

# A Cross-Border Payments, Exchange and Contracting Platform

Ongoing and Preliminary

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# Technology & private innovation

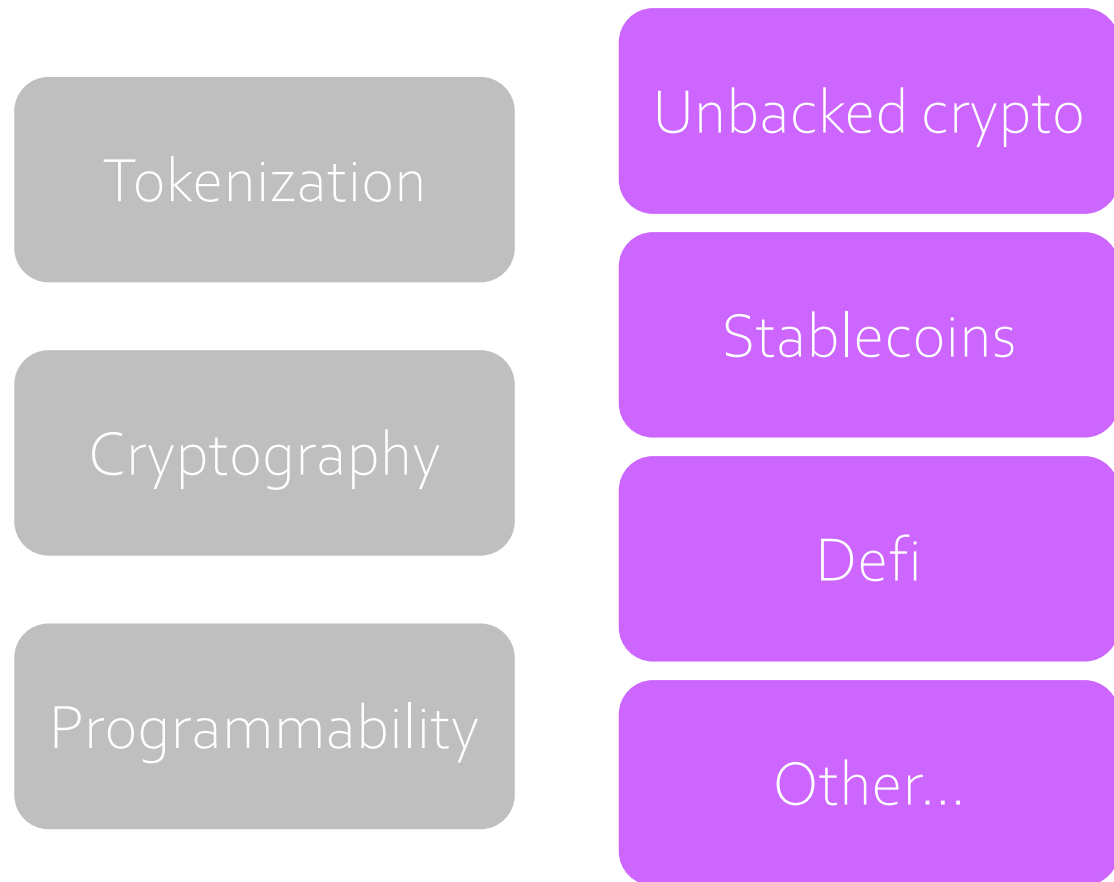
# New technologies bring basic building blocks

Tokenization

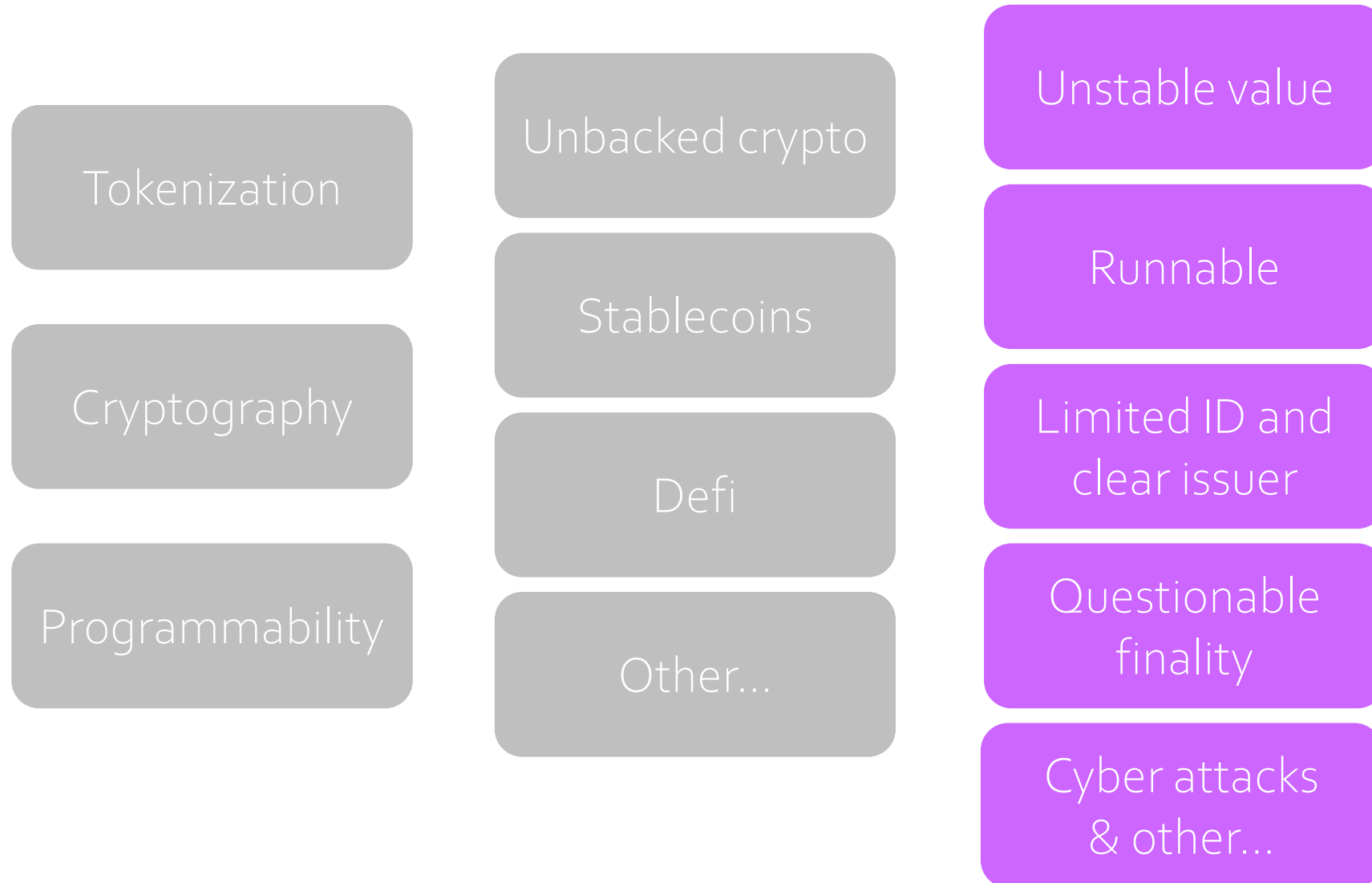
Cryptography

Programmability

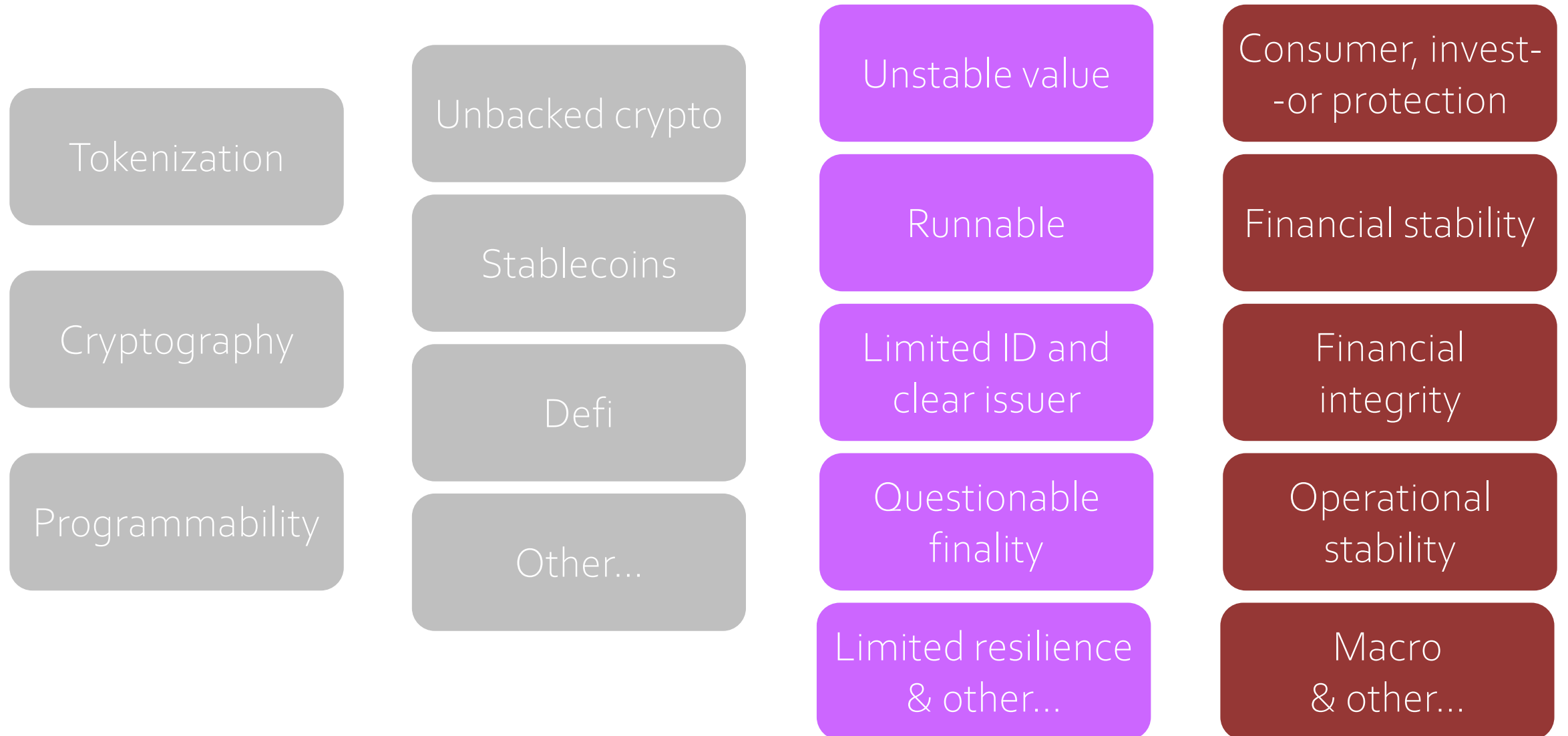
# Blocks are bundled by private firms for new products...



...with potential benefits, but limitations...

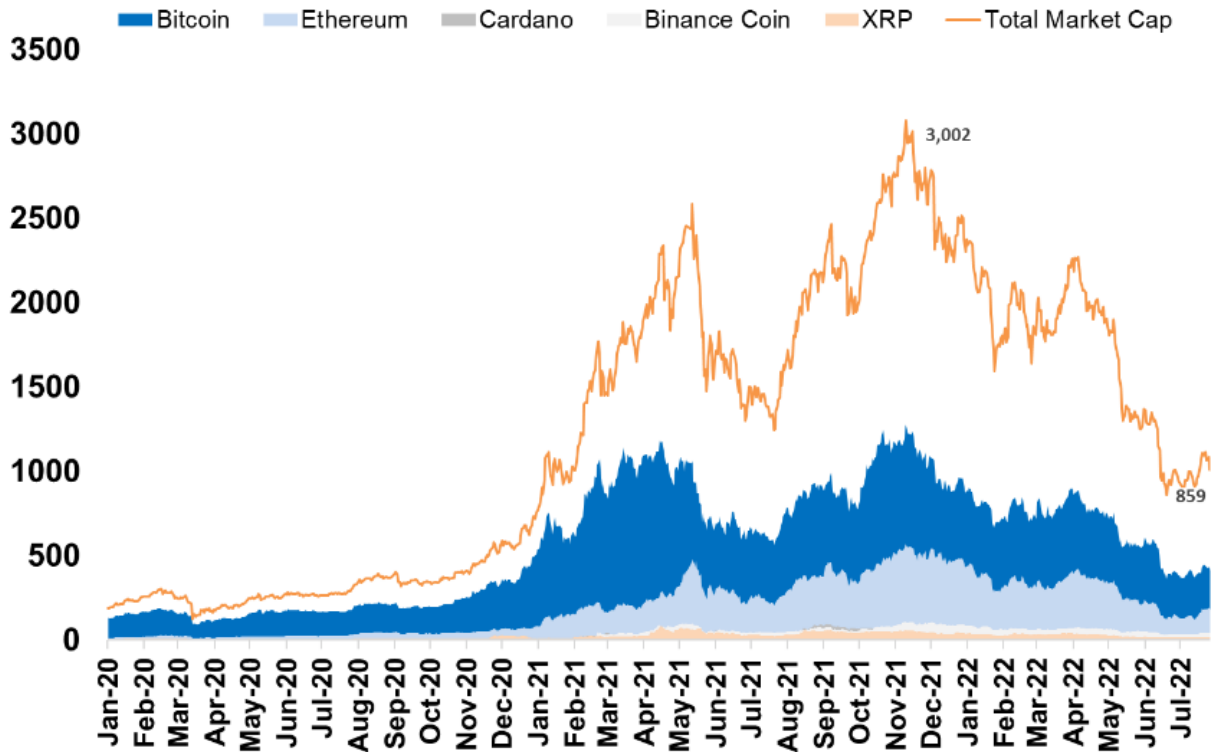


# ... and risks to public policy goals

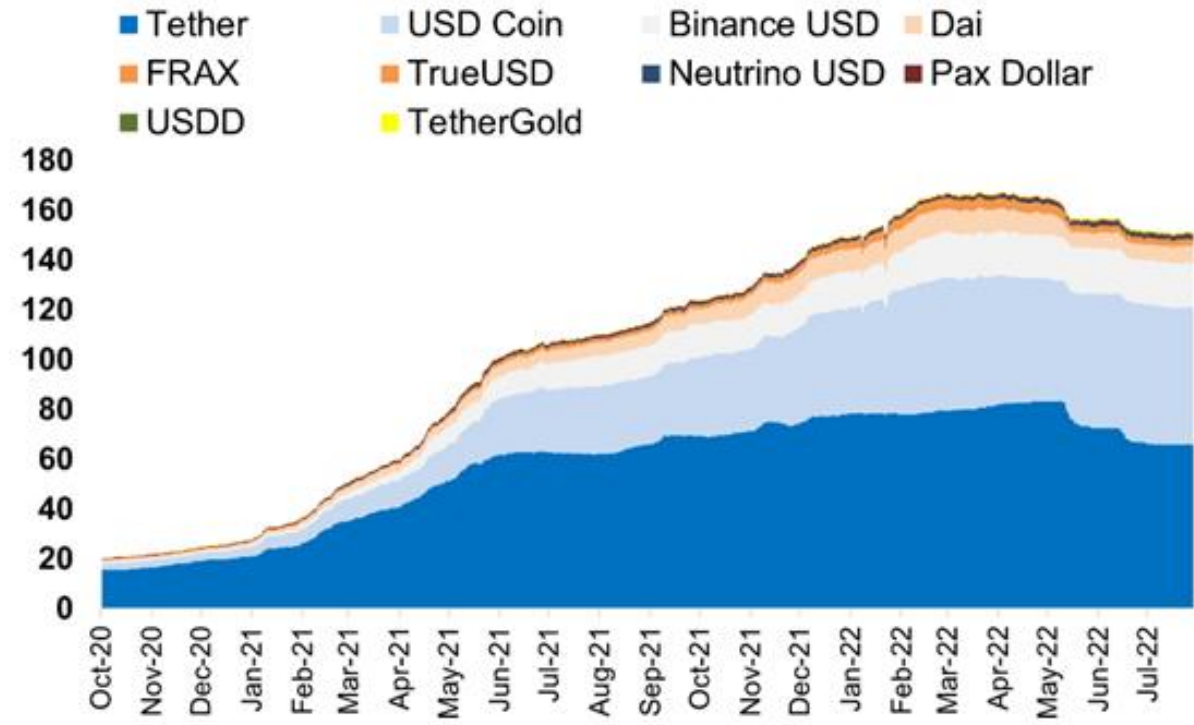


# Strong private sector innovation, mixed results

Crypto Market Capitalization  
(Billions of US Dollars)



Stablecoin Market Capitalization  
(Billions of US Dollars)



# Regulation is catching up fast...

Consistent across risks and activities

Comprehensive across all entities involved,  
systemic and not

Coordinated across countries

Prudential, conduct, payment, disclosure,  
governance, financial & market integrity

Prudential requirements on bank exposures



# ... but facing challenges

Consistent across risks and activities

Comprehensive across all entities involved,  
systemic and not

Coordinated across countries

Prudential, conduct, payment, disclosure,  
governance, financial & market integrity

Prudential requirements on bank exposures

Incomplete global standards

Data gaps

Regulatory arbitrage

Multiple activities

Multiple & complex interconnections

# A new conjecture and suggestion

# Step back: use technology for public policy goals?

Tokenization

Cryptography

Programmability



# Can we improve cross-border payments?

Payments are expensive, slow, opaque, exclusive, and fragmented

## Economics

No common settlement asset,  
...infrastructure, or rules  
Costs of bilateral trust links  
Fragmented liquidity  
Limited participation  
Focus on spot payments  
IMS effects (eg substitution)  
**Market imperfections\***

## Technology

Compatibility with legacy  
Interoperability  
Fragmented messaging

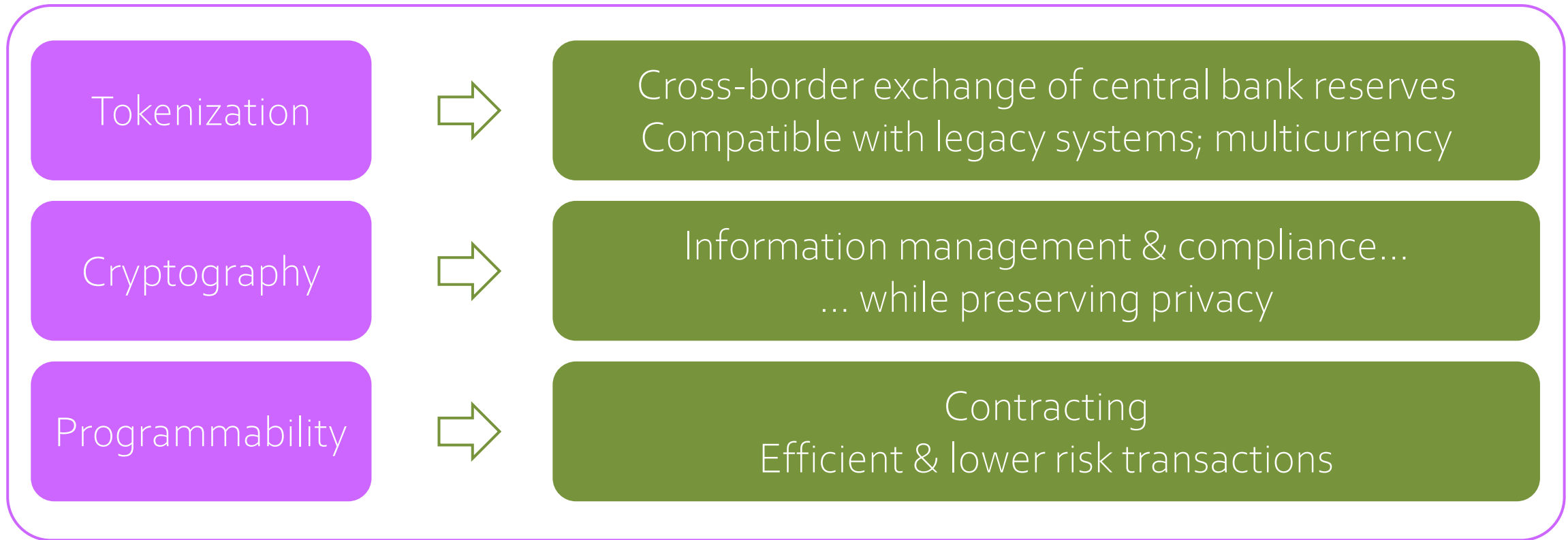
## Legal & regulatory

CDD, AML/CFT  
Data  
Privacy  
CFMs  
Fragmented standards

(\*) Limited commitment, untrusted messages, unobserved states, asymmetric information, unobserved actions, network effects, coordination failures.



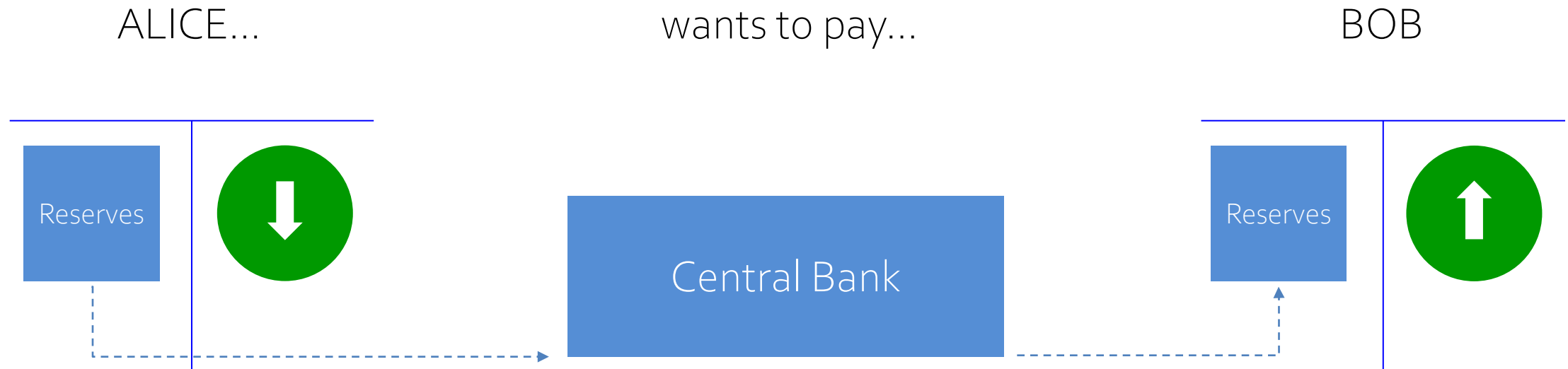
# A suggestion: cross-border payments, exchange, and contracting platform (X-C platform)



Governance, rules, standards (by central banks)

# Status quo – a sketch

# Domestic: Cross-bank payments work (pretty) well



## Public goods

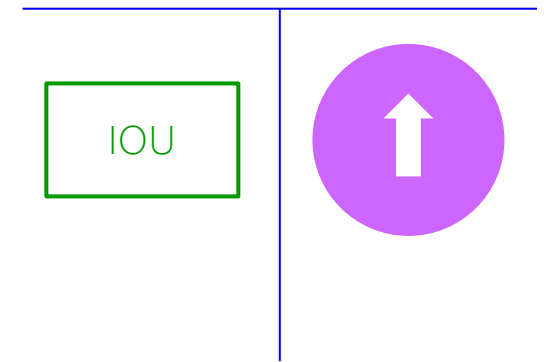
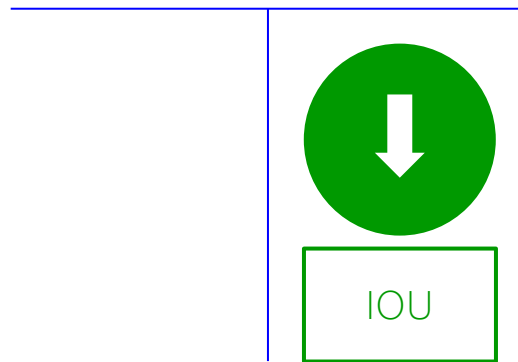
Common, safe, liquid settlement asset  
Common platform  
Common regulatory and legal framework

# Cross border: No public goods, so bilateral claims

ALICE...

wants to pay...

BOB



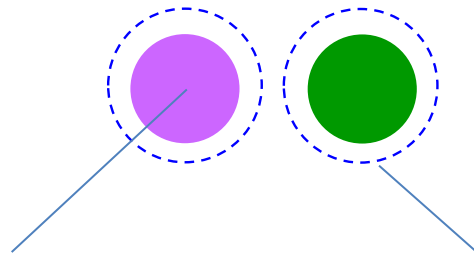
Risks and costs favor few large players...  
... underlying today's limitations



# The Cross-Border Payments, Exchange and Contracting Platform



# X-C Platform – Feature 1: Single ledger tokenization



## National money

CB reserves

CBDC not needed

Escrowed on platform

## Public good

A token representation  
of escrowed money

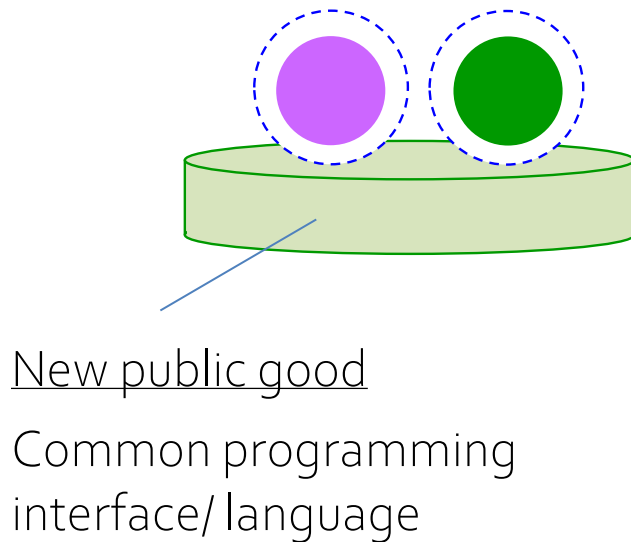
On single ledger

Not necessarily DLT

## Advantages

- Multicurrency settlement asset, not new
- Safety & funding liquidity
- Compatible with legacy
- Interoperability on ledger
- No double spending...
- ... nor double commitment
- Enlarged access to CB money...
- ... while retaining oversight

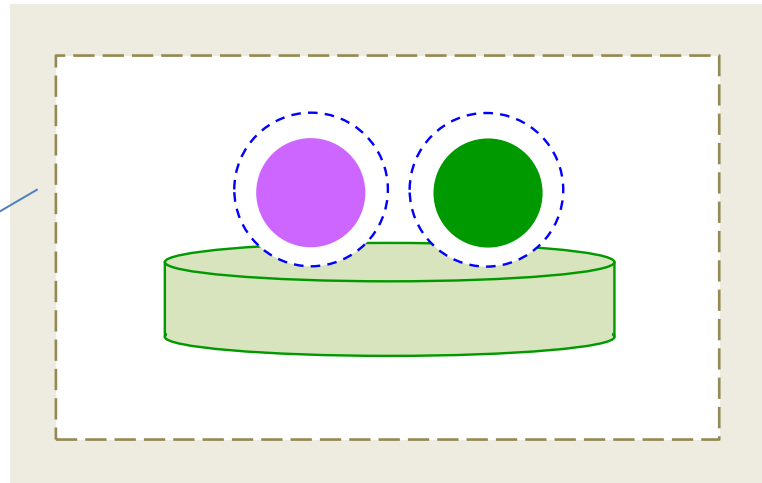
# X-C Platform – Feature 2: Contracting



## Advantages

- Spot: payment-vs-payment
- Future: pledge-vs-pledge
- Contract consistency – intra & inter-temporal
- Binding bidding & automatic execution
- No need for “trusted third party/ auctioneer”
- Liquidity savings ( “just in time liquidity”)
- Lower counterparty risk/ trade fails
- Extensions – by private sector

# X-C Platform – Feature 3: Encryption



Credentials

CDD

AML/CFT

CFMs

## Advantages

- Data nationally controlled
- Straight-through tagging of credentials
- Privacy preserving
- Truthful bidding...
- ... and no aversion to revealing, incentive to mislead, fear of being exploited
- Aggregate transparency (eg order book)
- Competition: size & access to info matters less

# X-C Platform – Ecosystem

Financial  
firms

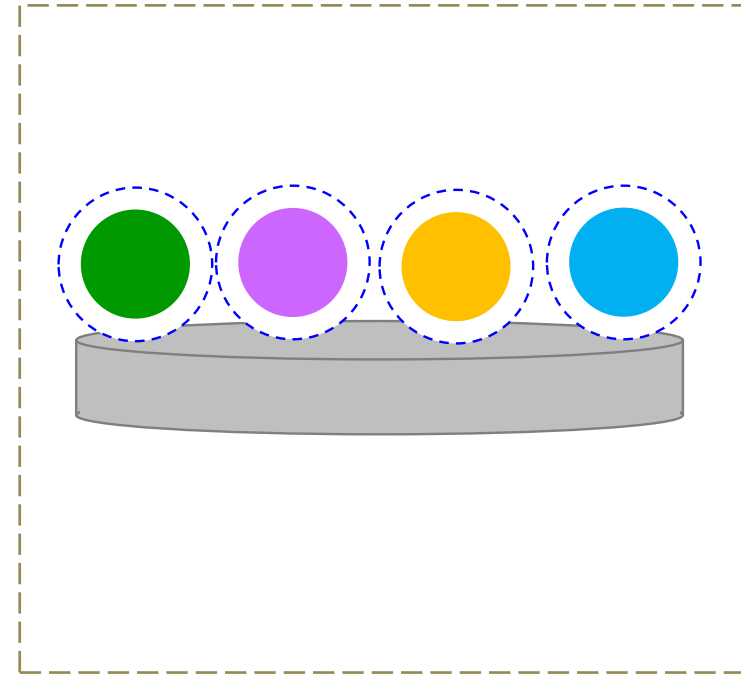
Link end-user

Banks

Provide liquidity, FX  
Innovate (program)

Credential  
providers

Do KYC, AML/CFT  
Check (off  
platform) CFMs



Same in  
country B

Same in  
country C

Same in  
country D

# Possible X-C applications

Hedging, risk sharing, insurance

Monitoring and oversight

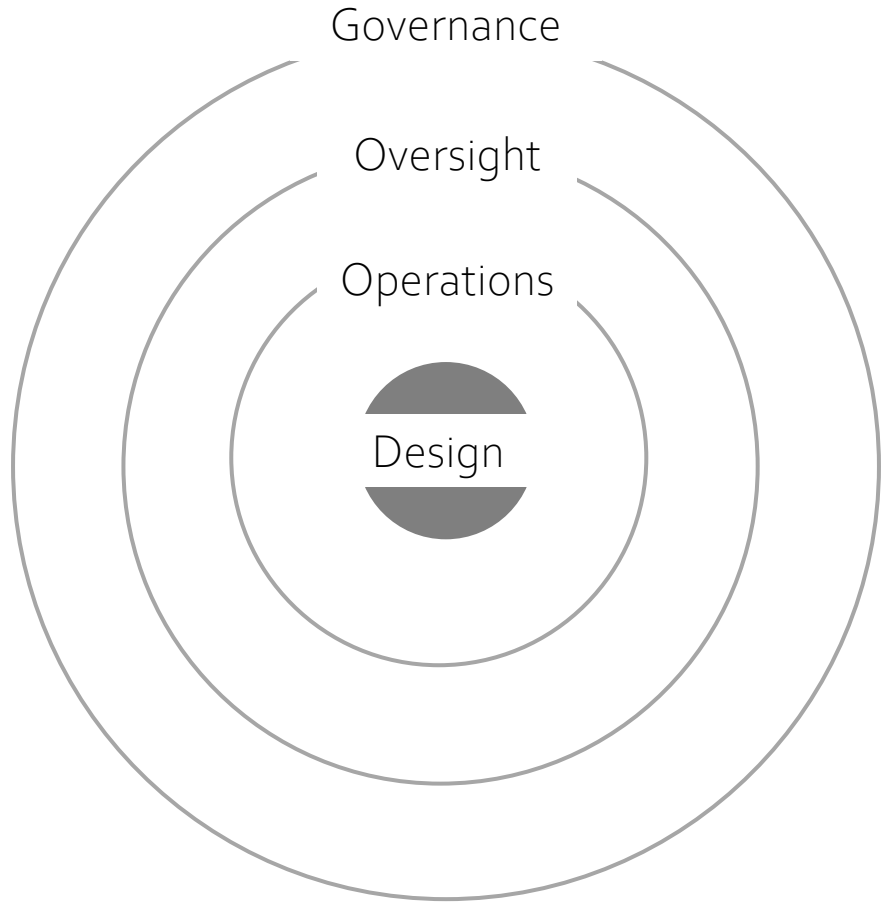
FX auctions

CB swaps & backstops

Extendibility by private sector

Automatic CFMs

# A step by step exploration – one of many



## Design

Provide a vision

## Operations

Public sector provided or private sector under license

## Oversight

Global membership important

## Governance

Global membership important

Rules (common minimum standards) on platform (eg AML/CFT, data management...)

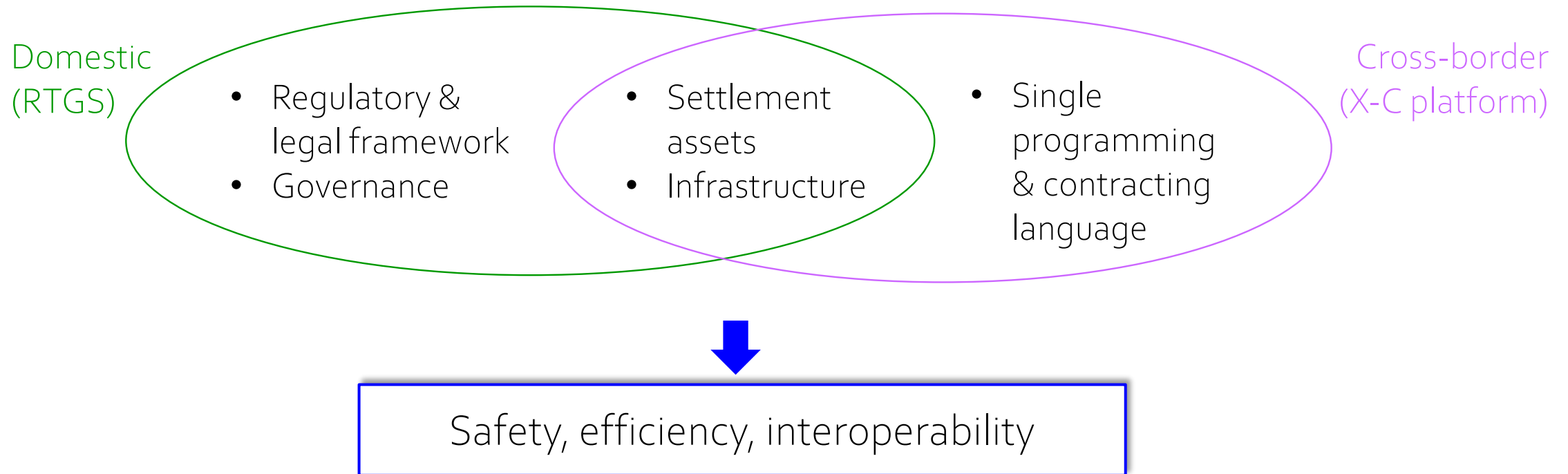
Discretion off platform (eg CFMs, sanctions)

One more step...





# Extension of public goods



# The same model can solve nascent *domestic* use cases

Tokenization of money

Tokenization of assets

Automation

Domestic  
(RTGS)

- Regulatory & legal framework
- Governance

- Settlement assets
- Infrastructure

Cross-border  
(X-C platform)

- Single programming & contracting language



Safety, efficiency, interoperability

# Domestic CBDC as a platform

Tokenization of money

Tokenization of assets

Automation

CBDC as a platform to tokenize, pay, exchange, and program... on which the central bank can also issue

- Regulatory & legal framework
- Governance
- Settlement asset
- Infrastructure
- Single programming & contracting language



Safety, efficiency, interoperability

# A CBDC platform stack

Smart contracts & innovation

API or other (controlled) access

Compliance, access, tokenization  
rules

Common programming language

Safe settlement asset

Unique shared ledger

## Blurring some lines

- Retail or wholesale? Both
- RTGS or other FMI? Both
- Public vs. private sector? Both

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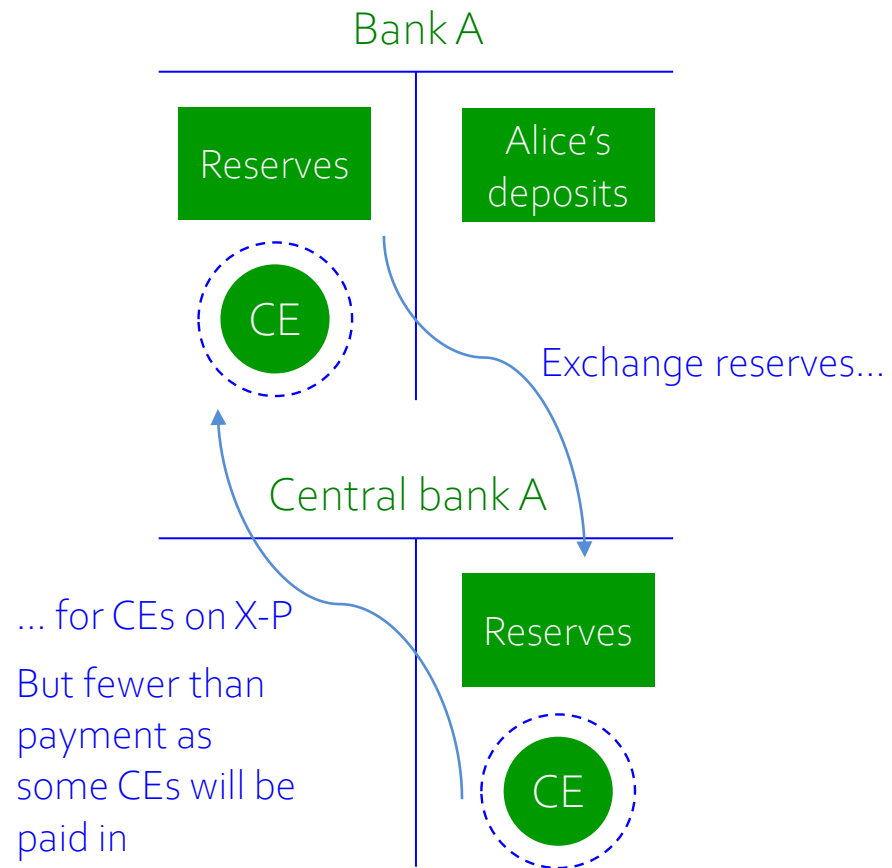
MIT, October 19, 2022



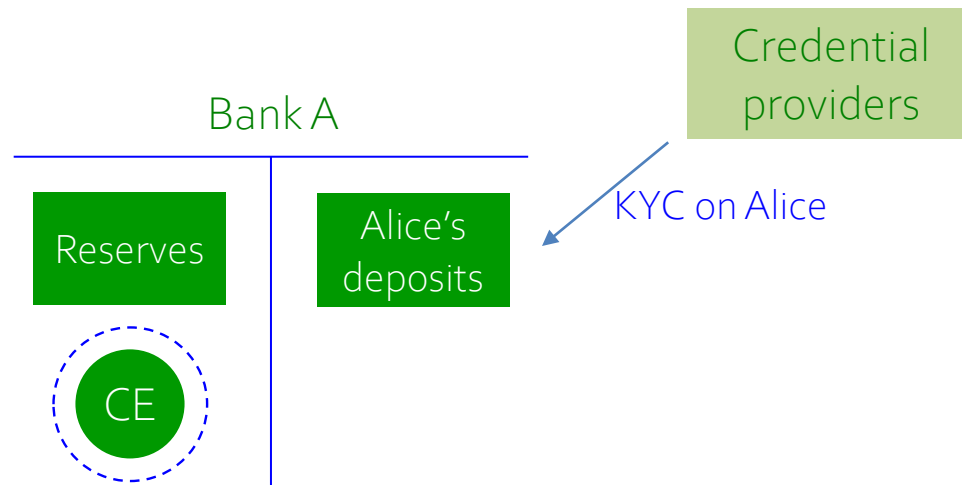
# Appendix

An example

# X-C Platform in action: Alice pays Bob

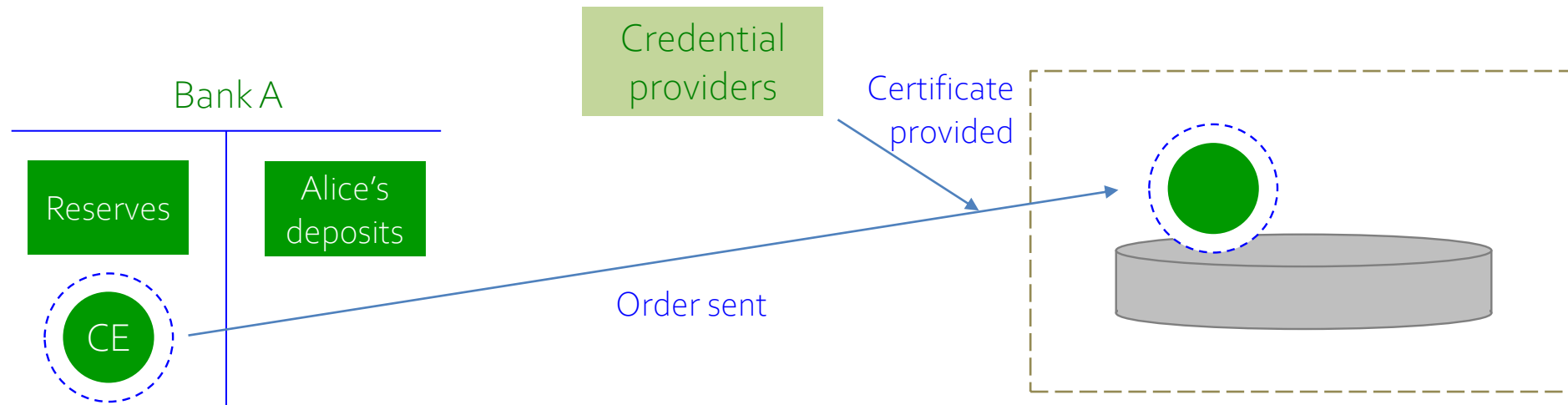


# X-C Platform in action: Alice pays Bob

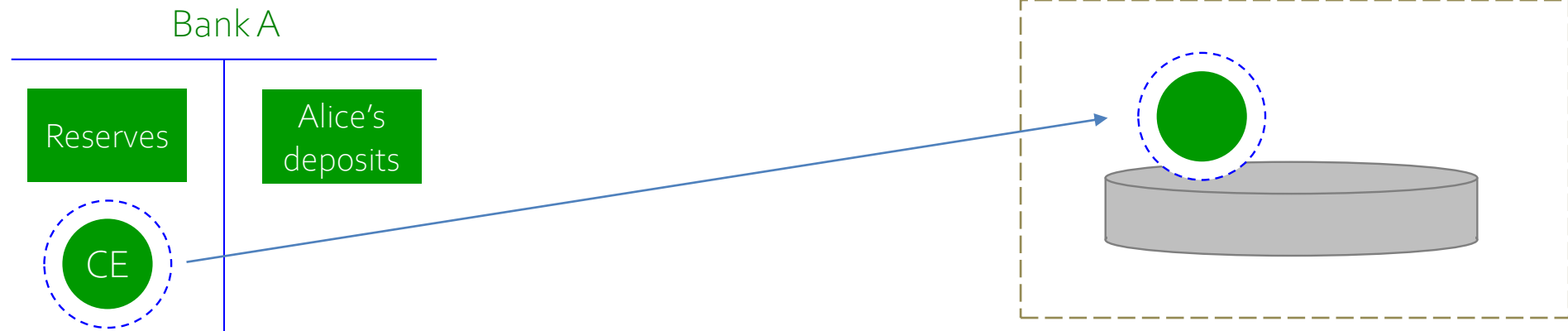




# X-C Platform in action: Alice pays Bob



# X-C Platform in action: Alice pays Bob



Automated FX auction (green for purple)

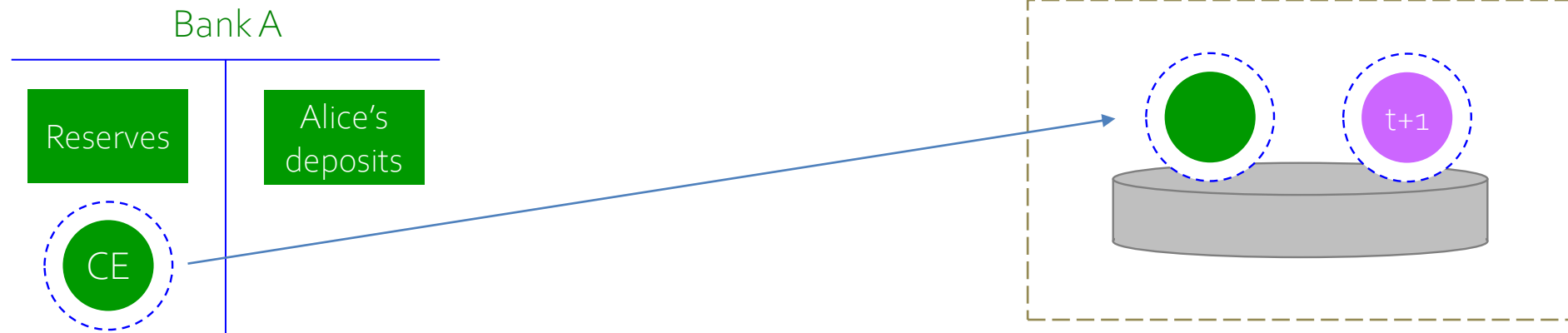
... open to all participants

... send (privacy preserving) bids

... can hedge, manage risks

... might even benefit from backstops (CB can participate)

# X-C Platform in action: Alice pays Bob



Automated FX auction (green for purple)

... open to all participants

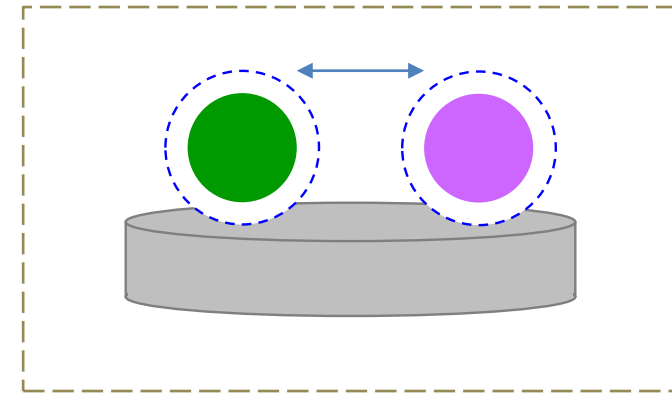
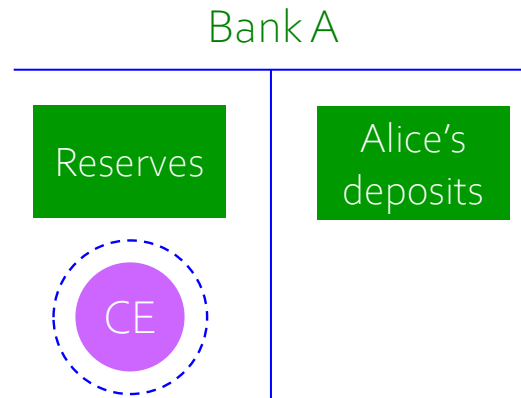
... send (privacy preserving) bids

... can hedge, manage risks

... might even benefit from backstops (CB can participate)

... can bid future receivables (consistent contracts)

# X-C Platform in action: Alice pays Bob



On-platform CFMs checked  
Green for purple CEs exchanged atomically

# X-C Platform in action: Alice pays Bob

