



**Technological challenges on the way  
towards a competitive and self-sustaining  
European data economy**



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## Technical perspective

European Data Economy as a chance to see the „big Picture“



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European Data Economy as a chance to see the „big Picture“



# Technical perspective

*Challenges within the Data Economy*

High Diversity

World of Change

High Competition / Globalized World

"Data is the new Oil"

"Doing cool stuff" vs "Being evil"

- How can data be accessed?
- Streams? Downloads? Push/Pull?
- Relevant Technologies & Standards
  - JSON
  - SOAP
  - Proprietary Protocols
  - ...





- Syntactical Clashes between data
- Formats? Encodings?
- Relevant Technologies & Standards
  - XML
  - JSON
  - CSV
  - RDB
  - ...

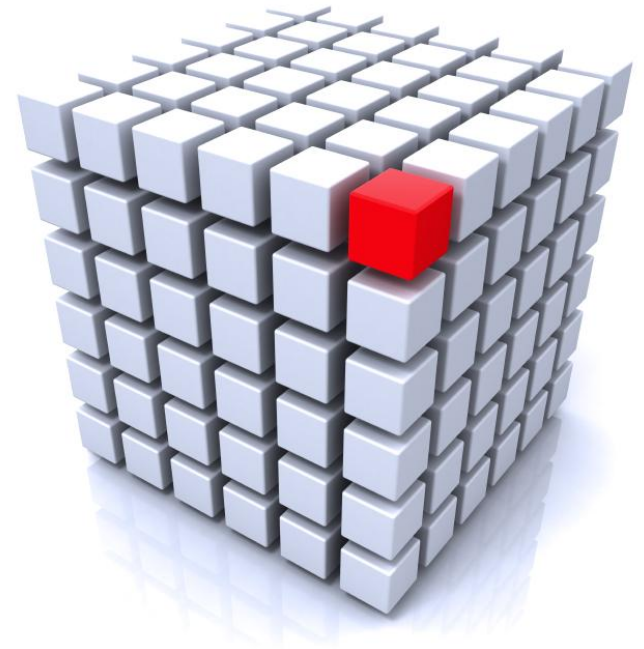


- Semantical Clashes
- „Understanding?“ Units? Languages?
- Relevant Technologies & Standards
  - Pre-Defined Meanings
  - Standards
  - RDF
  - OWL
  - ...



# Data Granularity

- How detailed is the data that is available?
- How much is „too much“?
- How precise is the data?





- How „good“ is the data? → Quality?
- Is it consistent?
- Is it up-to-date?
- Relevant Technologies & Standards
  - Amount of data measured
  - Time of measurement
  - Is the data biased?



- How analyses the data?
- Analysis as a Service?
- Working „accross borders“ → Interdisciplinary knowledge needed
- Relevant Technologies & Standards
  - Hadoop, etc.
  - Distributed, Cluster-Based Analysis
  - ...



- How can data be protected from misuse
- „How will buy a bible?“
- How can pseudonomization or anonymization be guaranteed?
- Relevant Technologies & Standards
  - Pseudonomization
  - Anonymization
  - „Too small to be interesting“



- How can companies be encouraged to share without having to worry about disadvantages?
- „Can my data put me in danger?“
- How can data access be controlled or restricted?
- Relevant Technologies & Standards
  - Security standards (encryption, ...)
  - ACL



# Contents of the presentation

*The presentation is closely related to what will be discussed later*

*Framework  
conditions*

*Challenges and  
barriers*

*Solution  
approaches*

*Example  
cases*

# Technolocial framework conditions

Framework conditions can act as promoters or pose challenges

*Data Collection  
/ Delivery*

*Scalability & Data  
Management*

*Availability*

*Data Trans-  
mission & Exchange*

*Data Aggregation,  
Analysis and  
Interpretion*

*Security and  
Privacy Aspects*

*(De-Facto)  
Standards &  
Diversity*

*Infrastructure  
and Availability*

*Technological  
Responsibilities  
(SaaS, PaaS, ...)*



# Major challenges and barriers in Europe

Framework conditions can act as promoters or pose challenges

Scalability & Data Management

Many different data types

Availability

Data Loss

Data Collection / Delivery

Stability of Interfaces

Data Transmission & Exchange

1 Mio Formats

Security and Privacy Aspects

“Work without visibility”

Data Aggregation, Analysis and Interpretation

Gap between science and Industry

(De-Facto) Standards & Diversitu

Too many Standards

Infrastructure and Availability

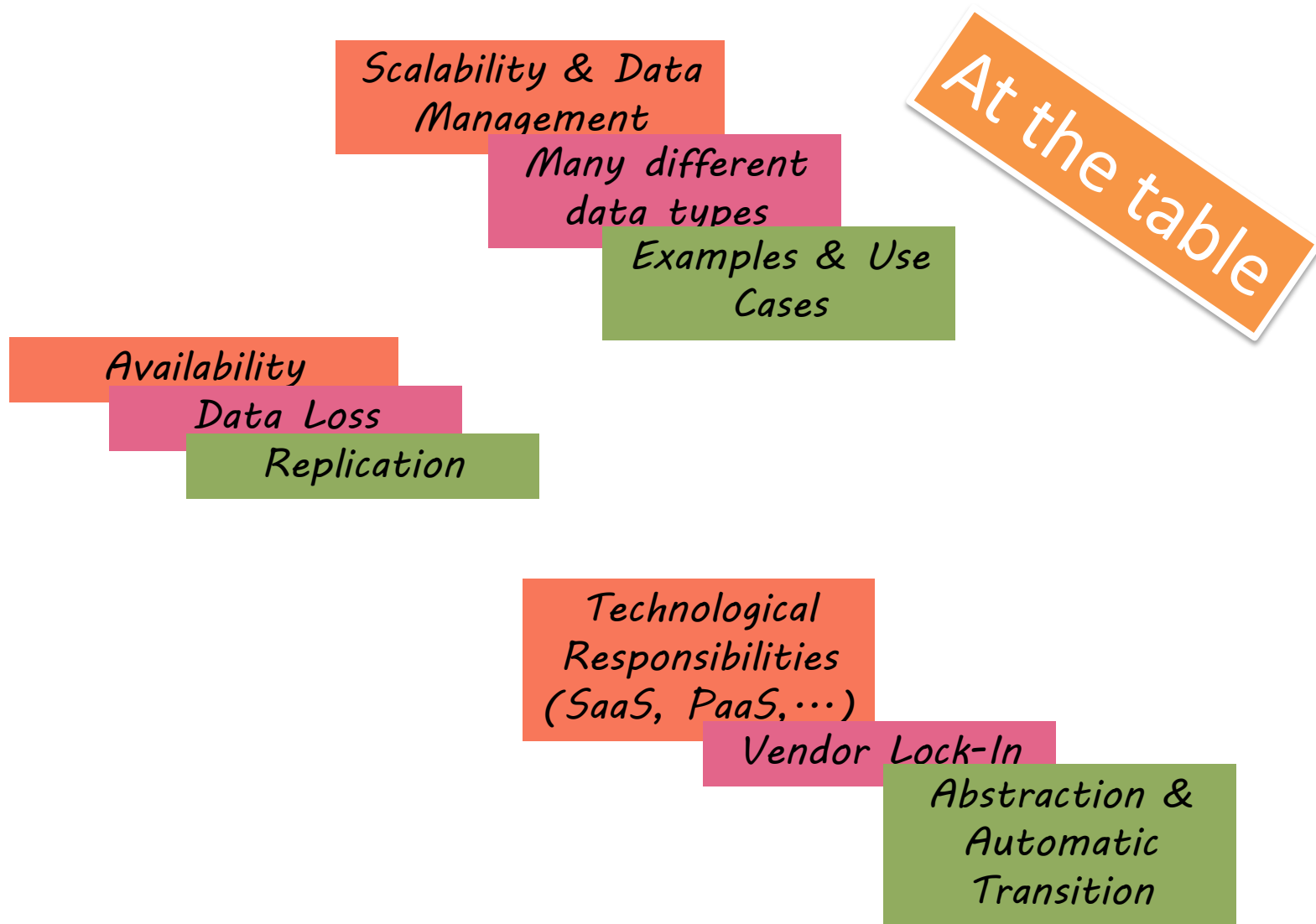
Low level of development

Technological Responsibilities (SaaS, PaaS, ...)

Vendor Lock-In

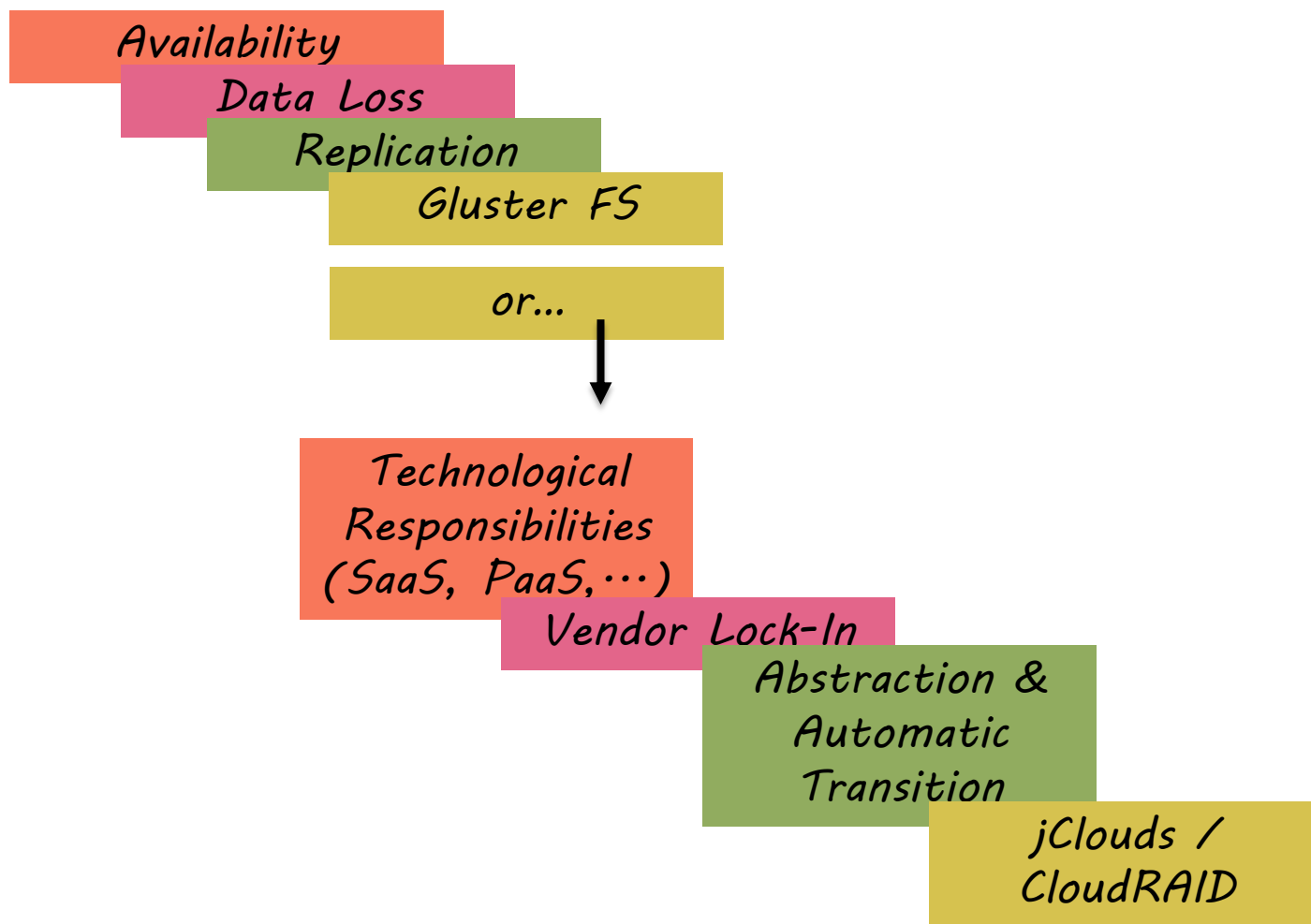
# Promising Solution Approaches

Framework conditions can act as promoters or pose challenges



# Illustrative example cases

Framework conditions can act as promoters or pose challenges



# Summary and transition to discussions

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