



*The Digital Energy Revolution
What does this mean for DSOs*

peter.hermans@stedin.net; CEDEC congress 2019, Brussels



Digitalization today

Supporting automatisisation of business processes

Typical characteristics:

- IT has an **internal** focus
- IT supports process **automatization**
- IT considered as a **cost center**

DSO specific:

Typical DSO processes:

- **Asset & load monitoring**
- **Grid Planning**
- **Infrastructure operations**
- **Customer & Market facilitation (data sharing)**

Data driven

- Through Artificial Intelligence (AI) and Machine Learning (ML), IT can fuel **improvements** in these processes



Digitalization tomorrow

Towards the digital ecosystem

Typical characteristics:

- IT also has an **external** focus
- **Transactions** in the business ecosystem are **digitalized**:
 - *Clear API's support transactions in the business ecosystem*
 - *IT seamlessly integrated as a key function in the business*
- **Platform** economy, new business models:
 - *Eliminate friction & fully exploit the value of data*
- Technology, markets & regulation increasingly **intertwined**
- Speed of **change** is increasing

DSO Steps towards digital ecosystem alignment

1. Focus on DSO core business

Identify the core activities (worlds) have :

- Their own **characteristics and challenges** in the energy transition
- Their own **dynamics**, vs. their environment, and differ in **direction & speed**

2. Increase agility and adaptation speed by:

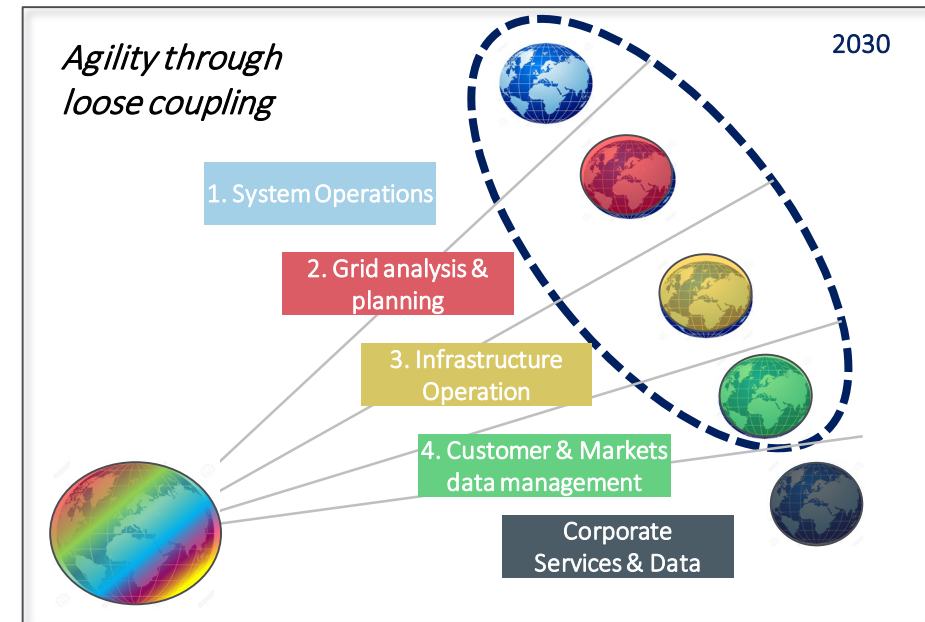
- Create a **loosely coupled** digital landscape
- **API based interaction** between these worlds and external ecosystem

3. Implement an Energy Data Exchange Framework & a MF Forum

- For data exchange with **all external stakeholders**
- **Governed** by Grid Operators (DSO & TSO), and **facilitating** the MF Forum

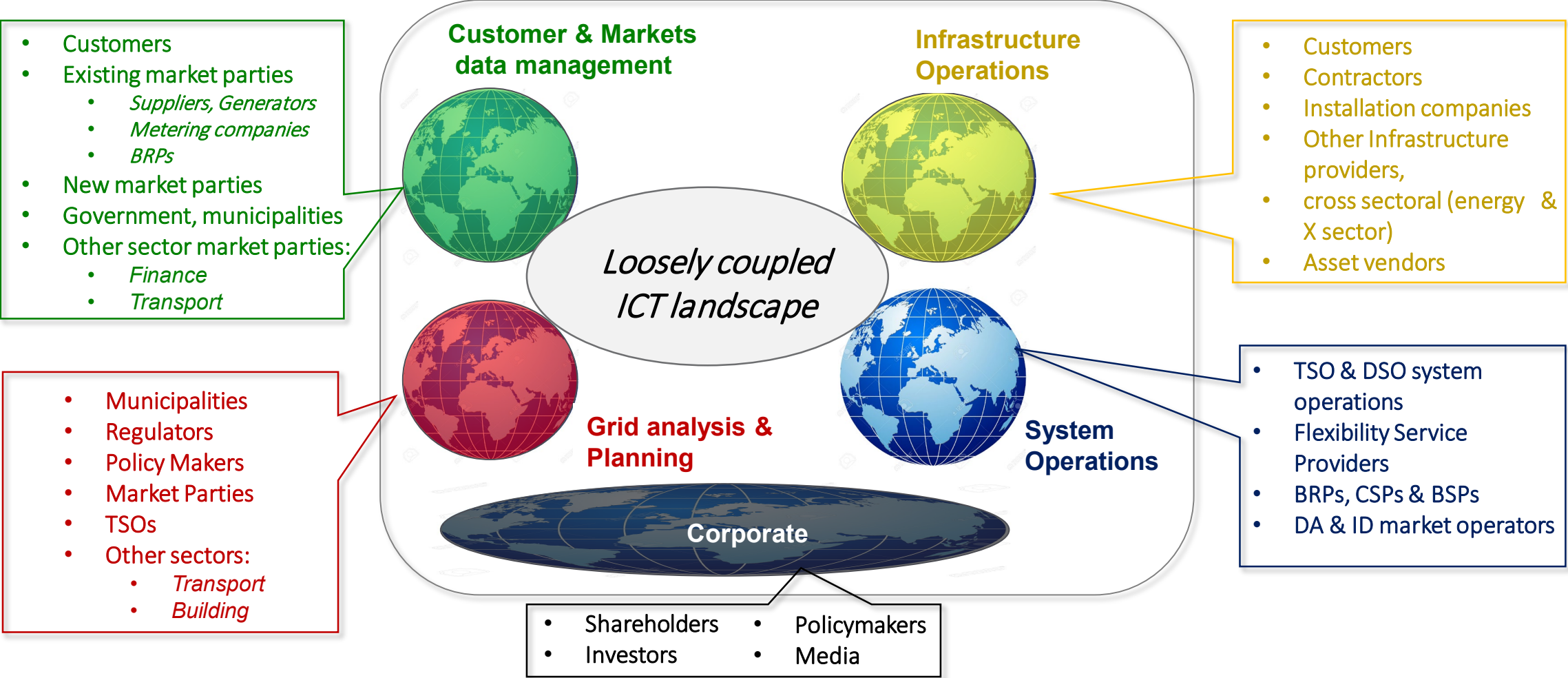
4. Implement within the EDEF, data exchange use cases

- **Collected and agreed** by market parties, participating in the MF Forum
- Also **cross sectoral**, supporting the energy transition



DSO digital ecosystem alignment (2)

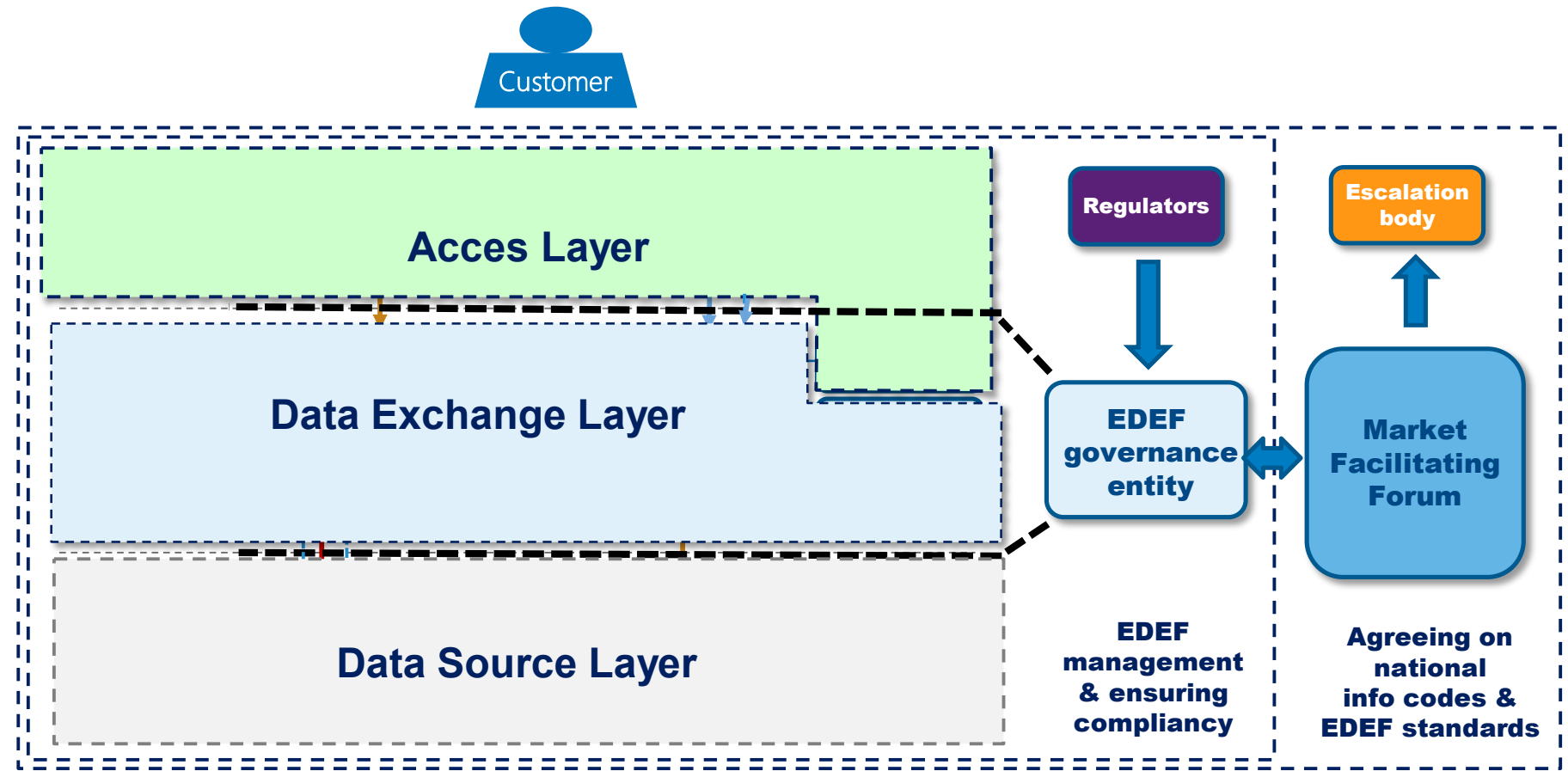
Every “world” has its specific stakeholders





Building a digital economy (1)

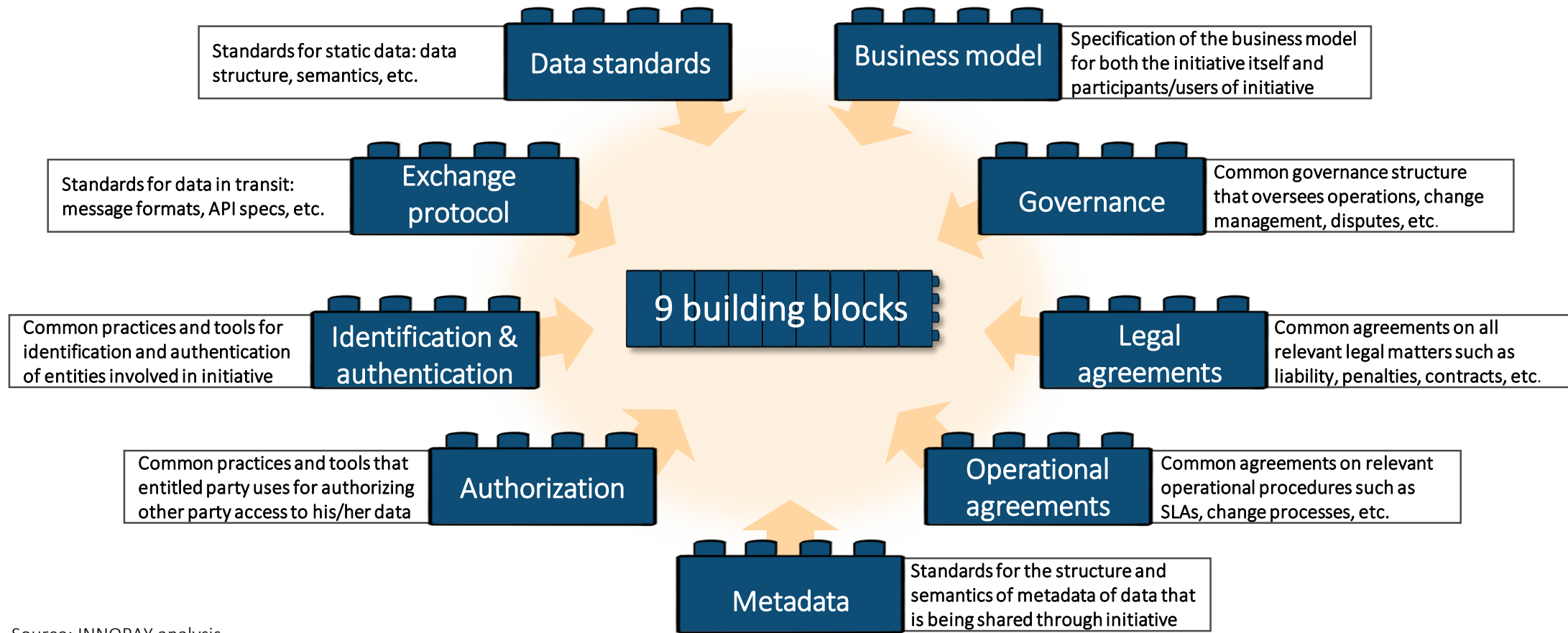
“Energy Data Exchange Framework – EDEF” enables data transactions



Implementing art.23 on data management of the EU Electricity Directive

Energy Data Exchange Framework

The 9 generic building blocks of the digital data sharing economy



Source: INNOPAY analysis

<https://www.smart-energy.com/magazine-article/data-sharing-a-new-source-for-the-energy-transition/>

Use cases on energy data exchange within the ecosystem (non-exhaustive)

Market Facilitation:

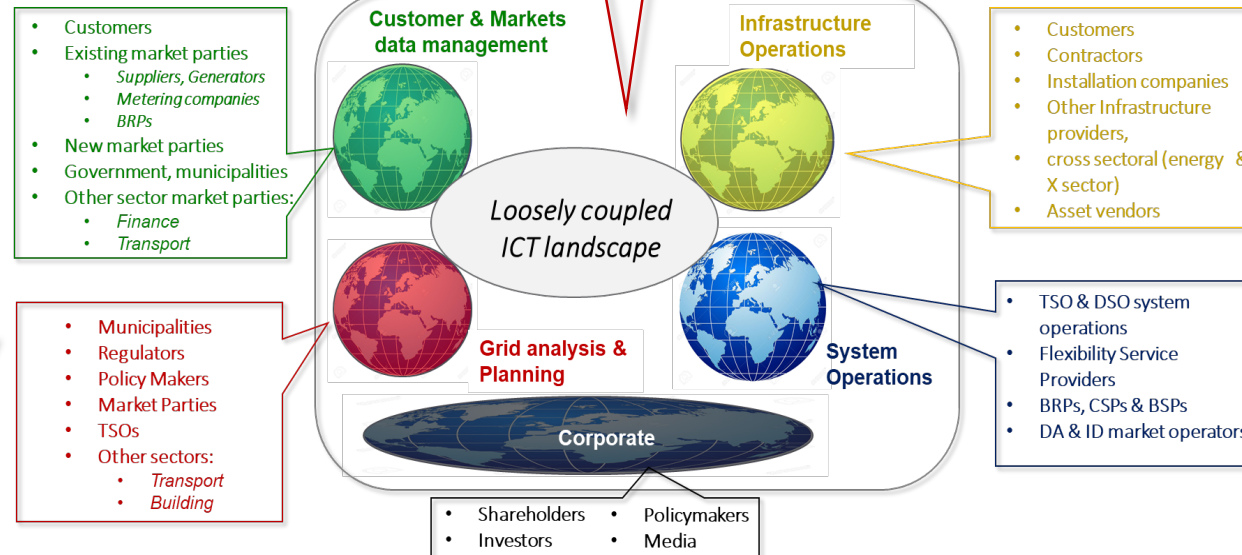
- Traditional market facilitation processes (switching, metering, A&R)
- New services (price comparison, tailor-made offerings, ESCO services, ...)
- Research and statistics (national energy balances, domestic consumption, ...)
- Open data

Key enablers:

- Identification, authentication and authorization (consent mgt.)
- Transparency (towards customer): data access rights, data usage, ...
- Operational requirements: data findability, standardization, interoperability, SLAs, ...

Infrastructure Operations:

- Ordering and track & trace
- Operational planning with customers, outsourcers and other infrastructure providers



Planning Alignment:

- City & RES planning data from municipalities
- Roll out planning EV CSPs
- EV planning in public transport
- Energy efficiency plans from building corporations
- Network development planning grid operators

Corporate:

- Corporate performance
- Media communications

System Operations:

- Customer outage management
- DA & ID grid capacity forecasting
- Market interaction on congestion & balancing
- Flexibility procurement

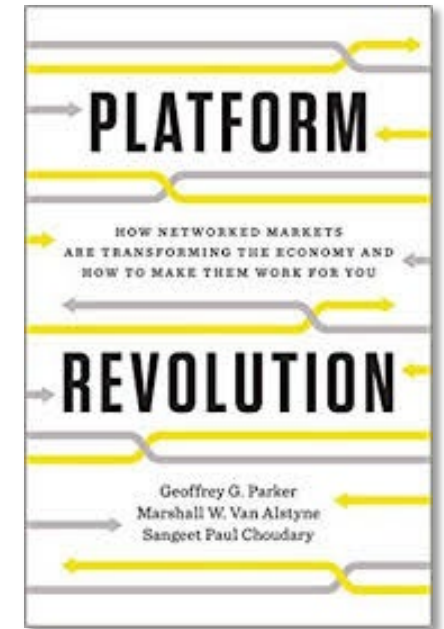


The rise of the Platforms (1)

Which way does Europe want to go ?

- Transformation towards a **platform** economy
- Emergence of **new business models & (natural) monopolies** in the market space
- **Platform Pro's**
 - Serving customer data needs
 - Creating new economic growth
- **Platform Con's**
 - Not maximizing social welfare
 - Not including negative externalities
 - Regulatory issues:

- *Platform access,*
- *Fair pricing,*
- *Data privacy & security,*
- *National control of information assets,*
- *Tax policy,*
- *Labor regulation,*
- *Potential manipulation of consumers and markets*





The rise of the Platforms (2)

Impact for the Energy system: a political question

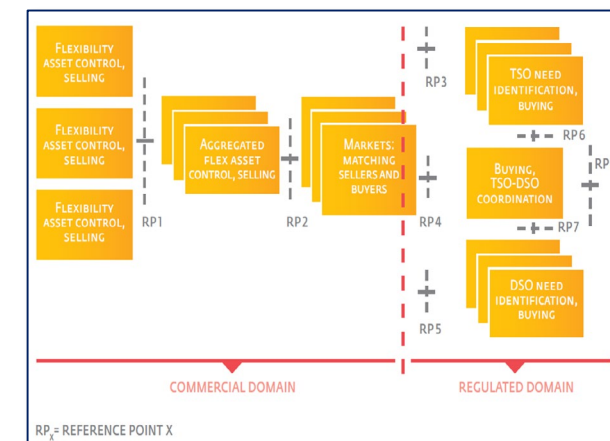
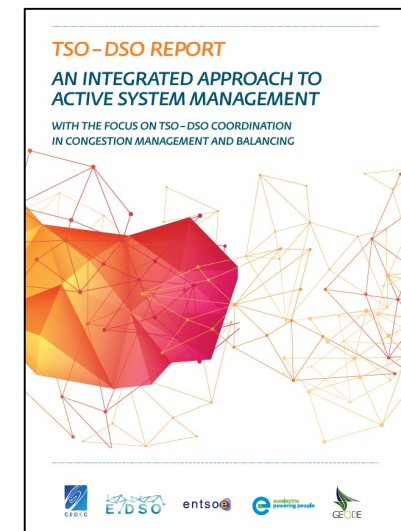
Do we still see adequate functioning of the Electricity System as a public service, enabling social welfare for all ?

If not:

- We accept (geographical) differences in quality of service (QoS) & costs for customers for Energy Distribution
- We accept control of the energy system by (multiple) competing market parties (complex, costly, risky)
- Existing unbundling regulation and EU codes need to be revisited

If yes:

- We confirm the role “coordination of system operations” (TSOs & DSOs) to be “non-commercialized”, and corresponding functions not to be part of commercial platforms
- We enhance EU Energy regulation on the relation between commercial platforms and regulated system operations platform(s)



(source ASM report April 2019)

A sunset scene over a body of water with a yellow bar at the bottom. The sun is low on the horizon, casting a bright orange glow across the sky and reflecting on the water. The sky is filled with soft, wispy clouds. The water is dark with some lighter patches. A yellow bar runs along the bottom of the image.

Thank You!

Questions ?

STEDIN^{.NET} |

FOR THE NEW
ENERGY GENERATION