

Marketconsultation BDI Association Service



digitale infrastructuur
logistiek



**Gefinancierd door
de Europese Unie**
NextGenerationEU

Agenda

- Opening
 - Marktconsultation: rules, publication
- BDI: Digital trust as infrastructure in business
- International containerized trade: example
- Role of BDI Associations
- BDI Association Service
- Questions in consultation
- Wrapup

Marktconsultation: Rules, publication

Rules

- All shared information (anonymized, unless explicitly requested to provide attribution) will be made public in a publication.
- Questions can be asked, preferably in writing. These will be answered in writing and made publicly available.
- A public report of the information sessions will be published.

Disclaimer

- Precarious balance between main principles for insight and implementation details
- Details of the architecture are subject to change
- Consciously avoiding "data space jargon"

BDI: digital trust as infrastructure for business

Business interactions in the physical world:

Creating, recording, and adjusting financial/legal agreements ("contracts"),
Coordinating schedules to complete the job together ("coordination" and notifications),
Complying with agreements, laws, and regulations, demonstrating compliance to clients and government agencies ("compliance")

Automating interactions, including for SMEs, quickly and easily adaptable, controlled and secure



**Digitaal
vertrouwen**

Digital Trust



Notificaties

Notifications



**Beheerste toegang
tot data**

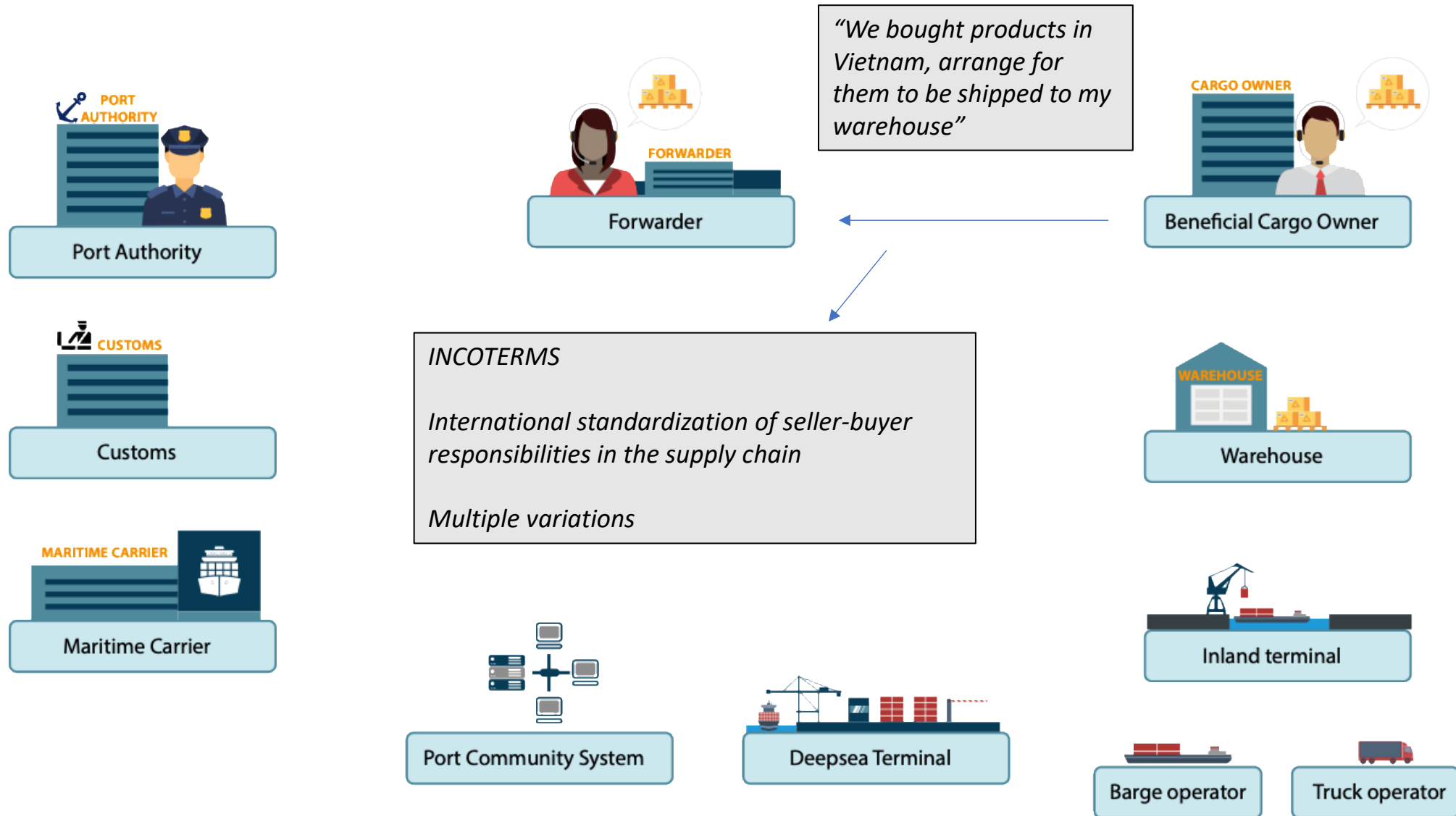
Controlled access



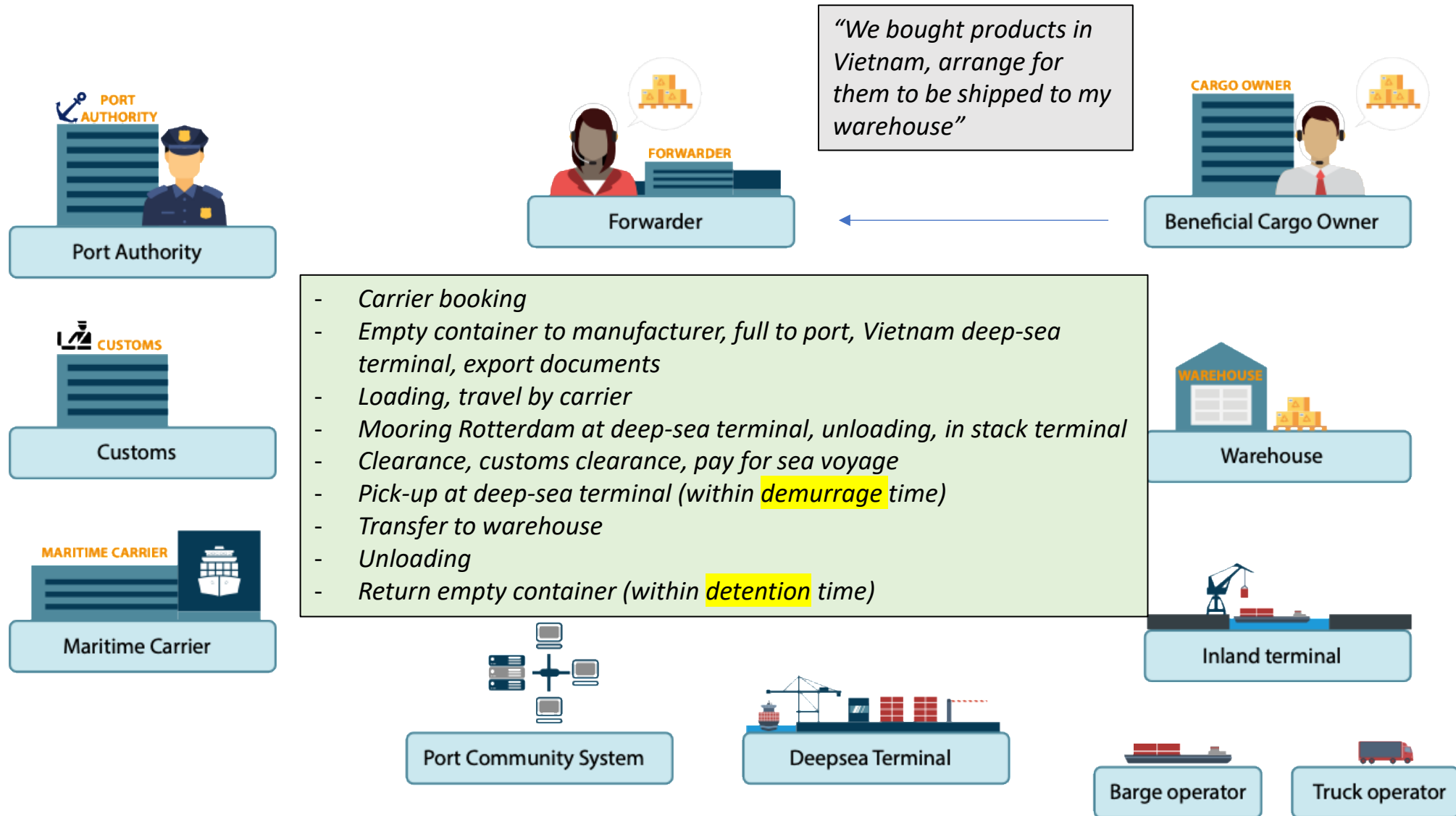
Transacties

Handovers

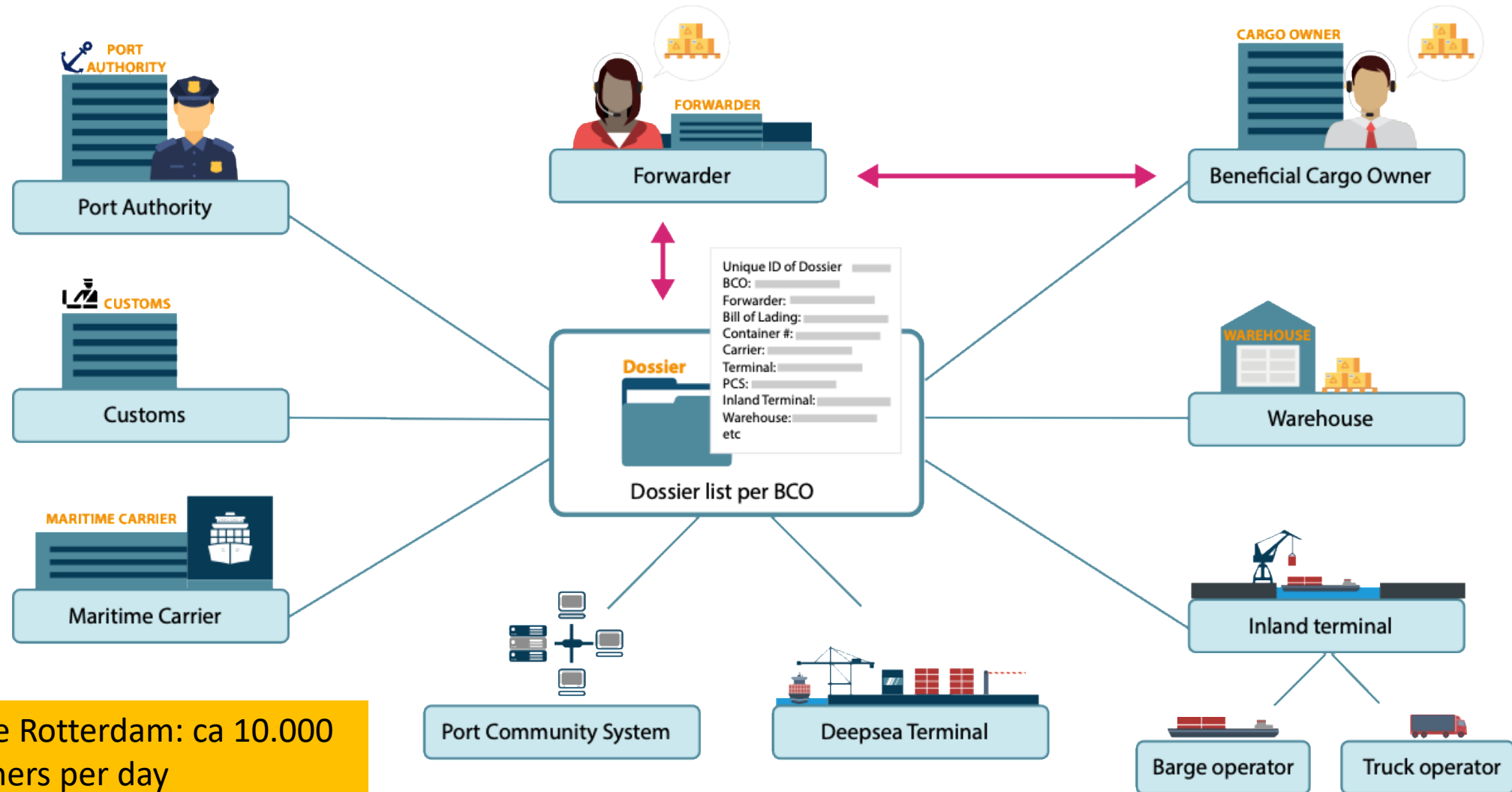
Example: containerized trade



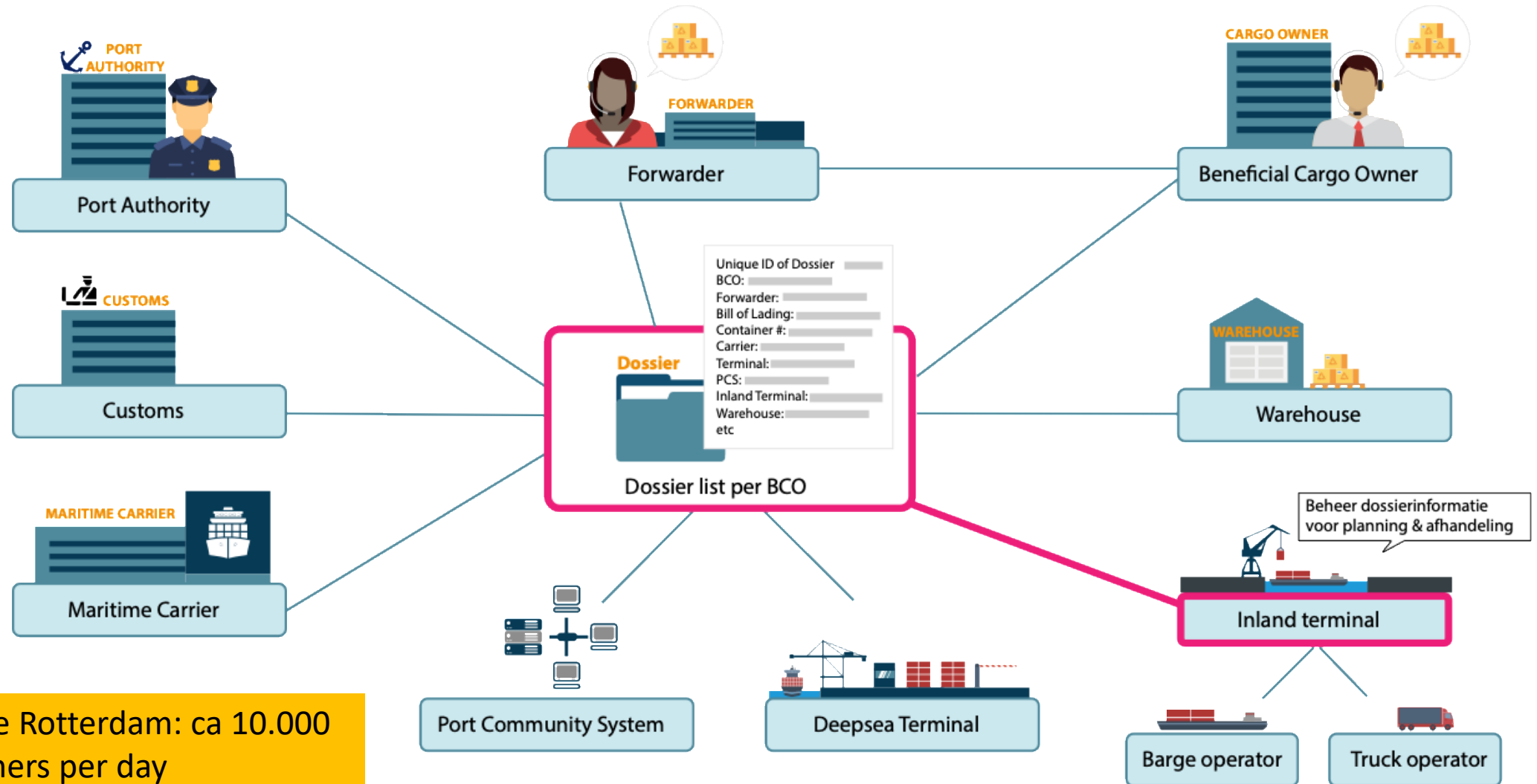
Gettings things done



Supply chain managing party contracts on behalf of BCO segment in transport chain: in this example the forwarder

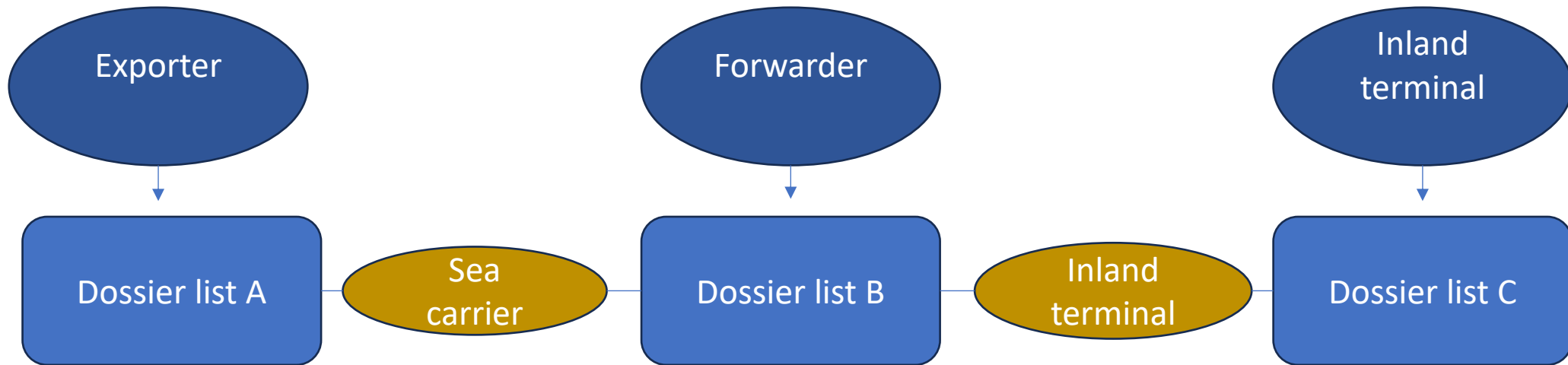


Other entities can take this role as well

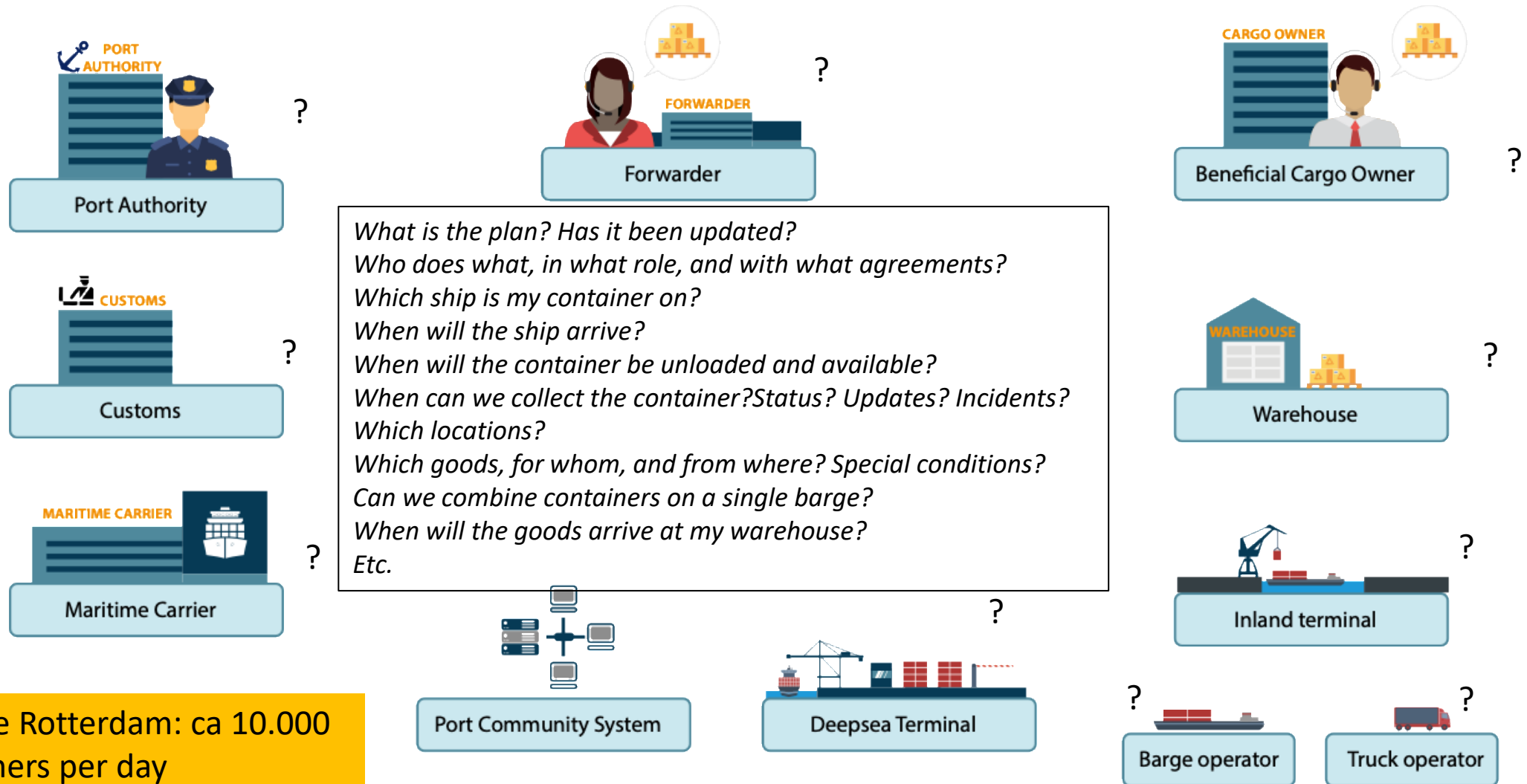


Volume Rotterdam: ca 10.000 containers per day

Chain of segments

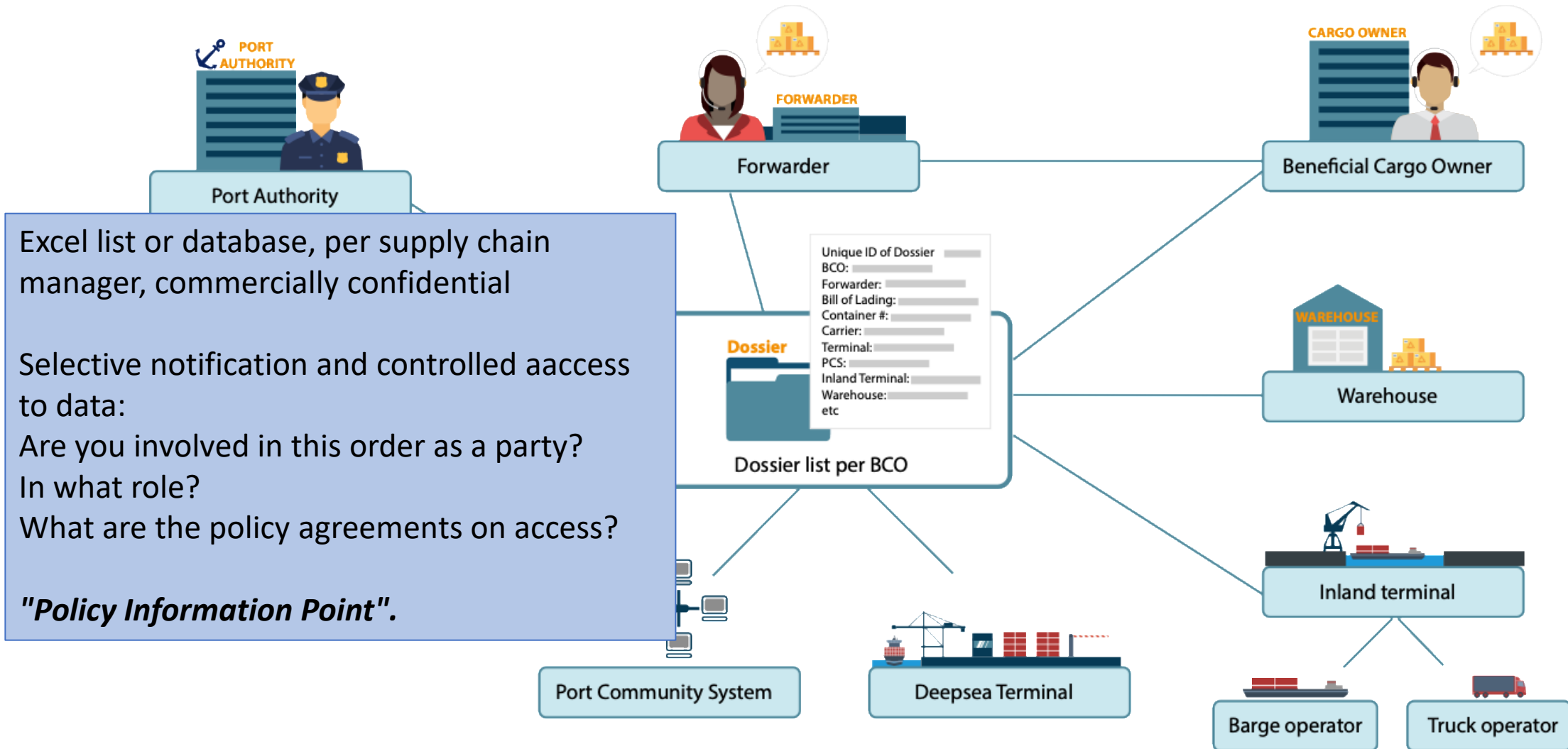


Every participant needs timely notifications and data from other participants to be able to do its job



Volume Rotterdam: ca 10.000 containers per day

All starts with “who is involved, in what role?”



Bilateral/multilateral automated interactions: notification of events, data access, registration of handover

Goal:

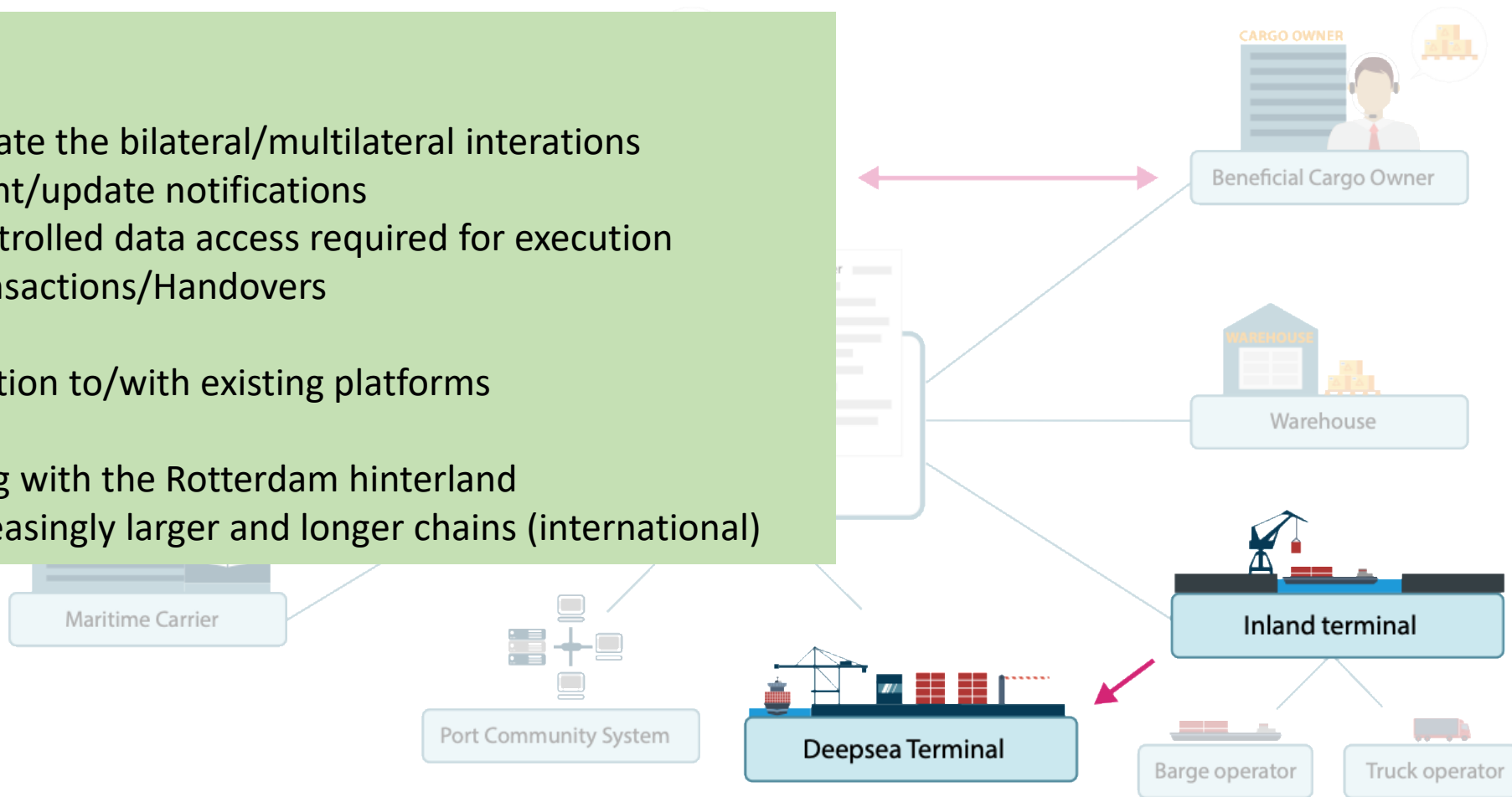
Automate the bilateral/multilateral interactions

- Event/update notifications
- Controlled data access required for execution
- Transactions/Handovers

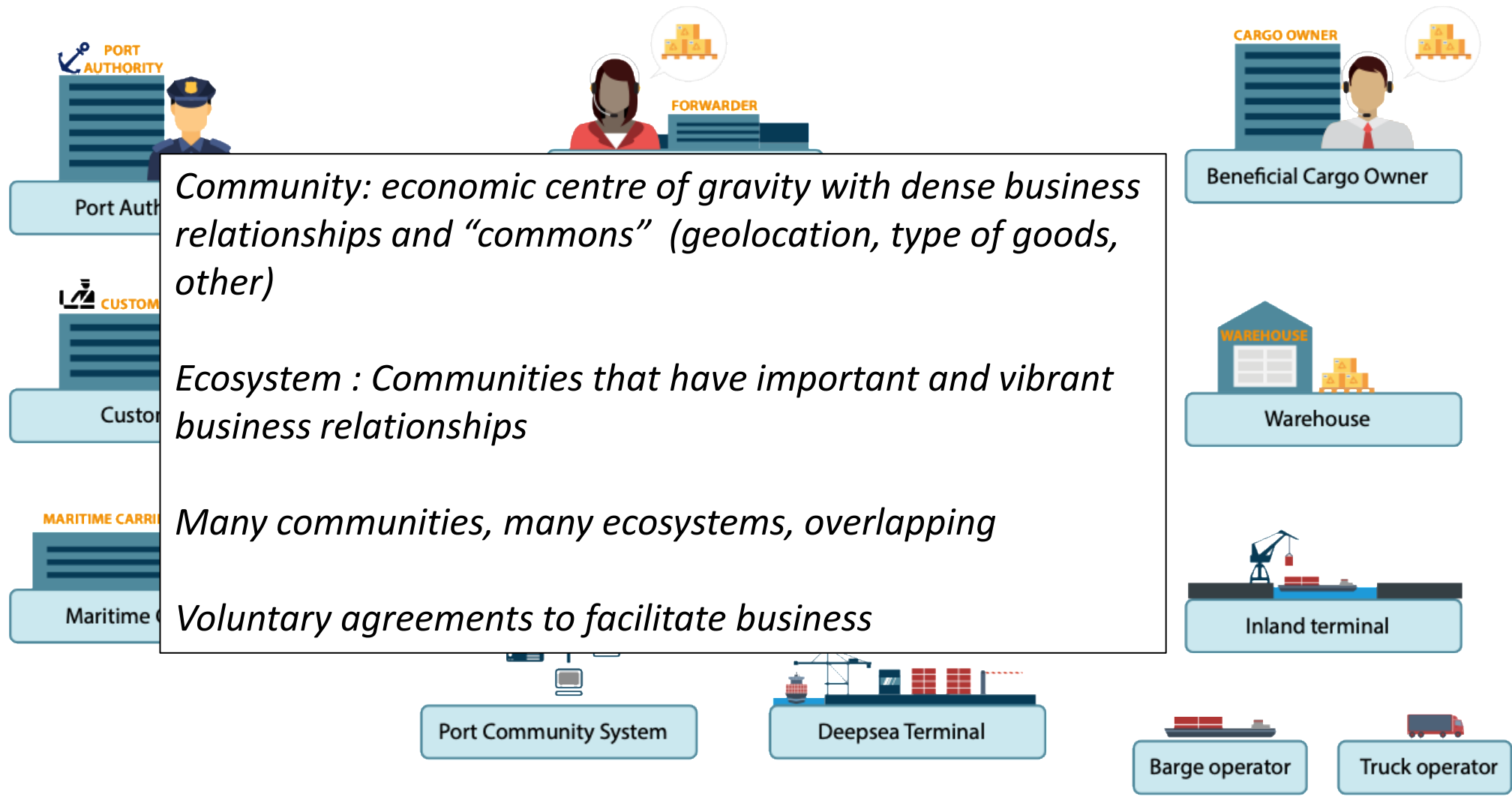
In addition to/with existing platforms

Starting with the Rotterdam hinterland

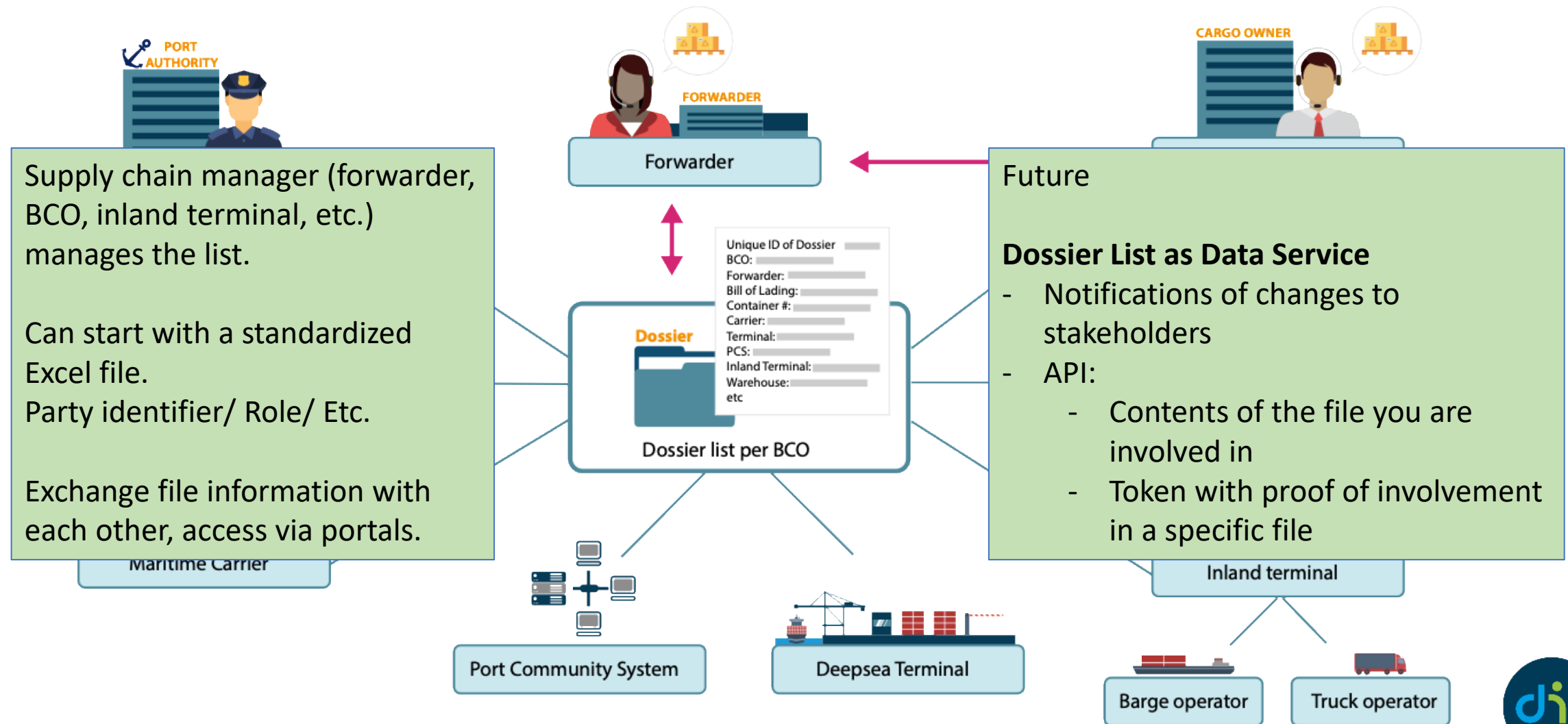
In increasingly larger and longer chains (international)



Worldview: multiple communities in ecosystems



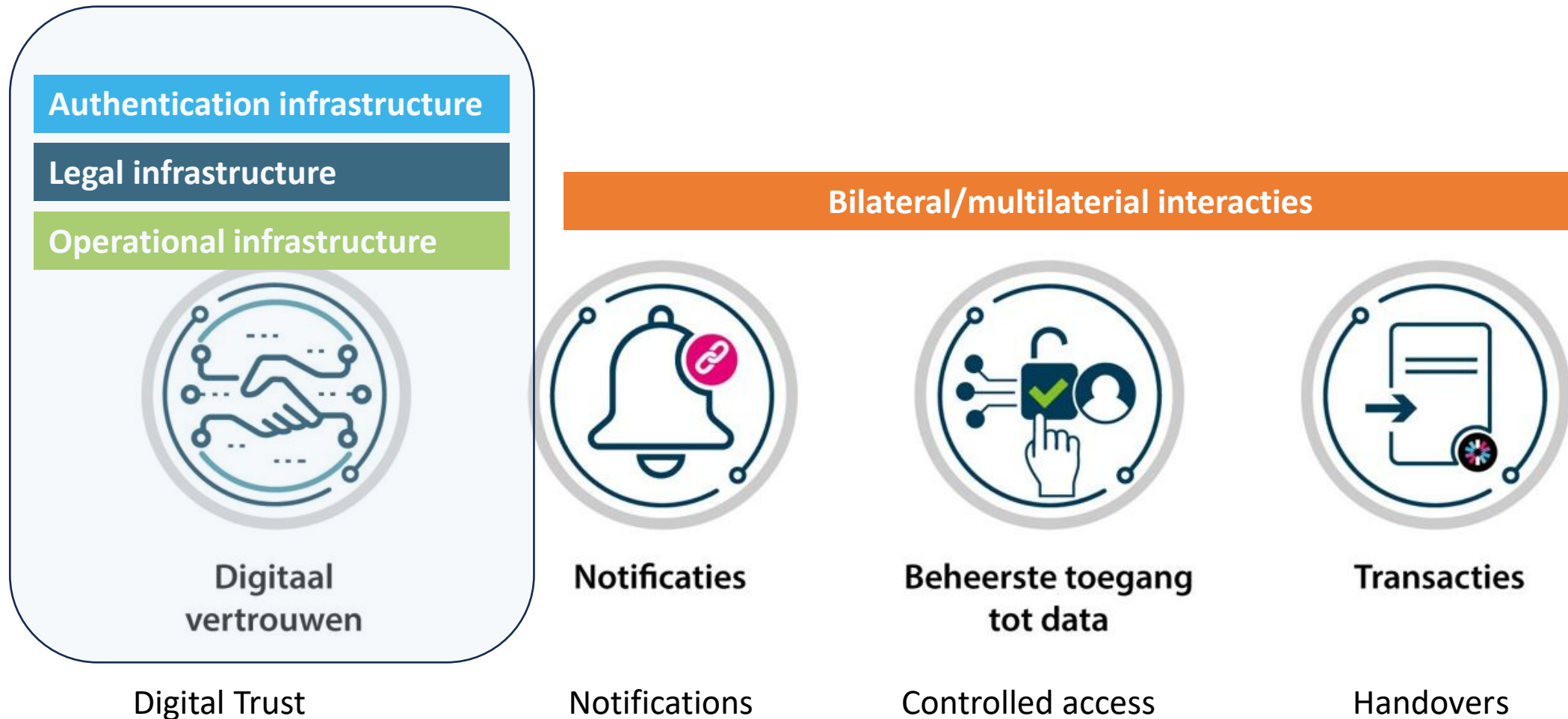
Start: “Dossier”: “proof of involvement”



BDI Association: Community Infrastructure

Infrastructure for digital trust in M2M bilateral/multilateral interactions

Combined onboarding: IT, operational, legal



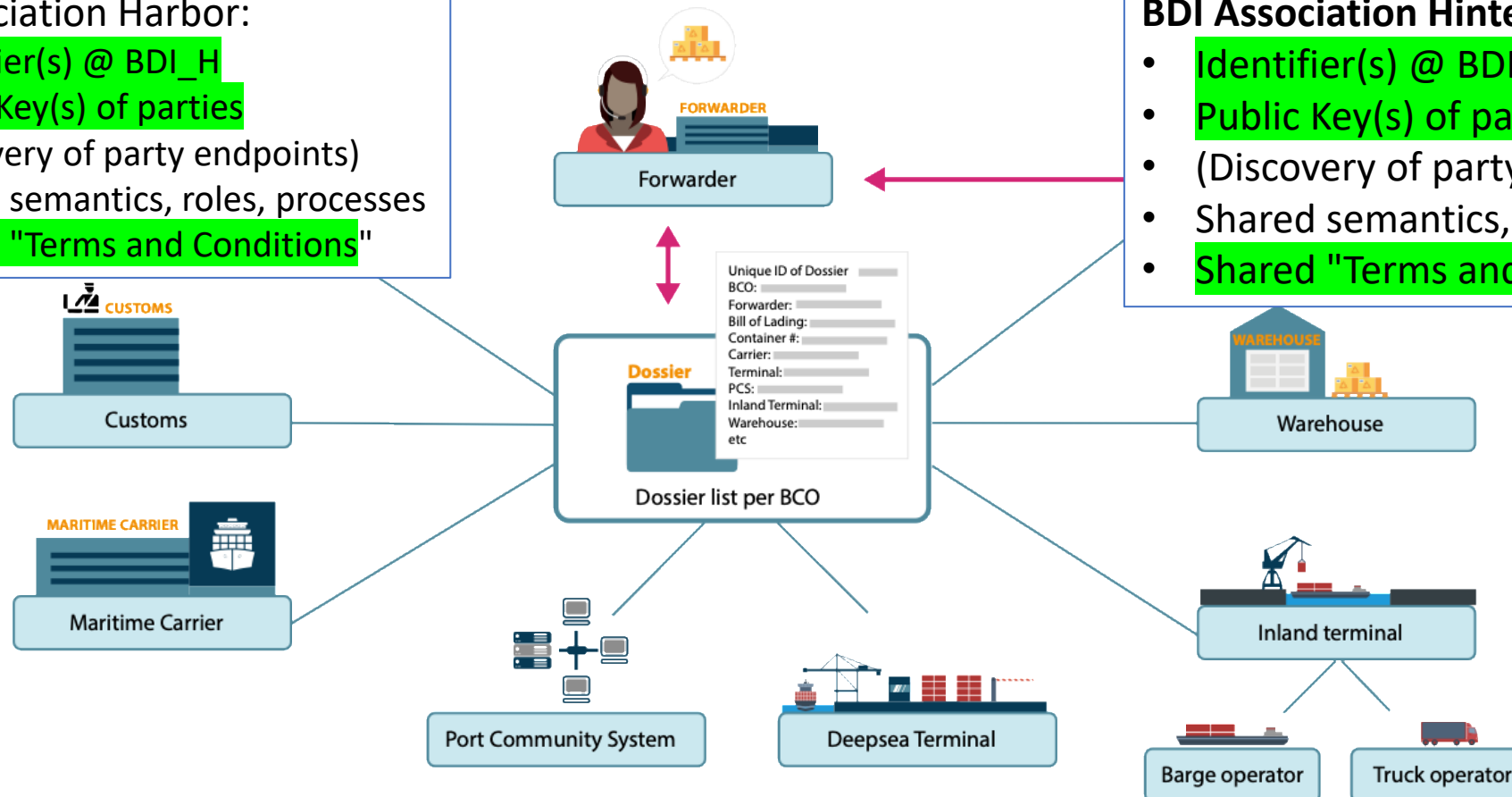
Authentication: **legal** responsibility for application acting on behalf of legal entity

BDI Association Harbor:

- Identifier(s) @ BDI_H
- Public Key(s) of parties
- (Discovery of party endpoints)
- Shared semantics, roles, processes
- Shared "Terms and Conditions"

BDI Association Hinterland:

- Identifier(s) @ BDI_H
- Public Key(s) of parties
- (Discovery of party endpoints)
- Shared semantics, roles, processes
- Shared "Terms and Conditions"



BDI Association: Community Infrastructure

Infrastructure for digital trust in M2M bilateral/multilateral interactions

Authentication infrastructure

Legal infrastructure

Operational infrastructure



Digitaal
vertrouwen

Digital Trust

Identifier@ + public key (+ endpoint) = basis for mutual authentication
Signed token from ASR = proof of adherence to framework, and assurance information

Adherence: roles/policies, semantics, conditions = legal and operational



Notificaties

Notifications



Beheerste toegang
tot data

Controlled access



Transacties

Handovers

BDI Association Register: infrastructure per community

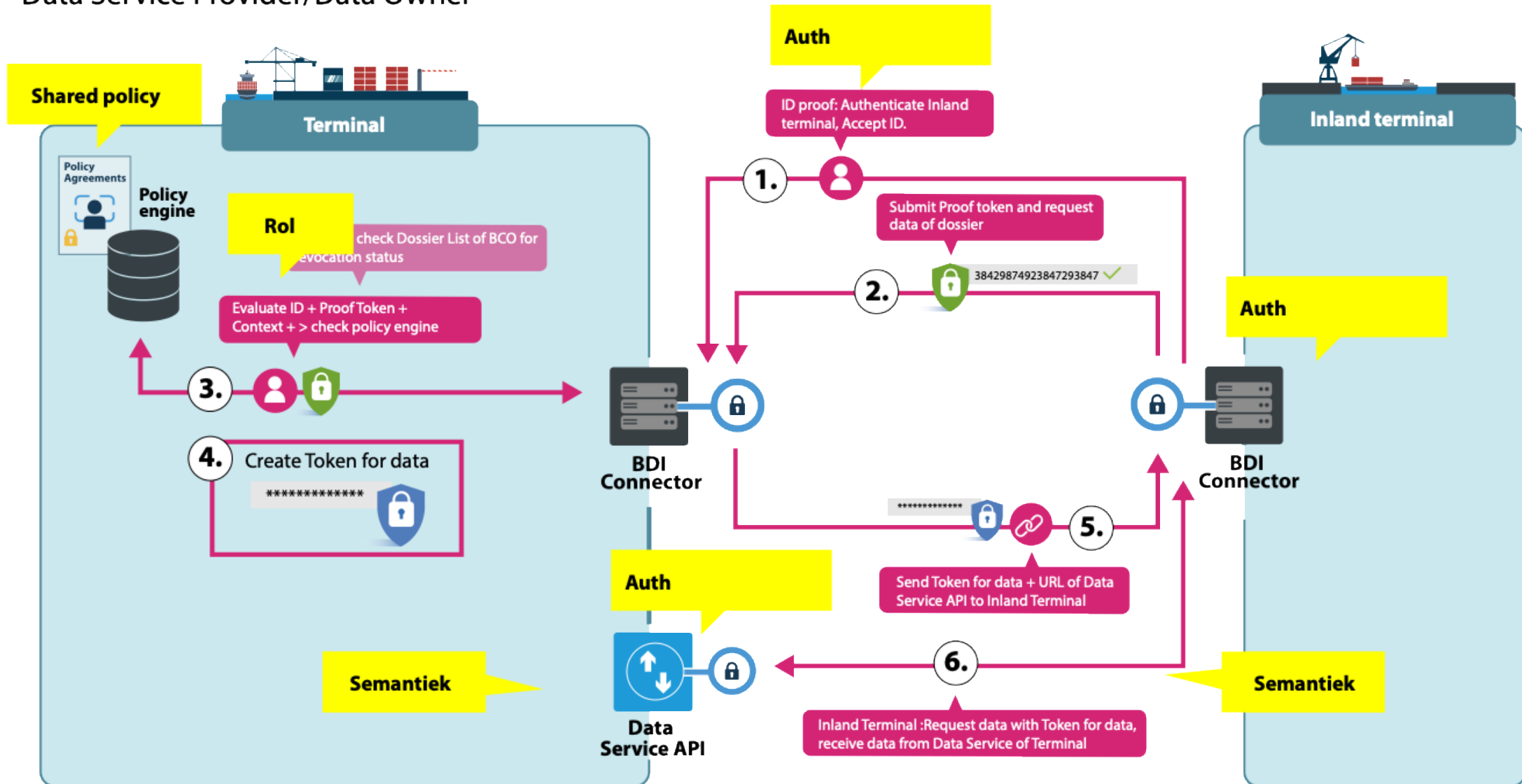
Entry per legal entity that adheres to agreements and wants to use framework for M2M: proof of onboarding, reference data.

- Organization Identifier @ BDI Associatie-X
 - Internal unique ID
 - External ID's cross-reference
 - *EUID: Chamber of Commerce Numbers for European Companies as listed in the BRIS*
 - *LEI (Legal Entity Identifiers): as defined in ISO 17442 and governed by GLEIF*
 - *Other (EORI,)*
- Public Key(s) of Organization
 - Multiple
 - From certificate
 - Or self-generated
- *Optional: discovery of endpoints*
- Additional data (reputation, assurance information, status (onboarded, revoked, etc...))
- Data service API



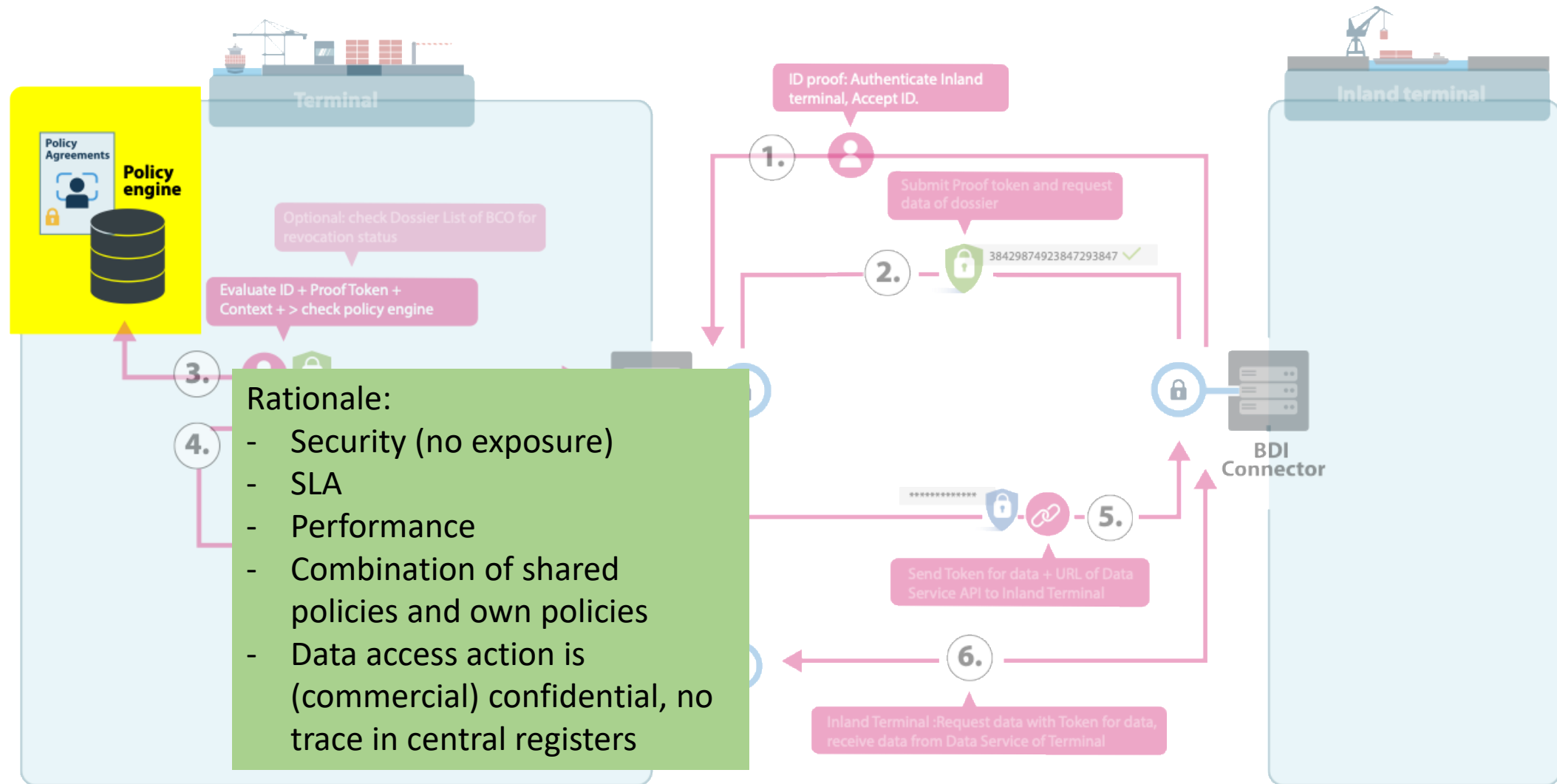
Fully automated M2M bilateral

Data Service Provider/Data Owner



“Local” policy engine = Policy Decision Point

Data Service Provider/Data Owner



Association = community anchor

- Organizational/legal basis of infrastructure
- Legal entity
 - *association, foundation, cooperative, private limited company, etc. or contractual structure*
- Community-driven, business-needs-driven, legal form: choice by community
- Polycentric, multiple, no central authority
- As a company: voluntarily join a community (or more) of your choice.
- Communities join ecosystems

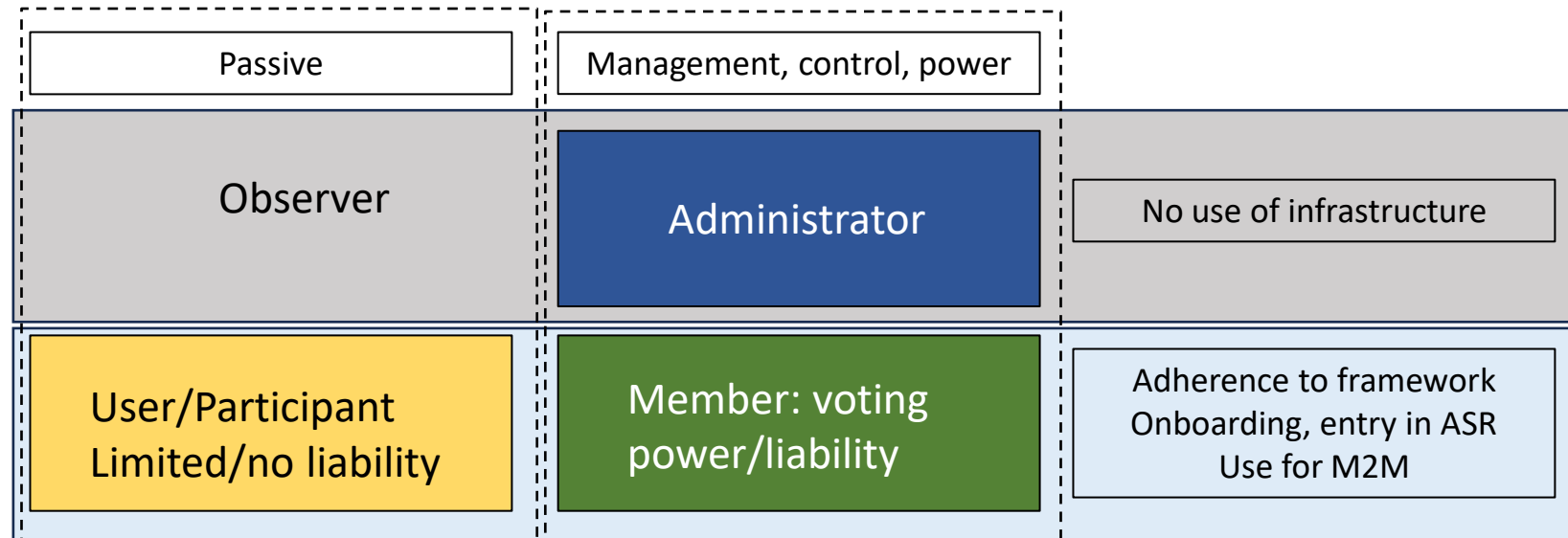
Many sector organizations already exist that manage joint business agreements: commercial gravity centre.

For example: the chemical industry and transporters are organized nationally.

National organizations are members of the EU federation. EU, US, and Asian federations form a global framework. manage agreements on specific conditions, standards, etc. Negotiate with governments



Association: governance and involvement



Ecosystem of two or more communities?

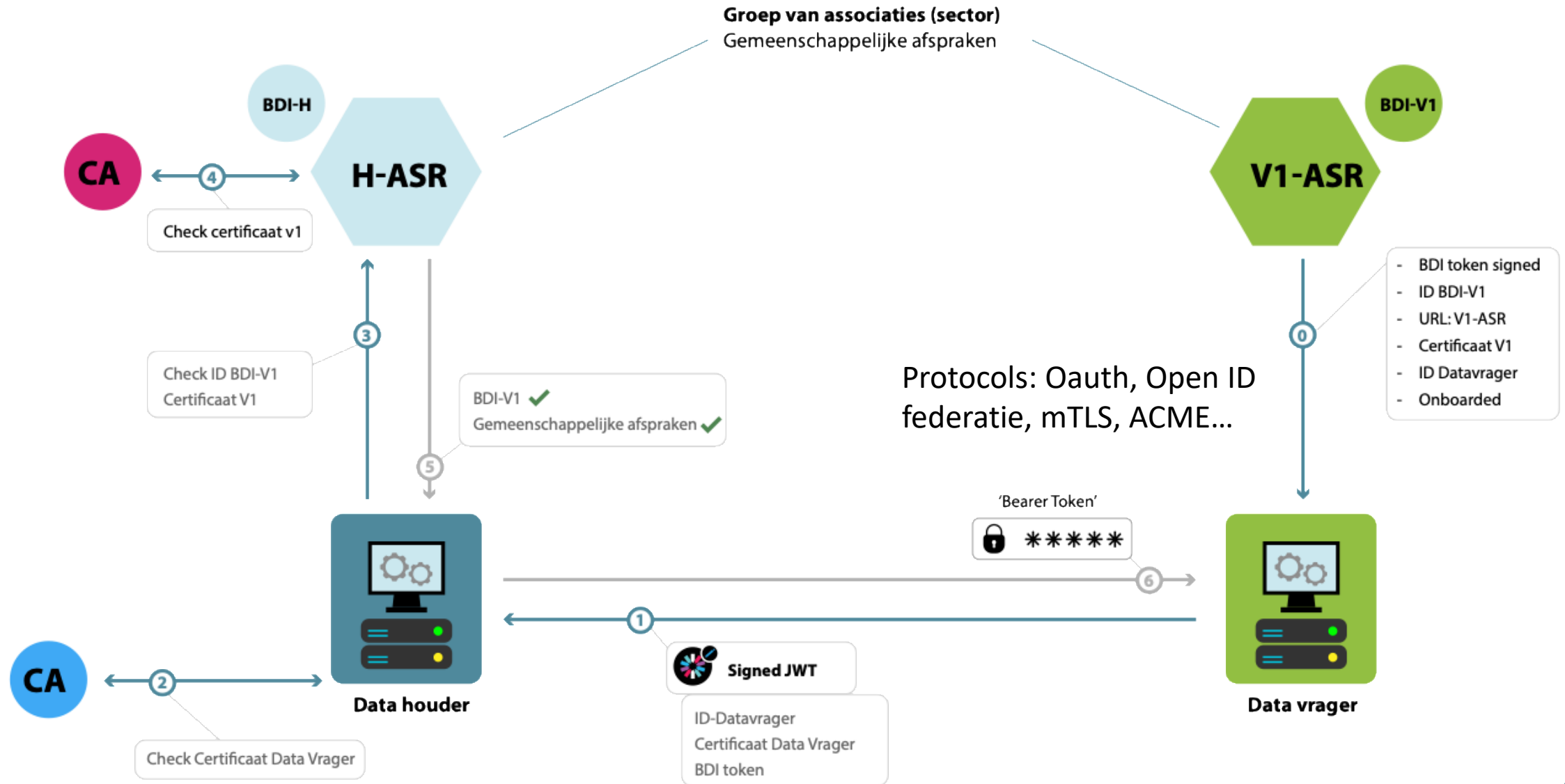
- Agree upon minimum requirements/onboarding on
 - Digital trust
 - Roles/semantics etc.
 - Legal basis

M2M bilateral communication between Users/Members of different communities?

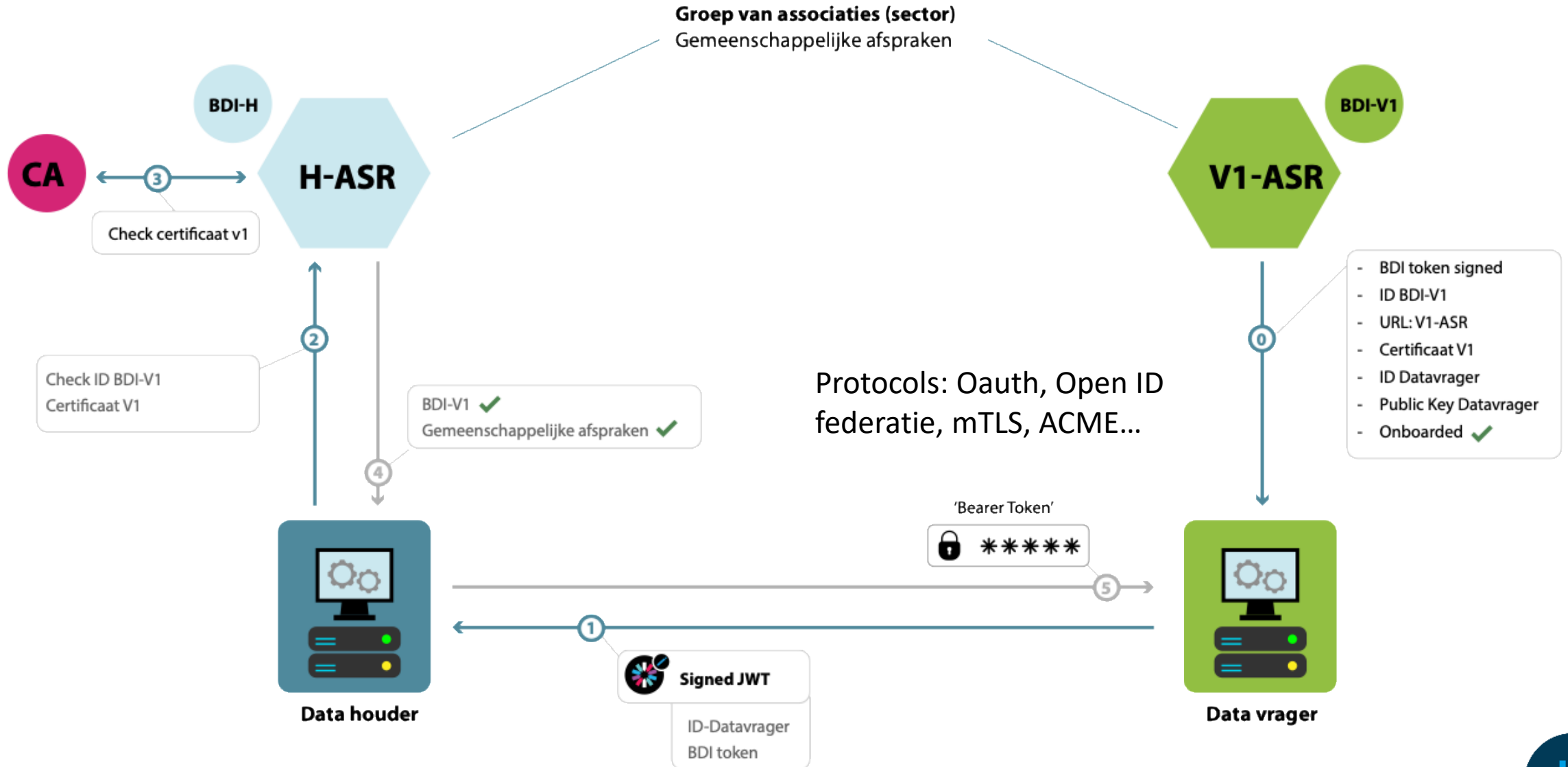
Mutual authentication and assurance example:

- Inland terminal @ BDI Association Achterland : data request
- Deep Sea Terminal @ BDI Associatie Harbour : data service provider

Option 1: Certificaat
mTLS?



Optie 2: self generated assymetric key-pair
mTLS?



Multiple levels of assurance support?

- Proposal: instead of defining levels, standardize Assurance Information
- Association registers Assurance Information per Member/User
 - Claims per relevant aspect, such as
 - Certificaat (self signed, QWACS, eSEALS)
 - Onboarding and vetting
 - Monitoring
- Assurance information is Policy Information Point
- Assurance information is delivered to Data Custodian/Data Service Provider , for its Policy Decision Point

Association versus Associatie Service

- Association = legal entity, owned by community
- Service = services to legal entity
- Community purchases services

Services: IT and non-IT

BDI Associatie: Services

Authentication infrastructure

- Registration and Onboarding
- Maintain, manage, and operate ASR
- Register of other BDI Associations with whom cooperation has been agreed

Operational infrastructure

- Roles
- Processes
- Semantics
- Mapping of roles to data elements shared policies autorisatie

Legal infrastructure

General Conditions

- Data Use
- Digital transactions/handover
 - Fit for use

System integration in network of parties?

- Just during adoptie, or permanent?
- Incident response management?
- IT-security?

BDI Association: optional services

Human Work-relation register

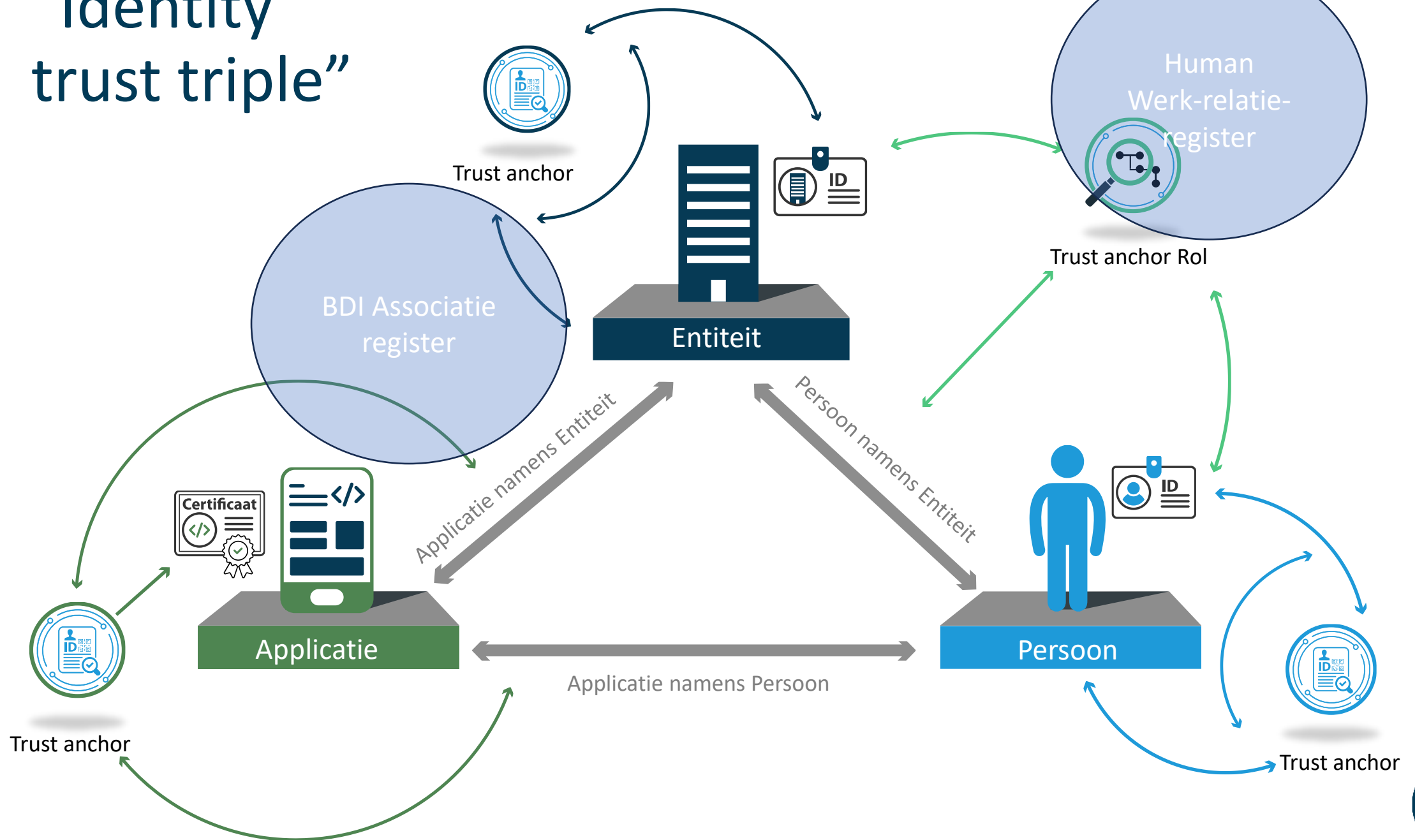
- Register of persons with professional qualifications
- In which (BDI Association) companies indicate and confirm that a person in a certain role is acting on their behalf
- "E-herkenning lite", trust anchor = E-Herkenning by management
- To be used for "verification at the gate"
- Assumption: This will often be provided by a Private Identity Provider

Shared Policy engine

- Disadvantage
 - Risk of leak of confidential information

(And possible other related service, sector dependent)

“Identity trust triple”



Dilemmas (1/3)

- Companies that want to benefit from the BDI agreement system see a BDI Association as a prerequisite that must function well at acceptable costs, and something over which they have a joint mandate and control.
- In our view, economies of scale for operations, and thus acceptable costs, can be achieved if a market develops for service providers who can provide the BDI Association Service to multiple parties, as a professional organization.
- However, this market is not yet in place: it's a chicken-and-egg situation where the market is still developing. Moreover, during this phase, there is expected to be increased demand for advice and System Integration support (at the network level).

Dilemmas (2/3)

- At this stage, it seems obvious to start with a dedicated "Incubator BDI Association" solution: hosting multiple organizations simultaneously.
 - However, starting with such a format should not hinder the development of the long-term provider market.
- Incubator: "Hosting" multiple virtual BDI Associations simultaneously.
 - Acting as if they were separate entities, but using the shared resources and legal basis of the Incubator.
 - Full service, including support, development terms, system integration, and incident response.
- Possibly only during the adoption phase

Dilemmas (3/3)

- In this phase, a great deal of practical knowledge is being built about the BDI agreement system: knowledge that is ideally disseminated widely among potential service providers.
 - This goal would be best served by a broader consortium of actively participating parties, rather than a single winning bidder.
- In use cases and Living Labs that move towards production, the companies involved have a significant voice: after all, it concerns their operational management.
 - They must feel comfortable with the tender structure and with the party or parties to whom the contract would be awarded; otherwise, the intended goal will not be achieved.

Market Consultation (1/3)

- Incubator BDI Association
 - Do you agree that this form is currently the most obvious, or not? What are your considerations? Or separate from the outset?
- Integrating services or keeping them separate
 - Managing operational software, providing advice on processes, agreements, and contracts, and providing System Integrator support can, in principle, be purchased as separate functions or integrated into a provider or consortium.
 - What is preferred: distinguishing between the current adoption phase and a more mature market in the future?
 - Error and incident management: demand for this support is also evident in a mature market.?

Market Consultation (2/3)

- **Build further upon existing community support organizations?**
 - Are there existing operational organizations with similar functions, where this market already exists?
 - In other words, is it wise to target an existing market where, for service providers, this BDI Association Service is merely a variation on a theme? Consider existing community platforms, such as Portbase and Cargonaut.
 - Or: are there existing organizations that provide all these services (e.g., industry organizations), with the exception of the IT component?
 - In other words, is it wise to focus on developing IT services that can easily be added to an organization that already handles the rest (onboarding, agreements, processes, etc.)?

Market Consultation (3/3)

- **1 party or alternatively a knowledge consortium**
 - If an incubator model is chosen, it is possible to set up a call for tenders for a knowledge consortium. The goal of a knowledge consortium is for a range of parties to acquire practical knowledge by providing services.
 - This model requires more coordination and trust between parties, but offers the following advantages: A party can deploy its best people without overly reserving them for this purpose. It accelerates the sharing and expansion of competencies needed in a market phase.
 - Would this model be the preferred option at this stage, or is a "standard" competitive tender with a single winning party the preferred format?