



Alliance for  
Internet of Things  
Innovation

Towards IoT data marketplaces – as the reference model for exchanging data, smart transactions and shared governance

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# VISION 2050

A SYSTEM OF SYSTEMS



## NETWORKS

Electricity

Heating & Cooling

Gas

Data



ETIP SNET  
PLAN. INNOVATE. ENGAGE.

# THE EVOLVING **DIRECTIONS**

AIOTI



Alliance for  
Internet of Things  
Innovation



InnoEnergy  
Knowledge Innovation Community



SDA Bocconi  
SCHOOL OF MANAGEMENT  
SUSTAINABILITY LAB

## Open Energy Marketplaces evolution

*Beyond Enabling Technologies*

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March, 2021



# Pathways for Marketplaces Enablement

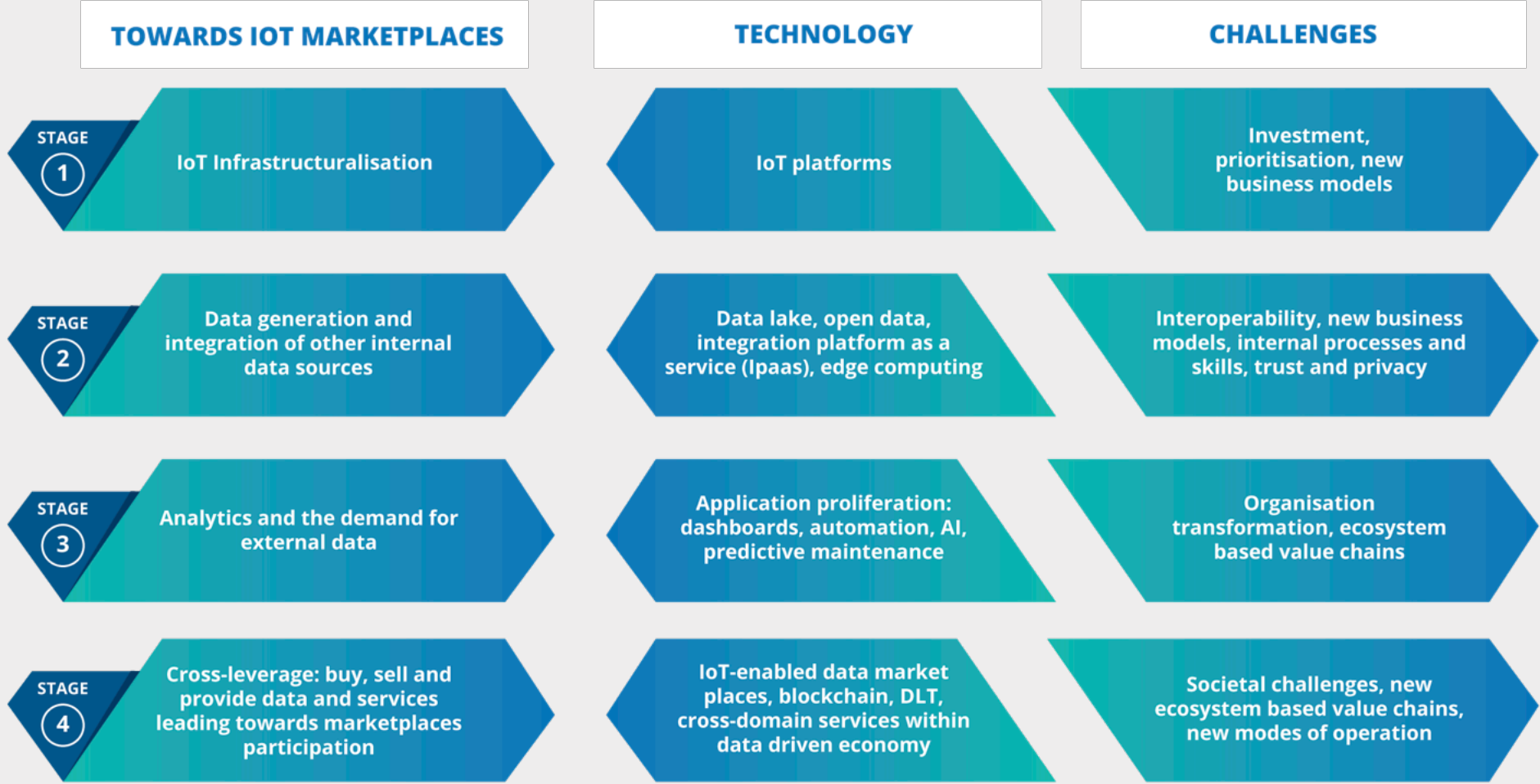
## PRINCIPLES

- **Openness principles:** platforms should enable the development of new collaborative applications by preventing the privatization of data storage and management
- **Federated identity management:** users should be able to interact with multiple centralized or decentralized services within and outside of the platform
- **Authorised Data access:** personal data remains under the control of their respective owners and is available to community or to third parties on demand
- **Privacy-preserving management** (indexing, aggregator & analytics): If a user (an individual or company) requests operations that need to access individual data, for example to compute statistical information, the platform executes in a decentralized and privacy-preserving fashion while respecting the rules set by data owners
- **Data and energy transaction support service:** the platform should support peer-to-peer transactions without trusted intermediary and associated reputation service as a decentralised “soft” enforcement mechanism
- **Self-Governance service:** platform should support collective negotiation and decision- making about collective resource/asset management without a central organiser  
In this context, we recommend a hybrid governance approach combining “top-down” regulatory conditions (e.g. governing data security, privacy policies, standards, non-discrimination and neutrality in data management) and “bottom-up” governance in decentralized open energy marketplaces. This approach could better address local specifications while providing a homogenous institutional environment for information management.
- **Separation of roles and responsibilities** (governance, assets, data ownership, customer relation)



Scaling up possible only through significant investment in distributed digital infrastructures, data spaces and enhanced connectivity. Clear rules and a favourable environment are key to allow the required financing of those investments

# IOT ENABLED MARKETPLACES

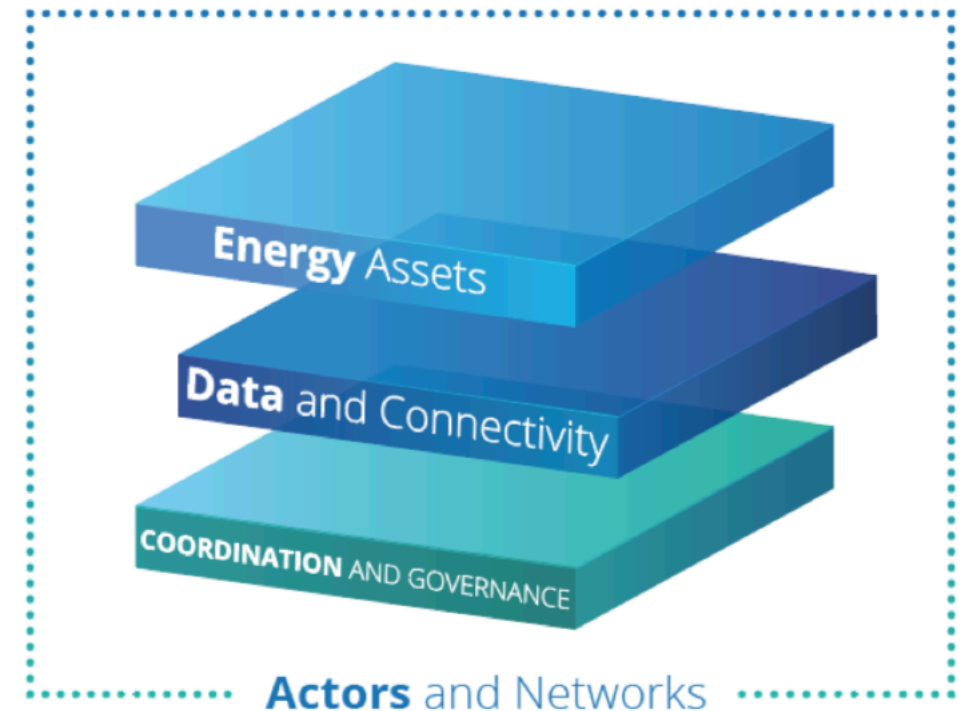


# THE CHALLENGES

- Data availability, access, trust. EDGE computing driven models and services
- Designing spaces where regulatory and policy experimentation can happen, moving into large-scale deployments
- Securing end-users' take up and acceptability of applications, User experience and interoperability
- Managing and counteracting the risk of fragmentation
- Performing in the context of international competition /digital sovereignty
- Access to data and incentives to share data, while complying with GDPR
- Multistakeholders and new business models environments. The paper identified several general dimensions to activate marketplaces development:
- Ensuring that the market design is fit to send the appropriate market signals for consumers to adopt and engage with these innovations
- Public sector participation as an active energy prosumer through publicly owned buildings and sites that may contribute to fostering open energy marketplaces
- Governance is key for scaling up and integrations with market actors and grid operators

Further experimentation to address three layers:

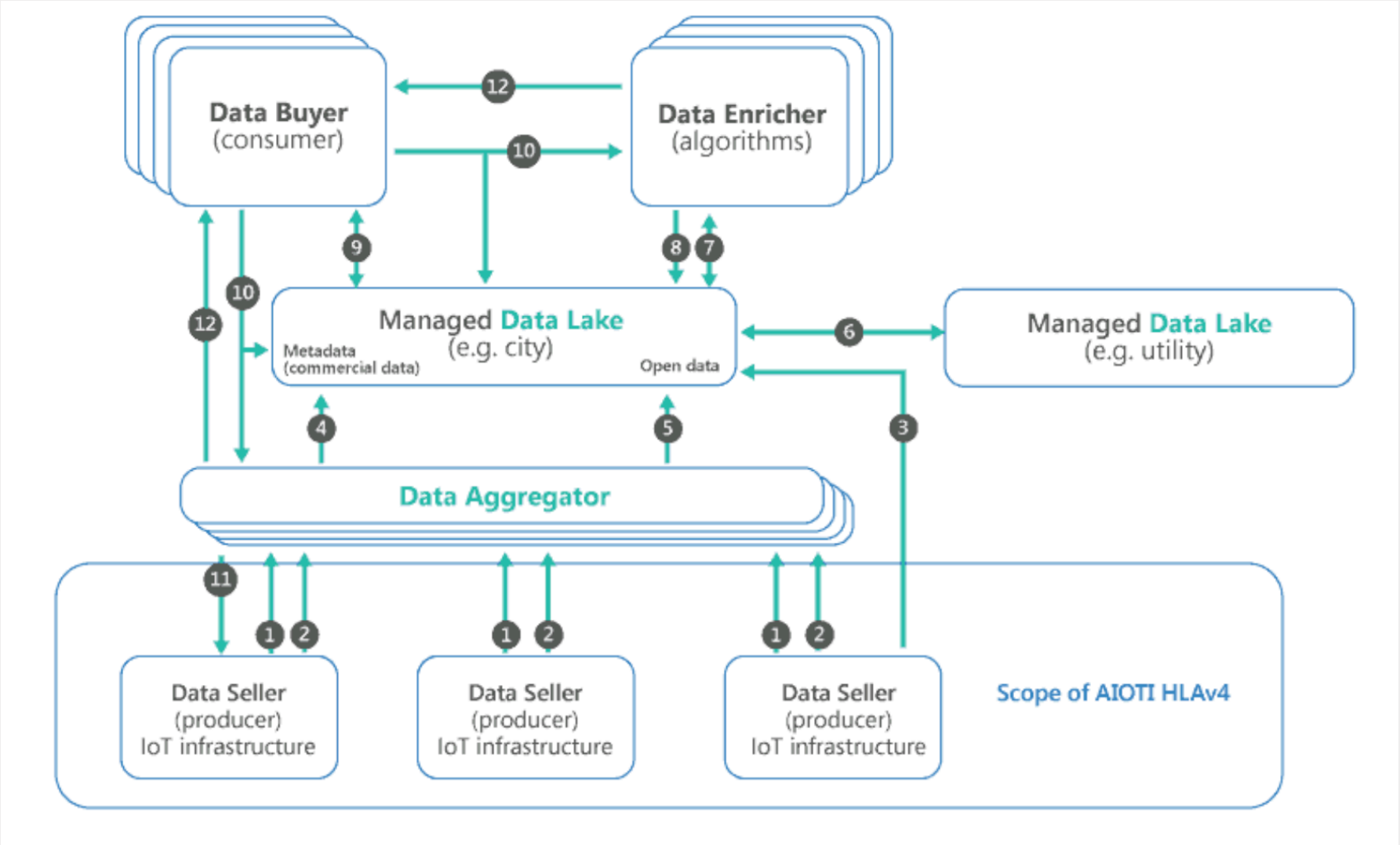
Experimentation on data exchanges and interoperable interfaces;  
Experimentation to define standard clauses for automated long-term contracts, and to study financial aspects associated with them, such as the bankability dimension;  
Experimentation to identify and measure potential anti-competitive behaviours.



EXPERIMENTATION  
NEEDS

Stepping stone towards architecture concept of a IoT data marketplace – as the reference model for exchanging data, smart transactions and shared governance

THE EVOLVING DIRECTIONS



Internet  
of Things



Artificial  
Intelligence



Distributed  
Ledger Technologies



Governance  
Ethics



AI@TI

Building Blocks for more flexible highly participatory  
Multi Sided cross domain Marketplaces of the future

Aggregation and disaggregation layers

Units of operation APIs

Golden mile: interoperable, instant, scalable, transactive  
and secure Power platforms linked to new models



Thanks for listening.

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