

Towards an information architecture in unbundled energy distribution networks

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Overview

- Increasing complexity of information flows
- The concept of Information architecture
- Information architecture in energy networks; past, present and future
- A possible architecture of the energy sector
- Conclusions

Increasing complexity of information flows

- Institutional fragmentation
 - Unbundling
 - Economic restructuring
- Technological change towards decentralization
 - Decentral electricity production
 - Green gas
 - Smart grids
- Changing social expectations and needs
 - Electric vehicles
 - Climate change and preference for sustainability

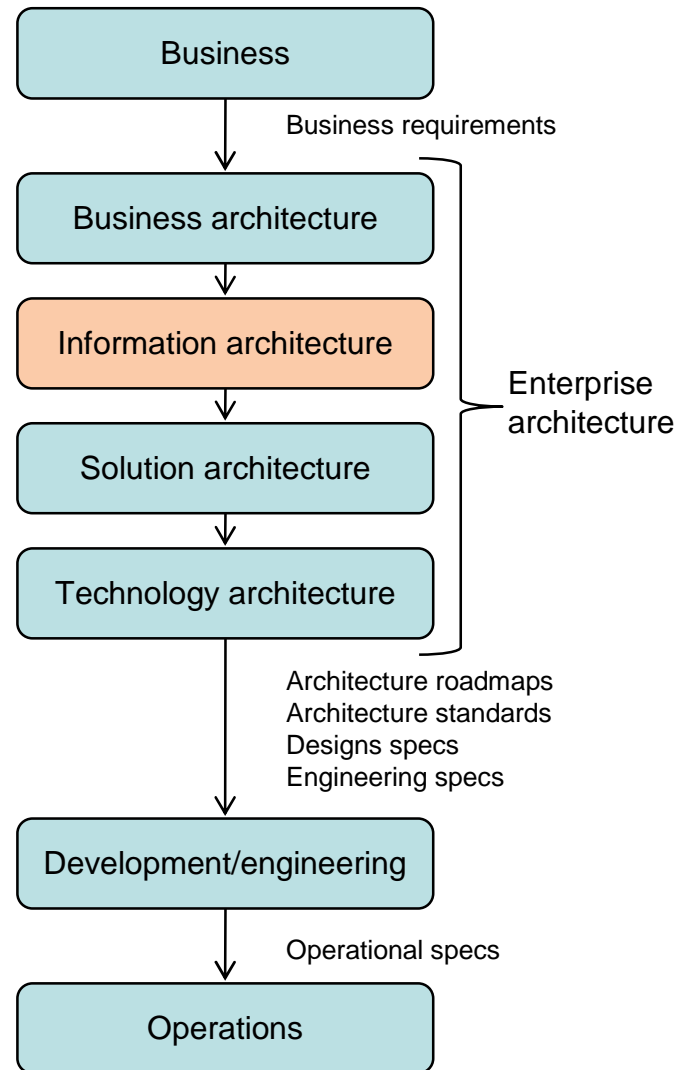
Information challenges

- How to support critical technical systems functions
- How to facilitate inter- and intra-system trade and exchange?
- How to support newly arising information needs?
- Increasing emphasis on governance of information flows on a system level

The concept of information architecture

- Firms wishing to design an enterprise architecture that supports their management and operational requirements
- Information architecture as part of the enterprise architecture

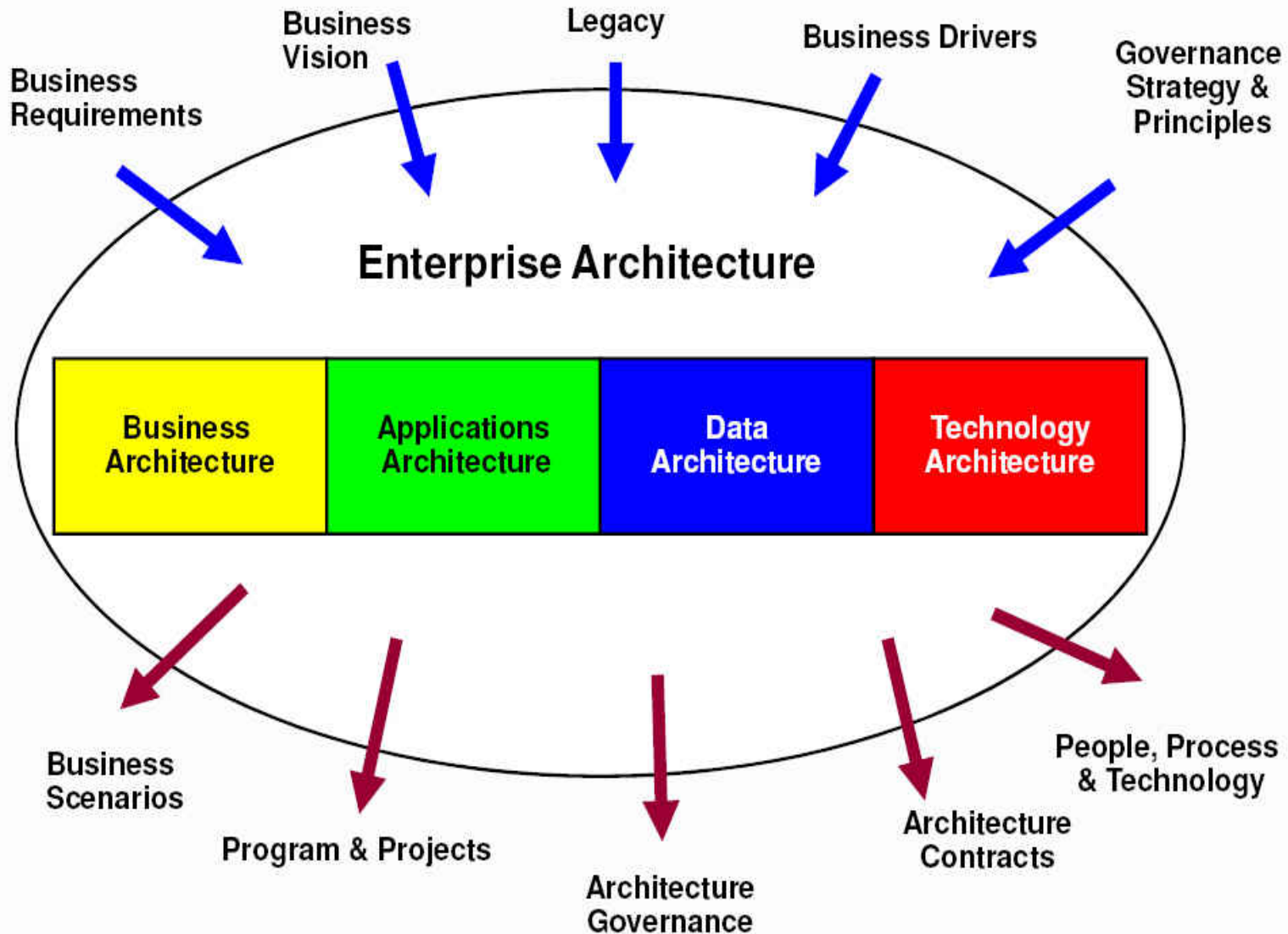
Enterprise architecture, information architecture context



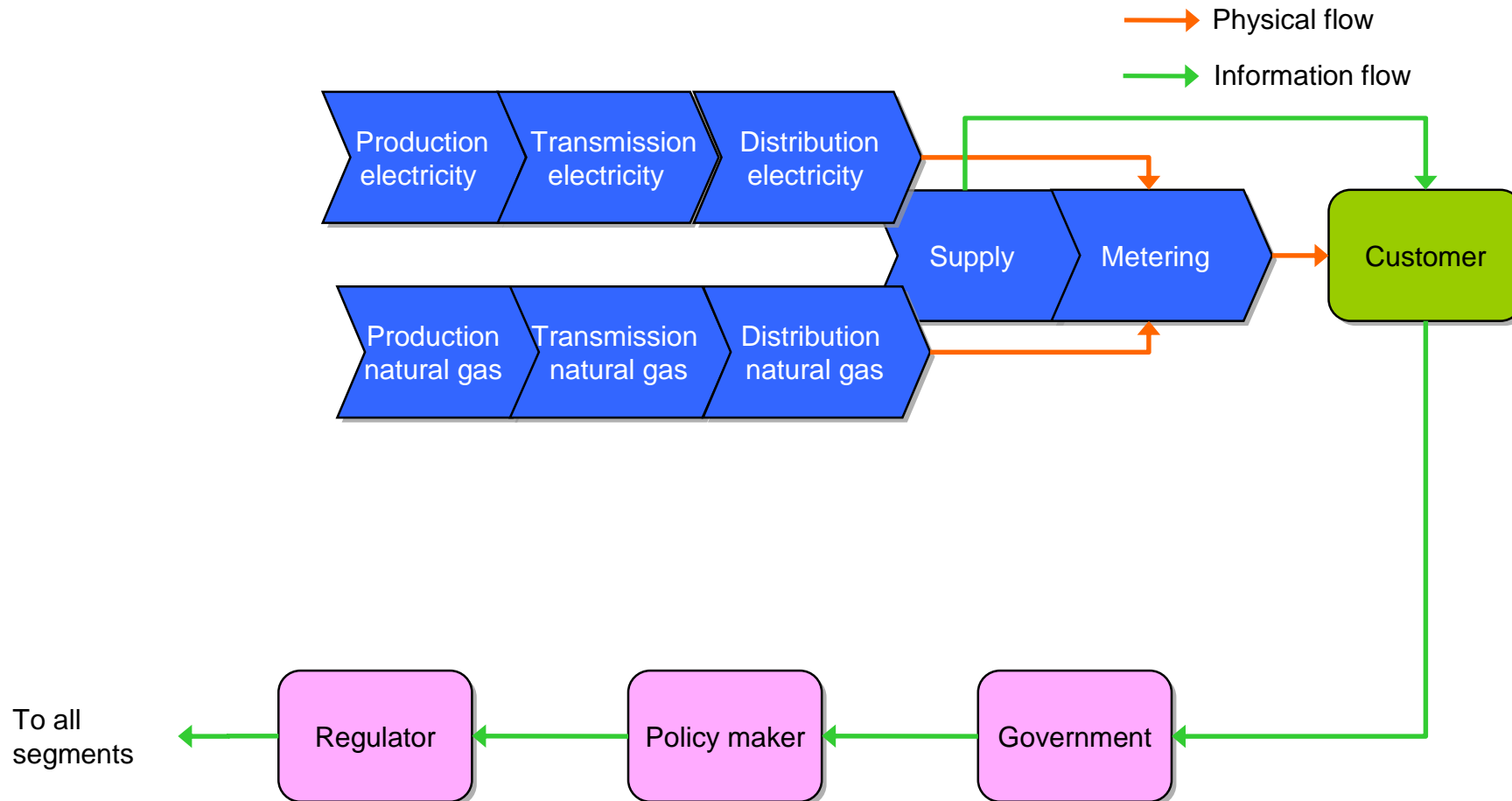
Applicability to the energy sector

- Is there a unifying sector architecture with joint business, information, solution and technology architecture?
- => Present developments might result in major differences between network companies
- => Under the present technological conditions, this raises problems.
- => Opportunities for self regulation?
- => From a technical perspective: What would be an 'optimal' architecture of the energy sector, using the 'business approach'?

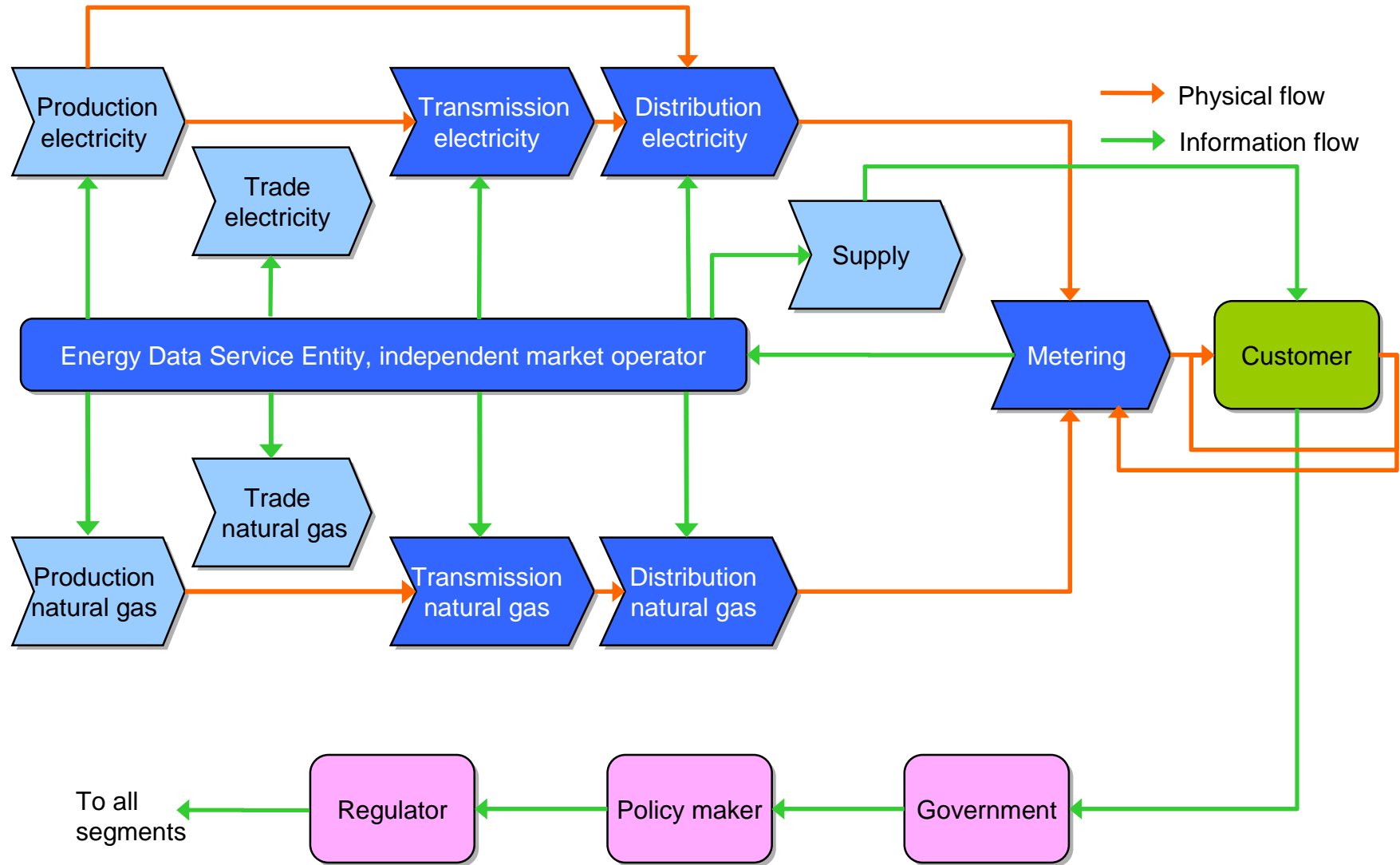
Togaf architecture, information governance



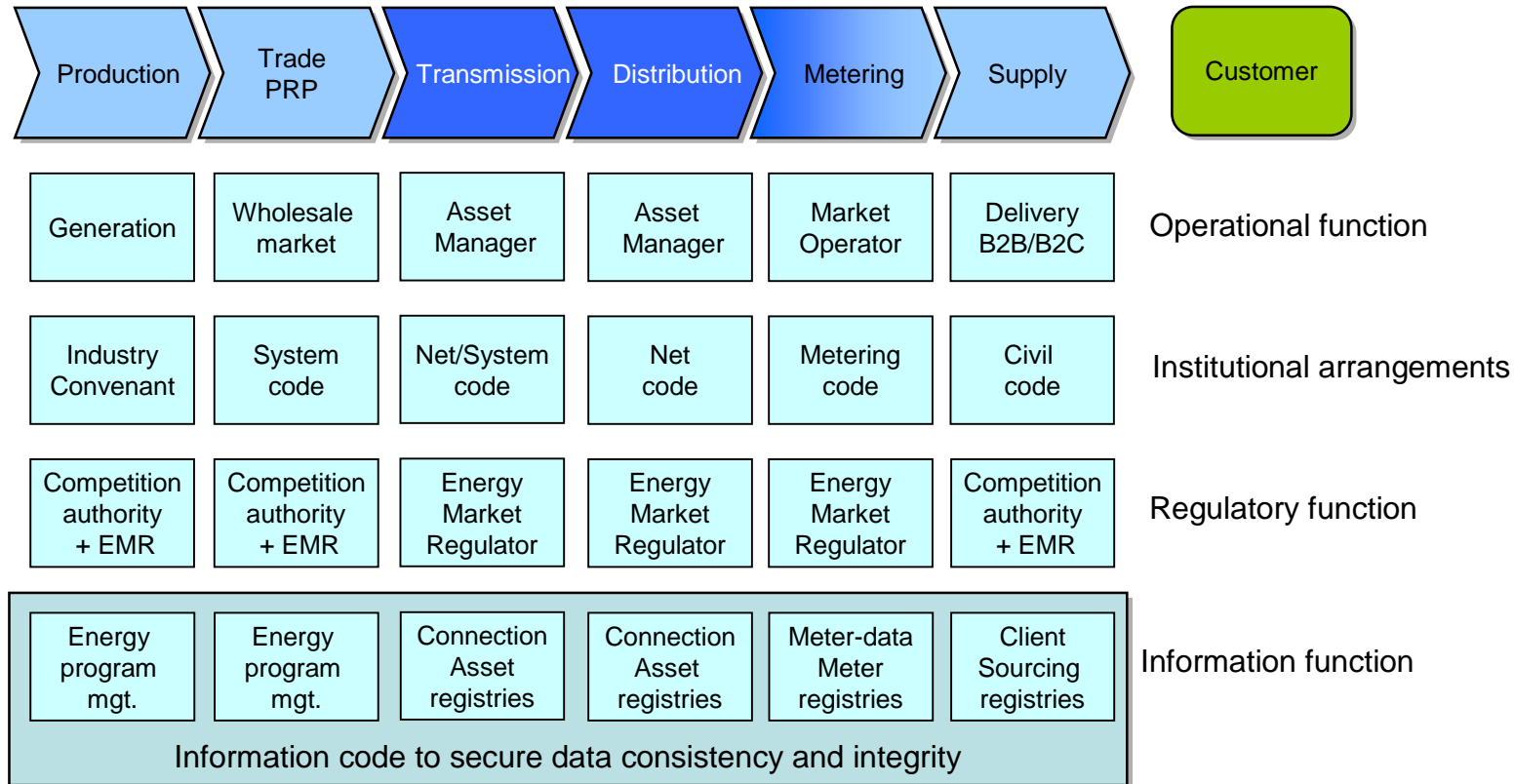
High level information architecture, As-Was



High level information architecture, possible To-Be



Possible architecture of the energy sector



Conclusions (1)

- Tension between autonomous emerging processes of change in the energy sector and the need for centralized monitoring and control, even of next generation energy networks
- Need to design a new information infrastructure for the energy sector in order to meet technical, economic and social challenges.

Conclusions (2)

- However, as a consequence of the technical and institutional fragmentation of the energy sector, it is becoming increasingly difficult to identify a consistent sector architecture.
- Without a clear sector architecture no consistent information architecture
- Unbundling contributes to transparency if positioned in an appropriate sector architecture

Conclusions (3)

- Facilitating information flows (through an appropriate information architecture) is considered a non competitive activity
- => Next steps in energy market regulation:
 - A legislated information code
 - A centralised energy data base (also contributes to economic and technical efficiency)
 - A regulated independent energy market information agency, possibly governmentally owned