

The Token Economy primer

Andy Martin, IBM

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Token economy

Digital Asset



Tokenisation associates ownership, identity, governance & access rights

Smart Contract



Process codifies & automates the business model, organisation & governance for trading & use of digital assets

Blockchain



Shared, trusted, timestamped & distributed & decentralised source of the truth of that digital asset

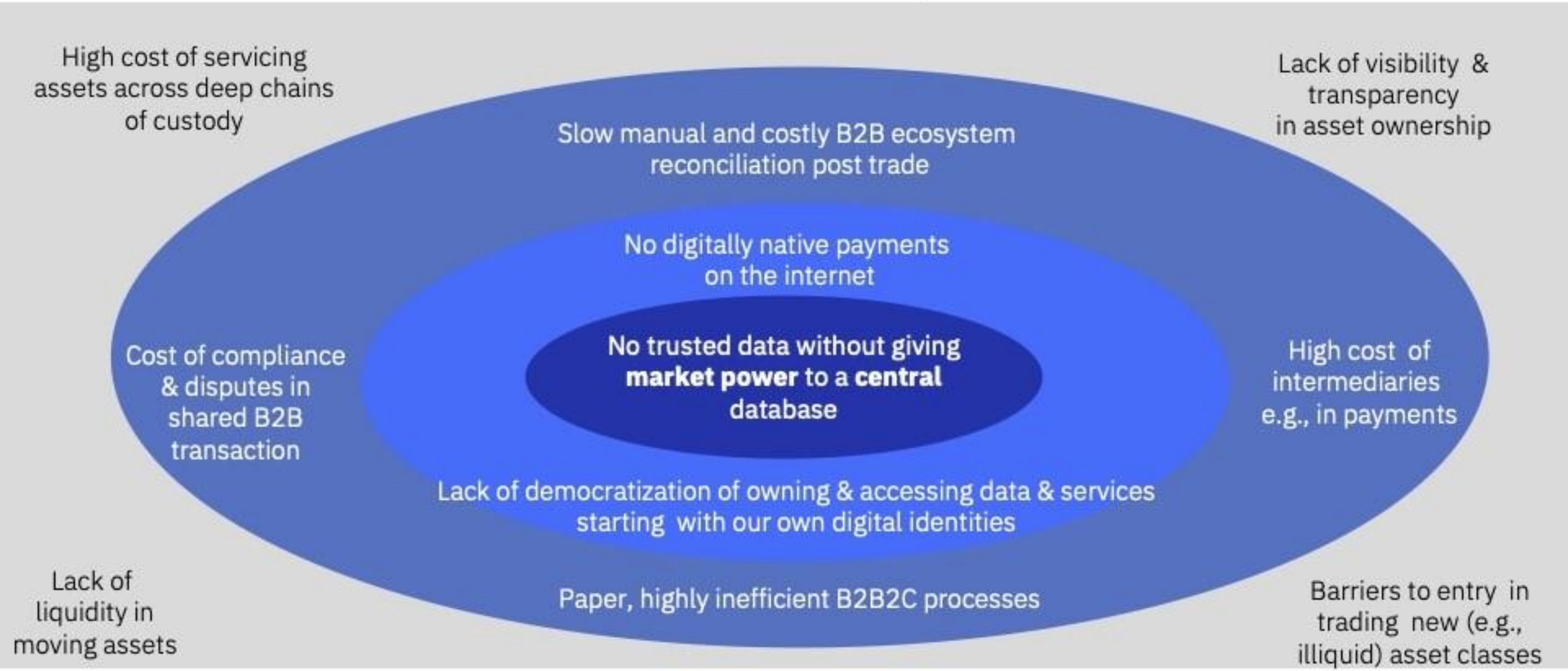
Source, Andy Martin, IBM

Token economy – what's different?

	Old / web 2	New / web 3
Market data	Central governance & ownership	Distributed & decentralized governance & ownership
Platform power	Lock-in	Open-neutral
Identity	"Controls"	"Verifies"
Incentive	Winner takes all	Win-win-win
Liquidity	"Analogue"	"Digital"
Monetisation	Platform	Data owner, innovator & platform

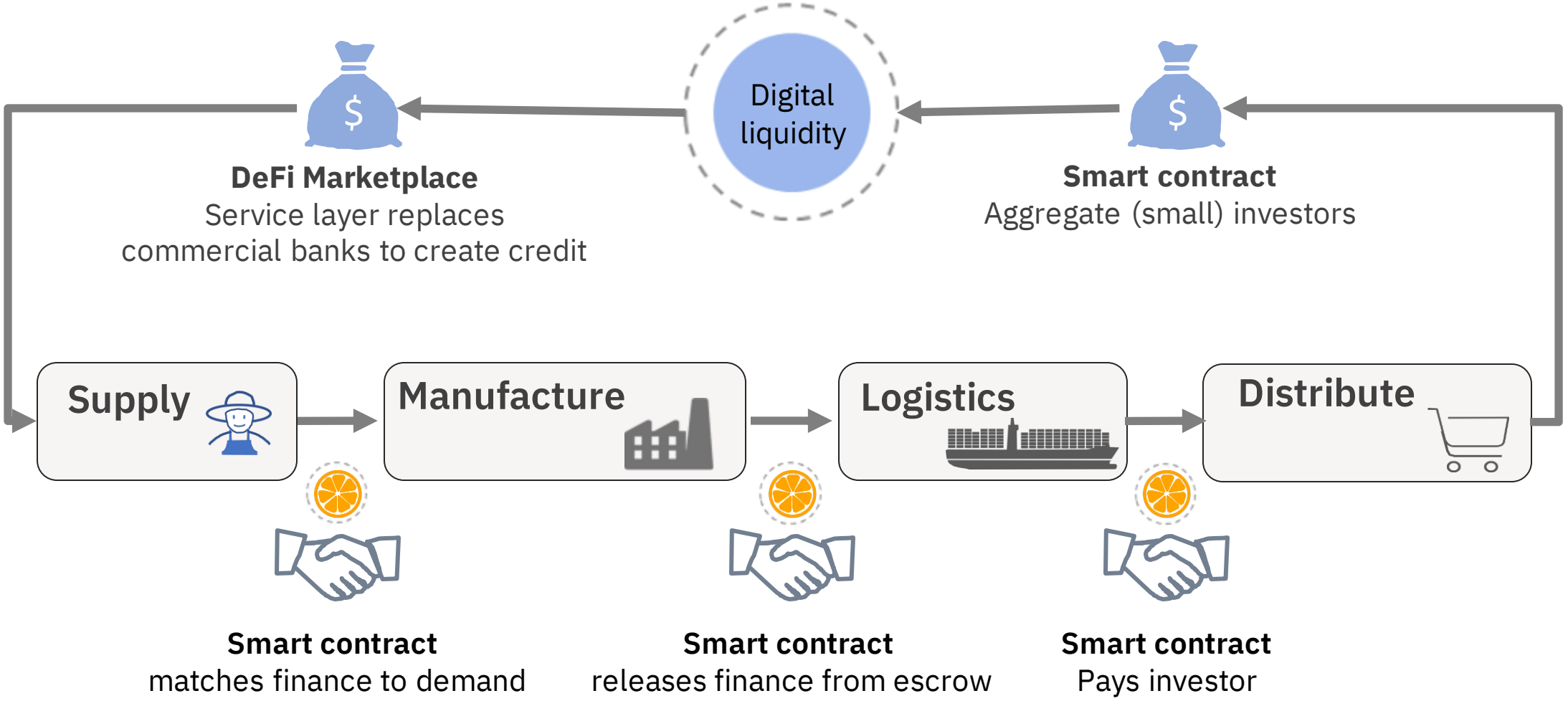
Source, Andy Martin, IBM

Blockchain - what is the problem solved?



Source, Andy Martin, IBM

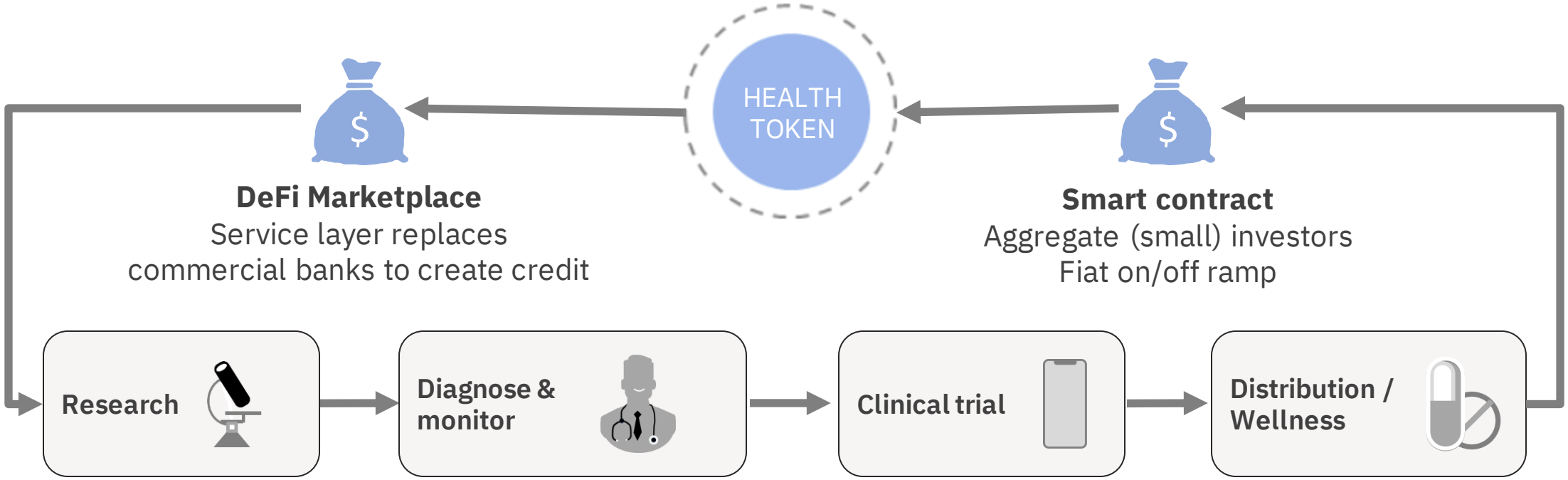
Networked business value chain



Key Trade Finance & ST debt | Smart contract | Token, CBDC or Stable Coin or digital asset

Source, Andy Martin, IBM

web3 - Go to Market as a Network / DAO



Key Tokens

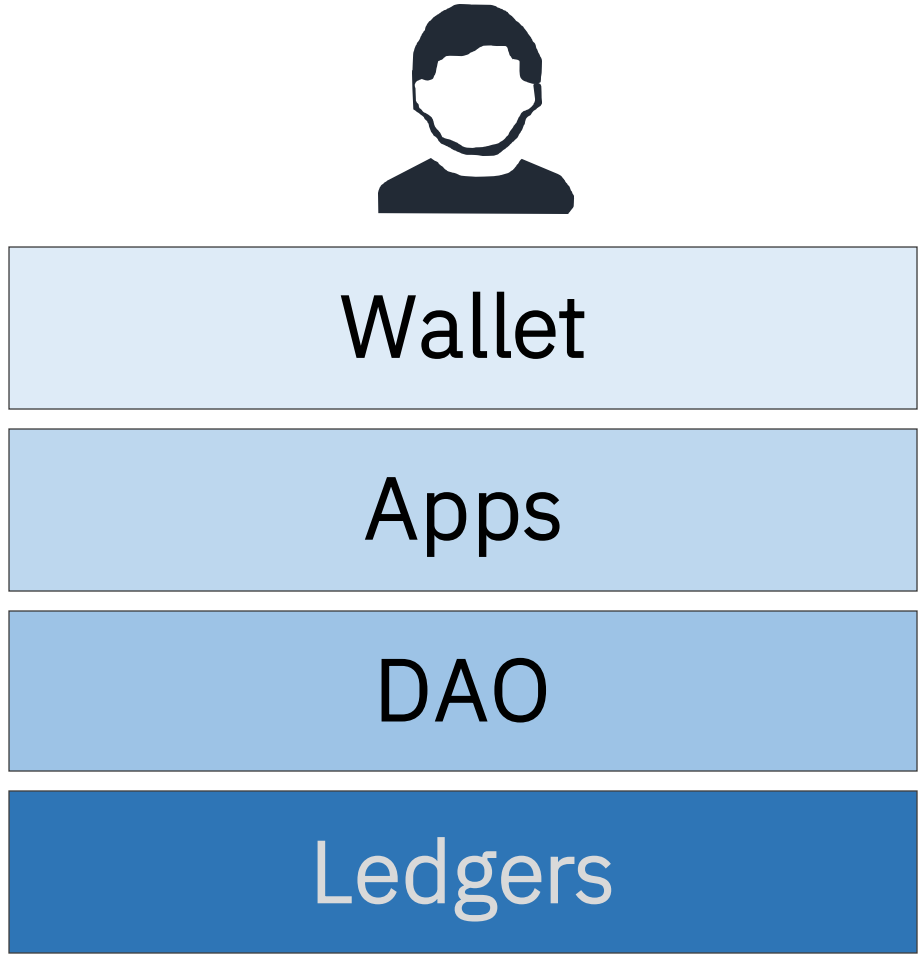
Source, Andy Martin, IBM

web3 - business model innovation

	Innovator	Platform	Governance
Go to market • Network effects	• As a network	• Network, market or industry	• DAO • Zone of sovereignty
Products • new revenue • synergies	• Buy & sell data • App Store fees	• Fees for activity & foundation services (composability)	• Store value in the market token(s)
Tokenomics • Incentives / DeFi	• Win-win-win • Behaviours	• New funding model	• New funding / reserve model

Source, Andy Martin, IBM

3 Blockchain governance layers



Source, Andy Martin, IBM

Wallet – Like the glass on an iPhone. It is the user interface layer where ownership of 100's of tokens can be accessed, and atomic swaps initiated

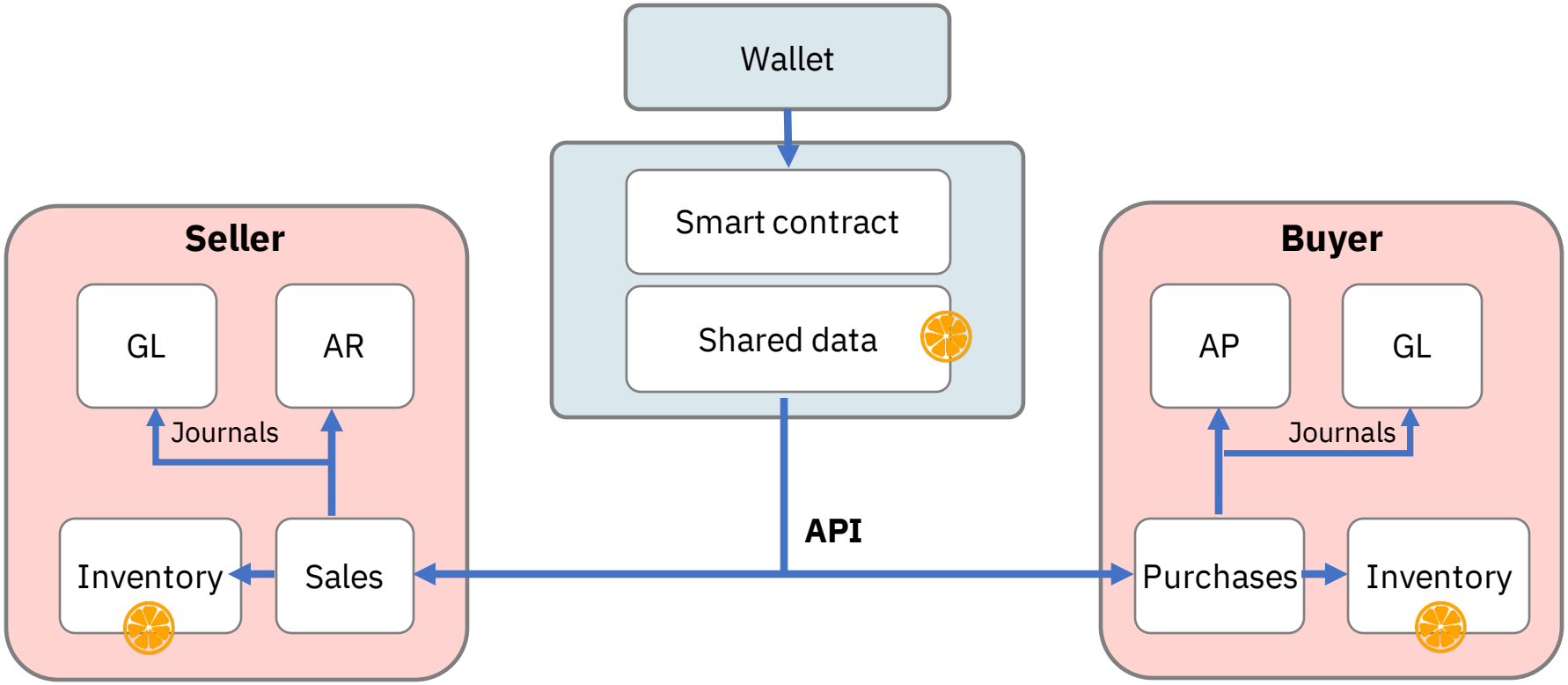
Apps – Like individual app. on the App Store. Many different businesses can be built on each network. App logic governs trading of tokens and are used to incentivise behaviour and denote ownership inside the app.

DAO – Like the Apple App Store before you add any apps. This is the B2B2C value chain of economic actors ("the community") who don't need to trust each other assembled to support complex tokens. This is a marketplace and has its own marketplace token that is used for payments but also governance by way of voting and access and staking rights and duties and critically as an incentive for better collective outcomes.

Internet of ledgers – Like the operating system for the network such as IOS for the Apple ecosystem. It governs activity such as atomic swaps of tokens in the network. Tokens are used to pay those who maintain the infrastructure by providing bandwidth and storage and to order and validate the ledgers

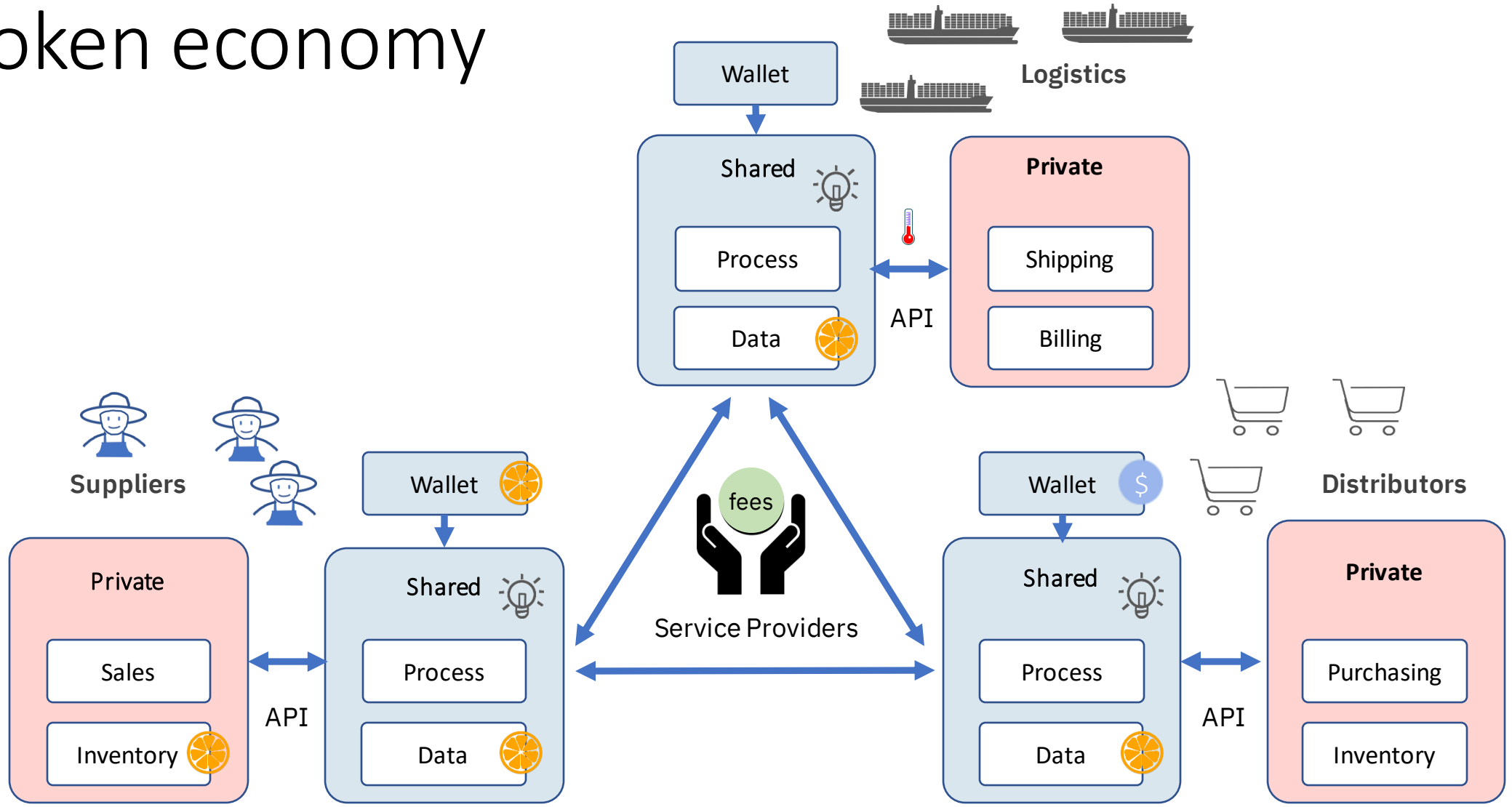
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Quadruple entry system



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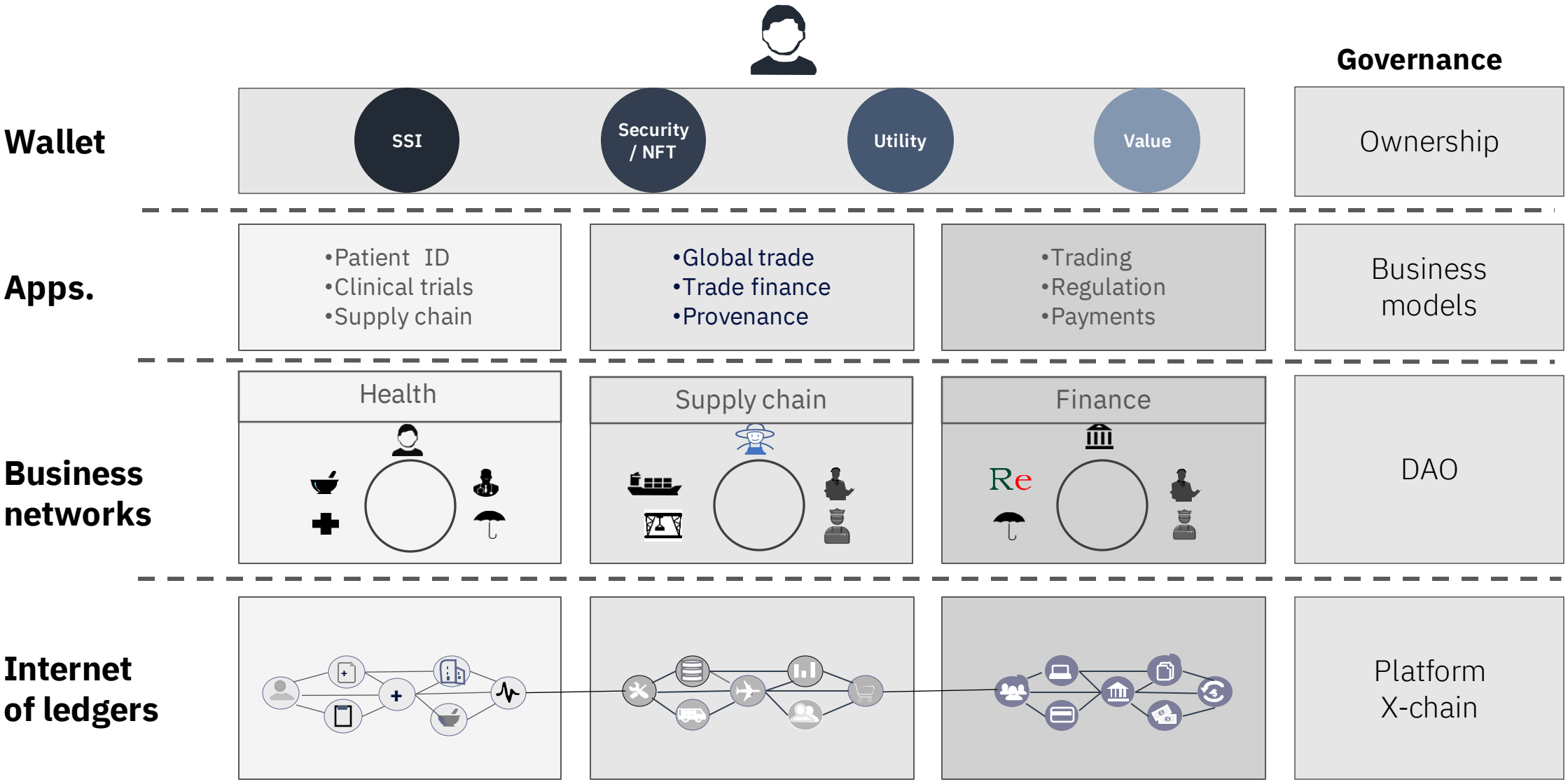
Token economy



Key Artificial intelligence Internet of things

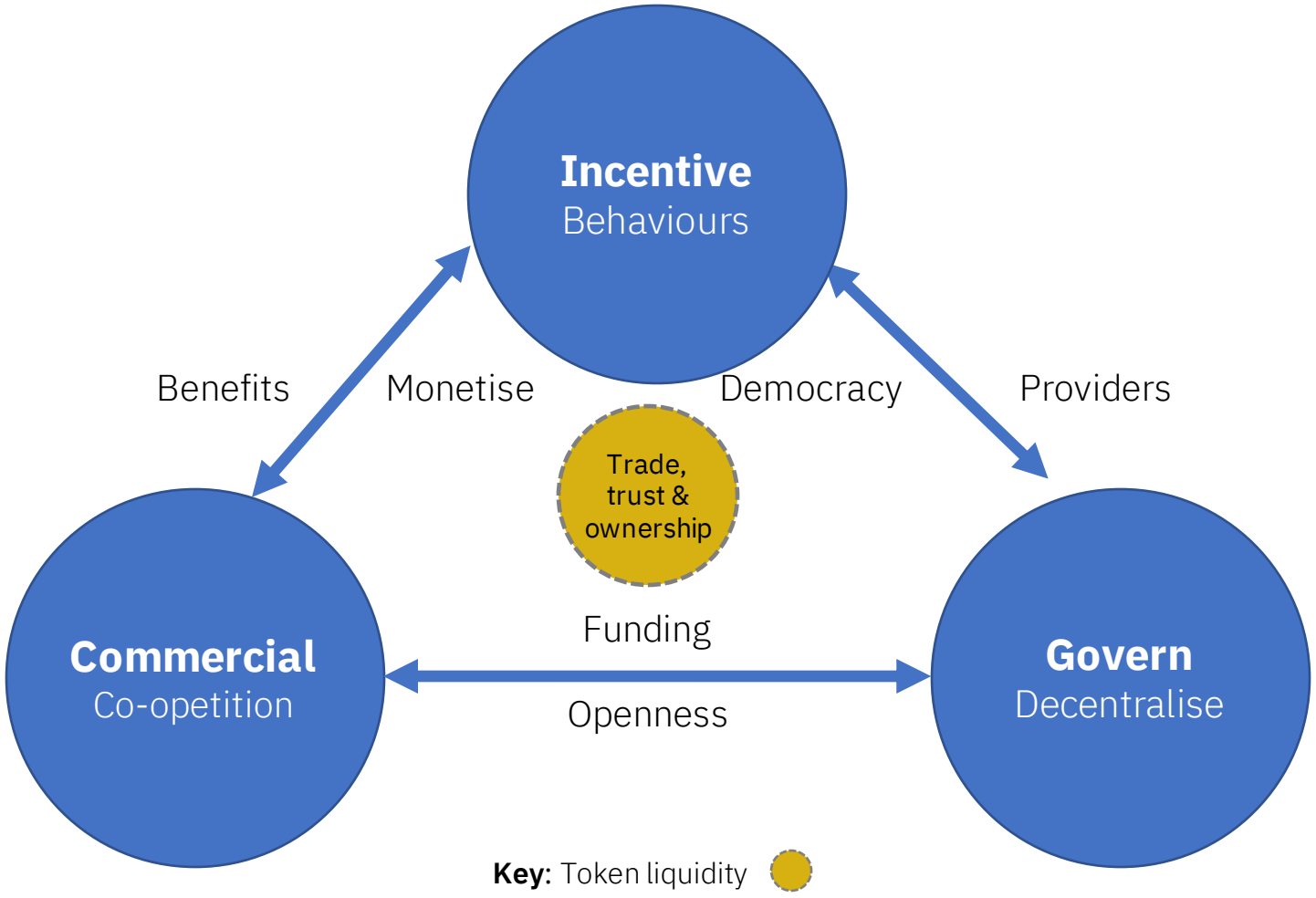
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Governance model levels



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Business model parts at each level



Business model

- **Economic model**, incentives, disincentives & behaviour changes
- **Governance model**, how decisions are made onchain via tokens & voting or offchain & guiding principles of fair, democratic & open
- **Commercial model**, of monetisation & fees

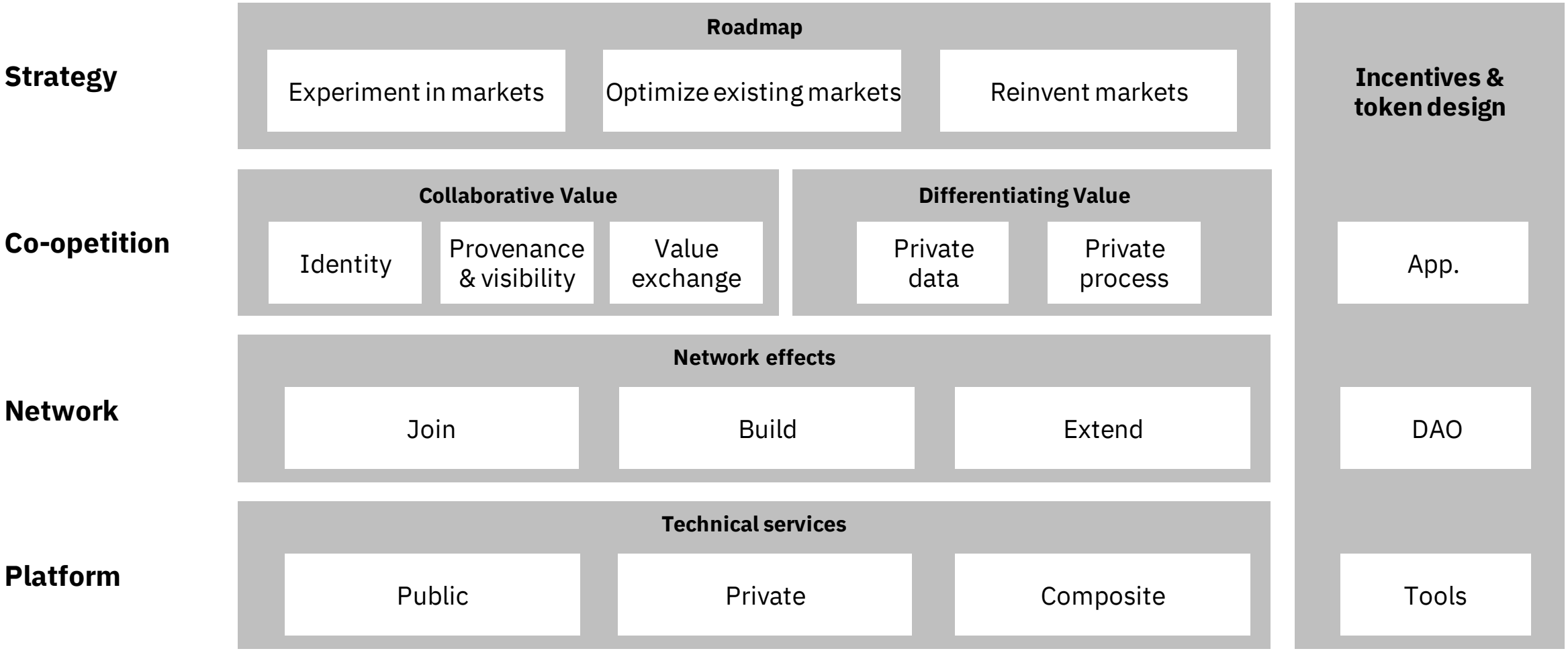
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Token economy – where to start?

	Identity	Provenance & visibility	Ecosystem reconciliation	Tokenisation	Value exchange
Automotive	•Vehicle ID	•Vehicle lifecycle •Supply chain visibility	•Vehicle leasing	•Car eWallet	•Financial settlements
Banking	•KYC/KYT	•Collateral mgt.	•Post trade	•Issue, custody & service	•Payments
Energy & Utilities	•Usage on a singular entity	•Cybersecurity device provenance	•Grid balancing	•Renewable energy credits	•Peer to peer trading
Telco	•Mobile security	•Supply chain mgt.	•Roaming, fraud & overage mgt.	•Digital services enabler	•Platform services marketplace
Distribution/Consumer	•KYB / KYS / SSI	•Anti-counterfeit	•Disputes mgt. •Post trade	•Engagement e.g., recycling & loyalty	•Circular & sustainable economy
Travel & transport	•Passenger	•Baggage handling	•Multimodal tickets	•Loyalty X-industry	•Travel marketplace

Source, Andy Martin, IBM

Token economy – a strategic framework



Source, Andy Martin, IBM

5 Laws of the Token Economy business model design

- **Law 1:** Value by buying and selling of data tokenised into digital assets
- **Law 2:** Networked businesses' token stores this new value created by DAO members' innovation
- **Law 3:** Total value created increases through optimisation, network effects & synergies
- **Law 4:** Behaviours governed by the token are at the level of the App., DAO & ledger
- **Law 5:** Token value designed to stay inside DAO, but may be converted to fiat

Source, Andy Martin, IBM

Token Economy

5 Laws



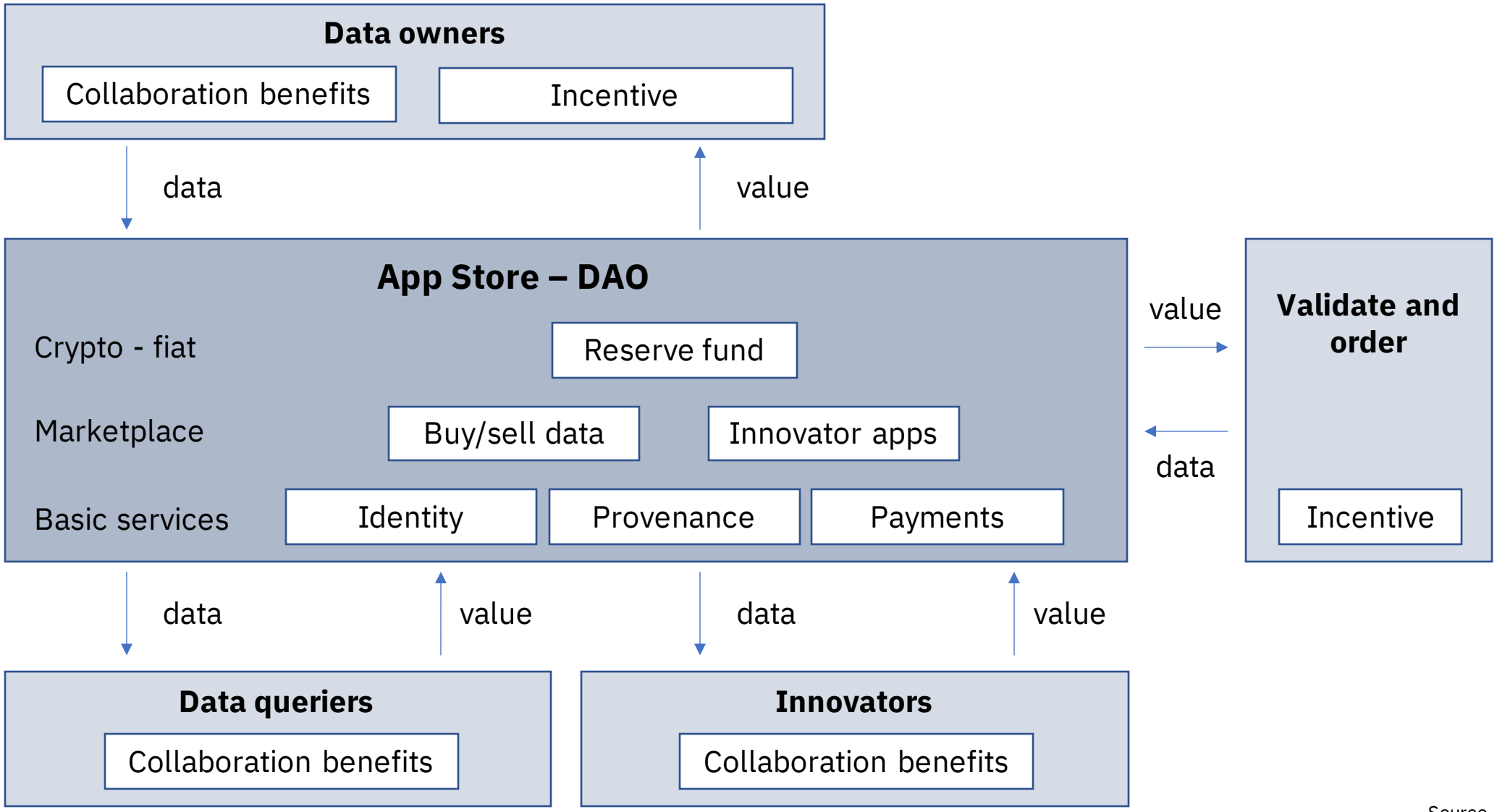
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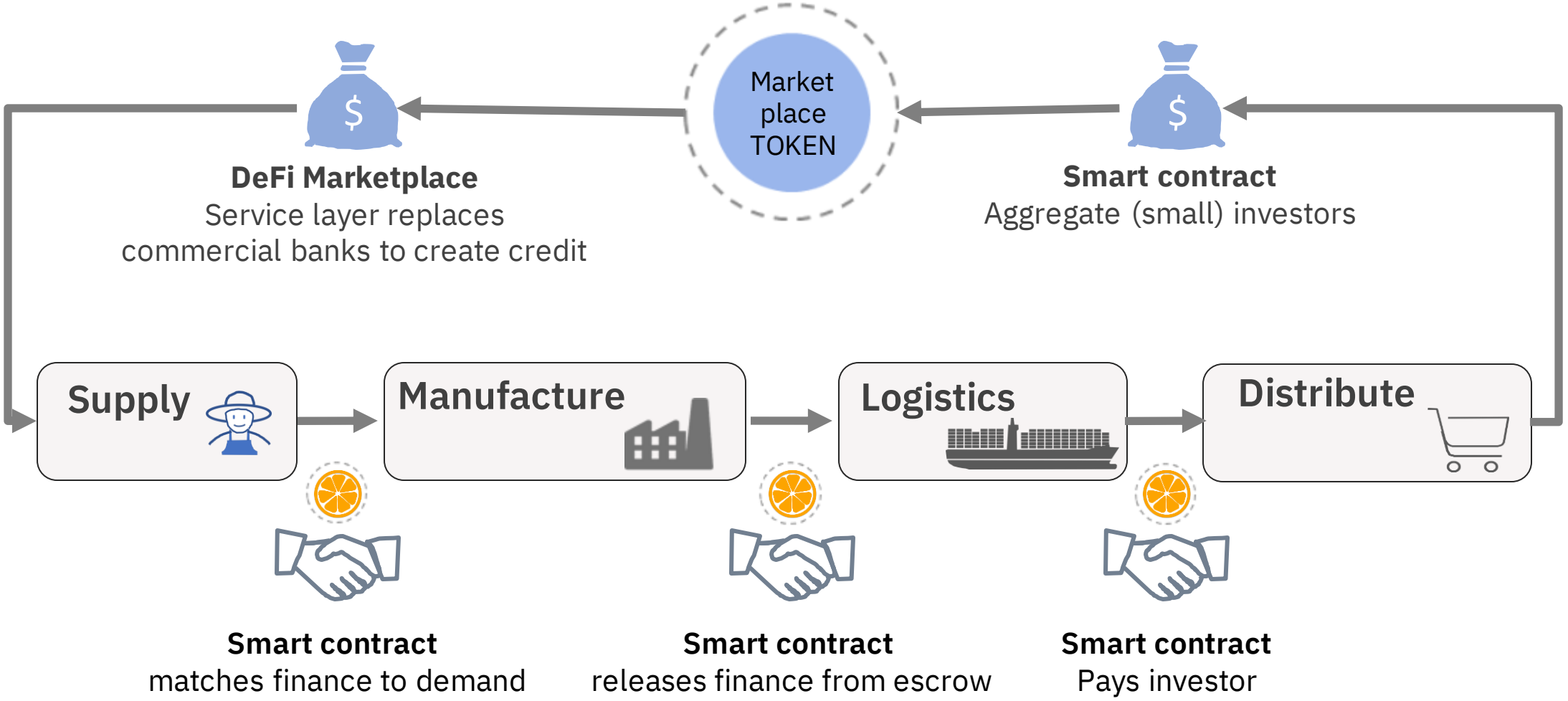
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Law 1: Value by buying and selling of data tokenised into digital assets



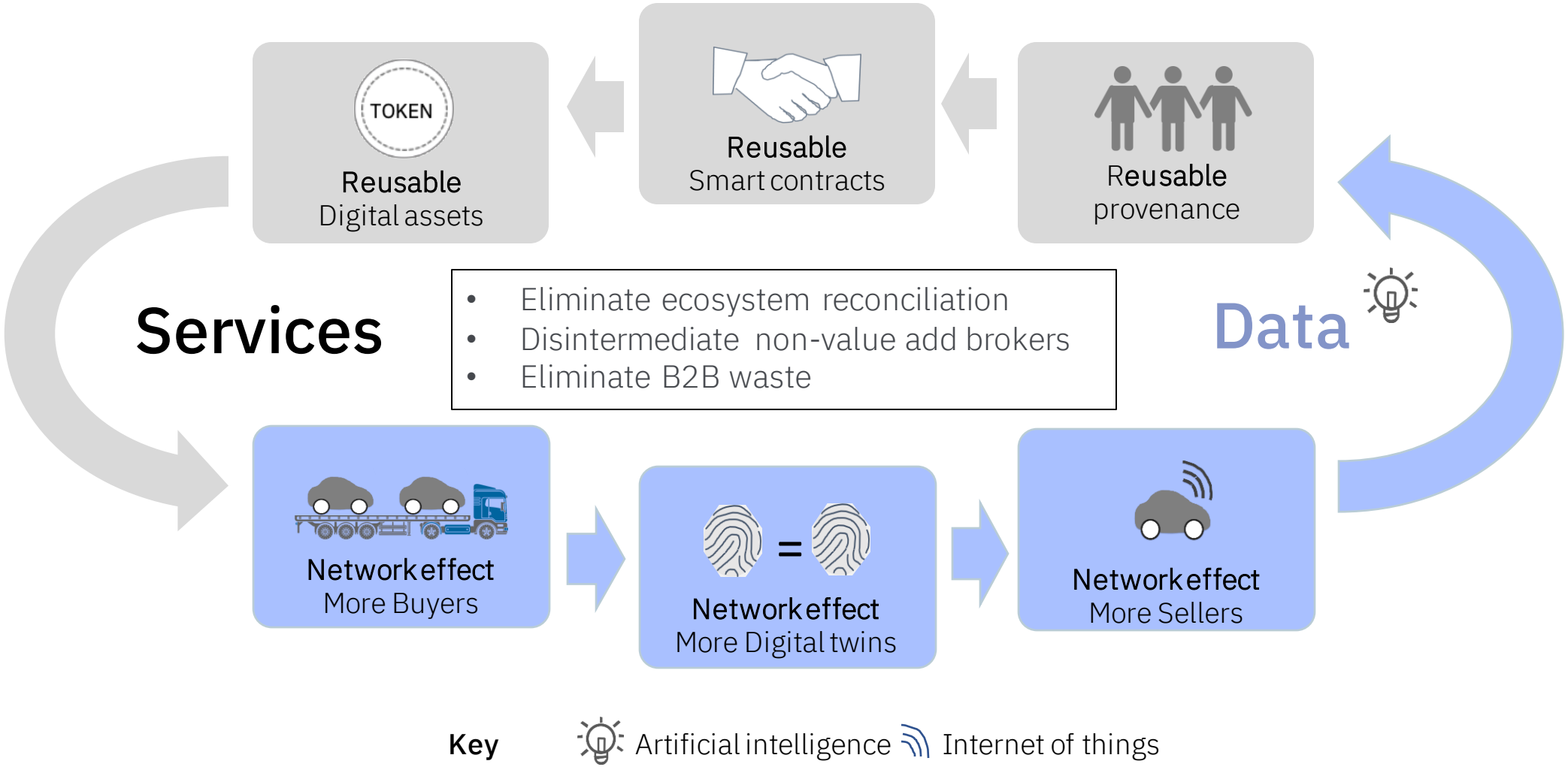
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Law 2: Networked businesses' token stores this new value created by DAO members' innovation



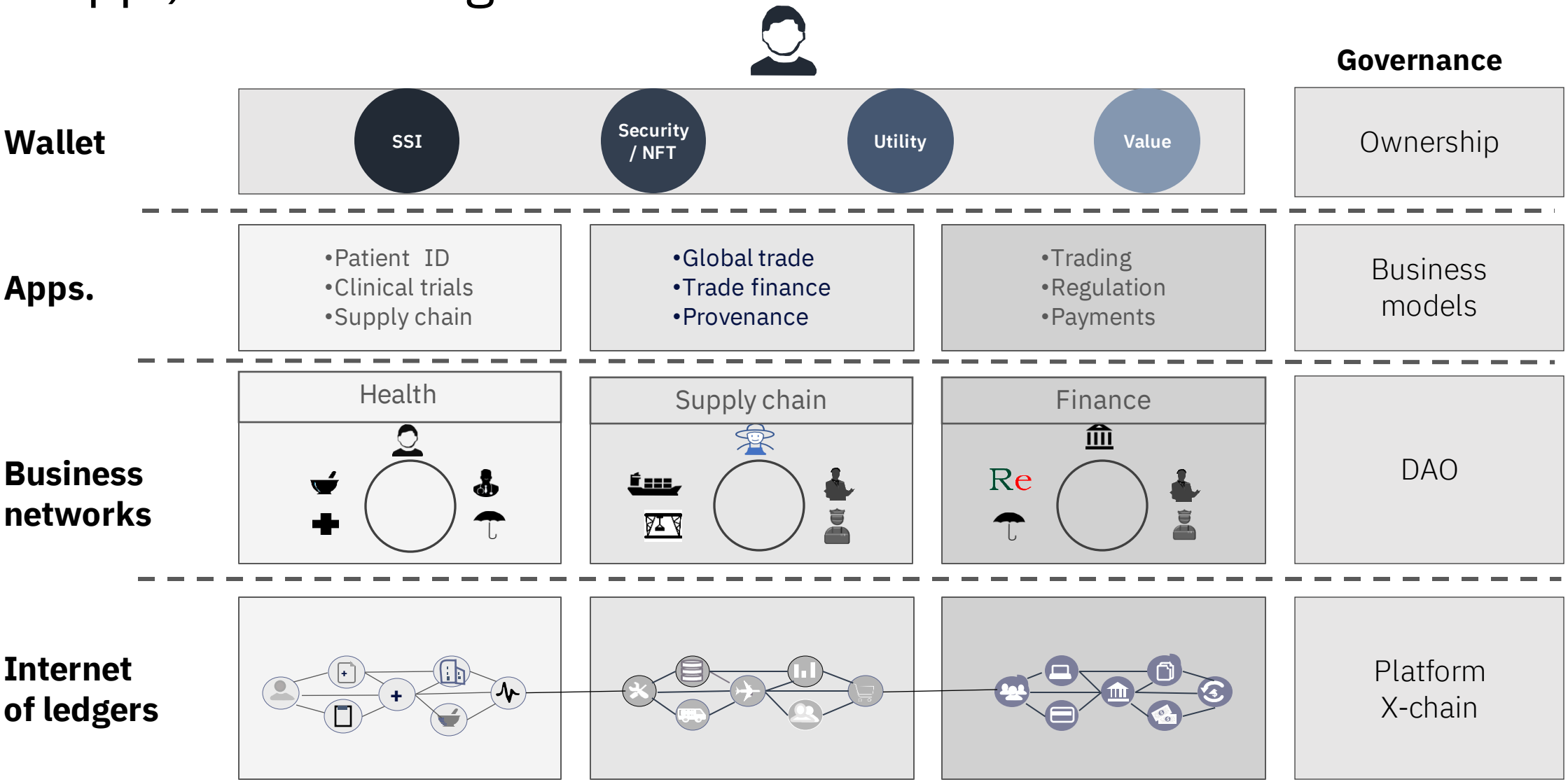
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Law 3: Total value created increases through optimisation, network effects & synergies



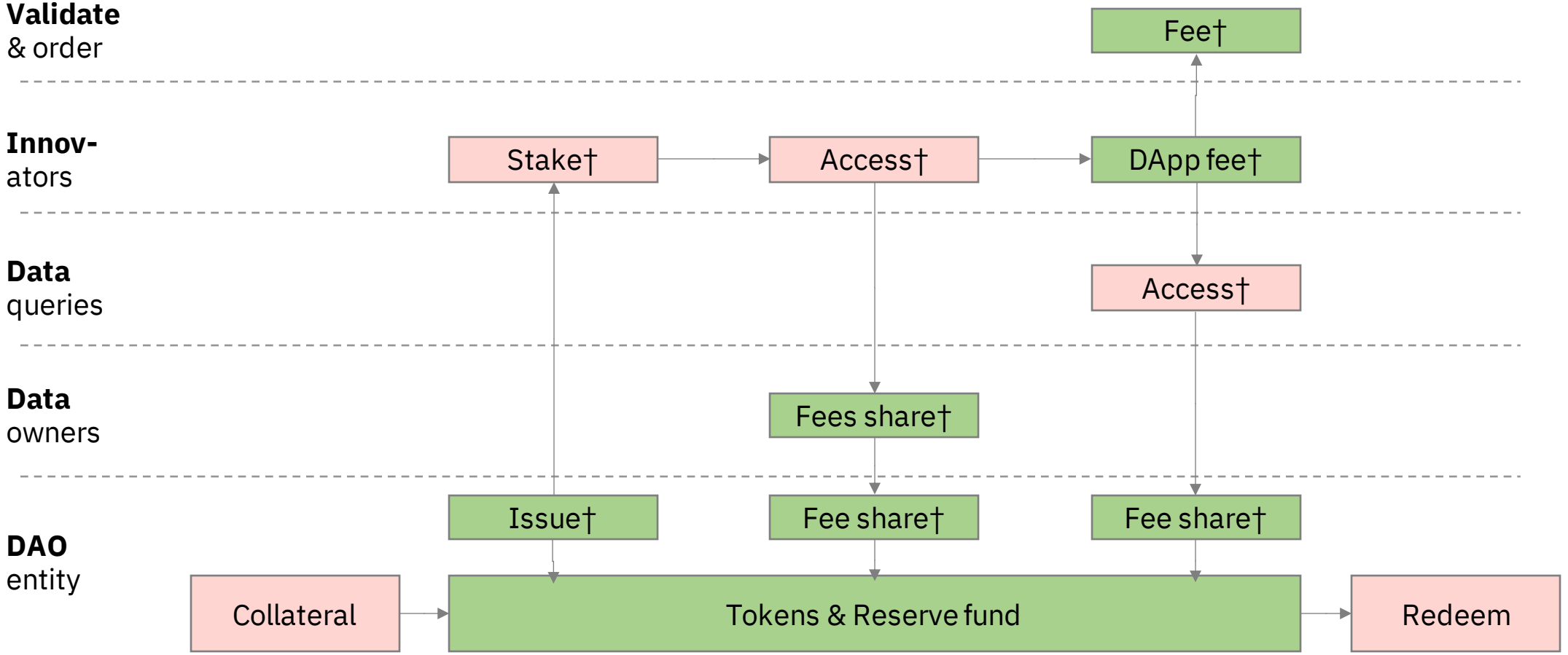
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Law 4: Behaviours governed by the token are at the level of the App., DAO & ledger



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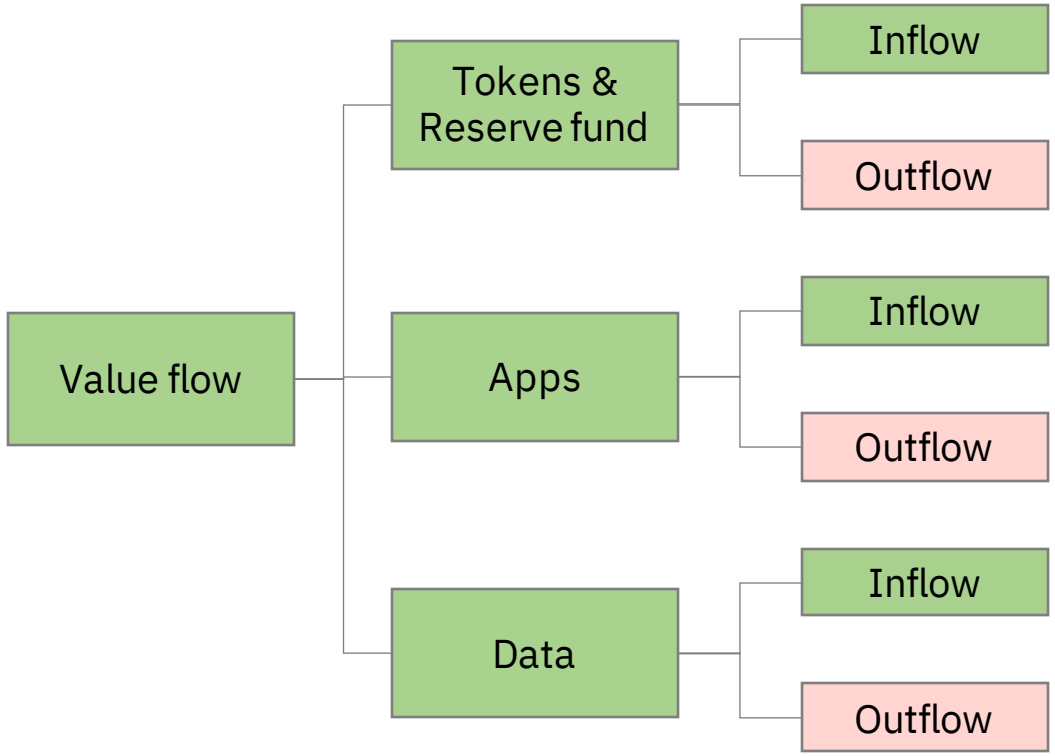
Law 5: Token value designed to stay inside DAO, but may be converted to fiat (1 of 2)



Key † All fee, access and stake value settlement in (utility) tokens Inflow Outflow

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Law 5: Token value designed to stay inside DAO, but may be converted to fiat (2 of 2)



DAO entity	**Data** owners	**Data** queries	**Innov-** ators	**Validate** & order
Issue †	-	-	-	-
Redeem †	-	-	-	-
Fee share †	-	-	DApp Fee †	-
-	-	-	Stake †	-
Fee share †	Fee share †	-	-	Fee †
-	-	Access †	Access †	-

† All fee, access and stake value settlement in (utility) tokens

Source, Andy Martin, IBM

References

- Martin, Andy, The Token Economy (October 16, 2021). Available at SSRN: https://ssrn.com/abstract=3972111 or http://dx.doi.org/10.2139/ssrn.3972111

- Martin, Andy, 5 Laws of Tokenomics (January 26, 2022). Available at SSRN: https://ssrn.com/abstract=4018141 or http://dx.doi.org/10.2139/ssrn.4018141