

Blockchain Workshop/Conference

26 April 2018

Standards White Paper “Gap Analysis”

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Name, title and/or organization of presenter(s) as appropriate



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Emerging Technologies and related Opportunities

- Blockchain
 - Trusted cross border Data
 - MSME in trade
- IoT
 - Olympic Games - Global events
 - Smart Container
- Trade Data Pipeline
 - Shared data & processes

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Purpose and Scope

Identify how existing and evolving UN/CEFACT standards can support the use of emerging technologies to improve e-commerce, trade facilitation and the international supply chain

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Marek Laskowski



Blockchain Technology Overview (annex)

What is blockchain?

- Distributed database or ledger that no-one controls (decentralized)
- Shared version of the truth (consensus) amongst multiple stakeholders (P2P) - cryptography
- Incentives for all stakeholders
- Immutability / auditability
- A powerful buzzword





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Blockchain Technology Overview (annex)

Principles and Concepts

- Digital signatures
- Document fingerprints → hash
- Nodes - computers on the network validate and sign new blocks (entries into the ledger)
- Blocks are linked back to previous blocks using the signature of the previous block, hence blockchain.
 - Tampering is difficult - at the very least noticeable
- Smart contract - a program executed by a blockchain network (computer with shared state) - can encoded business logic (see: CII)
- Inter-ledger communication





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Blockchain Technology Overview (annex)

Public-Permissioned-Private Blockchains

- In public blockchains all data is viewable by all participants
 - anyone can join ex. bitcoin, public ethereum network
- Private Blockchain
 - all data is private except to the relevant stakeholders (could include auditors)
- Permissioned Blockchain
 - Adjustable rules for enterprise:
 - writing to the ledger is restricted
 - sometimes reading and writing
- Cryptographic Key Management
 - who is permitted? What if they lose their keys?





Related Technologies

- Platforms & APIs
 - It's a business model and a technology
 - 19,000+ on programmableweb.com – it's a wave.
- Content addressable storage
 - The signature of the thing is the address of the thing
- Internet of Things (IoT)
 - Sources of data as « event streams »
 - Cryptographically signed data.
- Semantic Web & Ontologies
 - More flexible way to infer meaning.





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Steve Capell



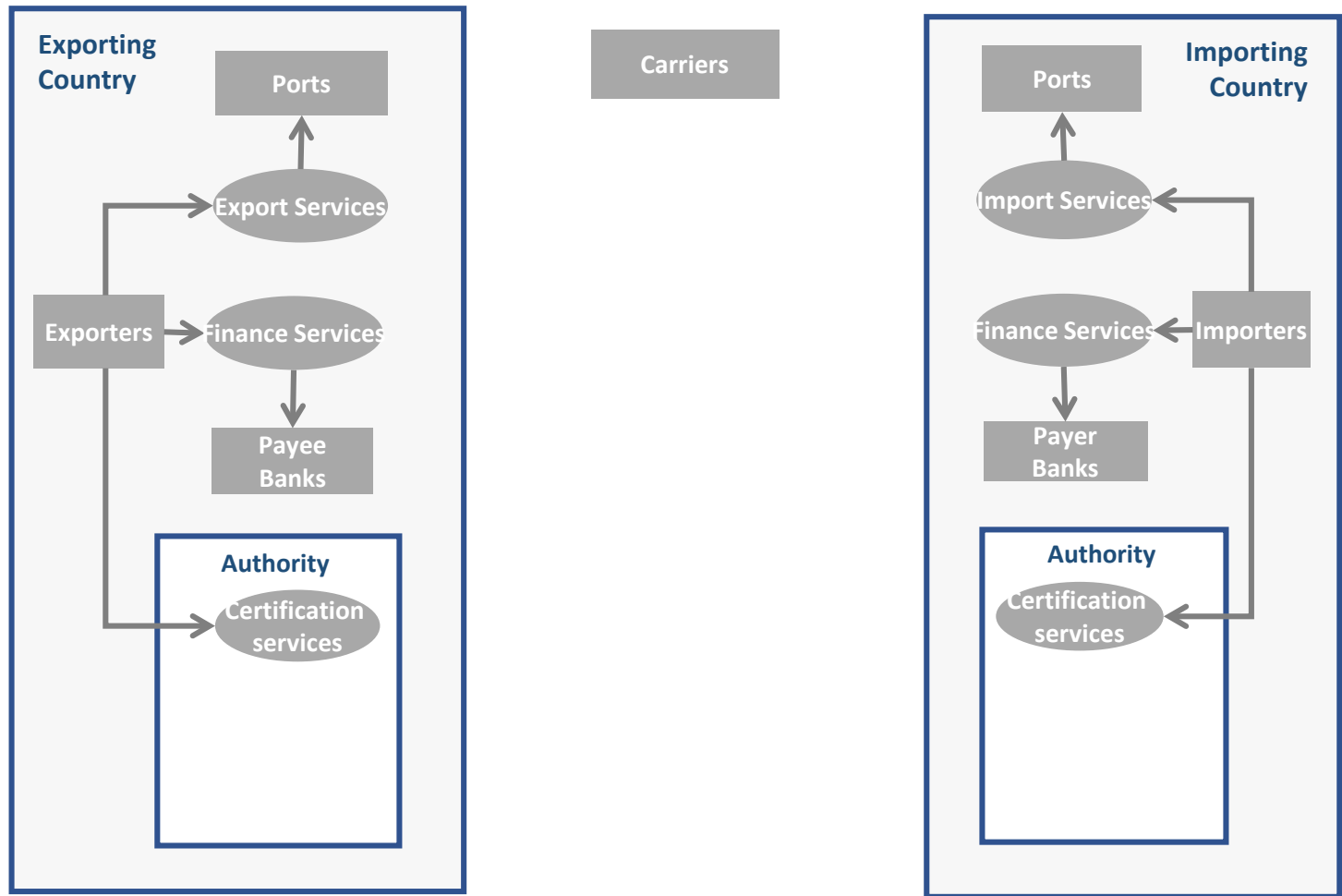
Risks & Opportunities

- Risk: A plethora of ledgers.
 - Opportunity: Smart contracts for CEFACT processes
 - Opportunity: cross-ledger interoperability
- Risk : A profusion of Platforms
 - Opportunity: platform independent resource discovery
- Risk : A torrent of Data
 - Opportunity : Semantics for snippets and event streams



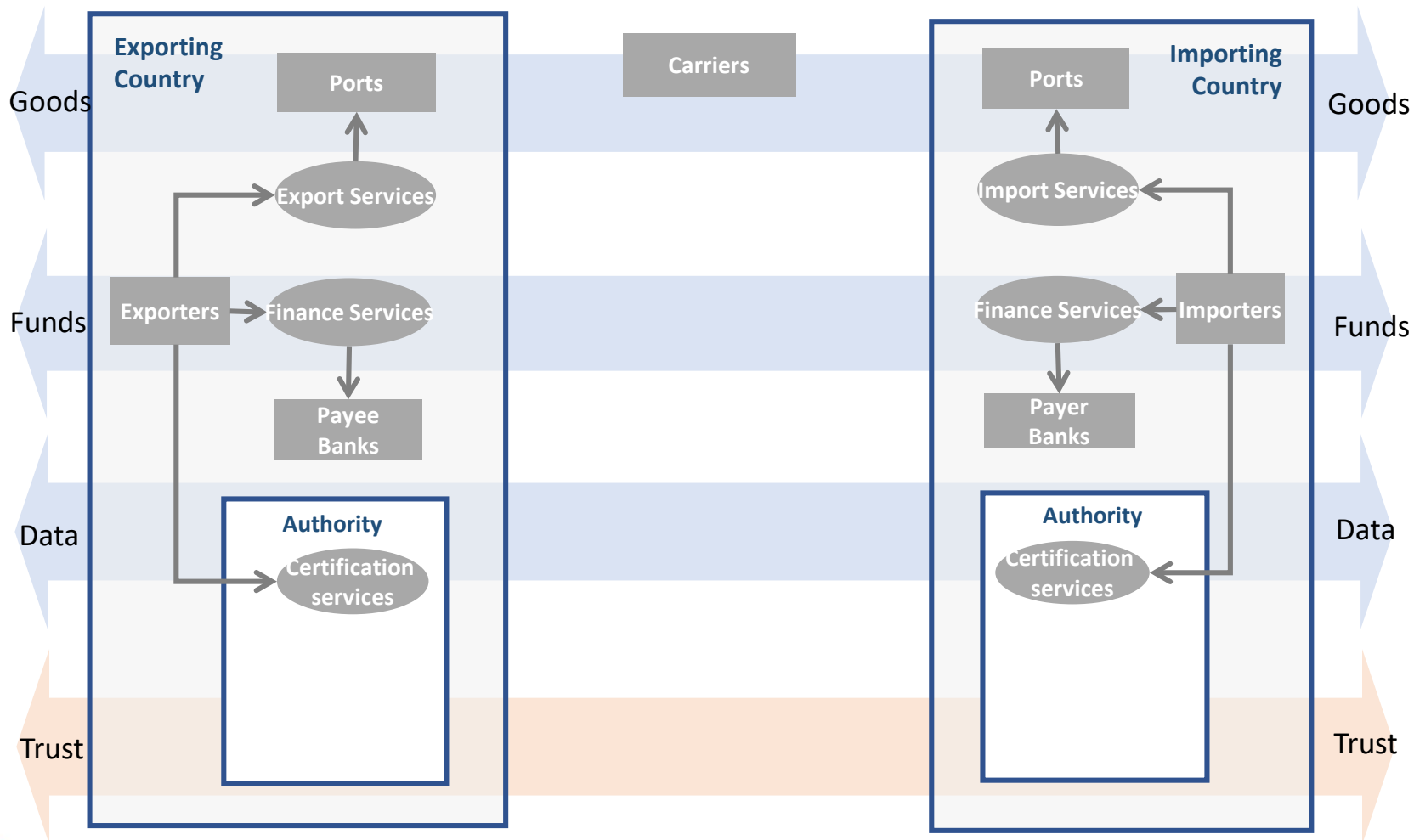


Context Model - Entities



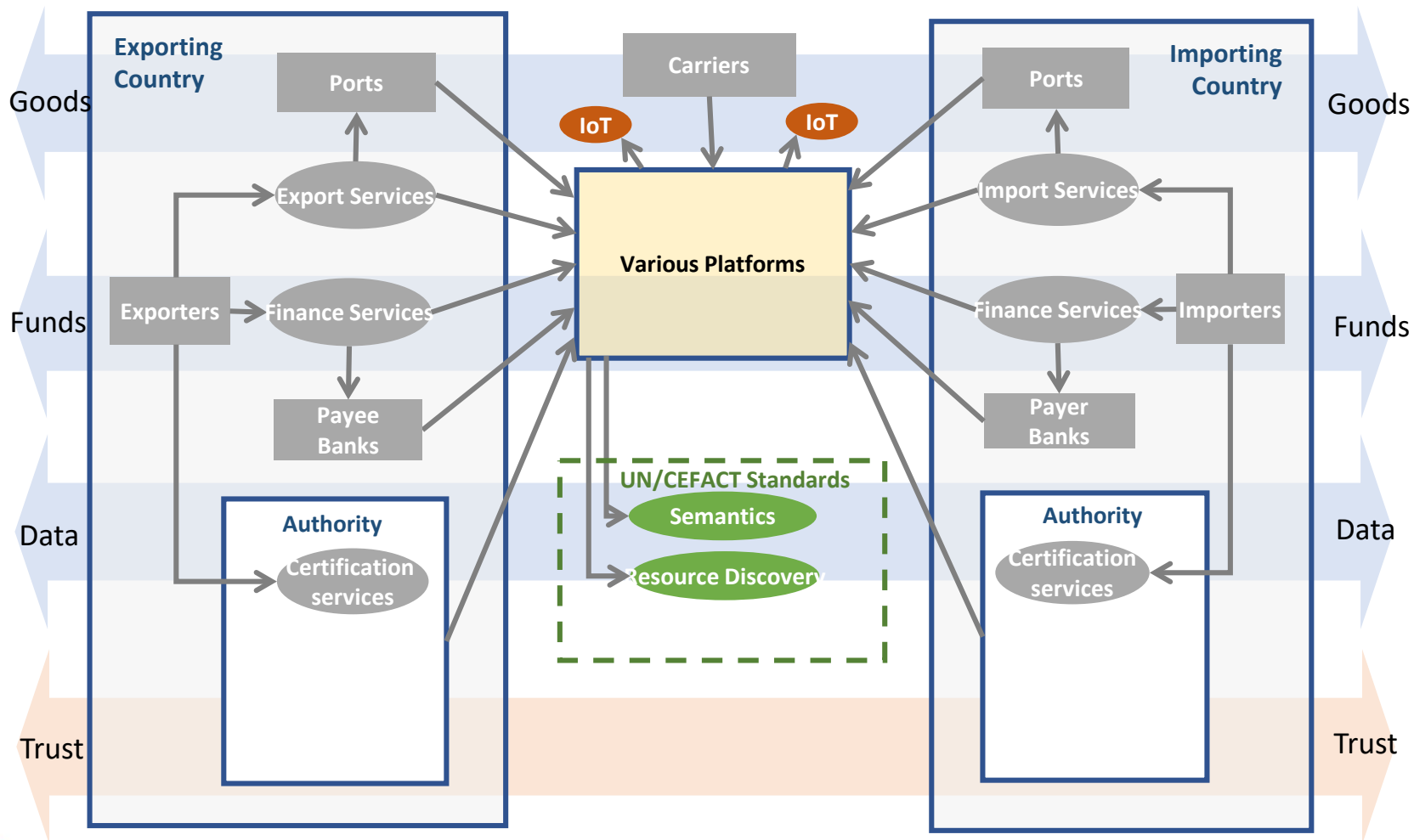


Context Model - Flows



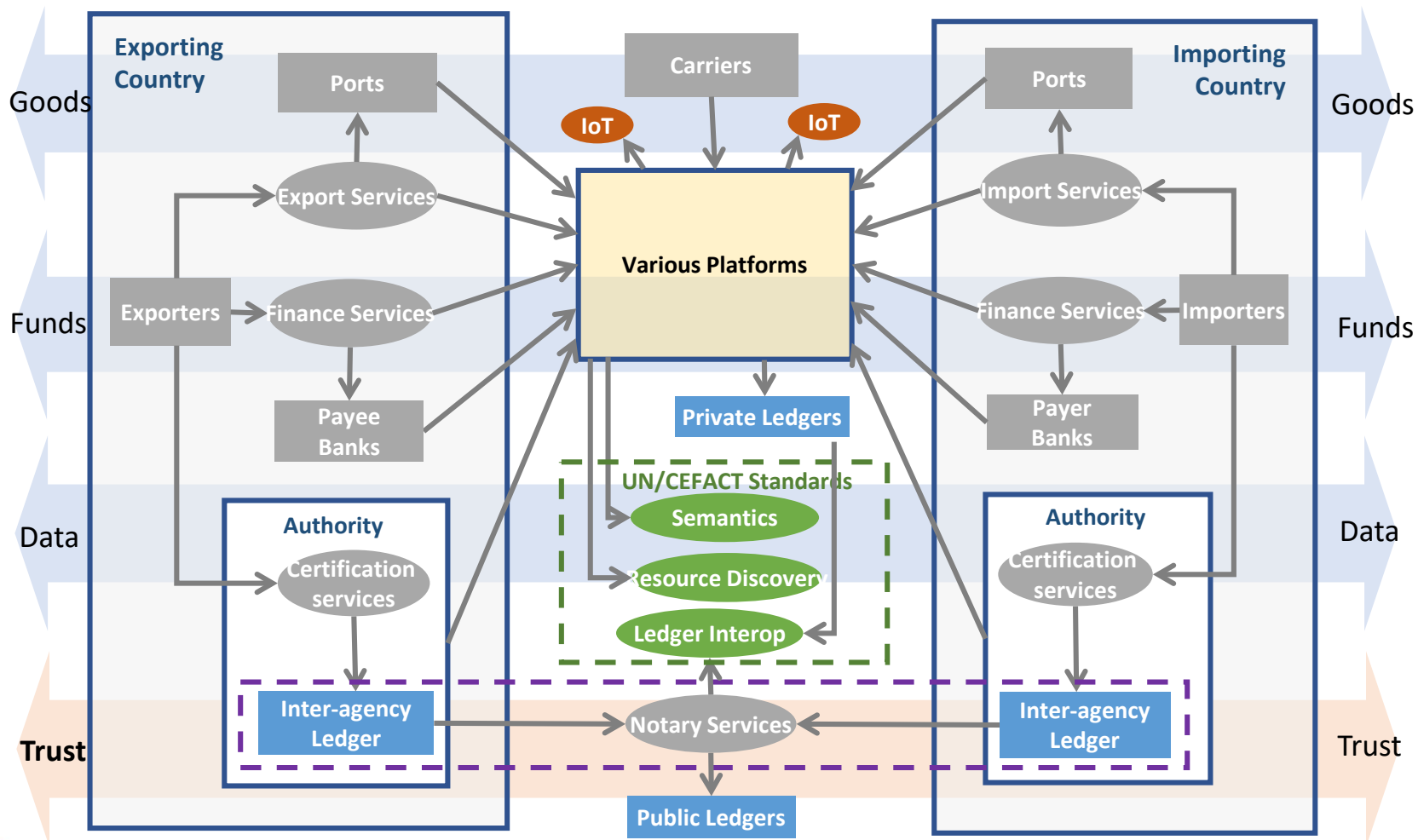


Context Model – Platforms & IoT



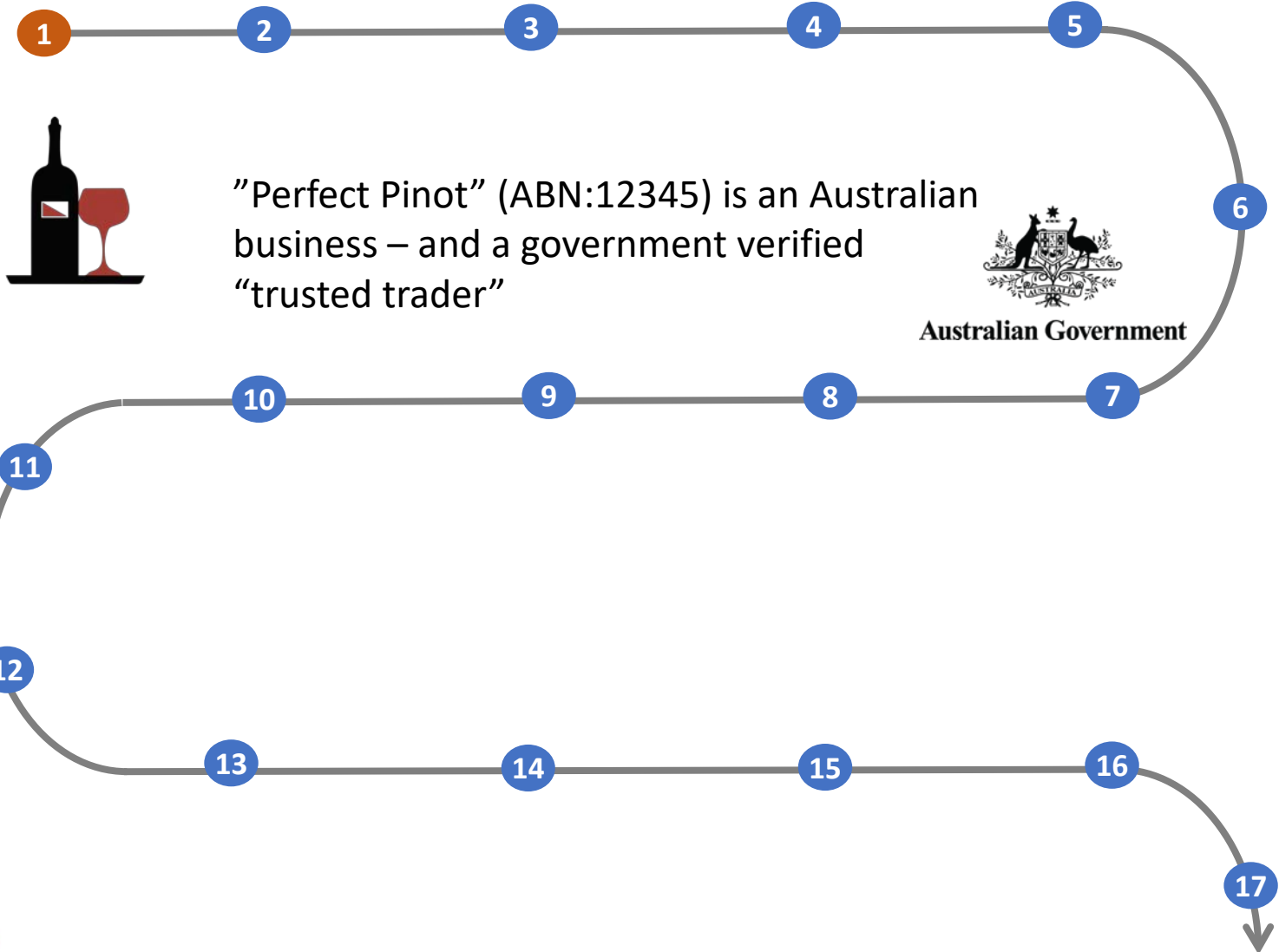


Context Model - Blockchain



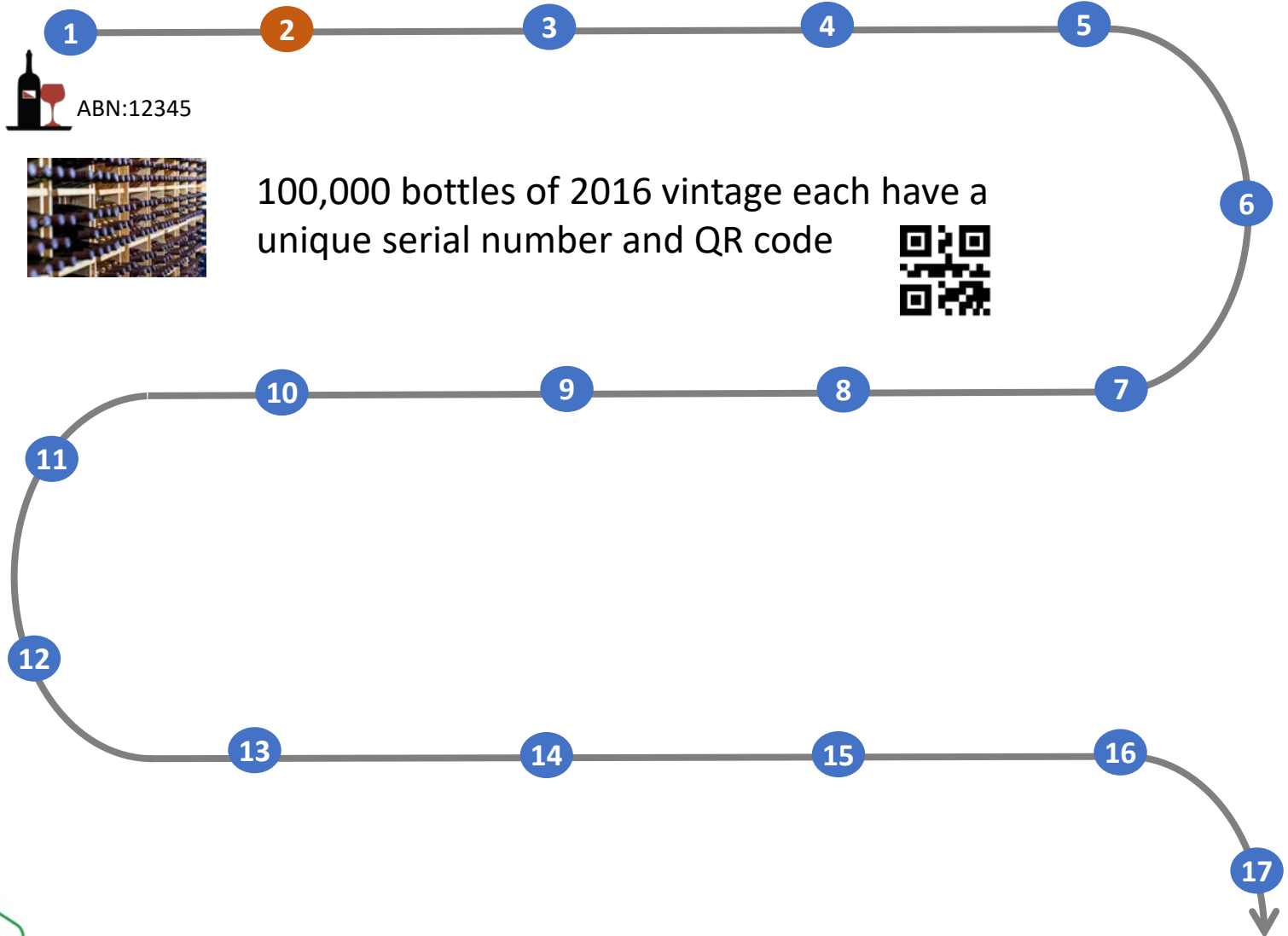


Scenario



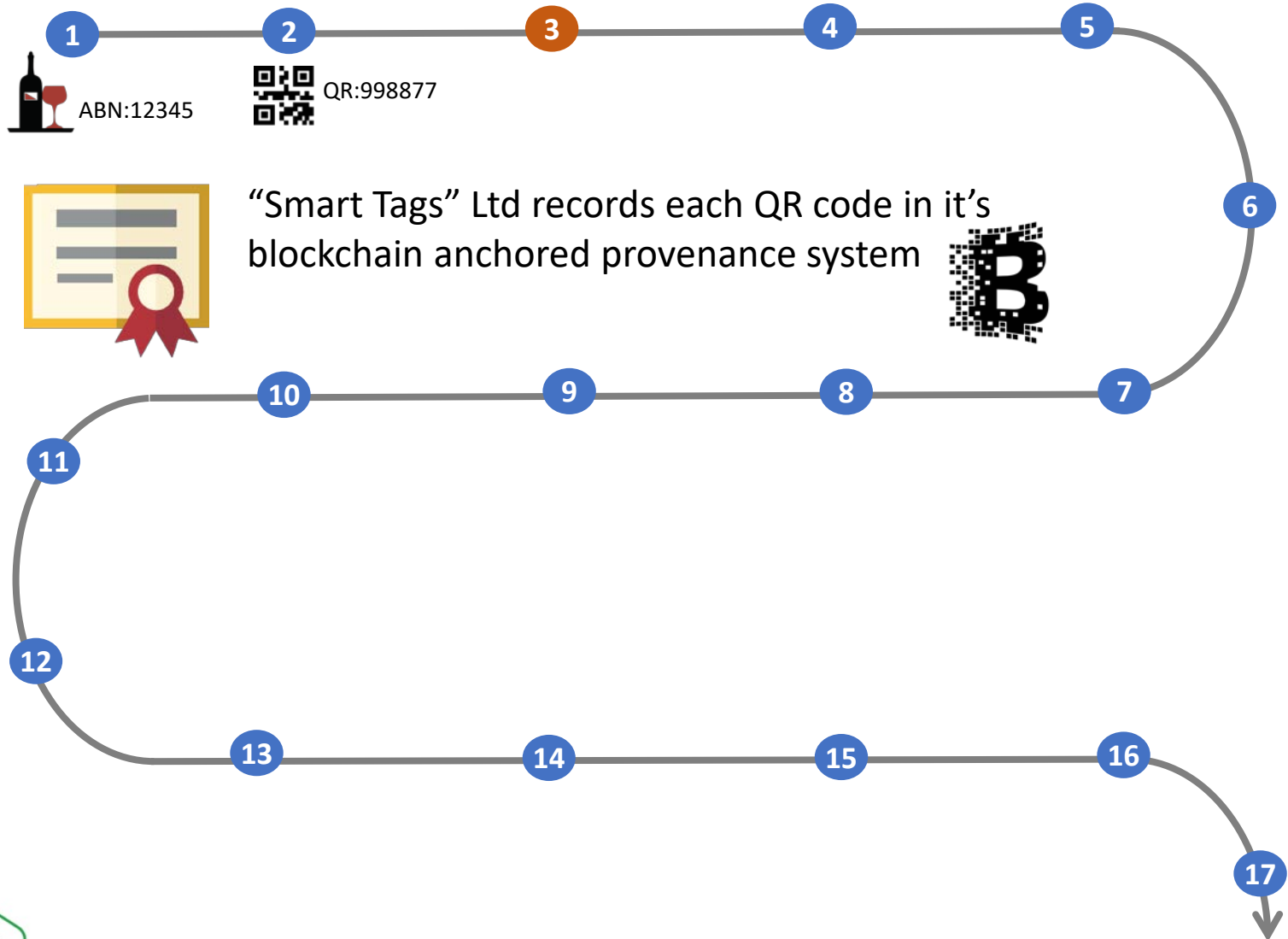


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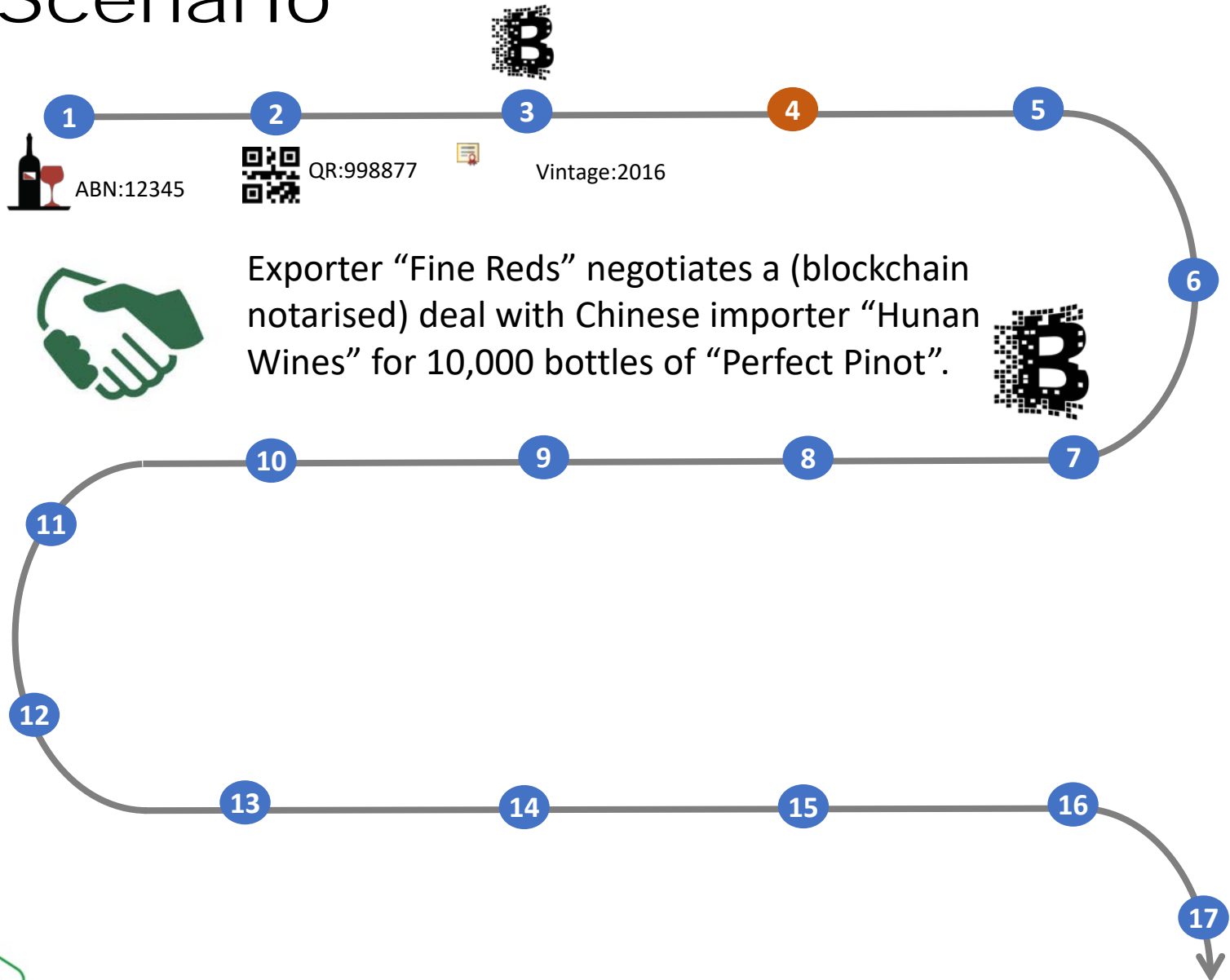


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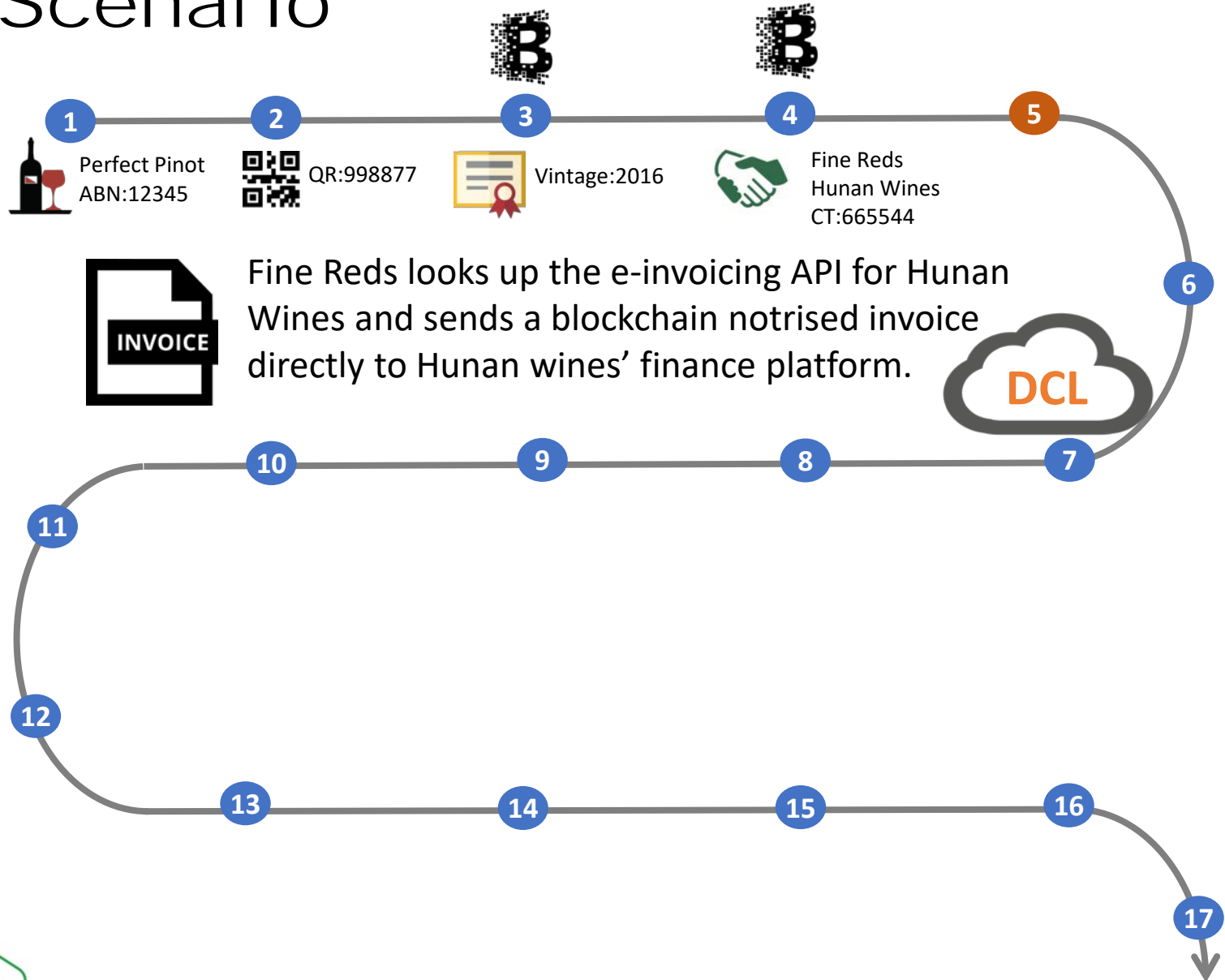


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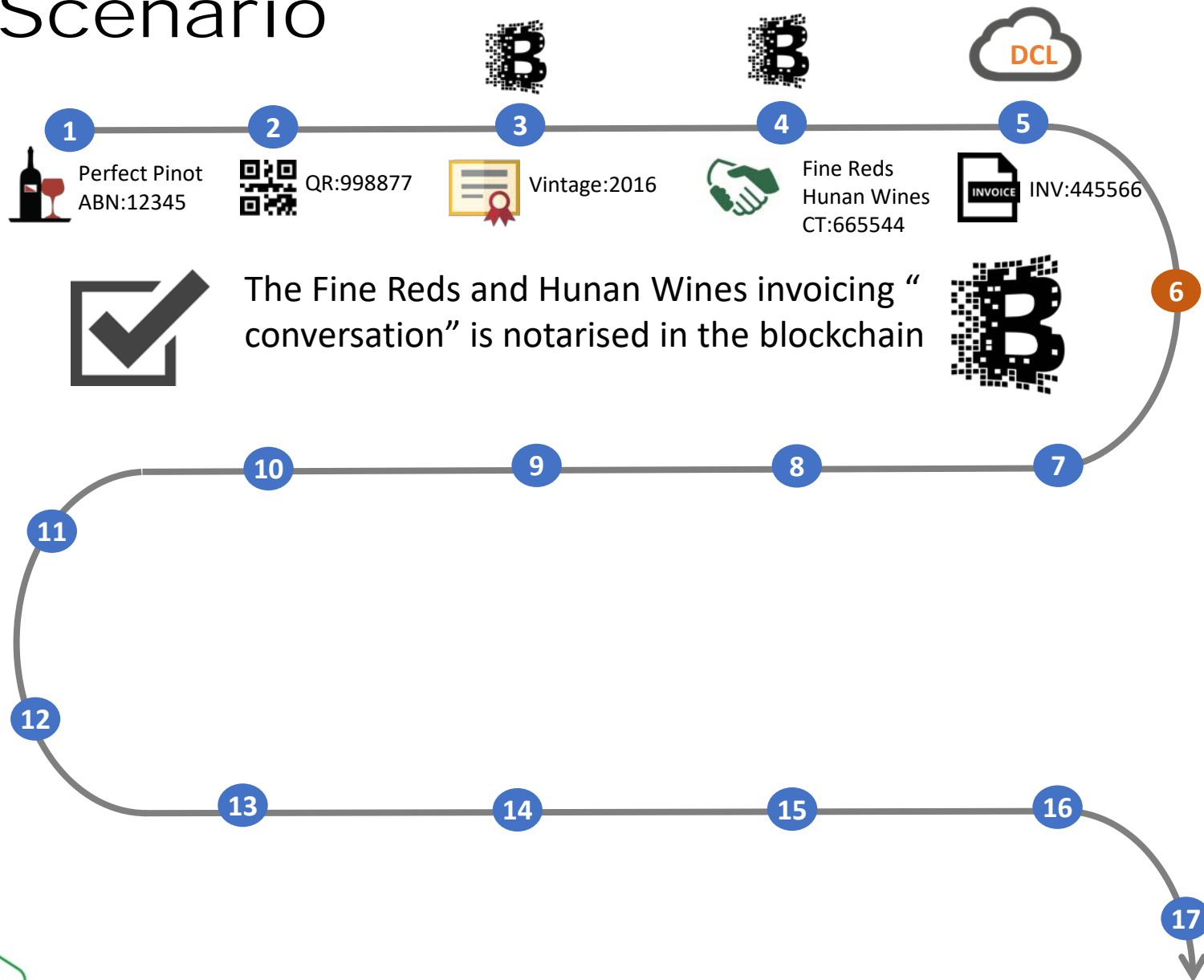


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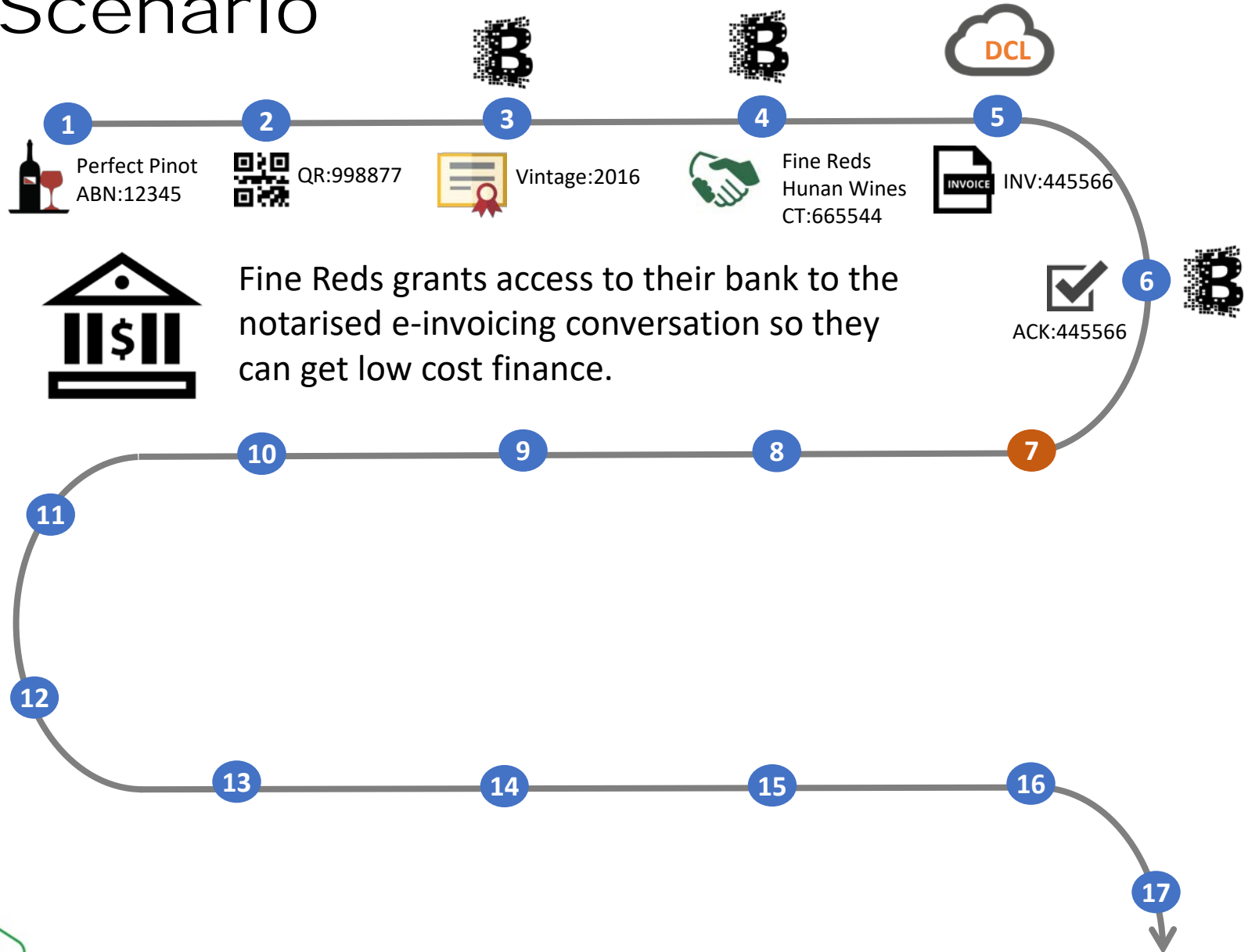


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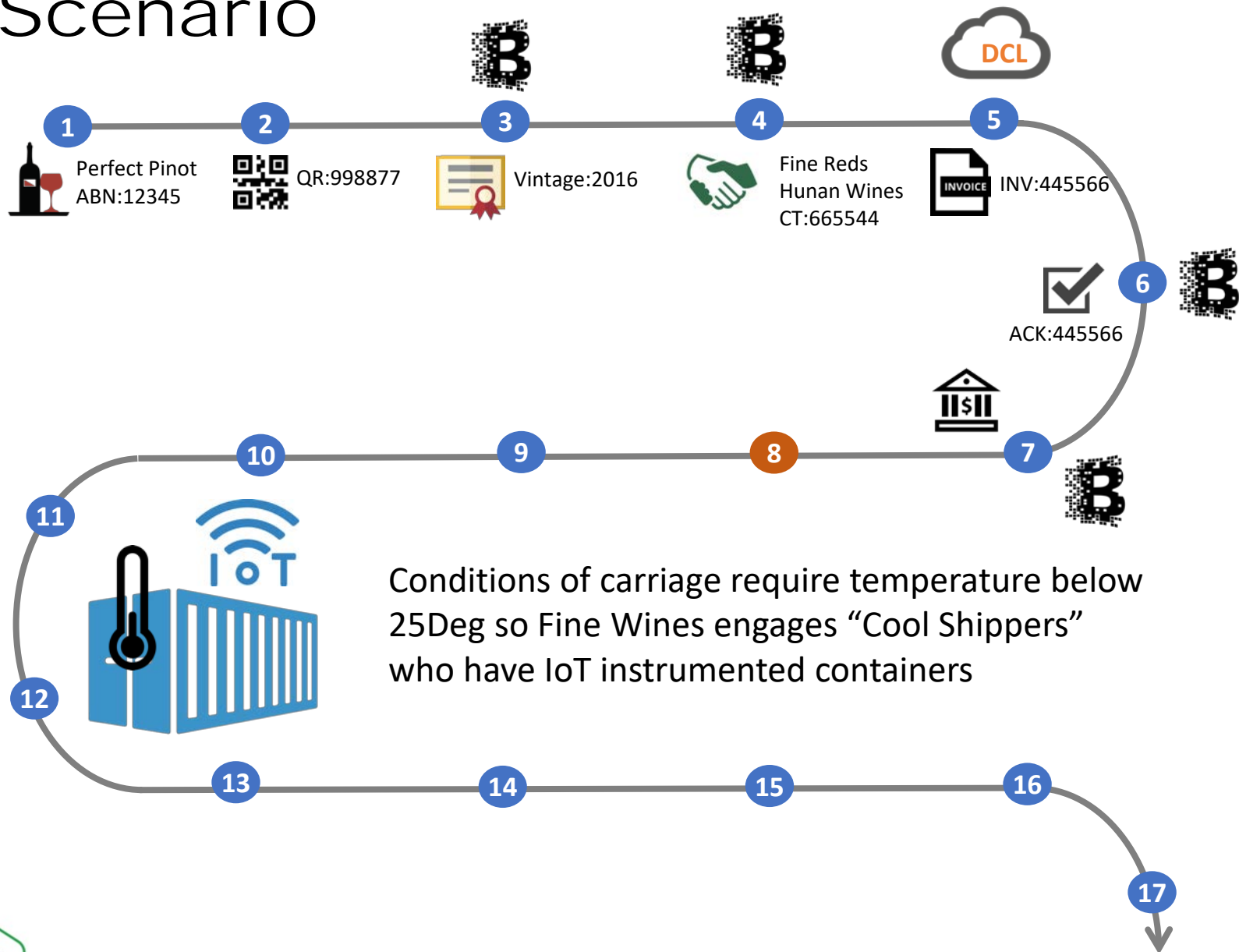


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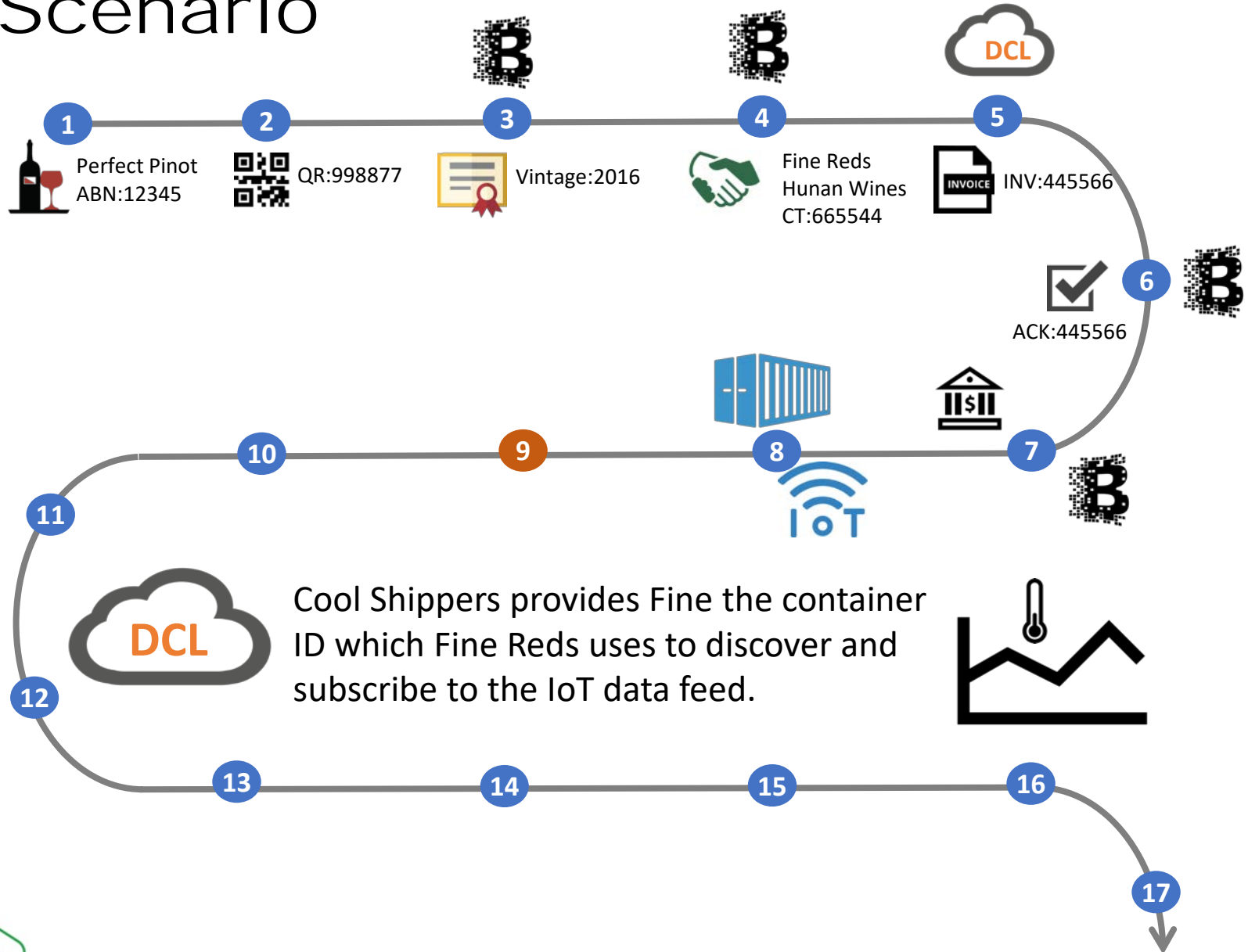




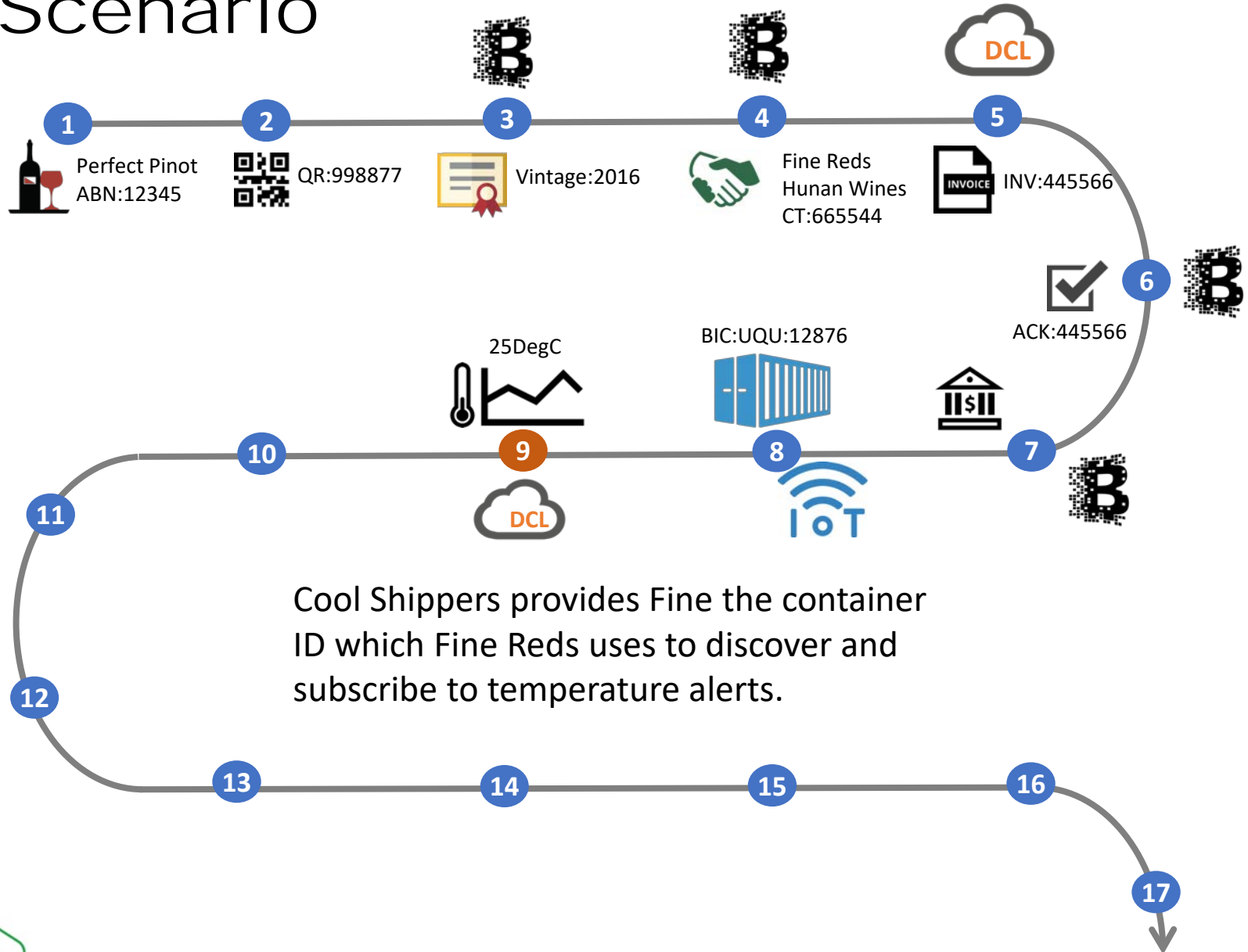
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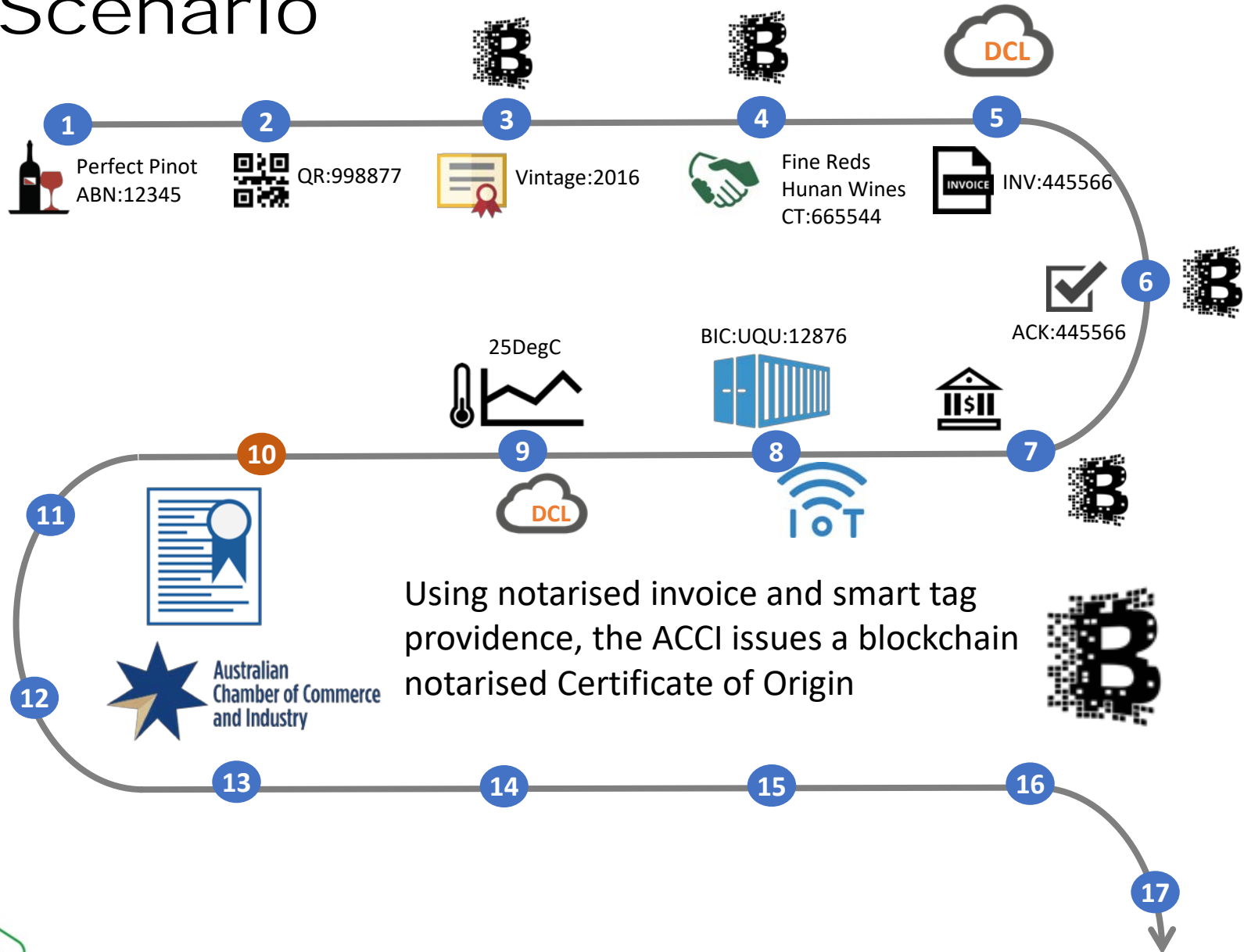
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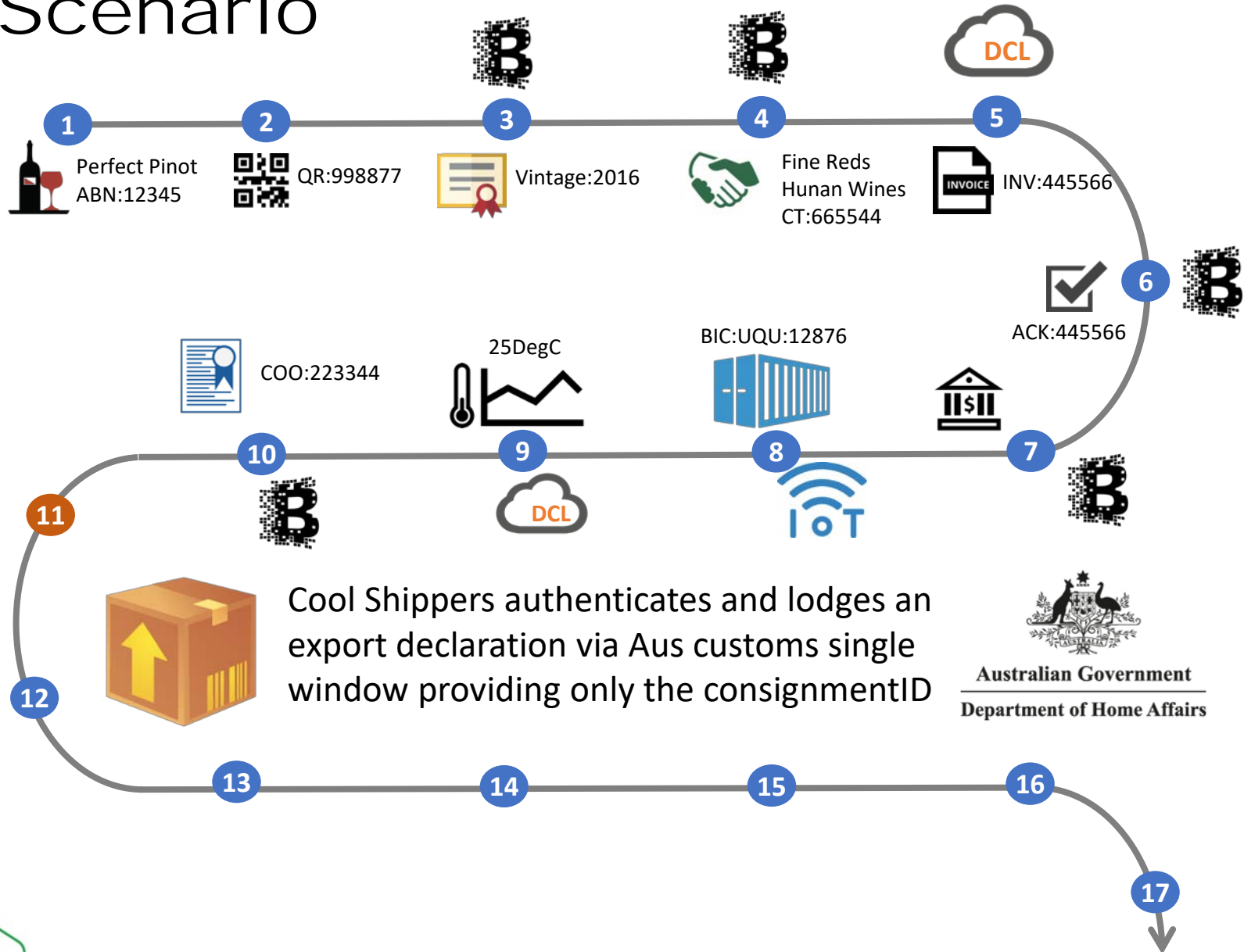
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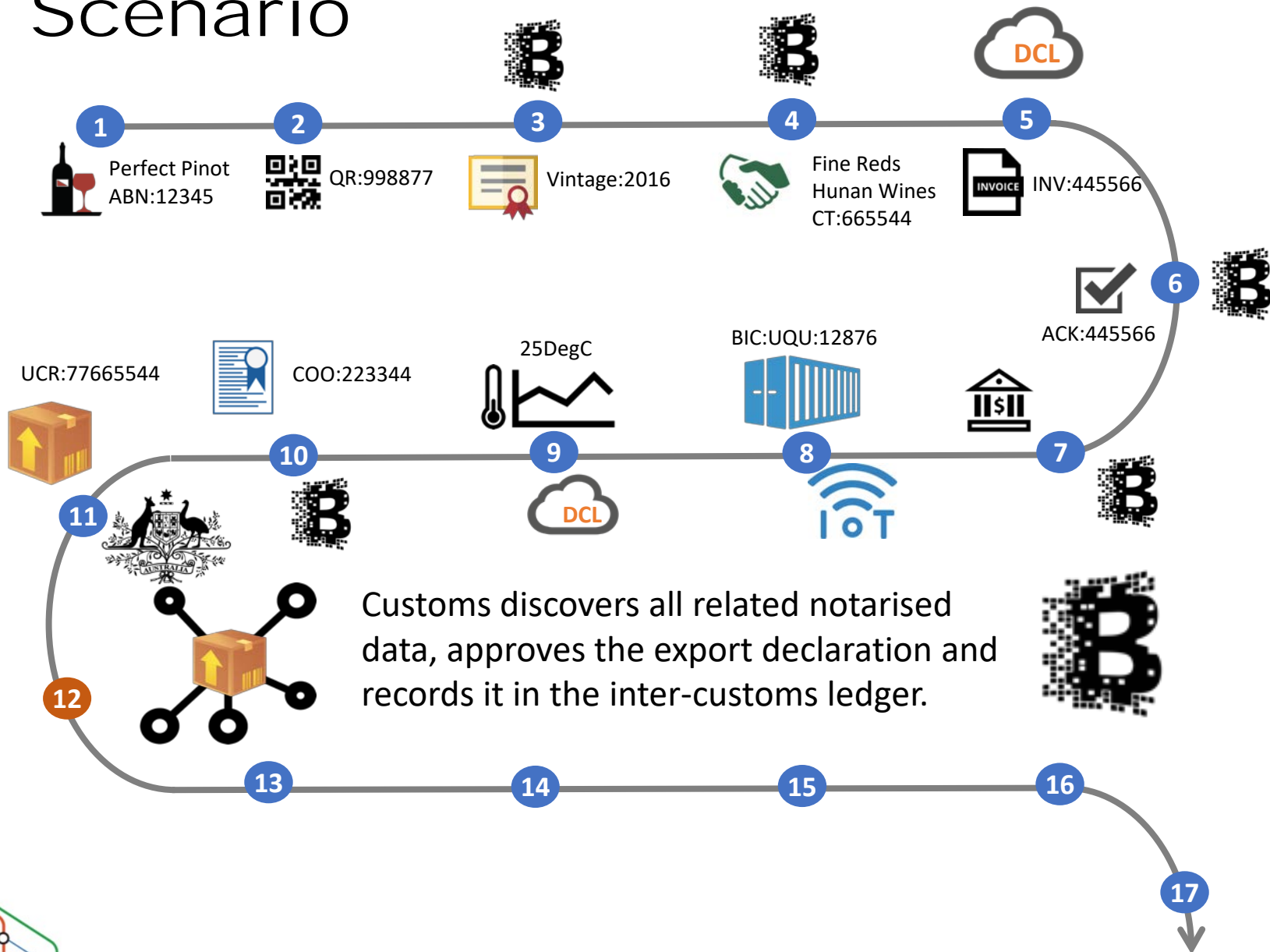
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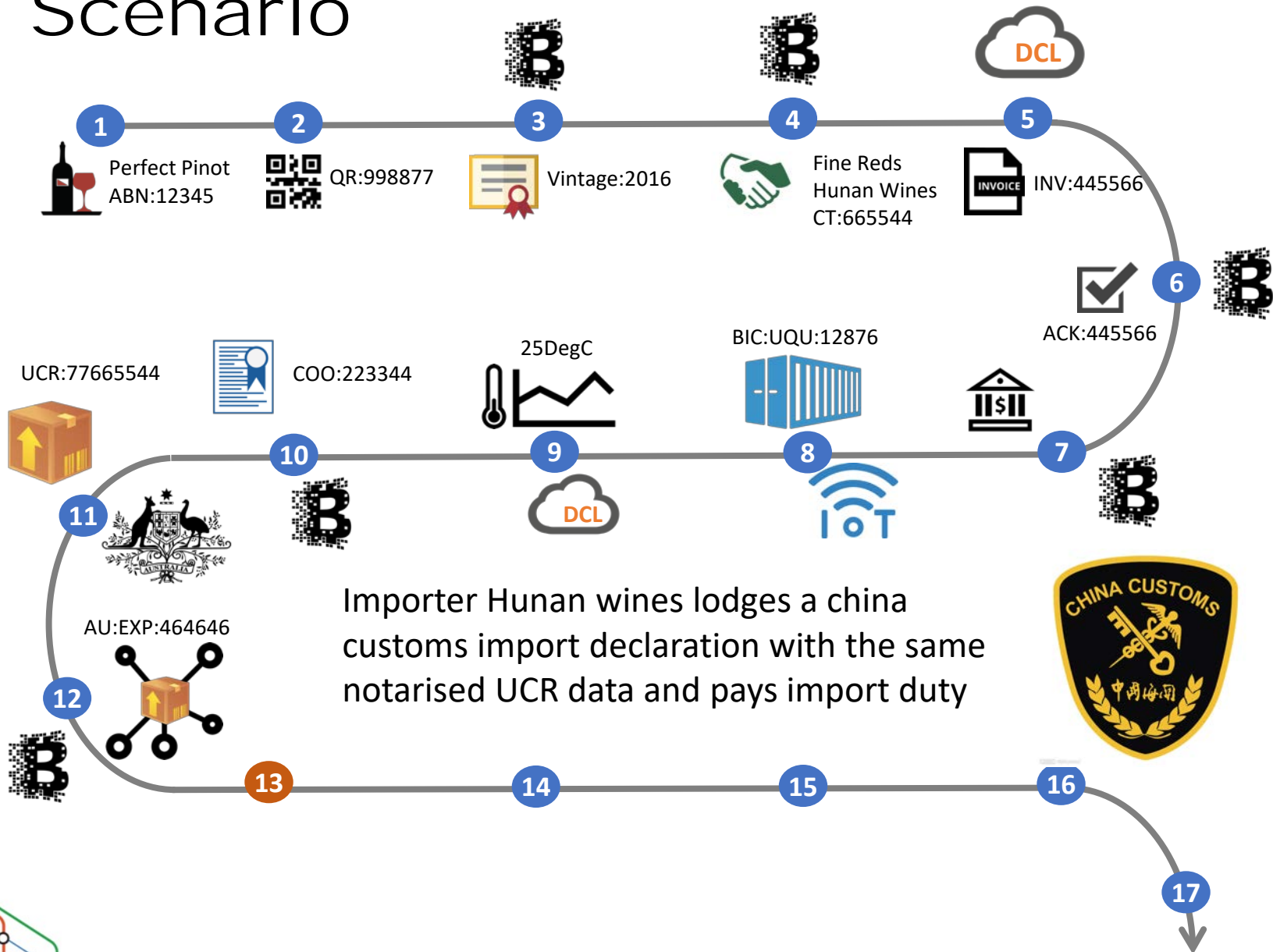
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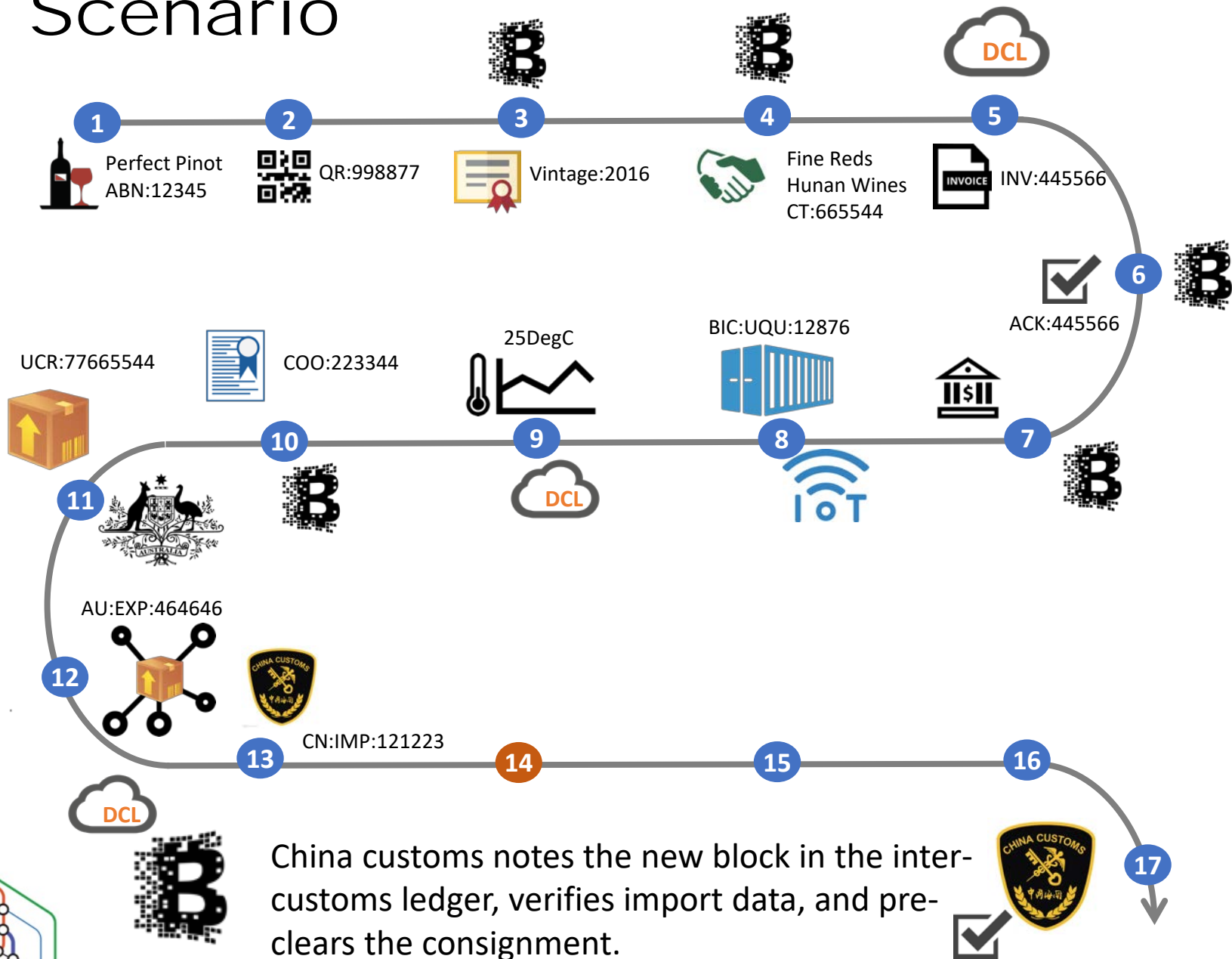
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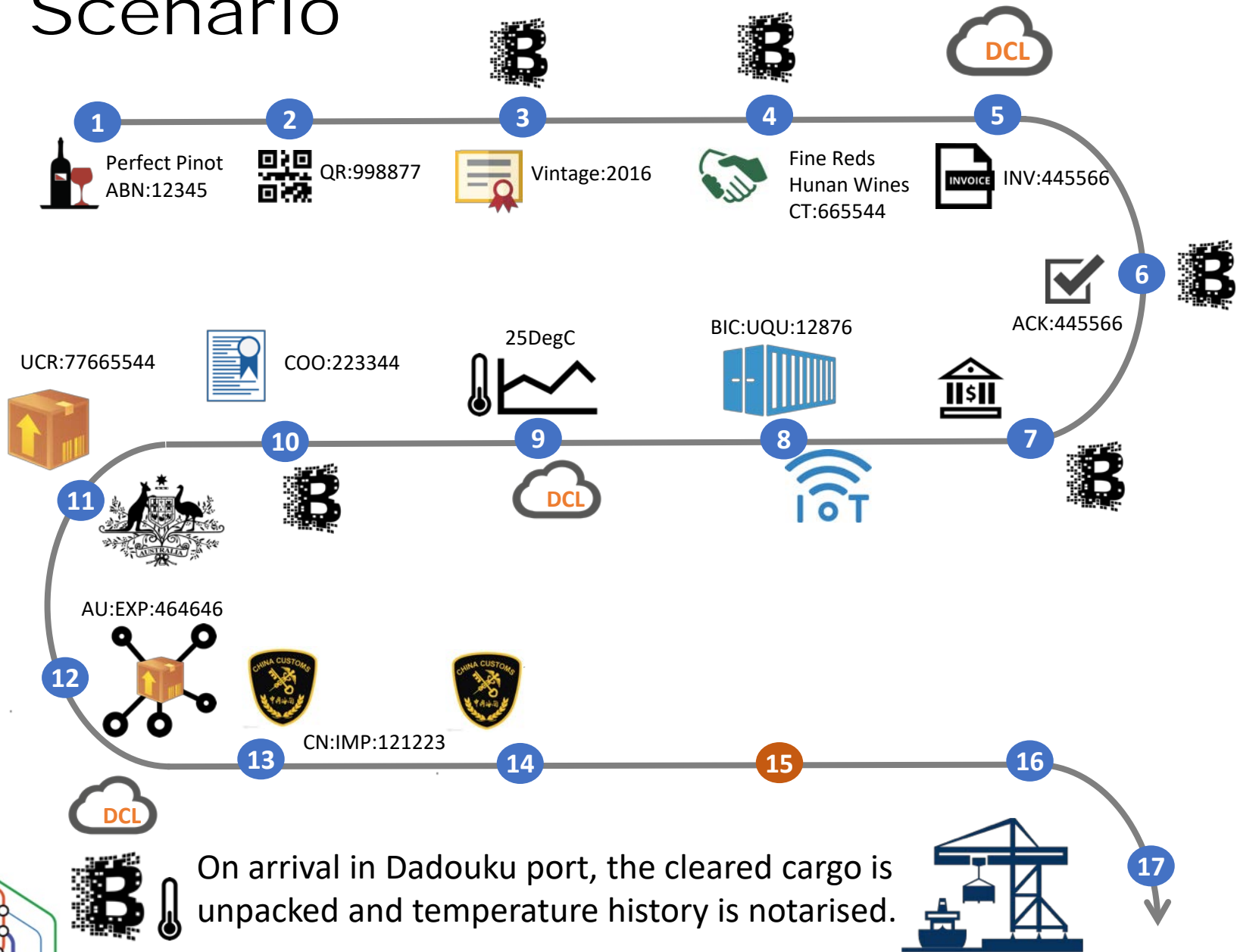
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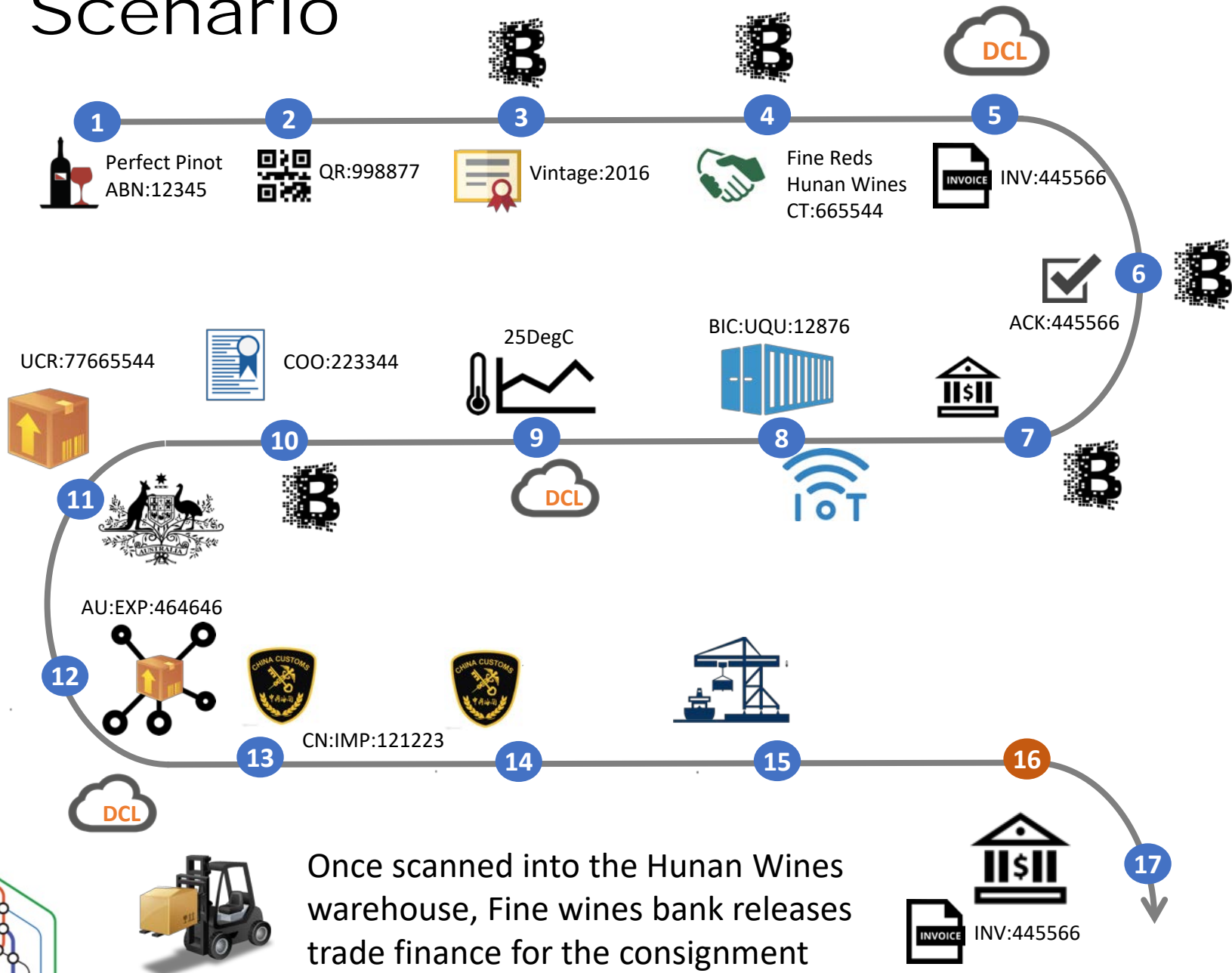
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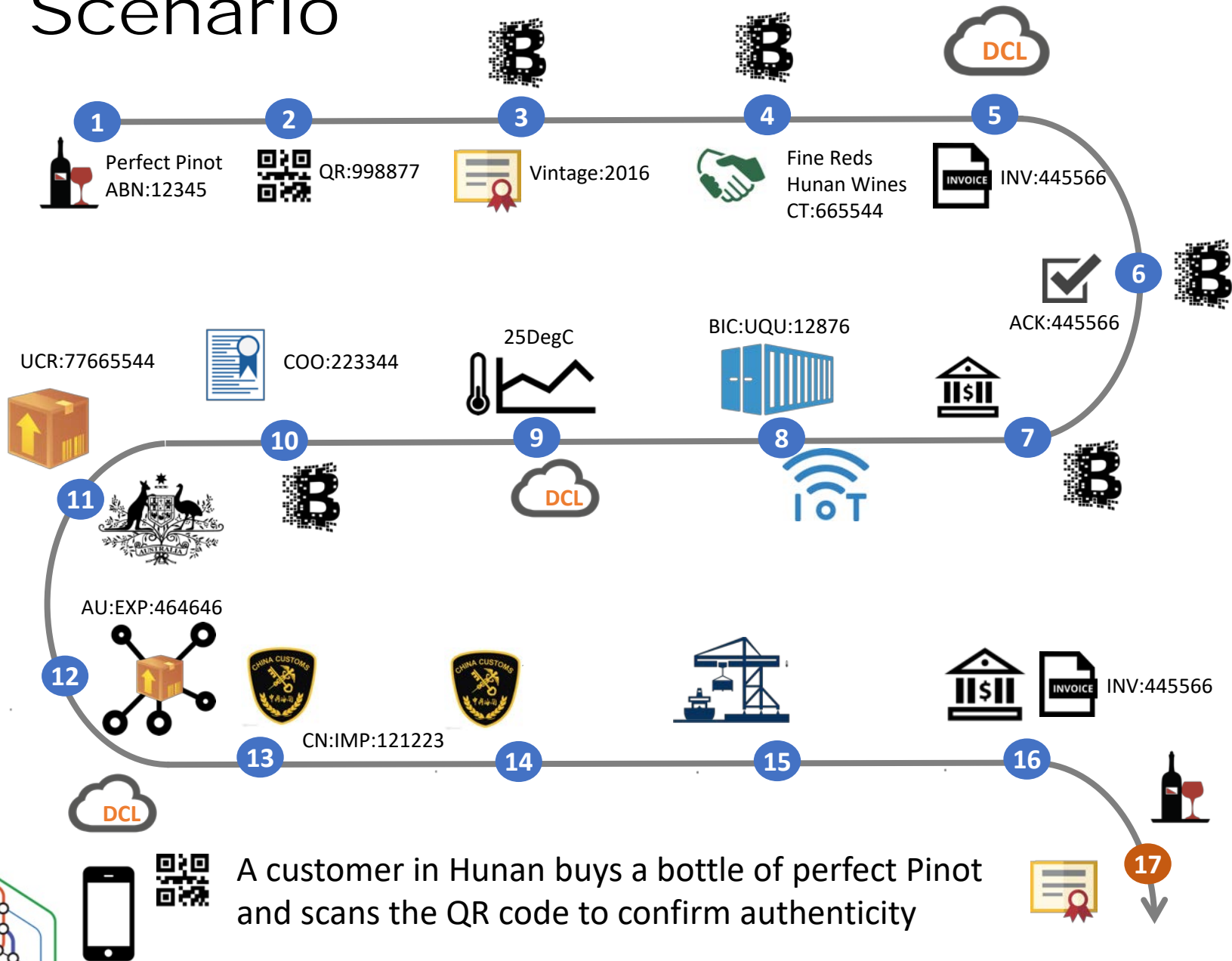
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Scenario



Scenario





Three (3) Proposals

- A UN/CEFACT Architecture Reference Model
- Process Modelling to leverage emerging technologies
- Identify existing standards and develop implementation guidelines for:
 - Resource Discovery Framework
 - Trade Data Semantics Framework
 - Inter-Ledger Interoperability Framework [specific to blockchain]





Q&A



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Thank you

Any contact information the presenters may
want to add

A decorative graphic consisting of a dense bundle of vertical lines in various colors (blue, green, yellow, red, black, white, etc.) that extend from the top of the slide down to the bottom, where they connect to a network diagram.

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A network diagram at the bottom of the slide showing a complex web of interconnected nodes (circles) and lines, representing a global or regional network structure.