

ENTSO-E R&I priorities

Guido Guida, ENTSO-E RDIC chair

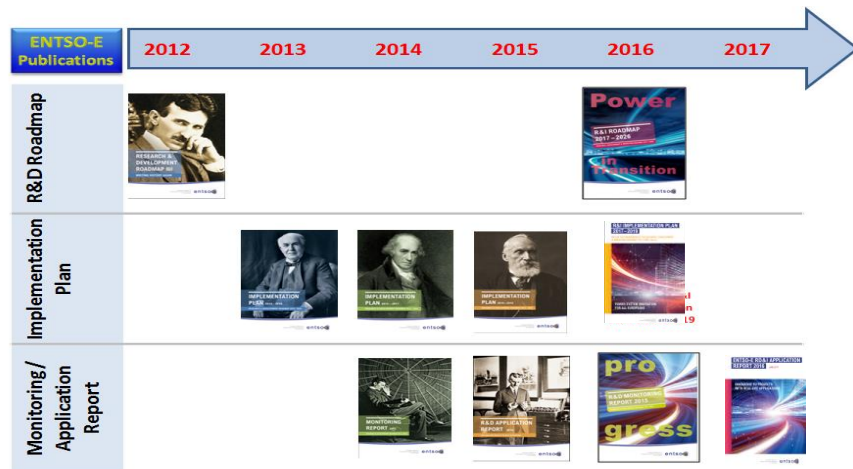
16 October 2018

RDIC priorities 2018: mandate, knowledge hubs , European presence and cooperation

1

Mandated tasks by regulation

Research Plans



2

Cross committees cooperation
Future of the power system

Knowledge hubs



3

European presence

ETIP SNET - vision



EC funded R&I projects



Provide leadership on the future power system and promote market design solutions through Knowledge hubs and Cross Committee cooperation

Power System Modernization



Technologies for Transmission System

This report was developed with the contribution of external experts from the industry; it provides the level of development of a range of transmission technologies and hence their viability for use in network development

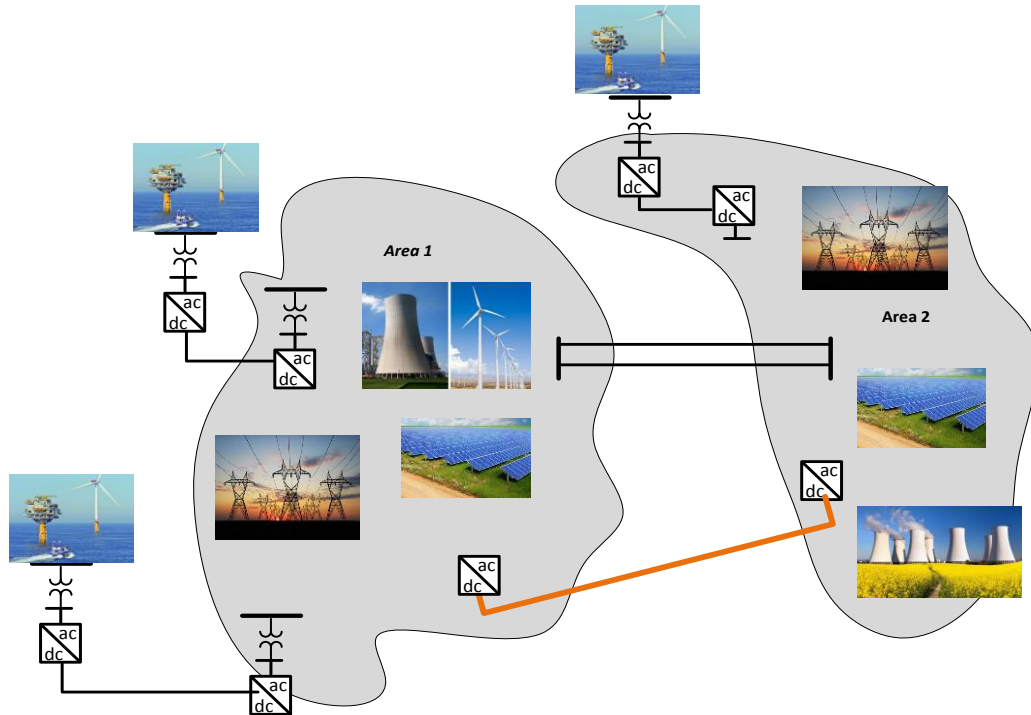


Cooperation with ESA

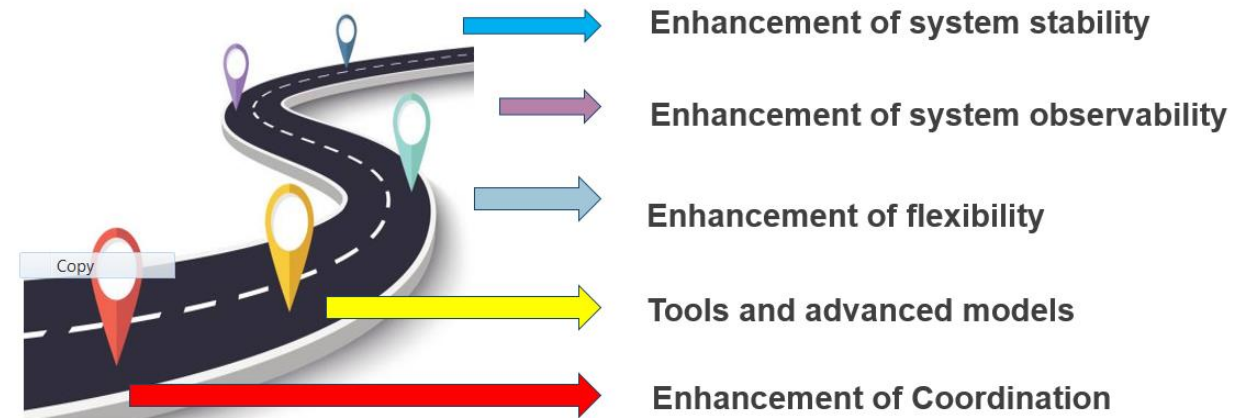
Using satellite technology to optimise the power grid - ESA & ENTSO-E to start a cooperation

Mapping of transmission technologies – TYNDP 2018

Security and system stability

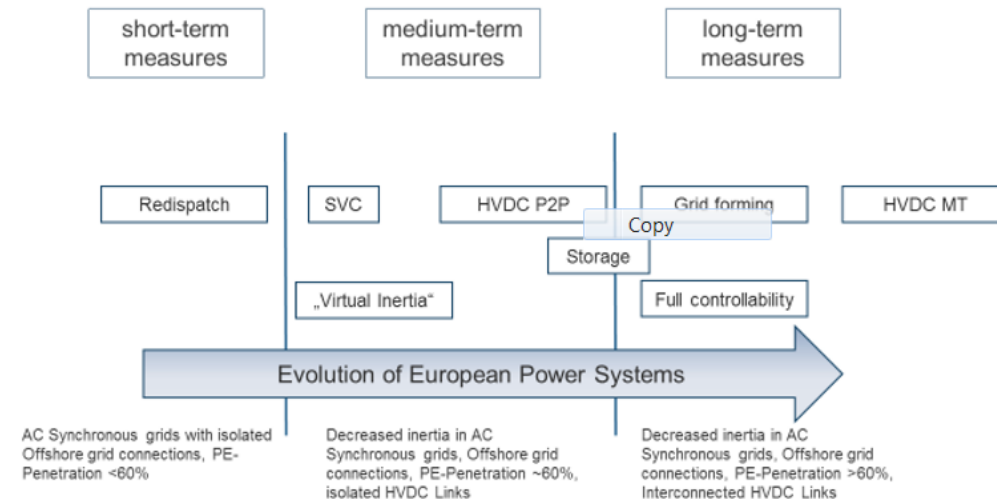


System Operation vision 2030



→ **Accommodate** more Power Electronics and what do we do to maintain the same levels of security of supply?

High Level of PE - Technology Trends

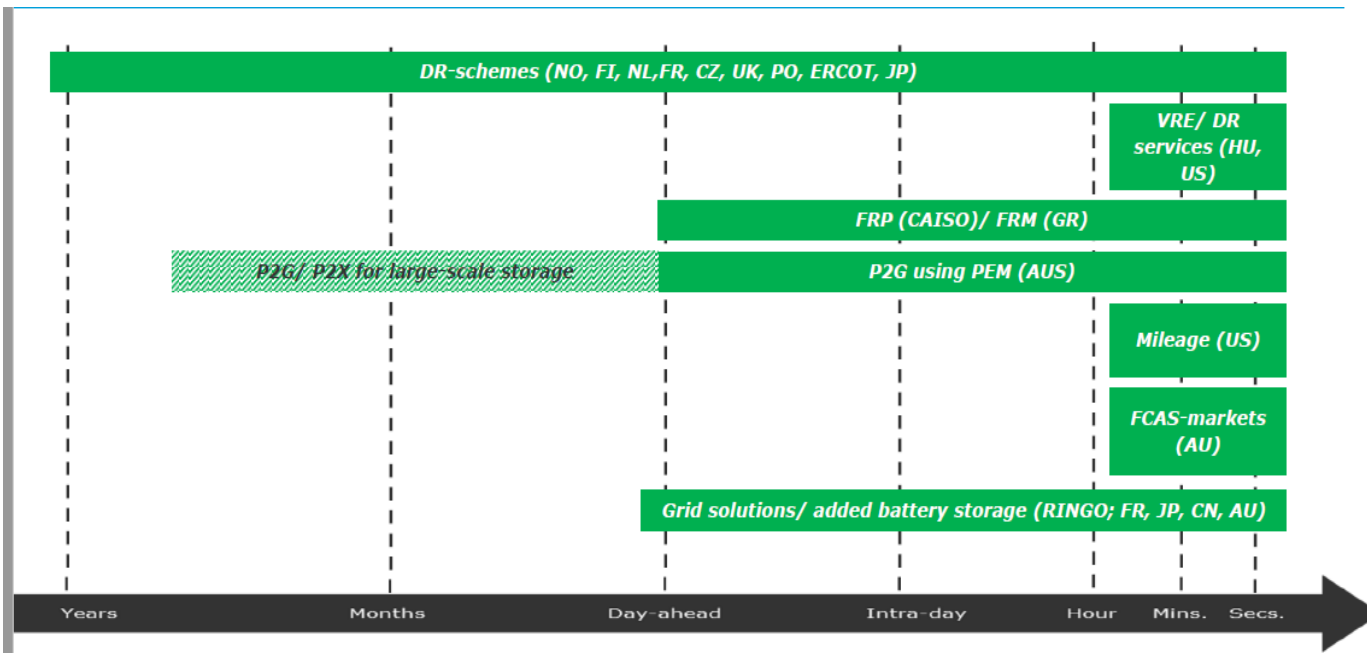


Flexibility and digital technologies

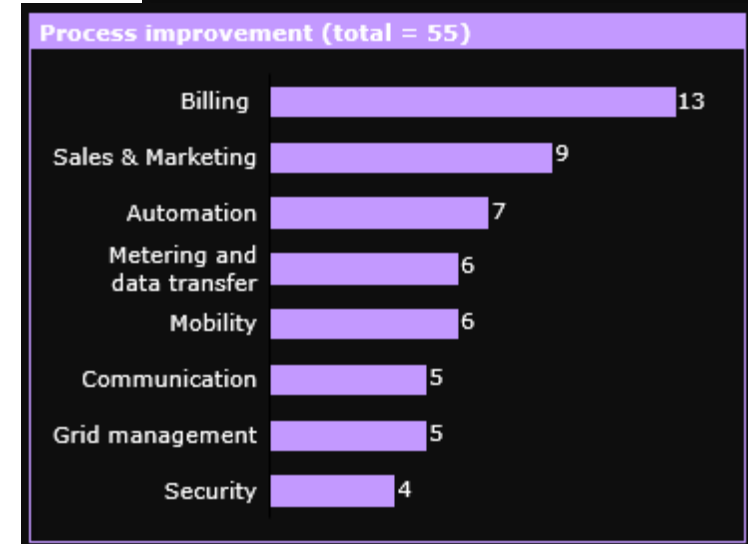
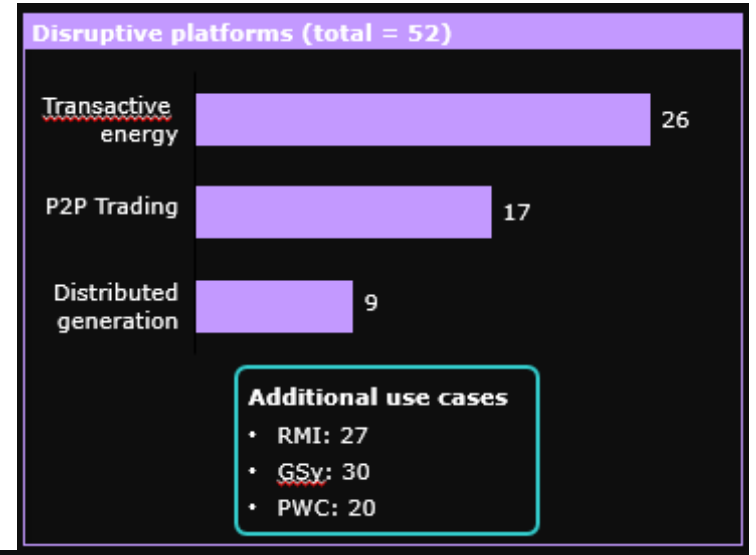
Conclusions from the Workshop

- Overview of flexibility services:** focus on balancing for different time horizons across EU and USA, China, Australia, Japan, South Korea: 1) **Europe is a frontrunner in developing a multitude of projects**; 2) **Relevant market experiences in USA and Australia for services and products**
- Sources of flexibility:** experience from EU: **storage** –hydro-pumped, batteries, hydrogen, eV -, **Demand Response (DR)** – heating and cooling, eV, large and medium size customers, small customers through aggregators -, **Grid** as flexibility option, **DR** versus **Storage** versus **RES**
- Flexibility services and products** in different time frames : future for sector coupling, optimization of flexibility solutions and integration of the results of the H2020 funded projects (EUSYSFLEX, OSMOSE, CROSSBOW, FLEXITRANSTORE)
- Need for future developments** : potential for flexibility from different sources and for different services, costs , business cases , new actors, technologies including digital
- Regulatory framework** very diversified across Europe: more harmonization to unleash the potential of flexibility sources and in depth comparison EU-USA

entsoe 2



Blockchain

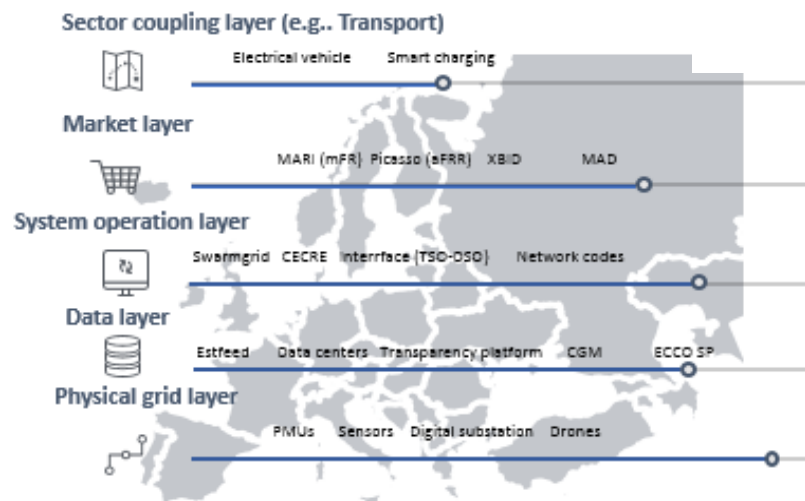
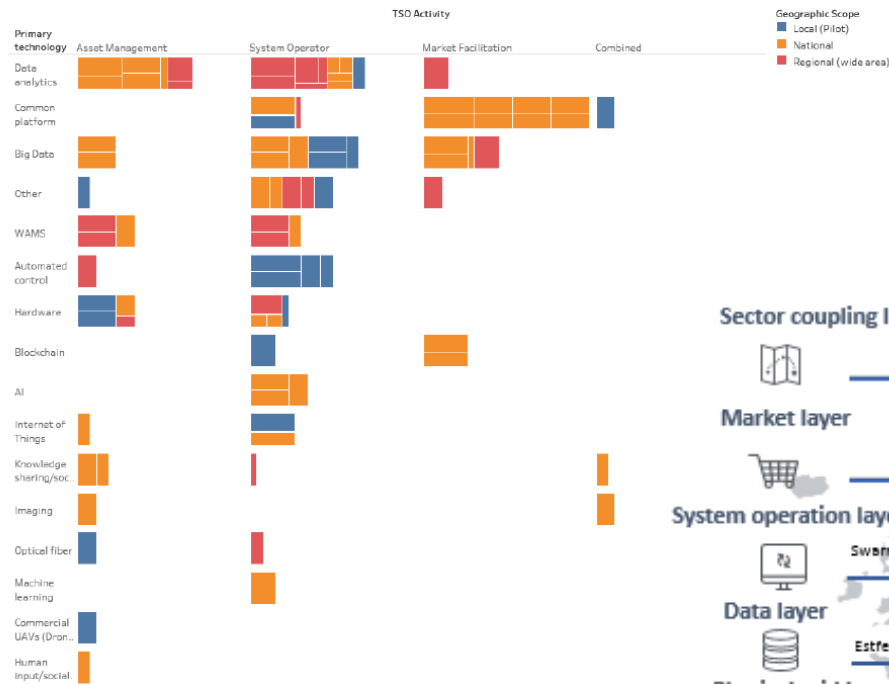


entsoe 6

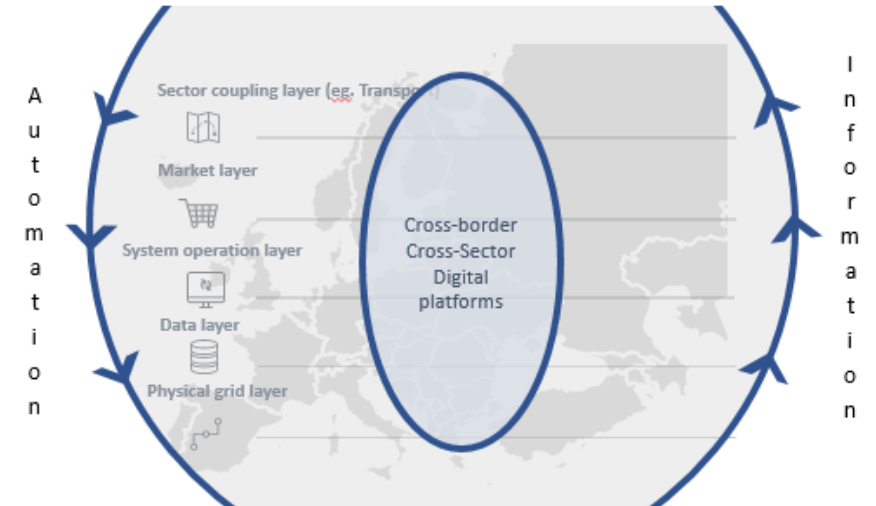
Digitalization : policy and technical paper

100 projects surveyed

USE OF DIGITAL TECHNOLOGIES BY TSO ACTIVITY

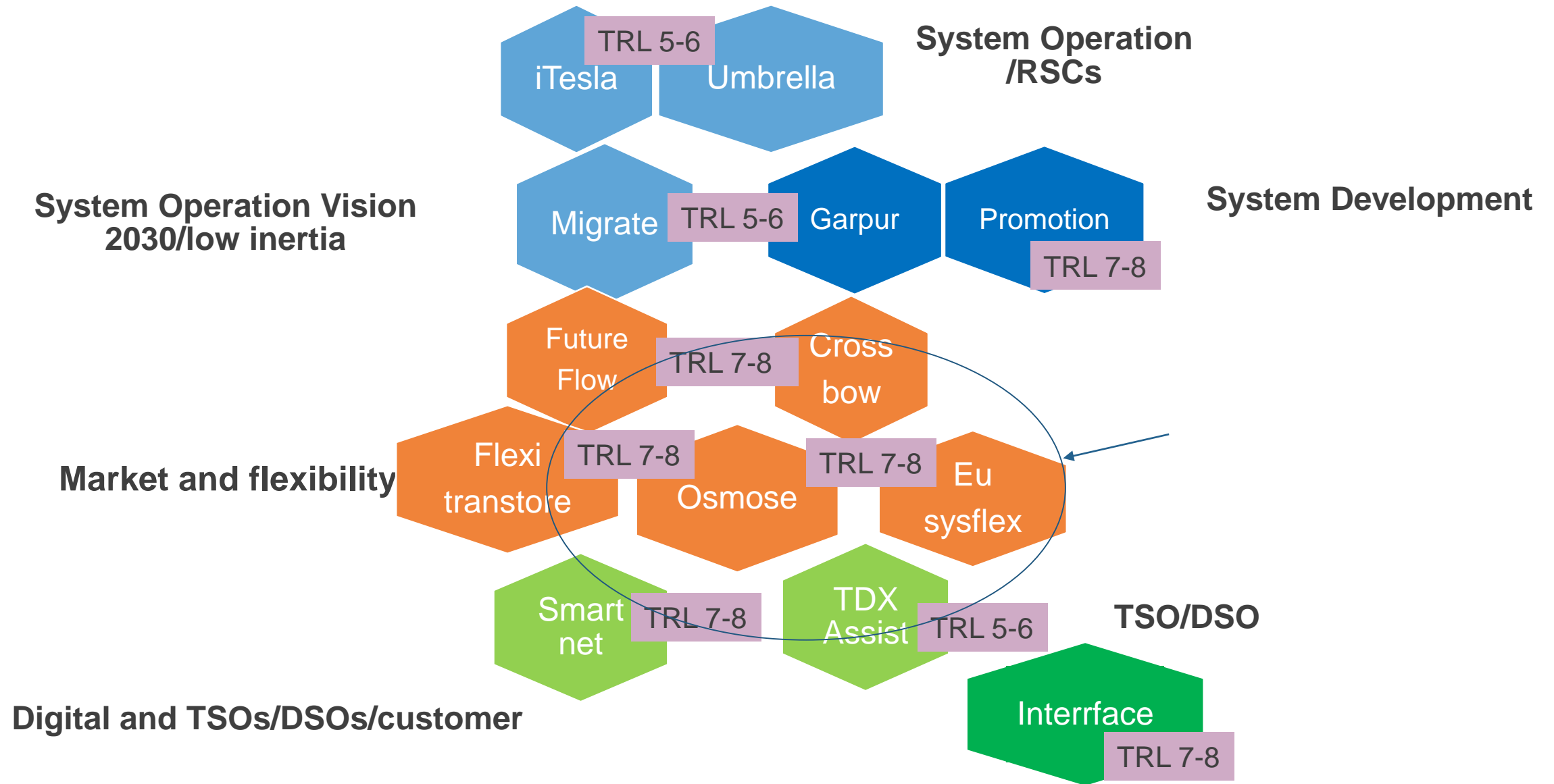


The Vision 2030: The Digital Grid



European presence

Cross Committee Cooperation and success of EC funded projects



INTERFACE: Concept

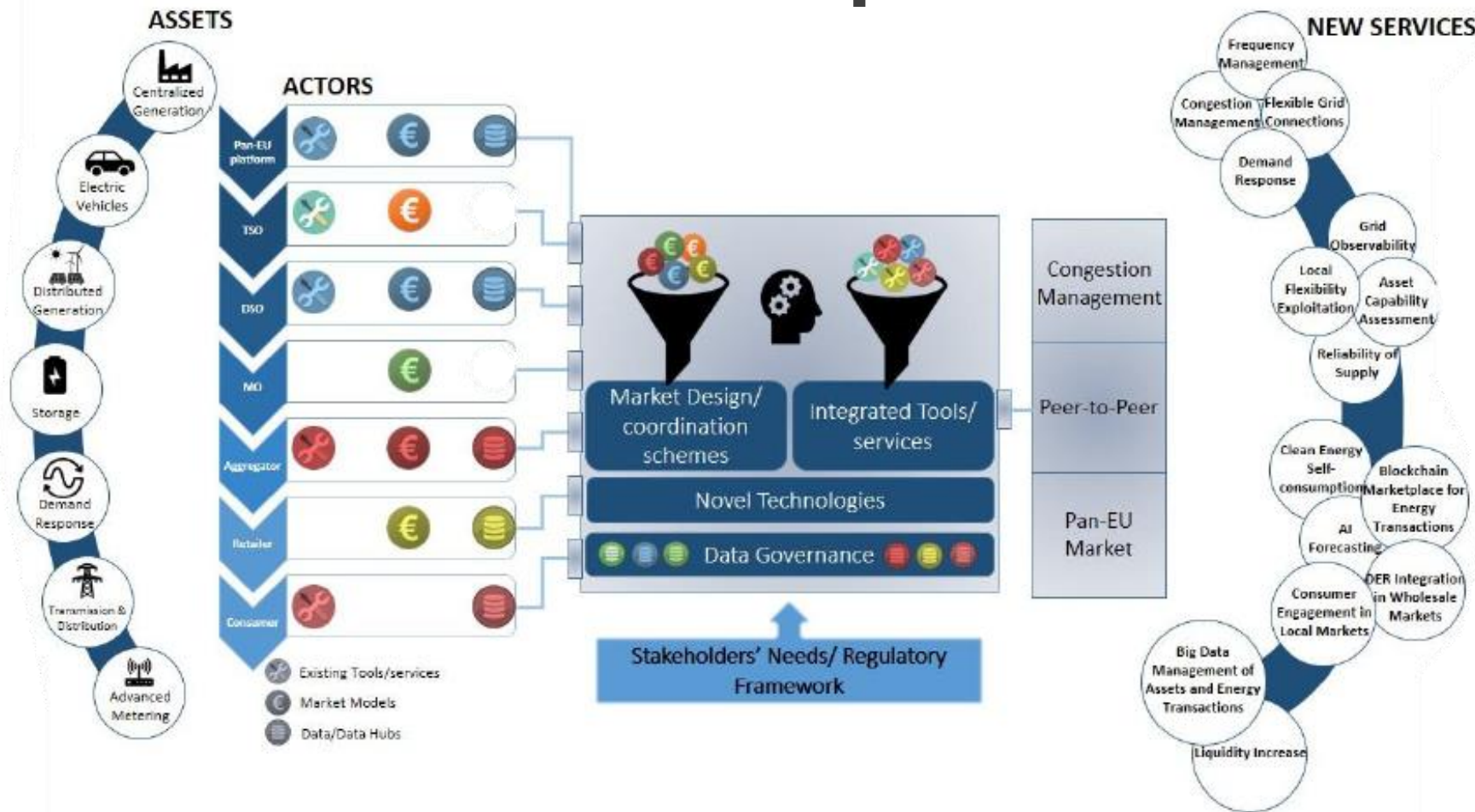


Figure 1 INTERFACE Concept

VISION 2050

A SYSTEM OF SYSTEMS



Thank you for your attention