025, with vision to 2030 → motivate tech application in property sector.

User Readiness

Internet user rate in Vietnam in 2023 is 79.1%, above global average of 64.4% & 62 million people use social media → facilitate new tech adoption.

Individual Part



Ha Le

1.2. Define Step | Mission 1.2a Industry Overview



7.09%

in Vietnam real-estate market
GDP growth in 2024 (Singh 2025)



\$6.3B

in FDI, accounting for 16.5% of
total registered capital in 2024
(Bizhub 2025)



↑62%

in urban residential unit sales
in 2024 compared to 2022
(Hoa & Dang 2025)



As shown in Appendix A:

- Average income: 8.2M VND
 - Apartment prices: 82,000,000 VND/m²
- ⇒ **Monthly loan repayment: 20.56M VND**
- ⇒ **High Capital Entry**

**GAP FOR
AVERAGE INCOME
LEVEL WORKERS?**

1.2. Define Step | Mission 1.2b Problem Identification

Find a deep and painful problem that a lot of people face

A. Problem Statement

“

Mid-level real estate investors in Vietnam face substantial capital entry barriers, limiting their ability to diversify portfolios and respond to market opportunities in a timely manner.

”

1.2. Define Step | Mission 1.2b Problem Identification

Find a deep and painful problem that a lot of people face

B. Significance assessment: whether gap is reinforced by macro forces?



E - ECONOMIC

- Prices increased by 59% in 5 years, exceeding the increase in the US, Australia, Japan, and Singapore (Khanh 2024).
⇒ Gen Z needs nearly 26 years of accumulation to buy an apartment of ~3 billion VND.

S - SOCIAL

- Social pressures from income inequality (Gini coefficient 37.2%) and urbanization level (43.1% in 2024) (NSO 2025; Open Development Vietnam 2024)
⇒ Led to a desire for safe and liquid investments; however, current products do not meet the majority's needs

P - POLITICAL/LEGAL

- The new Housing Law 2024: defines mixed-use projects and requires separate management between residential and commercial areas (KPMG 2024)
⇒ Prolong approval times and increase construction costs, leading to higher asking prices.

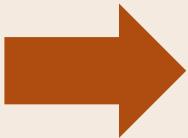
1.2. Define Step | Mission 1.2b Problem Identification

Find a deep and painful problem that a lot of people face

B. Significance assessment: whether gap is reinforced by macro forces?

Key Insights

- PESTLE analysis shows that the high capital requirement gap is not simply a micro issue, but a product of many macro layers.
- **If left unaddressed**, mid-level investors will continue to be excluded from real estate investment channels, leading to increased **social inequality**, **draining secondary market** momentum, and asset/cash flow opportunities **not spreading to the broader population**.



Key affected groups

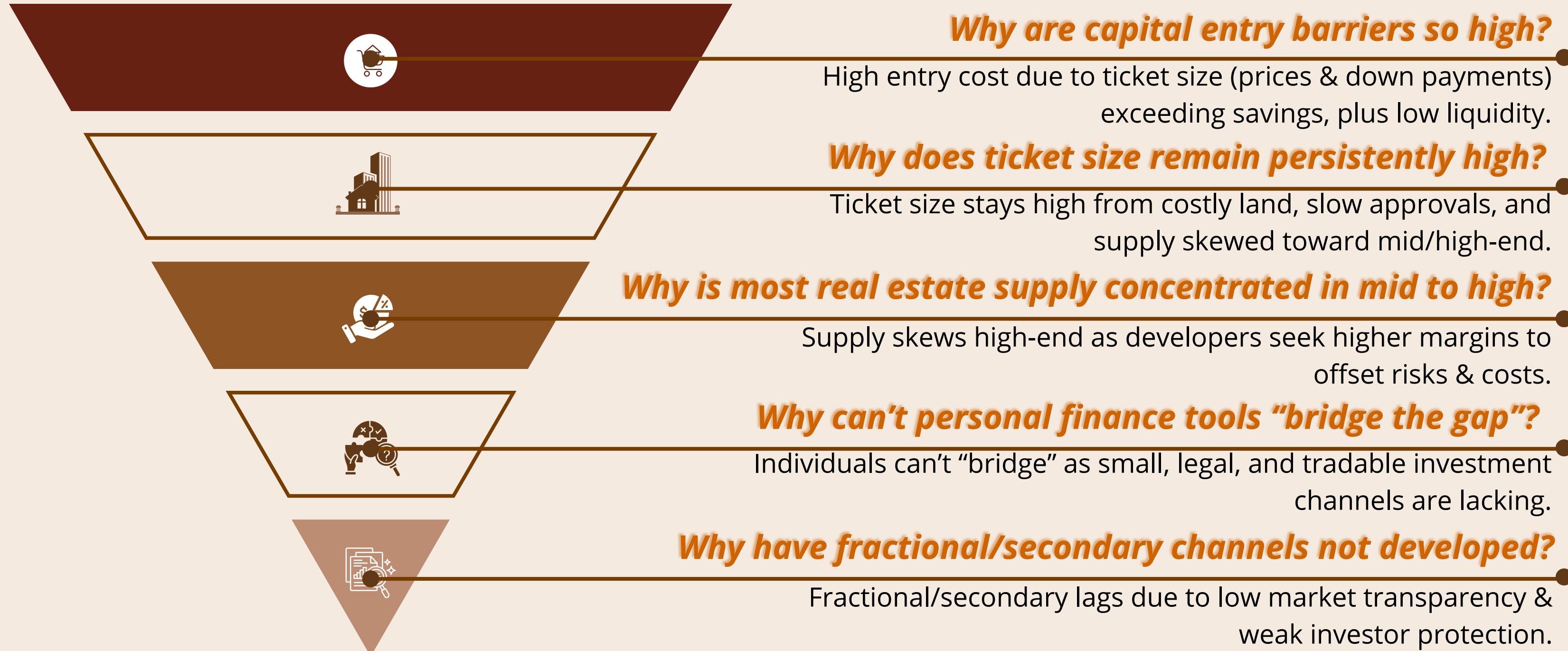
- **Retail buyers:** Limited access to housing or real estate investment opportunities.
- **SMEs and individual investors:** Restricted capital, making it difficult to participate in high-yield segments.
- **Real estate development:** Constrained demand leads to slow sales and capital lock-up in projects.
- **Socio-economic:** Asset accumulation becomes skewed, exacerbating wealth inequality.



1.2. Define Step | Mission 1.2b Problem Identification

Find a deep and painful problem that a lot of people face

C. 5 Whys Analysis - Root Cause



1.2. Define Step | Mission 1.2b Problem Identification

Find a deep and painful problem that a lot of people face

C. 5 Whys Analysis - Root Cause

Key Insights

- 
- **ROOT CAUSE:** The retail financial ecosystem and capital products **lack fractional channels, standardized legal frameworks, and secondary liquidity** to break down ticket sizes.

How might we?

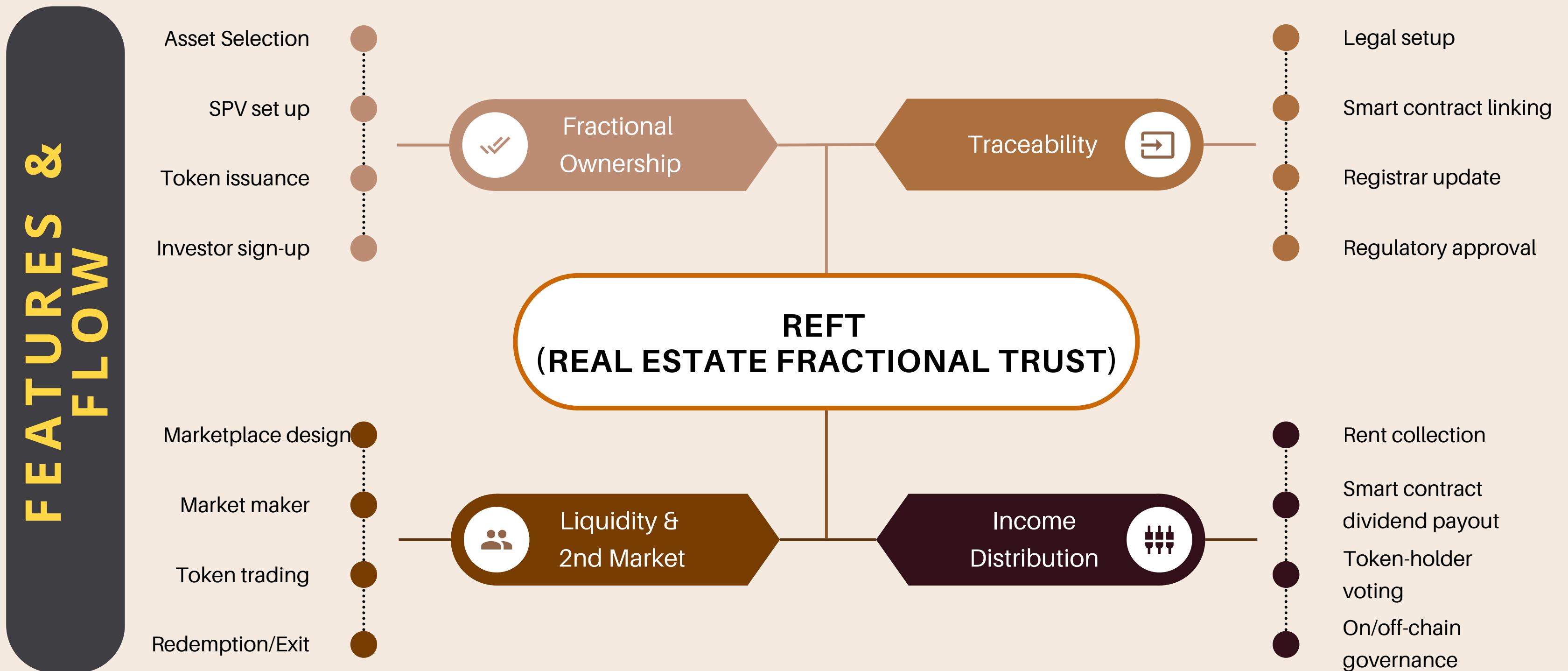
- 
- How might we create **accessible fractional ownership** options for mid-level investors to lower the capital entry barrier?
 - How might we **provide standardized legal structures** that give investors confidence when participating in fractional real estate investments?
 - How might we **enable a secondary market or liquidity mechanism** so investors can exit or adjust their positions more easily?

Problem solving impact

- 
- **Business objectives:** Expand the investor base, increase liquidity, and create scalable new markets.
 - **Social objectives:** Enhance housing affordability, reduce wealth disparity, and promote economic equality.

1.3. Ideate Step | Mission 1.3a The Proposed Solution Brief

REFT (Real Estate Fractional Trust) is a fractional real estate model inspired by REITs, using blockchain in Vietnam to help mid-level investors access property with lower capital and more transparency. Assets are put into an SPV, which issues security tokens representing ownership, traded on-chain while keeping legal rights off-chain.



1.3. Ideate Step | Mission 1.3b Business Context Alignment

INTENDED IMPACT

Short-term:

- Enhance market accessibility for small investors.
- Create new capital-raising channels for property owners.
- Accelerate transaction speed and reduce brokerage costs.

Long-term:

- Contribute to establishing transparent transaction standards.
- Lay the groundwork for direct legal recognition of tokenization.
- Develop a real estate asset capitalization market analogous to securities markets.

Why problem-fit?

- **Transaction transparency issue:** Blockchain as a Trust Foundation.
- **High Capital Barriers:** Expanding Access through Fractional Ownership
- **High Intermediary Costs:** Smart Contracts Automating Processes

Feasibility?

- **Legal:** Focused on domestic compliance, enabling immediate deployment.
- **Technology:** Utilizes blockchain and smart contracts, improving speed and transparency, though system failure risks remain.
- **User readiness:** Leverages the familiar REIT concept, though legal title transfers remain slow.

1.3. Ideate Step | Mission 1.3c Innovative and Unique

Market size and Growth potential

Comparison with Existing Models

	REFT	Traditional REIT	Direct Tokenization
LEGAL	Complies with current regulations	Compliant	Not yet legally recognized
LIQUIDITY	High (secondary market)	Typically through stock exchange	Often high but with legal risks
CAPITAL REQUIREMENT	Low (fractional)	Low	High/Low depending on structure
TRANSPARENCY	High (on-chain)	Moderate	High
DEPLOYMENT SPEED	Fast	Moderate	Slow (awaiting legal framework)

Individual Part



Tran Tien

Market Overview - PESTEL



Political

- People's access to home credit has become **extremely difficult** due to the government's policy of **restricting real estate credit** (Khuc et al. 2023)

Economic

- **75%** of new real estate is **high-end**, outpacing average income, causing supply-demand imbalance (Ngoc 2024)
- Floating rates are still **higher than 12%** after preferential house loans (Anh 2024)
- The property prices are **28 times higher** than people's average incomes (Dao and Nguyen 2025; Huynh 2023)
- A 55-square-meter flat, one of the smallest available, currently costs **21-23 years** of wages for the average worker (Nguyen and Duc 2024)

Social

- The urbanization rate will increase to **about 50%** in 2030 (Nguyen 2023)
- Special and third-class cities have very high immigration, **2.7 times higher** than the national average and **5.3 times higher** than rural areas (Do and Le 2024)

PROBLEM STATEMENT



Vietnamese real estate investors encounter
significant upfront financial requirement,
hindering market accessibility and liquidity

Why This Problem Matters

KEY AFFECTED GROUPS

Retail Investors

Real Estate Developers

CONSEQUENCES OF INACTION

LIQUIDITY ISSUE

- Inadequate down payments elevate the **default risks** for both purchasers and developers (Lam et al. 2013)
- Small investors, lacking in finances or credit, make **low-price sales** and accept **significant losses** (Jehan and Luong 2010)

ACCESSIBILITY ISSUE

- High upfront capital needs **exclude buyers, distort prices** near thresholds, and intensify competition below them (Han et al. 2021)
- Projects are **frozen** or **stalled** due to developers' fundraising constraints (Badrova et al. 2023; Gau and Wang 1990)

PROBLEM SOLVING BENEFITS

BUSINESS IMPACTS

Greater liquidity and accessibility build **trust**, reduce **risks**, increase **transparency**, and boost **business opportunities** and **profits** (Mottaghi et al. 2024)

SOCIAL EFFECTS

Reduce **social inequality**, narrow the **wealth gap**, and improve **social sustainability** (Gough and Tran 2009; Baptista et al. 2023)

Define the Root Cause

Observation: It is difficult for investors to meet capital requirements



WHY 1



WHY 2



WHY 3



WHY 4

□ ROOT CAUSE □

Lack of **scalable** and **safe** platforms
allowing **fractional property ownership**

Why is it difficult for investors to meet capital requirements?

Because they must make a **high initial payments** to purchase real estate

Why do investors must make a high initial payments to purchase real estate?

Because traditional real estate system **requires purchasing entire properties**

Why does the traditional real estate system require purchasing entire properties?

Because property ownership is neither easily **tradable** nor **fractionalized**

Why is property ownership neither easily tradable nor fractionalized?

Because **safe** and **scalable fractional ownership** is **not supported** by current systems

How Might We?

How might we design tools that help investors assess and meet capital requirements more easily?

How might we leverage blockchain technology to solve this problem?

How might we enable fractional ownership so investors can participate with less capital?

Observation: It is difficult for investors to meet capital requirements

The answer: A tokenization investment platform allows fractional ownership supporting investors to participate with smaller amounts and meet capital requirements more easily

SCAMPER - TOKA



Substitute

- Replace **buying the whole real estate** with **buying ERC-1155 tokens** representing ownership.
- Replace **traditional transactions** with **on-chain transactions on Polygon**
- Replace brokers + paper land certificates with **SPV (Special Purpose Vehicle) + smart contracts**



Modify

- Reduce investment threshold to **a few hundred thousand VND/token** to reach small investors
- Increase liquidity with **secondary market**



Eliminate

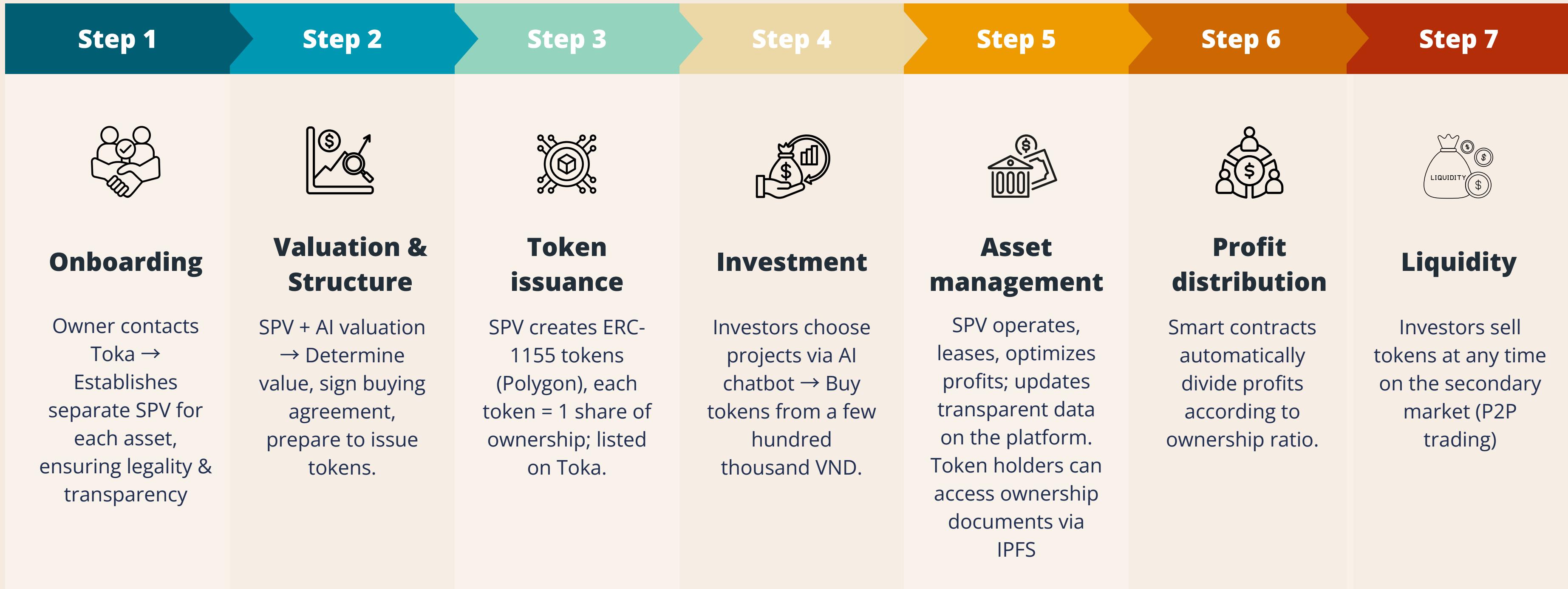
- Eliminates **high initial capital barriers** using **fractional ownership**
- Eliminate **slow, manual buying and selling processes**
- Eliminate **unnecessary intermediary costs (brokers)**

Toka is an **investment platform** for **real estate tokenization** that specializes in the Vietnamese market. The platform aims to allow individuals to invest in part ownership of assets with low capital

Features

0 1	ERC-1155 TOKEN	Multi-token standard designed explicitly for fungible and non fungible tokens (Joshi and Choudhury 2022)
0 2	POLYGON BLOCKCHAIN	Fast, low-cost, high scalability and transparency blockchain network for efficient transactions (Rao et al. 2024) (Appendix B)
0 3	IPFS (INTERPLANETARY FILE SYSTEM)	Distributed off-chain storage ensuring transparency and integrity for the blockchain (Joshi and Choudhury 2022)
0 4	AI INTEGRATION	Support decision-making and guide users
0 5	SMART CONTRACTS	Automates dividend distributions, ownership transfers, and compliance checks.
0 6	ASSET MANAGEMENT PORTFOLIO	Provides users with dashboards to track investments, performance, and diversified portfolios.
0 7	SECONDARY MARKET	Allows peer-to-peer trading of tokens for quick exits without traditional real estate transaction delays.

Working Process



Impact



ENHANCED ACCESS TO INVESTORS

- Users can invest in small parts with low capital through fractional ownership.



INCREASE LIQUIDITY FOR REAL ESTATE

- Instant settlement, and peer-to-peer transactions.
- Flexible buying and selling on the secondary market.



CREATING TRANSPARENCY AND SECURITY FOR INVESTORS

- Automated profit distribution through smart contracts.
- Transparent access to asset ownership documents through Polygon and IPFS.

Feasibility



LEGAL

- In January 2026, the **Law on Digital Technology** defines digital assets as civil assets in digital form that are created, issued, stored, transferred, and authenticated in an electronic environment utilizing digital technology (Binh 2025).



MARKET ACCEPTANCE

- Vietnam has a blockchain adoption rate **5 times higher** than the US (Anh 2022)
- **Young investors under 30** are particularly open to new products or technologies (Luu 2024)
- **Gen Z** are more likely to embrace quick gains and stay away from traditional investing sites with long-term goals (VNS 2022)



TECHNOLOGY

- Combination of **ERC-1155 token**, **Polygon** blockchain and **IPFS** is a feasible approach for real estate tokenisation (Joshi and Choudhury 2022; Rao et al. 2024).

Differentiate

	TOKA	RealT 	Realbox 	WHY DOES TOKA STAND OUT?
OPERATION PLACE	Vietnam	US	Vietnam/Singapore	Focus 100% on the Vietnamese market
BLOCKCHAIN	Polygon	Ethereum	Binance Smart Chain	Polygon advantages of fast and cheap
TOKEN STANDARD	ERC-1155	ERC-20	BEP-20	ERC-1155 is flexible for diverse real estate and low cost
LEGAL MODEL	SPV + Comply with Law on Digital Techonology	LLC + Comply with US Law	SPV + Comply with Law on Enterprise	Stay ahead of change, respond to Vietnam's new law
AI INTERGRATION	Yes	No	Yes (Smart invest)	AI supports new users, increases accessibility

(RealT n.d, Realbox n.d)

Critical Evaluation for Team Members' ideas

Ngoc's P2P PropLink

(Ly 2024; Phan 2024; VDCA 2023)

Implementation Complexity

- High: Automated real-time forecasting & alerting system may underperform due to the need for rich, on-point data pipeline - especially about property developers' financial ability, legal compliance, construction progress & regulatory agency databases (land, planning, licensing) - which often kept private & slow-updated.
- Medium: Scaling up operations about escrow, fractional-ownership certificate & KYC may require robust partnerships with banks, fintech firms, notaries, etc.



Risk of Losing Competitive Edge

- If major PropTech players adopt similar tech functions & fractional offerings, solution's uniqueness may diminish rapidly unless continuously enhanced.

Potential Overlap with Crowdfunding

- No clear distinction from crowdfunding models → market confusion & challenged value proposition.

Technical Complexity

- Combining escrow, smart contracts & AI scoring without supported existing infrastructure necessitates giant technical, capital resources & high security.

Legal hurdle

- Vietnam's legal frameworks for PropTech are still incomplete & lag behind tech advancements → barriers for new PropTech services.

User habit

- Many Vietnamese people prioritize traditional transaction & worry about information security when using digital apps, especially in high-value transactions.

Critical Evaluation for Team Members' ideas



Key Objectives:

- Solving the problem of **high initial capital requirements** for the majority of Vietnamese investors.
- **Early implementation** within the current legal framework.

REFT

ADVANTAGES

- Compliance-first → easy to implement immediately according to current securities laws & decrees
- Smart contract automatically shares profits
- Internal marketplace reduces cross-border legal risk

Tokenization of fund certificates

LIMITED

- Transaction is not "instant" → need transfer step + paper record storage
- Limited liquidity compared to public blockchain

TOKA

ADVANTAGES

- Advanced technology: ERC-1155, Polygon, IPFS, AI
- Fully on-chain experience, high liquidity
- Can reduce capital input to very low if token = direct ownership

Direct tokenization of asset ownership

LIMITED

- Depends on Law on Digital Technology (2026) → legal uncertainty
- High risk if implemented in 2025

FINAL

Implement REFT to:

- Reduce capital barriers immediately.
- Comply with applicable laws
- Technology integration: ERC-1155, Polygon, IPFS, AI to improve efficiency.

02

PROJECT PROPOSAL

2.1. Prototype | Mission 2.1a Narrative & Adoption

What makes REFT outstanding?

At first, I thought a lot about how my idea could be viable, survive and outcompete my competitors with technology

But then I realized: what makes this idea viable is **you – the users, low capital investors**, people who inspired me in the empathize step: ‘*Property prices are booming, it’s hard to buy a whole house*’.

That’s why we created REFT: a real estate tokenization project lowering high upfront capital entry through fractional ownership. Blockchain fees exist, higher than some traditional methods but by building on Polygon we keep them cheap and efficient for everyone.

And for your friends or family unfamiliar with technology? We create intuitive interface with AI chatbot to guide every step.

As adoption is not only about tech, but also people, REFT is designed as a community-driven movement. Users are not just investors, but also ambassadors, we are sharing, learning, and growing together.

With REFT, real estate is no longer a game for the few, but a mass investment opportunity – safe, accessible and flexible.



2.1. Prototype | Mission 2.1b Objective & Conceptual

Why this prototype exist?

PURPOSE & FOCUS

The REFT prototype aims to explore the feasibility of a **compliance-first approach** to real estate tokenization in the Vietnamese market. It is based on the basic user experience of legal ownership through SPV structures, tokenization of ownership rights, and automatic profit distribution.

FEATURES

COMPLIANCE-FIRST LEGAL STRUCTURE

- Establishment of a SPV or investment fund.
- Implementation of investor KYC/AML procedures.
- Token ownership recorded as equivalent to fund certificates.
- Continuous updates to both on-chain and off-chain registrars.



ERC-1155 & SMART CONTRACTS

- Issuance of ERC-1155 tokens
- Management of token transfers.
- Automated distribution of investment returns.
- Integration of rule-based compliance checks within smart contracts.



POLYGON MARKETPLACE

- Internal compliant P2P trading of tokens.
- Redemption and exit mechanisms for investors.
- Polygon gateway for international liquidity pools.
- Integration of fiat, cryptocurrency, and VND transactions.



IPFS DATA AND TRANSPARENCY LAYER

- Upload of legal agreements, contracts, and financial reports onto IPFS.
- Integration of all docs into the investor dashboard.
- On-chain & off-chain storage of audit history for full transparency.
- Secure, tamper-resistant data management.



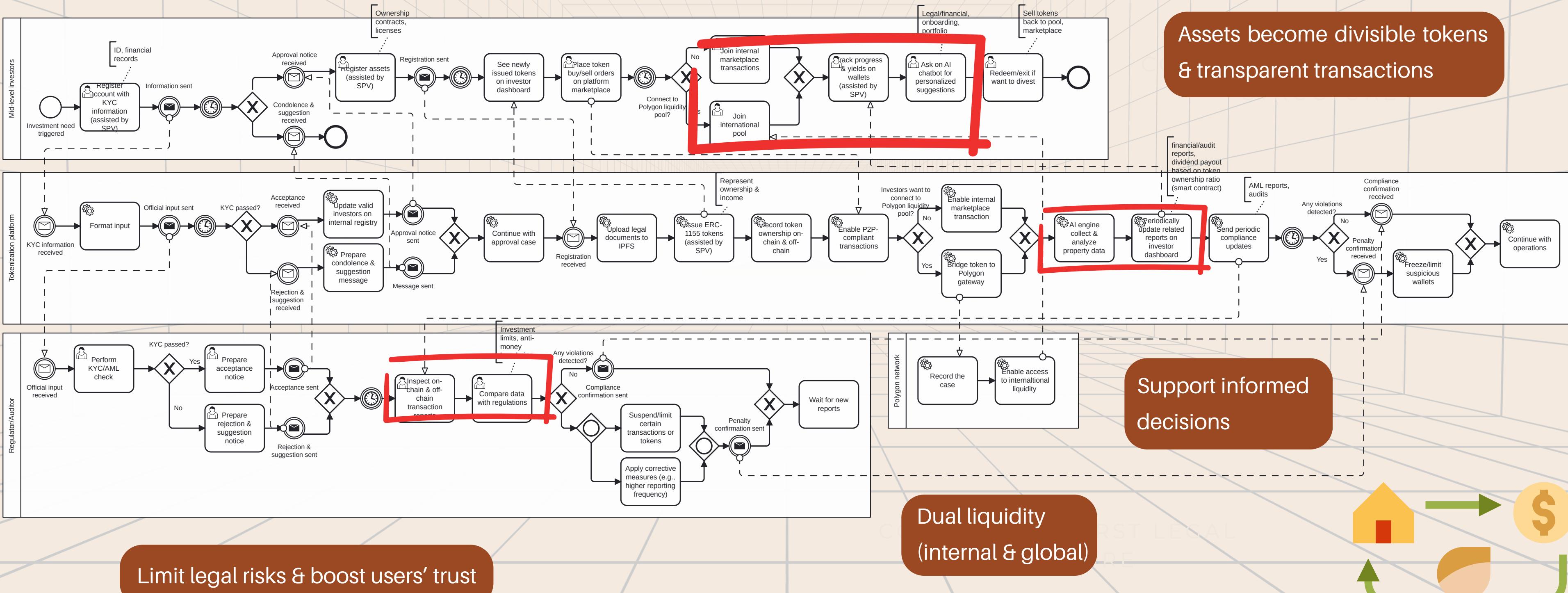
AI-POWERED VALUATION AND ADVISORY

- Collection and analysis of real data.
- Regular updates of asset valuation.
- Automated valuation reports.
- AI-driven chatbot.
- Personalized investment decision-making recs.
- Real-time portfolio and cash flow management.



2.1. Prototype | Mission 2.1c Design & User Interaction

BPMN FOR PROTOTYPE ([Link](#))



2.2. Testing Plan | Mission 2.2a Metrics

S

SPECIFIC

Efficacy of SPV, token issuance & transfer, KYC/AML process, off-/on-chain data updates, dividend distribution via smart contract

G

M

MEASUREABLE

≥95% KYC/AML compliance rate
≥95% token issuance tied to property legal contracts & digital assets verified by audit (blockchain + IPFS document storage)
<3s, accurate transaction finality
Update asset data to investor dashboard at least every 24 hours

O

A

ATTAINABLE

Demo cooperation with at least 1 legal/audit partner
At least 1 legally recognized SPV
≥10 property projects & ≥10 individual investors

A

R

RELEVANT

Validate that REFT asset tokenization solution meets international legal/audit standards & works with both traditional and digital asset transactions

L

T

TIME

After 3 months, report compliance & operational audit results to legal committee before expanding the trial

S

2.2. Testing Plan | Mission 2.2b Implementation Plan

Timeline

Prototype Foundation & Legal Structuring

MVP Development

Evaluation

Refinement for Roll-Out

PHASE 1

Operation

- Design technical architecture
- Choose testing partners, build property lists for POC

- Legal
- Prepare original legal documents for each participating asset
 - Consult with legal partners, SPV on token issuance
 - Collaborate with audit department

PHASE 2

Operation

- Deploy ERC-1155 token issuance module
- Connect Polygon marketplace, integrate fiat/crypto payment gateways
- Dashboard, first UI

- Legal
- KYC/AML compliance via API & profile reconciliation
 - Audit processes (token issuance, contract consent, profit distribution)

PHASE 3

Operation

- Assess transaction processing speed, asset-data update ability.
- Record, analyze user feedback to gradually optimize

- Legal
- Audit compliance of on-/off-chain transactions
 - Review dispute handling procedures

PHASE 4

Operation

- Assess entire operating system
- Optimize UI/UX based on feedback, prepare project expansion roadmap

- Legal
- Reconcile audit test results
 - Coordinate with regulatory agencies/law firms to evaluate product readiness for market launch

FOR PROOF-OF-CONCEPT

2.2. Testing Plan | Mission 2.2c Methods and Standards

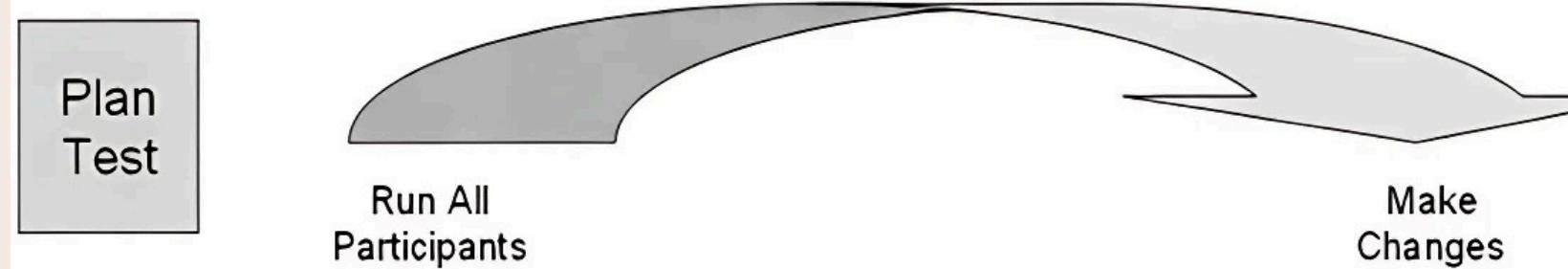


Methods

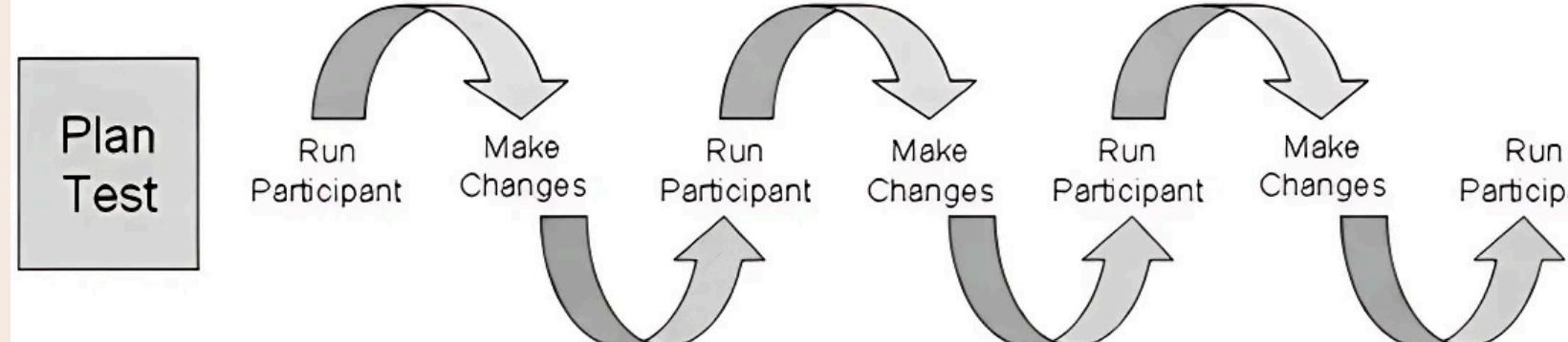
Cognitive Walkthrough Method focuses on new users trying to understand and execute a process without training, helping to evaluate its simplicity, friendliness, and logic (Rieman et al. 1995)

The Rapid Iterative Test and Evaluation (RITE) Method is a quick and extremely cooperative discount usability test (Medlock et al. 2005)

Standard Usability Testing



Rapid Iteration and Evaluation testing (RITE)



Standards



Logic and Flow

- Logical workflows, processes
- Clear integration, consistent terminology
- Align with user expectations and blockchain principles



Clarity:

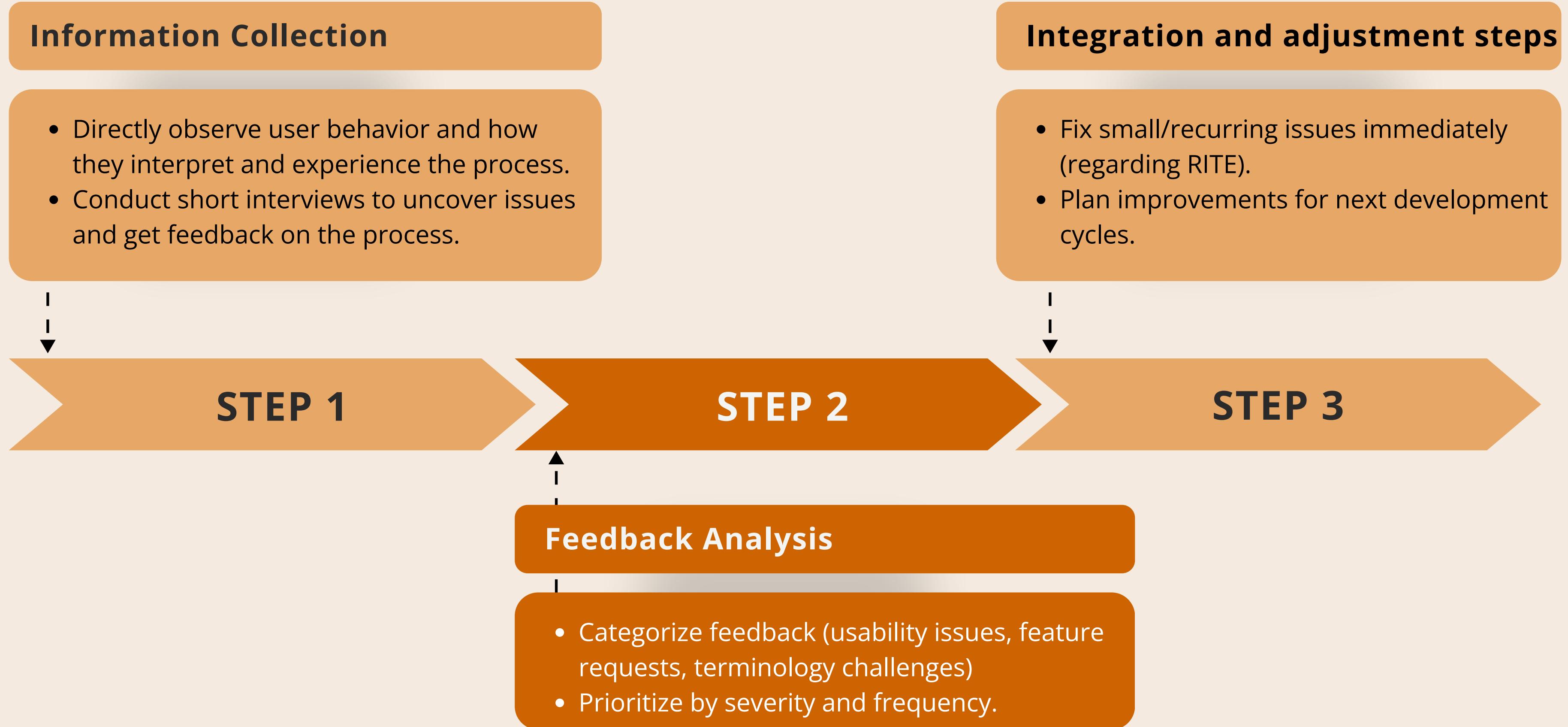
- Users **easily understand** the purpose of each feature and operation
- Instructions, content and transaction steps are **presented intuitively**
- Information is **clear, accessible, and not confusing**



Completeness

- Full support for core functions of real estate transactions on blockchain
- Including: user registration, accessing property information, executing smart contracts
- Full information process, no missing or missing important steps

2.2. Testing Plan | Mission 2.2d Feedback Mechanism Outline



2.2 Testing Step | Mission 2.2e Risk Matrix Analysis

Likelihood			Impact				
	Legal		Minor approval delays (<6 months)	Extra docs & costs (>6 months)	Temporary suspension of certain operations	Certain transactions/tokens restricted or prohibited	Project permanently terminated
	Financial		Slight liquidity drop	Small investors face withdrawal issues, minor loss	Secondary market frozen for multiple quarters	SPV forced to liquidate assets due to partial insolvency	Liquidity collapse, investors lose most capital
	Market Adoption		Adoption slower than plan	Under 50% of target users reached	Growth stagnates, scaling difficult	User attrition causes liquidity shortage	Product fails completely
	Technology		Minor app/UI bugs, fixed quickly	Downtime for several hours or days	Smart contract glitches, pending transactions	Exploit/bug leads to losses for some users	Major hack/system collapse, total loss of funds
	Reputation		Few scattered complaints online	Rising negative reviews, short-term brand impact	Negative press coverage begins	PR crisis, fundraising severely hindered	Trust fully lost, project collapse
			Insignificant	Minor	Moderate	Major	Extreme
			1	2	3	4	5
>90%	Almost certain	5	5	10	Smart Contract Bug (15)	20	Legal Uncertainty (25)
75%	Likely	4	4	8	Liquidity Shortage (12)	Market Adoption Hesitancy (16)	20
50%	Possible	3	3	6	9	12	15
25%	Unlikely	2	2	4	6	8	10
<10%	Rare	1	1	2	3	4	5

Step 1: Identify Risk Domains

Step 2: Define Impact & Likelihood scales

Step 3: Develop Risk Heatmap

<1> Legal uncertainty (25)

<2> Market adoption hesitancy (16)

<3> Liquidity shortage (12)

<4> Smart Contract Bug (15)

2.2 Testing Step | Mission 2.2f Precautionary Action

Step 4: Assess Residual Risk & Precautionary Action (Appendix C)

<1> Legal uncertainty (25 → 8)

- align with existing REIT regulations
- implement strict KYC/AML
- engage early with regulators

<2> Market adoption hesitancy (16 → 6)

- run market education campaigns
- partner with reputable developers
- ensure user-friendly UX (e.g., AI chatbot support)

<3> Liquidity shortage (12 → 6)

- set up a liquidity reserve fund
- partner with external exchanges

<4> Smart Contract Bug (15 → 5)

- conduct independent audits
- ensure regular code updates

Thank You For Your
Attention

Appendices

Appendix A: Quick Excel Calculation

BRIEF		CALCULATED ASSUMPTIONS		
Price per m ²	82,000,000	Property price	$82,000,000 \times 50$	4,100,000,000
Sample apartment size (m ²)	50	Down payment (30%)	$4,100,000,000 \times 0.3$	1,230,000,000
Loan-to-Value (LTV) ratio (70%)	0.7	Loan amount (70%)	$4,100,000,000 \times 0.7$	2,870,000,000
→ Down-payment (30%)	0.3	Annual income	$8,200,000 \times 12$	98,400,000
		Time required to save for down-payment (if saving entire income)		
Loan interest rate (per year)	0.06		$1,230,000,000 / 98,400,000$	12.5
Loan term (20 years)	240 months	Monthly interest rate	$0.06 / 12$	
Average income	8,200,000	Principal		2,870,000,000
		Monthly payment		20,561,571
Amortization Formula				
$A = P \frac{r(1+r)^n}{(1+r)^n - 1}$				

Figure 1: Comparing the gap between income and purchasing capacity of average workers

Appendices

Appendix B: Blockchain Comparison

Blockchain	Security	Scalability	Speed	Transparency
Ethereum	High	Low	15 TPS	Medium
Polygon	High (Layer 2)	High	7,000 TPS	High
Hyperledger	High	High	1,000 TPS	High

Figure 2: Blockchain Comparison

Source: adapted from Rao et al. 2024

Appendices

Appendix C: Residual Risk Calculation

*Value of Residual Risk= Value of Inherent Risk * (1- Effectiveness of controls)*

Source: Volchkov (2018)

- For **Legal uncertainty risk**, the value for effectiveness of control is estimated to be 0.7 →
Value of residual risk= $25 \times (1 - 0.7) = 7.5 \approx 8.$
- For **Market adoption hesitancy risk**, the value for effectiveness of control is estimated to be 0.6 → Value of residual risk= $16 \times (1 - 0.6) = 6.4 \approx 6.$
- For **Liquidity shortage risk**, the value for effectiveness of control is estimated to be 0.5 →
Value of residual risk= $12 \times (1 - 0.5) = 6$
- For **Smart contract bug risk**, the value for effectiveness of control is estimated to be 0.65 →
Value of residual risk= $15 \times (1 - 0.65) = 5.25 \approx 5.$

⇒ These are the “**final**” risks we must still bear, despite mitigation efforts.

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