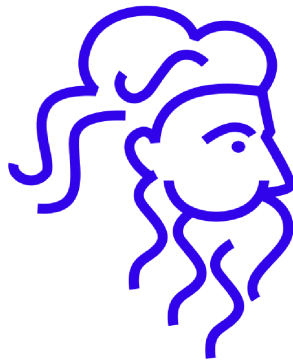# Plutus

Plutus White Paper | 2024

Defining Benchmarks: Guide to Tokenising Real-World Utility and Enhancing Intrinsic Worth

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June 30, 2024

Executive Summary

Background

Plutus is reshaping loyalty rewards by integrating tokenisation with traditional banking services, issuing Pluton Rewards (PLU) to incentivise customer engagement and loyalty. Bolstered by a robust infrastructure and detailed tokenomics, Plutus plans to upgrade its token network to enhance utility with tangible benefits, and launch PlutusSwap for seamless reward redemptions, emphasising the token's intrinsic worth through real-world benefits.

Core Upgrades

In 2024, Plutus is upgrading its tokenomics and network:

- **Transition of Token Network:** Enhancing efficiency and reducing costs.
- **Dynamic Token Supply:** Eliminating single points of failure and ensuring longevity.
- **Implementing FUEL (Network Fee):** Enabling fully self-sustainable rewards.
- **Compounding Reward Yield (CRY%):** Rewards stackers with additional monthly payouts.
- **Increasing Stacking Benefits:** Ensuring current stackers receive exponential value for each 1 PLU stacked.
- **Reward Levels 2.0:** Ensuring current stackers receive exponential value in comparison to current levels.
- **New Levels:** New tiers and sub-levels for fair token distribution based on personas and spending habits.
- **Tangible Utility:** Introducing Plutus Travel, Gifts, Cashback, Miles, and Merch for real-world benefits.
- **Launching PlutusSwap:** A decentralised exchange (DEX) for peer-to-peer swaps and fiat on/off ramps.
- **Featuring Pool & Earn:** Enabling customers to turn liquidity providers and earn 100
- **Introducing Tokenised Fiat:** Stable digital currency (Plutus Pound & Plutus Euro), backed 1:1 and compliant.
- **Compliance:** Partnered with Ernst & Young for model validation and compliance enhancements.
- **Governance:** Adding security levels and voting rights to shape Plutus' future (1 PLU = 1 Vote).

Outcome

- **Customer Acquisition & Rewards:** Expanding customer base and ensuring self-sustaining rewards issuance.
- **Transparency & Security:** Eliminating pre-mined rewards pool and reducing supply through dynamic minting.
- **Token Utility:** Enhancing day-to-day use through PlutusSwap and tokenised fiat deposits.
- **Intrinsic Value:** Significantly increasing the token's inherent worth while providing depth and a minimum anchor.
- **Reward Redemption:** Multiple choices of tangible benefits for PLU Rewards.
- **Mainstream Adoption:** Setting industry standards and promoting mainstream adoption through practical utility.
- **Industry Leadership:** Establishing Plutus as a leader in tokenising real-world use-cases.

Outcome

Plutus redefines loyalty rewards with greater value than traditional services such as air miles and in-store points. Leveraging blockchain technology, it delivers unmatched benefits to customers and boosts revenue for businesses across the UK and Europe through compelling perks desired by Plutus Card holders. Supported by a robust governance model that promotes innovation, Plutus ensures transparency, compliance, and the sustainable future of PLU Rewards. The whitepaper sets new benchmarks and provides a guide for assessing intrinsic value and practical utility in both crypto and traditional loyalty sectors.

Contents

1 Introduction

Founded in 2015, London-based FinTech startup Plutus has pioneered crypto rewards for Visa cardholders. Initially a basic rewards card with a decentralised exchange (DEX) [22], Plutus has evolved into a comprehensive financial platform with a significant customer base in the UK and Europe. This update outlines Plutus's vision for a blockchain-powered, bank-like rewarding application.

Background

Case Study

The journey to build Plutus began in 2012 with the discovery of Bitcoin on IRC.[27] Infatuation with Bitcoin's proposition as a decentralised currency for payments, led to launching a merchant payment solution[30] and licensed exchanges.[30] Despite the industry's effort to develop merchant solutions at the time, Bitcoin's potential as a 'P2P Cash System'[17] could not fully materialise[13] due to volatility, technical limitations, and centralisation challenges.

As Satoshi Nakamoto noted in 2010[18] scalability issues require ongoing development.[18] Since the 2015 block size debate,[3] Blockstream, supported by major banks[26] has dominated Bitcoin Core's development,[1] often opposing[5] Satoshi's values on scaling. This centralisation shifted the focus to extrinsic value rather than technological improvement, aligning Bitcoin with banks'[16] transactional models contrary to Satoshi's warnings, and sidelining those with his values.[15]

Bitcoin has thus become a high value collectible, akin to a 'memecoin'[25] rather than a mainstream currency with real intrinsic worth, similar to how traditional loyalty rewards programs often fall short due to restrictive policies.[14]

Foreseeing this early led to conceptulising Plutus in a 2015 white paper[1], where customers would pay with their preferred digital currency and merchants would receive fiat, and address cryptocurrency's utility challenges and revolutionise rewards cards through tokenisation.

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[1] http://plutus.it/whitepaper2015

Fast forward 10 years later, Plutus facilitated up to $50 million[20] worth of transactions on its legacy DEX,[7] enabled customer card spending totaling over $1 billion,[20] and issued over $20 million in rewards,[20] all in equivalent value.

Objective

Enhancing Tokenomics Through Network Migration

Our goal for 2024 and beyond is to enhance tokenomics through network transition, develop real-world utility for rewards, and address barriers to crypto adoption. We aim to introduce tokenised fiat deposits as a stable digital currency for payments and reward redemptions through PlutusSwap, transforming traditional bank deposits into blockchain-based digital tokens, as outlined in the founder's 2018 post.[8] These tokenised fiat deposits represent a significant advancement, being reliably redeemable at a 1:1 ratio in a regulated environment, ensuring unparalleled liquidity, and establishing them as the first digital currency truly suited for payments and remittance.

Improving Network Efficiency and Customer Experience

Plutus will either bridge to a Layer 2 solution or migrate to another Layer 1, as determined by community vote. This initiative aims to enhance sustainability, reduce Ethereum gas fees, and improve token use-cases and transaction reliability.

Strategic Roadmap

Our roadmap aims to:

- Provide more engaging features.
- Ensure self-sustainable rewards issuance at scale.
- prioritiseritise intrinsic value through tangible utility.
- Achieve substantial token redemption depth and a minimum value anchor.
- Position the reward token as uniquely desirable.
- Scale customer acquisition to millions.

This strategy distinguishes our native reward token (PLU)[19] and sets a precedent for mainstream adoption.

Key Features

1. Bank-Like Features

Customers enjoy several bank-like features.

- Rewards Debit Card with 3% on purchases.
- Monthly Subscription Plans suitable for everyone.
- UK Account/Sort code, EU Iban, Direct Debits, Virtual/Physical/Metal Cards, Contactless Payments, Business Accounts (2025).

2. Compliance

Premium account holders will gain access to advanced features akin to traditional banking services, including third-party deposits, withdrawals, and other privileges. This measure is crucial for preventing misuse and ensuring secure transactions.

Level 1: Reward Account access via initial KYC.
Level 2: Bank-like features unlocked via Premium accounts.

3. Web3 Features

Reward Level and sublevels aid customer's progression through incremental benefits.
- Minimum rewards rate at 3%.
- Maximum rewards rate of up to 10%.
- Swap earned rewards on PlutusSwap for account or card balance.
- Redeem earned rewards for several tangible utilities.

4. Features & Developments

- **Network Transition:** To create additional utility and improve efficiency
- **Reward Levels:** Enhanced benefits with specific levels
- **Perks :** Rewards up to 10 back in tokens from partner brands
- **Rewards Cap:** Limits on rewards, increased through token redemption.
- **Stackable Perks :** Non-restrictive, combine all perks at a single store.
- **Rewards on Direct Debit :** Earn rewards with limitations, increased via token redemptions
- **Golden Ticket :** Invite friends and each receive £/€20 rewards

- **Free Payouts :** Based on reward levels
- **Non-Custodial Stacking:** A one-of-a-kind security feature giving rewards on self-custody.
- **FUEL:** Network fees for self-sustainability
- **Compounding Reward Yield:** 100% stacking reward for accumulating PLU
- **Tangible Utility:** Five use-cases for day-to-day utility
- **PlutusSwap:** Swap PLU Rewards for fiat via tokenised deposits
- **Pool & Earn :** Provide liquidity for fees
- **Tokenised Deposits:** Fully backed stable digital currency, instantly redeemable through KYC.

2   Core Upgrades: Sustainability and Intrinsic Worth

Ensuring Long-Term Sustainability and Intrinsic Value

To ensure long-term sustainability and incentivise customer participation, we are strategically implementing self-sustaining mechanisms like FUEL [section 4], enhanced productivity through benefits such as Compounding Rewards Yield (CRY%) [section 5] payouts, and tangible use-cases. This transition, occurring almost ten years post-launch, is an opportunity for lasting adjustments to improve the token's intrinsic worth and sustainability indefinitely.

3   Transitioning to Dynamic Token Supply Management

We will transition from a fixed pre-mined supply of 20 million[10] PLU tokens to a reduced total supply aligned with current circulation. This mitigates security risks associated with a pre-mined Rewards Pool model and ensures timeless sustainability. Key steps include:

This approach not only bolsters security by preventing large token accumulations vulnerable to attacks but also ensures enduring sustainability by adapting supply dynamically to actual market needs. This adaptation involves:

Pluton (PLU) Supply Management

1. **Total Supply Limit:** The total supply of Pluton (PLU) will be capped at the number of tokens in cir-

culation, issued exclusively as customer rewards.

2. **Dynamic Minting:** Eliminating the pre-mined[10] centralised Rewards Pool model in favour of minting tokens based on real-time demand and supply, thereby removing security vulnerabilities and single points of failure that impact the trust and growth of the ecosystem.

3. **Existing PLU Network Swap:** Converting existing PLU tokens to new tokens via the application or personal digital wallet, determined by community vote on network migration or bridge.

Rewards Pool Token Minting

- **Minting Process:** New tokens are minted in line with rewards emissions during quarterly reconciliations.
- **Certified Reconciliations:** These reconciliations are conducted by certified Chartered Accountants from the Institute of Chartered Accountants in England and Wales (ICAEW).[21]
- **Distribution:** Newly minted tokens are distributed to customers via Rewards Pool.

Core Changes

- **Transition:** Move from a pre-mined[10] capped supply to a reduced total supply.
- **Eliminates Risks:** Mitigate risks associated with the centralised rewards pool.
- **Improve Trust:** Accommodate long-term growth and maintain a low total supply.

Supply Impact

Ensures secure and transparent management of token supply, with new tokens created based on demand and reward activities. The transition is expected to have this impact on day 1.

Current Dist.	Token Supply	Allocation (%)
Supply	20,000,000	100%
Circulating	8,205,023	41.03%
Stacked	7,357,298.41	**36.79%**

■ **Table 1** Current Token Distributions

Expected Dist.	Token Supply	Allocation (%)
Supply	8,205,023	100%
Circulating	8,205,023	100%
Stacked	7,357,298.41	**89.67%**

■ **Table 2** Expected Token Distributions

4   FUEL: Self-Sustainable Rewards

- **DEX Transaction Fee:** 5% fee on all 'sell' transactions on decentralised exchanges.
- **Wallet Transfer Fee:** 5% fee on transfers to third-party wallets.
- **Whitelisting:** 0% fee for swaps on PlutusSwap or connected wallets.
- **Dynamic:** The max fee rate is dynamically reduced over several price points.

Dynamic Adjustment Mechanism

In a tokenised ecosystem, economic stability depends on aligning customer-perceived values with intrinsic worth, which is non-existent[23] in narrative-based crypto markets. Dynamic adjustment of FUEL collection and Reward Level requirements is essential for maintaining stability. If the cost to earn tokens through monthly card spending becomes too high, both FUEL and Reward Level requirements decrease by 50% when the customer's set value exceeds its intrinsic worth, continuing to decrease over time. Conversely, if the market value falls below its intrinsic worth, the FUEL rate and Reward Level requirements reset, ensuring stable token demand and distribution.

The fuel adjustment formula is expressed as:

$$F_{n+1} = \begin{cases} 0.5 \times F_n & \text{if } M > 1.5 \times I \\ 1\% & \text{if } F_n < 1\% \\ 0.05 & \text{if } M < I \\ F_n & \text{otherwise} \end{cases}$$

- **Fuel (F):** Network transaction fees at 5% collected from external transactions.
- **Reward Level (R):** Reward Level requirements that unlock each tier and sub-levels.
- **Intrinsic Worth (I):** The price where a token's market value matches its utility, demand, and real value.

- **Customers' Value (M):** The price determined by market narrative.
- **Trigger Point:** Reduces Fuel (F) and Reward Level (R) by 50% when value (M) exceeds intrinsic worth (I).
- **Doubling Effect:** Fuel (F) decreases by 50% each time (M) exceeds 50% above (I).
- **Stop Point:** Fuel (F), and Reward Level (R) do not decrease beyond 1%, or the intrinsic value of (R).
- **Reversal Point:** FUEL (F), Reward Level (R) resets to 5% when (M) falls below intrinsic worth (I).

Summary

The mechanism provides stability by aligning Reward Level requirements and FUEL with the token's true worth, as reward emissions are determined by customers' perceived value.

To simplify, consider a coffee shop where you earn stamps[9] for every purchase. Each stamp gets you closer to a free coffee. The shop adjusts the number of stamps needed based on how customers value the free coffee compared to its cost. If customers highly value the free coffee, the shop reduces the stamps needed to encourage participation. If the value falls due to misconceptions, the shop increases the stamp requirement to maintain fairness and sustainability. Moreover, educating customers about intrinsic worth ensures each free coffee is appropriately valued. As the shop attracts millions of customers and issues fewer stamps, the value of each stamp rises, rewarding stamp collectors with 100x free coffees.

5 Compounding Rewards Yield (CRY%)

Customers receive Compounding Rewards Yield of up to 10% for stacking earned rewards.

- **Earning CRY%:** Stack as little as 1 PLU to unlock a reward level and start earning.
- **Increase CRY%:** Progress through sub-levels and tiers for higher rates.
- **Benefits:** Amplifies earnings and accelerates progress through reward levels.
- **Payout:** Issued monthly to customers reward balance.
- **Multiplier:** Receive a compounding 0.1x multiplier on CRY payout each month.

Methodology

This formula and the scenario tables below illustrate how the initial PLU stack grows each year through compounded rewards, along with the impact of multipliers, over extended periods.

The formula for calculating the cumulative PLU stack $S_{\text{cumulative}}$ over N years is given by:

$$
S_{\text{cumulative}} = S_{\text{initial}} \cdot (1 + 0.03) + R_{3\% \text{ rewards}} \cdot \left(\frac{1 - (1 + 0.03)^N}{-0.03} \right)
$$

This formula combines the initial PLU stack S_{initial}, the 3% card rewards $R_{3\% \text{ rewards}}$, and the compounding effect of the 3% annual return over N years.

Explanation

The Cumulative Stack (S_cumulative) grows annually as the initial PLU stack increases with added rewards, annual compound yield (CRY), and multiplier bonuses. The multiplier starts at 1x (equivalent to 0.1x per month) in the first year and increases linearly each subsequent year, reaching up to 5x over long-term stacking period.

Payout Scenarios (CRY%)

The scenarios illustrate how rewards accumulate over time with compounding effects of CRY%. This aids in assessing the growth rate of rewards and making informed decisions and stacking strategies.

Scenario 1 An individual starting with 100 PLU stack earns 10 PLU yearly (assuming 3% reward rate). Over five years, the stack grows through compounded rewards and monthly multiplier to ≈250 PLU.

Year	3% Card Rewards (PLU)	3% CRY Annual (PLU)	Cumul Mult 0.1x Monthly	Cumul Total (PLU)
1	10	3.30	3.30	100.00
2	10	3.80	7.60	116.60
3	10	4.44	13.32	137.99
4	10	5.27	21.09	165.75
5	10	6.36	31.82	202.12
Total:	**50**	**23.17**	**77.12**	**250.30**

Table 3 Cumulative Rewards and Totals Over 5 Years

Scenario 2 An individual starting with 1000 PLU stack earns 100 PLU yearly (assuming 5% reward rate). Over five years, the stack grows through compounded rewards and monthly multiplier to ≈3400 PLU .

Year	5% Card Rewards (PLU)	5% CRY Annual (PLU)	Cumul Mult 0.1x Monthly	Cumul Total (PLU)
1	100	55	55	1000
2	100	65.5	131	1210
3	100	80.32	240.97	1506.5
4	100	101.39	405.56	1927.8
5	100	131.73	658.68	2534.75
Total:	500	433.95	1491.22	3425.17

■ **Table 4** Cumulative Rewards and Totals Over 5 Years

Scenario 3 An individual starting with 10000 PLU stack earns 1000 PLU yearly (assuming 10% reward rate). Over five years, the stack grows through compounded rewards and monthly multiplier to ≈69000 PLU .

Year	10% Card Rewards (PLU)	10% CRY Annual (PLU)	Cumul Mult 0.1x Monthly	Cumul Total (PLU)
1	1000	1100	1100	10000
2	1000	1420	2840	13200
3	1000	1946	5838	18460
4	1000	2824.4	11297.6	27244
5	1000	4336.6	21683	42366
Total:	10000	11627	42758.6	69385.6

■ **Table 5** Cumulative Rewards and Totals Over 5 Years

Note: The formula illustrates how rewards accumulate over time with compounding effects of CRY%. This aids in assessing the growth rate of rewards and making informed decisions and stacking strategies.

Compounding Rewards (CRY%): Optimal Choice

Understanding compounding frequency and method is crucial for evaluating differences[4] and our rationale for selecting annual compounding, which offers optimal benefits for stackers.

Annual Compounding

- **Frequency:** Once per year.
- **Calculation:** Interest calculated annually on initial principal and accrued interest.
- **Effect:** Annual interest added to principal each year.

Continuous Compounding

- **Frequency:** Continuous.
- **Calculation:** Uses the formula

$$A = Pe^{rt},$$

  where P is the principal, r is the annual interest rate, t is the time in years, and e is the base of the natural logarithm.
- **Effect:** Calculates and adds CRY% continuously.

Difference in Payouts

- **Initial Perception:** Seems counterintuitive that annual compounding could yield higher returns.
- **Reason:** Difference between nominal CRY% rates in annual compounding and effective rates in continuous compounding.
- **Impact:** Despite theoretical advantages of continuous compounding, practical payout differences may be smaller due to rate and frequency interactions.

Summary

Plutus has opted for annual compounding yield for its reward system, providing optimal benefits despite the theoretical advantages of continuous compounding, to provide long-term engagement with exponial value.

6 Reward Level Upgrades: Enhanced Value

Enhanced Reward Levels

Reward levels have been simplified to ensure accessibility for all customers, featuring a reward cap ratio of 1:1 and including desirable features such as stackable perks, rewards on Direct Debits, and more. These levels have incremental requirements and benefits unlocked by stacking 1 PLU.

New Reward Levels: Key Benefits

Introducing six new levels and sub-levels across all tiers. The first level now unlocks with just 1 PLU, offering a 10% instant reward rate and 10% CRY% to front-load and accelerate customer progress through the first level. [Table 9].

- **Rewards Cap:** Stacked PLU increases the cap at a 1:1 ratio, compounding onto subscription plan benefits.
- **CRY% Payouts:** Annual compounded rewards paid out monthly.
- **Reward Multiplier:** Up to 5x multiplier for long-term stackers .
- **Non-Restrictive Stackable Perks:** Stack all available perks for single-store spending .
- **Rewards On Direct Debits:** Earn rewards on monthly recurring payments.

The table below [Table 9] details the enhanced benefits and additional value offered by each reward level.

Sub-Levels Breakdown

Sub-levels provide structured pathways to increasing rewards and benefits, promoting ongoing engagement and loyalty. The two tables below showcase the appeal of Level 1 (Noob) [Table 6], where all customers start at higher rates early on, and Level 12 (Titan) [Table 7], tailored for high-value purchases .

Noob PLU Stack	Reward%	CRY%	Rewards Cap
1	10.00%	10.00%	1
10	9.00%	9.00%	10
20	8.00%	8.00%	20
30	7.00%	7.00%	30
40	6.00%	6.00%	40
50	5.00%	5.00%	50
60	4.00%	4.00%	60
70	3.00%	3.00%	70
80	3.00%	2.00%	80
90	3.00%	1.00%	90

Table 6 Noob PLU Stack

Titan PLU Stack	Reward%	CRY%	Rewards Cap
50,000	10.00%	10.00%	50,000
60.000	10.00%	10.00%	60,000
70,000	10.00%	10.00%	70,000
80,000	10.00%	10.00%	80,000
90,000	10.00%	10.00%	90,000
100,000	10.00%	10.00%	1,000,000

Table 7 Titan PLU Stack

Incremental Sequence: Sub-Levels

The table below [Table 8] outlines selected sub-levels within the expert and higher categories, each offering incrementally increasing reward rates on card spending and CRY%. Notably, it excludes the rewards cap, which scales at a 1:1 ratio with the amount of PLU stacked.

$$R(n), C(n), \text{Cap}(n) = R_0 + 0.01n, C_0 + 0.01n, \text{Cap}_0 + n$$

Chad	Hero	GOAT	HoneyBadger
3.10%	4.00%	8.00%	9.00%
3.20%	4.10%	8.10%	9.10%
3.30%	4.20%	8.20%	9.20%
3.40%	4.30%	8.30%	9.30%
3.50%	4.40%	8.40%	9.40%
3.60%	4.50%	8.50%	9.50%
3.70%	4.60%	8.60%	9.60%
3.80%	4.70%	8.70%	9.70%
3.90%	4.80%	8.80%	9.80%
4.00%	4.90%	8.90%	9.90%

Table 8 Incremental Sequence

Value Comparison

To ensure current stackers are rewarded for their long-term participation, they will be prioritised to receive up to 5 times the value they currently receive each month for their stack under the new reward level structure, as outlined in the table below [Table 10] .

Reward Level (Stack)	Reward Rate	Compounding Reward Yield (CRY%)	Perks	Stackable Perks (Non-Restrictive)	Free Payout	Double Rewards	Rewards on Direct Debits	Golden Ticket	Min. Reward Value Earned Mo.
Noob	10.00%	10.00%	0	0	0	1	1	1	£20.14
Researcher	3.00%	1.00%	0	0	1	1	1	1	£46.42
Explorer	3.00%	2.00%	0	1	1	1	1	1	£52.67
Adventurer	3.00%	3.00%	1	1	1	1	1	1	£69.75
Chad	3.00%	3.00%	3	3	3	3	3	3	£213.50
Hero	4.00%	4.00%	4	4	4	4	4	4	£341.33
Veteran	5.00%	5.00%	5	5	5	5	5	5	£497.50
Legend	6.00%	6.00%	6	6	6	6	6	6	£1,192.00
Myth	7.00%	7.00%	7	7	7	7	7	7	£2,382.33
GOAT	8.00%	8.00%	8	8	8	8	8	8	£3,856.00
HoneyBadger	9.00%	9.00%	9	9	9	9	9	9	£5,613.00
Titan	10.00%	10.00%	10	10	10	10	10	10	£7,653.33

■ **Table 9** The enhanced benefits and additional value offered by each reward levels.

PLU Stacked	Current Mo. Value	New Mo. Value	Value Increase
250	£48.00	£54.58	13.71%
500	£60.00	£75.25	25.42%
1,000	£72.00	£213.50	196.53%
1,500	£84.00	£238.08	183.33%
2,000	£96.00	£341.33	255.31%
3,000	£108.00	£497.50	360.19%

■ **Table 10** Min. Monthly Value Comparison

Sustainability Significance
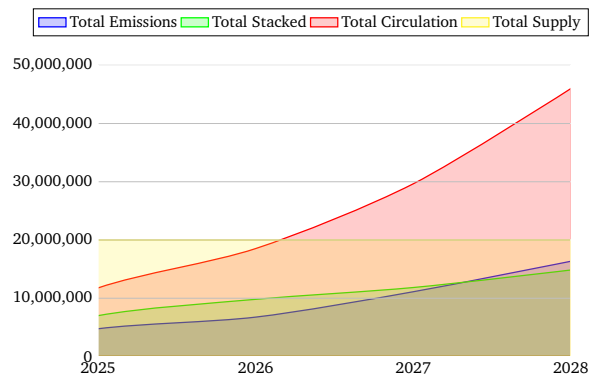
Associated Risks: Current Reward Levels

The current reward levels, established in 2019 during the company's growth phases, provide significant rewards for minimal contributions, creating an imbalance and unfair disparity between low costs and substantial benefits. While advantageous for customers, this model lacks sustainability beyond the company's growth stages with legacy tokenomics from 2015, risking potential system failure. The table below, based on 2023 data, illustrates that nearly 50% of customers at these reward levels have tripled their initial stack within a year [Table 11].

Current Level	Hero	Veteran	Legend	Myth	GOAT	Honey Badger
PLU Stack	250	500	1000	1500	2000	3000
Recouped 100%	81%	52%	63%	28%	72%	59%
Recouped 200%	58%	37%	44%	14%	51%	33%

■ **Table 11** Current Reward Levels

Outcome: Failure Scenario

- **Average Earnings:** Hero-level customers spending up to £2000 each month earn £1,536.00 in rewards value each year.
- **Stack Recoupment:** 81% recoup their stack in under a year; 58% earn double, tripling their initial stack.
- **System Failure:** Continued use without utility, or sustainable features risks circulation surpassing total supply in 2026.

■ **Figure 1** Current Reward Level (Sustainability Chart)

Mitigating Associated Risks: New Reward Levels

To maintain a lucrative reward system, while improving sustainability, the new reward levels are designed to:

1. Categorised based on customer personas and spending habits aligned with the rewards cap.
2. Incorporate self-sustainable features such as FUEL and tangible utilities requiring token redemption.
3. Adjusting requirements based on Time Value of Rewards (TVM) principles.

This approach distributes rewards proportionally to each customer's contribution by providing them an equal rewards cap and additional benefits, mitigating the risks associated with the current rewards structure and unevenly advantageous emissions. The table below outlines the categories, based on spending habits.

Categories	Monthly Spending (Up to)
1	£1,000
2	£10,000
3	£100,000
4	£1,000,000

Table 12 Spending habits

Outcome: Supply Shock

- **FUEL Implementation:** Self-sustainable features covering 100% CRY payouts and $\sim 50\%$ of reward emissions.
- **Applying TVM:** Provides a fair balance and sustainability through adjusted requirements.
- **Reduction in Emissions:** Lowering net-emission significantly through FUEL and maintaining a low total supply.
- **Proposed Solution:** Tokenomics and reward level upgrades reduce emissions and induce a supply shock in 2026.
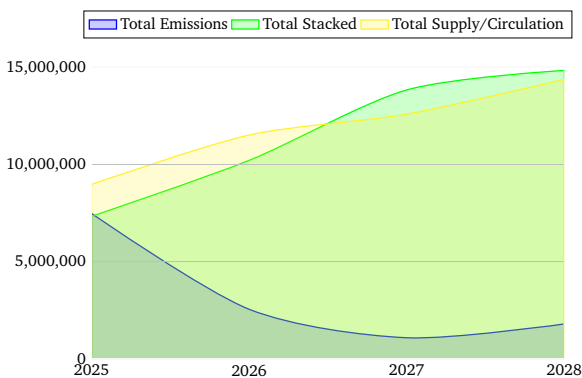
Figure 2 New Reward Level (Sustainability Chart)

TVM Explained: Guide on Assessing True Value and Cost

To evaluate the true cost, i.e, present value (PV) of each of Plutus' reward levels, we use the principles of Time Value of Money (TVM)[11] in the context of rewards. This principle developed centuries ago by contributions from various scholars and economists states that a sum received today is worth more than the same sum in the future due to its potential earning capacity.

$$\text{True Cost (PV\_RL)} = \frac{\text{Total Earnings (FV)}}{(1 + 0.1r)^{10} \, n}$$

Current Reward Level: True Value Of Rewards

Applying this formula to Plutus' rewards, helps us figure out the fair value of each reward level based on how valuable they are over time. If the present value of reward level (PV_RL) is positive (it exceeds its current costs and provides savings), it indicates significant potential value creation. If it's negative, it suggests the benefits are inadequate. [Table 13].

New Reward Level: True Value Of Rewards

To ensure sustainability, the new reward levels will adhere to these (TVM) principles, with overall requirements averaging approximately 64% less than their current true cost (present value). This approach achieves a balanced and equitable adjustment in emissions and requirements, as demonstrated in the table below.[Table 14].

Note: The full breakdown of new reward level requirements and benefits will accompany Ernst & Young's report in July and is scheduled to take effect on August 1, 2024, following the vote.

The Misunderstood Devaluation Theory: Guide on Economic Principles

Adjusting the PLU requirements up to its 'True Cost', i.e., the present value (PV) does not diminish the rewards' fundamental worth. Here's why:

- **Positive Present Value:** Indicates substantial value creation.
- **Fair Balance:** Aligns requirements with true costs for equitable relationships.

Current Reward Level	Avg. Earnings (10 Yr)	True Cost (PV_RL)	True Cost (Equal in PLU)	Customer Stack (PLU)	Customer Savings
Hero	£15,360.00	£7,776.13	2,592.04	250	90.36%
Veteran	£19,200.00	£8,656.57	2,885.52	500	82.68%
Legend	£30,240.00	£12,211.85	4,070.62	1000	76.60%
Myth	£43,680.00	£15,940.09	5,313.36	1500	67.91%
GOAT	£49,920.00	£17,887.36	5,962.45	2000	56.03%
HoneyBadger	£66,960.00	£23,994.57	7,998.19	3000	31.26%

Table 13 Current Reward Level: True Value Of Rewards

New Reward Level	Value Earned (10 Yr)	True Cost (PV_RL)	True Cost (Equal in PLU)	Customer Stack (PLU)	Customer Savings
Noob	£2,404.10	£927.06	309.02	1	99.68%
Researcher	£5,822.50	£2,244.35	748.12	100	86.63%
Explorer	£6,270.00	£2,417.23	805.74	200	75.18%
Adventurer	£8,220.00	£3,168.85	1,056.28	300	71.60%
Chad	£35,820.00	£13,809.51	4,603.17	1000	78.28%
Hero	£54,560.00	£21,036.43	7,012.14	-	+50.00%
Veteran	£76,700.00	£29,570.82	9,856.94	-	+50.00%
Legend	£143,040.00	£55,135.24	18,378.41	-	∼ 50.00%
Myth	£285,880.00	£110,208.29	36,736.10	-	∼ 50.00%
GOAT	£462,720.00	£178,387.17	59,462.39	-	∼ 50.00%
HoneyBadger	£673,560.00	£259,680.02	86,560.01	-	+50.00%
Titan	£918,400.00	£354,085.25	118,028.42	50000	57.64%

Table 14 New Reward Level: True Value Of Rewards

- **Stable Growth:** Sustainable levels promote long-term participation. Equitable Distribution: Ensures fair rewards distribution.
- **Adjustment Impact:** Reduces the circulating supply through stacking and positively impacts the value.
- **Supply Management:** Shifts system to a deflationary (reducing supply) instead of inflationary (increasing supply).
- **Real-World Example:** Analogous to adjusting contribution on a savings account with interest for growth.

Comparison with Economic Policies

When Robert Mugabe, the leader of Zimbabwe, printed more money, the value of the currency dropped drastically, causing severe economic problems.[29] Higher token requirement does the opposite — it limits new token creation through increased stacking, helping to maintain a low supply and a healthy ecosystem.

Similarly, when Recep Tayyip Erdogan, the leader of Turkey, kept lowering interest rates, it increased the money supply and caused high inflation.[31]

The notion that adjusting stacking requirements up to their true cost (PV) would devalue the token reflects the same backward thinking that led two world leaders to crash their economies. Similarly, the impact of misconceptions such as 'DA devalues PLU'[6] has negatively affected the token for over a year, prompting a necessary update to its tokenomics.

Smart Decision-Making

From the perspective of an individual benefiting from low-cost lucrative rewards, higher requirements may seem less attractive. However, smart decision-making requires balancing short-term personal gains with the

system's long-term health, which ultimately offers greater value.

Moreover, PLU holds intrinsic value supported by tangible utilities [7], ensuring both depth and a guaranteed minimum redemption value, which are crucial for system stability. This empowers customers to retain tokens or use them effectively in the real world.

Unparalleled Benefits of Self-Custody Stacking

Reward level benefits, such as CRY% and others, are earned through accumulating in-app reward tokens from card spending, which are held in self-custody wallets. The value derived from this unique feature is incomparable to any other rewards program or real-world use cases; this is further enhanced by its tangibility through utility and PlutusSwap. To draw a real-world analogy, imagine a bank that offers free cashback and pays monthly interest on it to customers who keep their 'cash under the pillow'. This feature stands unparalleled.

Calculating Intrinsic Worth: Current Reward Levels

Due to the 45-day refund window, the redemption value earned may fluctuate independently of its fiat equivalent, similar to the price-to-book differences observed in financial or corporate institutions. To assess the intrinsic value of PLU on current reward levels, assuming tokens are withdrawn and redeemed at the equivalent value they were earned, we can use the following formula:

$$\text{Intrinsic Value (1 PLU)} = \frac{£15,360.00}{250} = £61.44$$

The table below [Table 15] illustrates the cost-effectiveness and substantial inherent value of a reward level, which is often misunderstood by many.

Current Reward Level	Hero
PLU Stack	250
Avg. Value Earned Monthly	£28.00
Value Earned (10 Year)	£15,360.00
Intrinsic Value (1 PLU):	£61.44

Table 15 Intrinsic Value

Conclusion

Plutus's updated reward levels exemplify a forward-thinking approach to incentivising customer engagement with higher reward caps, CRY% payouts, stackable perks, and new sub-levels, ensuring rapid earning potential and long-term loyalty. It categorises reward levels based on customer spending habits and implements features like FUEL and TVM principles to foster fairness and reduce risk. Ultimately, this strategy, coupled with tangible utilities, supports scalability to millions of customers, empowering them to earn lucrative rewards while maintaining a low supply. This approach organically preserves high value through supply shock and fosters robust growth and resilience in the ecosystem.

Model Validation: Vote

The proposed reward model is being validated by Ernst & Young to ensure robustness and transparency before integrating the white paper plans into the development roadmap. The first update, aligning Reward Level requirements with TVM principles, is scheduled to take effect on August 1, 2024, post-vote. Further details of the voting process, including a comprehensive breakdown of all reward levels and sub-levels, will accompany the forthcoming validation report to aid informed decision-making.

7 Enhancing PLU Rewards Intrinsic Value

1. **Plutus Cashback:** Plutus facilitates corporate partnerships offering reusable cashback links through NFTs. These tangible commodities increase engagement and the token's intrinsic value by providing significant fiat-backed depth [Table 16].
2. **Plutus Travel:** Plutus functions as a registered travel agent, capturing booking yields up to 25% and passing it on to customers. Customers redeem earned PLU through various options [Table 17].
3. **Plutus Gifts:** Plutus acts as a corporate agent, securing up to 15% discounts through API-based partnerships with vendors. Customers can redeem their earned PLU for gift cards from a wide range of household brands [Table 18].
4. **Plutus Miles:** Customers redeem tokens for Air Miles. This feature, though situational, offers an intrinsic value range of a constant £10 per token.

Chance to Win	Cashback Links, %	Cap on Purchases, £	Intrinsic Value, £
Guaranteed	1%	No Cap	£3.02
1-3	3%	No Cap	£10.57
1-5	5%	No Cap	£10.57
1-10	10%	No Cap	£10.57
1-20	15%	No Cap	£7.93
1-50	20%	No Cap	£4.40
1-100	50%	£500.00	£7.50
1-1000	100%	£500.00	£1.50
1-10000	100%	£1,000.00	£0.30
1-20000	100%	£10,000.00	£1.50
1-100000	100%	£100,000.00	£3.00
Total			£60.86

Table 16 NFT Purchase Options

Redeem	Disc. (%)	Book Cap (£)	Max. Cashback (£)	Total Intrinsic Value (£)
1.00	10	100	10	10
5.00	10	1k	100	20
10.00	10	5k	500	50
20.00	10	10k	1k	50
50.00	10	50k	5k	100
100.00	15	100k	15k	150

Table 17 Plutus Travels. Cashback and Token Values

Token-to-Air Miles swaps are facilitated within the app [Table19].

5. **Plutus Merch:** Customers enjoy discounts on rare-edition items released every 3-6 months [Table 20].

PLU Utility Intrinsic Value Assessment

Calculating intrinsic value precisely is a complex task, especially when ensuring it can support widespread token redemptions without devaluation. Unlike speculative tokens (e.g. Bitcoin), which are assessed solely on extrinsic worth and lack practical utility, PLU stands out with three key utilities that decisively shape its inherent value:

- **Plutus Gifts:** Establishes a minimum intrinsic worth of £10.00 per 1 PLU.

Redeem	1	10
Gift Card Value, £	10	100
Token Intrinsic Value, £	**10**	**10**

Table 18 Token Intrinsic Value

Redeem:	1	50	100
AirMiles	1k	50k	100k
Cost to Customer	£5	£250	£500
Issuer Redeem Value	£10	£500	£1000
Token Intrinsic Value	**£10**	**£10**	**£10**

Table 19 Token Redemption and AirMiles Values

- **Plutus Cashback:** Maintains an average intrinsic worth of £60.86 per 1 PLU.
- **Plutus Travel:** Signals a high intrinsic worth of £150.00 per 1 PLU.

Intrinsic Value Calculation for 1 PLU

The intrinsic value of a 1 PLU can be determined based on its utility to redeem at a specific value. Conservatively estimated based on redeemable rewards, with a minimum permanent anchor and high inherent worth:

1. **Plutus Gift (Cards):** If 1 PLU token can redeem a £10 Amazon gift card, its intrinsic worth equals the card's value.

$$I_{\text{PLU}} = V_{\text{gift card}} = 10\,\text{GBP}$$

2. **Plutus Cashback (NFT):** If 1 PLU token offers a chance to redeem up to £100,000 in cashback, its intrinsic worth aligns with the total potential rewards detailed in [Table 16].

$$I_{\text{total}} = \sum_{i=1}^{n} I_i = 60.86\,\text{GBP}$$

3. **Plutus Travel (Bookings):** If 1 PLU token can be redeemed for up to £15,000 cashback on significant travel bookings, its intrinsic value is equivalent to the value of the cashback.

$$I_{\text{total}} = \sum_{i=1}^{n} I_i = 150.00\,\text{GBP}$$

Merch Store, Branded Item #	1	2	3
Redeem Token	**1**	**5**	**10**
Plutus' Item Retail Price, £	20	50	100
Token Intrinsic Value, £	**20**	**10**	**10**

■ **Table 20** Merch Store Token Redemption and Prices

Minimum	Average	Maximum
£10	£60.86	£150

■ **Table 21** Intrinsic Value per Token (PLU)

Summary

Three of the five new utilities provide both a permanent anchor and unlimited scalability for PLU redemption, firmly establishing PLU's intrinsic value. As a result, it is anticipated that its perceived value will surpass a strictly calculated intrinsic value, which averages £60.86 per PLU based on mathematical calculations .

Adam Smith's[28] concept of the invisible hand succinctly explains Bitcoin's market value,[2] driven by what individuals are willing to pay, often influenced by speculative demand fueled by 'the greater fool theory'[12] and constrained by its limited supply. However, stripping away these factors that drive Bitcoin's extrinsic value — leaves its intrinsic value virtually non-existent. In contrast, gold retains its intrinsic value due to its unique properties like lustre, malleability, and resistance to tarnishing, making it valuable across industries and jewellery despite its scarcity. Similarly, PLU's new utilities provide tangible benefits that enhance its inherent value, distinguishing it as a superior in-app utility token from all other tokenised digital assets.
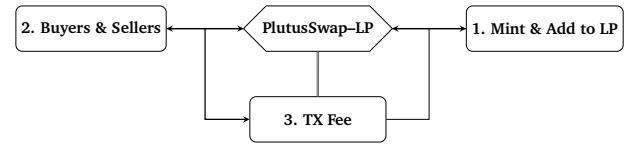
8 Practical Features: Enhance Day-to-Day Usability

PlutusSwap

Decentralised exchange (DEX) facilitating peer-to-peer swaps and providing fiat on/off ramps for PLU Rewards through Tokenised Fiat Deposits.

Pool & Earn

Liquidity providers earn fees on transactions via Plutus Tokenised Deposits, enabling seamless PLU Rewards conversion into fiat.

■ **Figure 3** Pool & Earn

1. Liquidity providers mint Plutus tokenised fiat by locking up fiat (GBP/EUR) in a segregated account and transfer them to the Liquidity Pool (LP) in PlutusSwap.
2. Token Buyers and Sellers swap assets against the liquidity pool, paying a small transaction fee.
3. Collected transaction fees in tokenised fiat are transferred to Liquidity Providers' account/connected wallet upon request.

Tokenised Deposits: Plutus Pound & Plutus Euro

Tokenised Deposits represent the world's first fully backed stable digital currency, or "stablecoin", secured by 100% of customers' deposits locked in an insured segregated account outside of Plutus' control, provided by Bank of England and similar regulated financial institutions.

Tokenised Fiat: Minting & Redemption Process

- Plutus tokenised fiat deposits are minted upon issuance to customer accounts.
- Plutus tokenised fiat can be redeemed at a 1:1 ratio on the Plutus platform through KYC.

Tokenised Fiat: Utility

Tokenised fiat deposits offer versatile utility within the Plutus ecosystem:

- **Redeem for spendable account/card balance:** Customers can use tokenised fiat deposits for everyday transactions, effectively integrating digital currency into their financial lives.
- **Swap on PlutusSwap to buy tokens:** Users can exchange tokenised fiat for PLU tokens or other supported cryptocurrencies on PlutusSwap.

- **Withdraw to self-custody:** Tokens can be withdrawn to self-custody wallets for added security and control over digital assets.
- **Send it to a friend:** Easily transfer tokenised fiat to other Plutus users or external wallets.
- **Provide liquidity on PlutusSwap by Pool & Earn:** Participate in the liquidity provision process on PlutusSwap, earning rewards based on transaction volumes and contributing to the platform's liquidity pool.

These features enhance the practical usability of PLU Rewards and contribute to Plutus's goal of providing a seamless and comprehensive financial ecosystem for its users.

Governance: Tokenised Deposits

Operating in a regulated financial sector, Plutus ensures rigorous oversight of tokenised deposits and their 100% backed funds in segregated accounts. Legal partner Bird & Bird supports in establishing compliant structures and securing necessary licences, with a 'Big-Four' firm as our partnered auditors ensuring regulatory oversight.

Summary

We aim to pioneer the world's first genuine stable digital currency by enabling customers to tokenise fiat deposits within a regulated environment, crucial for both DeFi and TradFi.

Governance: Voting Process

Customers with connected wallets will receive an email giving them voting rights according to their stack on their Plutus connected wallets: 1 PLU = 1 Vote. Weighted voting system held transparently on a third party platform. Stackers will be voting on:

- Blockchain Network: Voting includes: Leading L1, Secure L2, Plutus L2 .
- WhitePaper Development Plans

More information on voting will be released with the Ernst & Young's validation report to aid customers making better decisions.

9 Conclusion

The Plutus ecosystem represents a pioneering effort in merging traditional banking services while utilising

tokenisation to offer innovative financial solutions. Through its robust infrastructure and comprehensive tokenomics, Plutus has established itself as a leader in the tokenised rewards space, catering to a diverse range of customers across UK & Europe. By leveraging the tokensied rewards (PLU) for loyalty, and providing it with real-world utility. Plutus not only enhances customer engagement but also solidifies its commitment to providing tangible intrinsic value with practical utility. As Plutus continues to innovate and evolve through its milestones, its focus on transparency, commitment to deliver, and community engagement remains steadfast. These commitments underscore Plutus's dedication to surpassing both the loyalty rewards industry and traditional crypto by offering substantial intrinsic value through tangible benefits to millions of customers across all continents.

Biography

Through our white paper's case study, I recognise the deep connections many of you have with Bitcoin and all things Plutus. However, my goal is not to compare them. Bitcoin remains a groundbreaking experiment in peer-to-peer cash systems, whereas PLU leverages blockchain technology to enhance daily spending, as detailed in our white paper. These distinct paths underline their unique purposes.

In 2012, purchasing BTC at $7 and mining with GTX 600s was an inspirational time. I experienced this firsthand and have been committed to the industry since, launching a merchant solution[24] for local vendors in the UK and a Bitcoin exchange.[30] At the time, all the FCA required was a money-services licence that could be easily acquired.

Those early days were fueled by the promise of decentralisation. Unfortunately, Bitcoin's foundational principles were compromised, turning it into what is fundamentally considered a worthless despite it having exponential extrinsic worth supported by a cult following. Core developers Mike Hearn, who championed Bitcoin since 2009 declared in 2015 that "Bitcoin has failed",[13] noted this departure from Satoshi's vision.

Witnessing Bitcoin's deviation inspired the creation of Plutus, advancing tokenisation based on Satoshi's principles. Initially focused on loyalty rewards, we now prioritiseritise enhancing token intrinsic value, often overlooked in crypto. For years, I've critiqued 'stablecoins', highlighting transparency issues since 2018.[8] With over a decade of experience, I aim to pioneer solutions, including tokenised fiat deposits to simplify liquidity and transfers, addressing identified core issues.

I want to thank the Plutus community for their support over the years, as well as all Plutus team members who have helped achieve the company's vision and gone above and beyond: Jasper Tay (co-founder), Minyi Soon (Head of Product), Marcus Soulsby (Chief of Comms & Everything Else), Nick Cream (Head of Tech), Jakub Ircow (Product Manager), Borja Prada (Head of Customer Service), and all others who consistently exceed expectations and contribute to our success.

Appendix: Development Disclosure

The values, features, and objectives in this whitepaper are confirmed at publication. However, Plutus acknowledges that development plans may evolve over time in response to technological advancements, regulatory requirements, or other factors. Any changes to the roadmap will be transparently communicated to the community to gather feedback on new directions. Despite potential modifications, our commitment to enhancing sustainability, intrinsic value, and usability within the Plutus ecosystem remains unwavering.

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