

Data Quality Management in Data Exchange Platforms – An Approach for the Industrial Data Space in Germany

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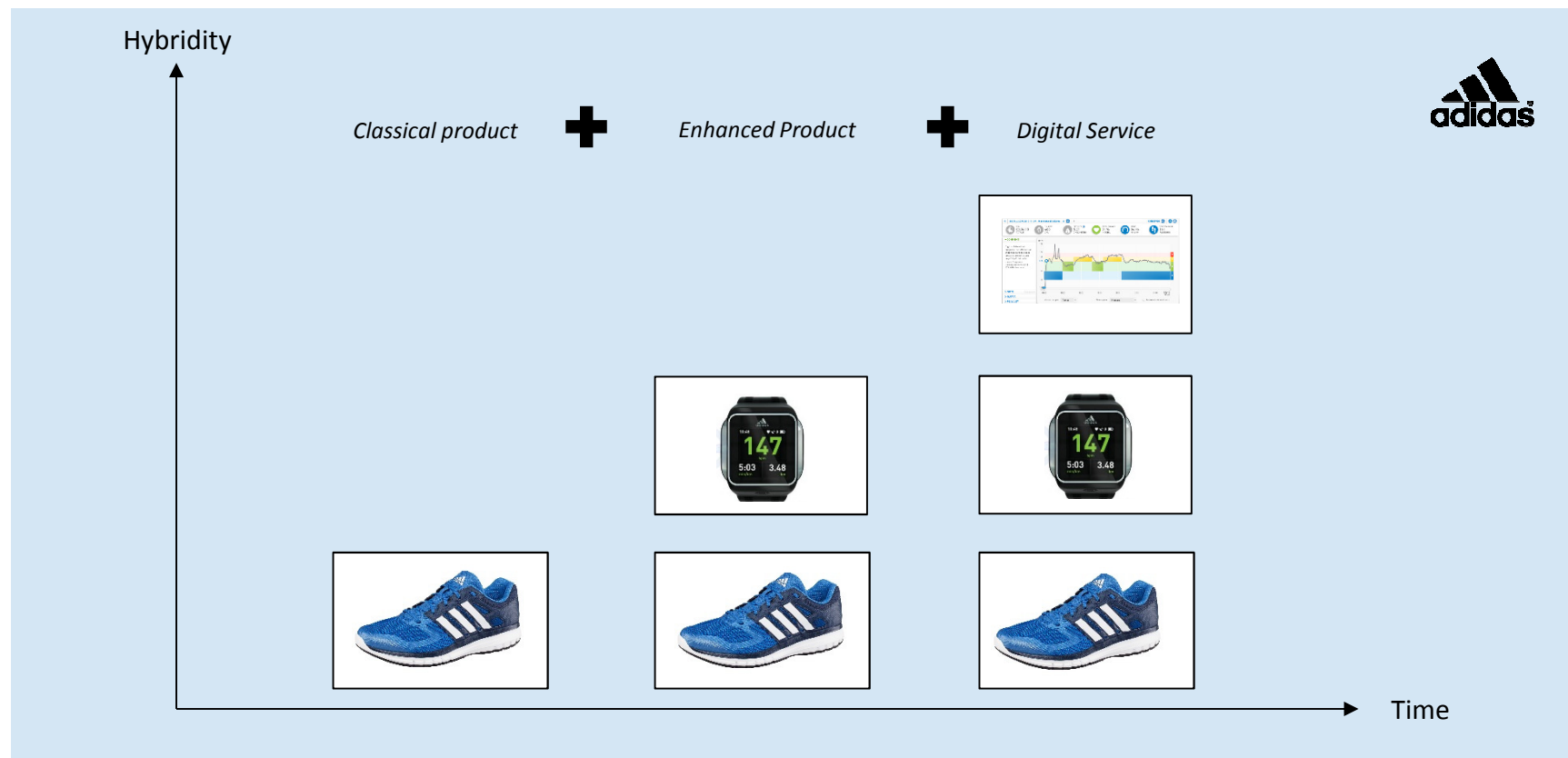
QDB WORKSHOP, SEPTEMBER 5, 2016



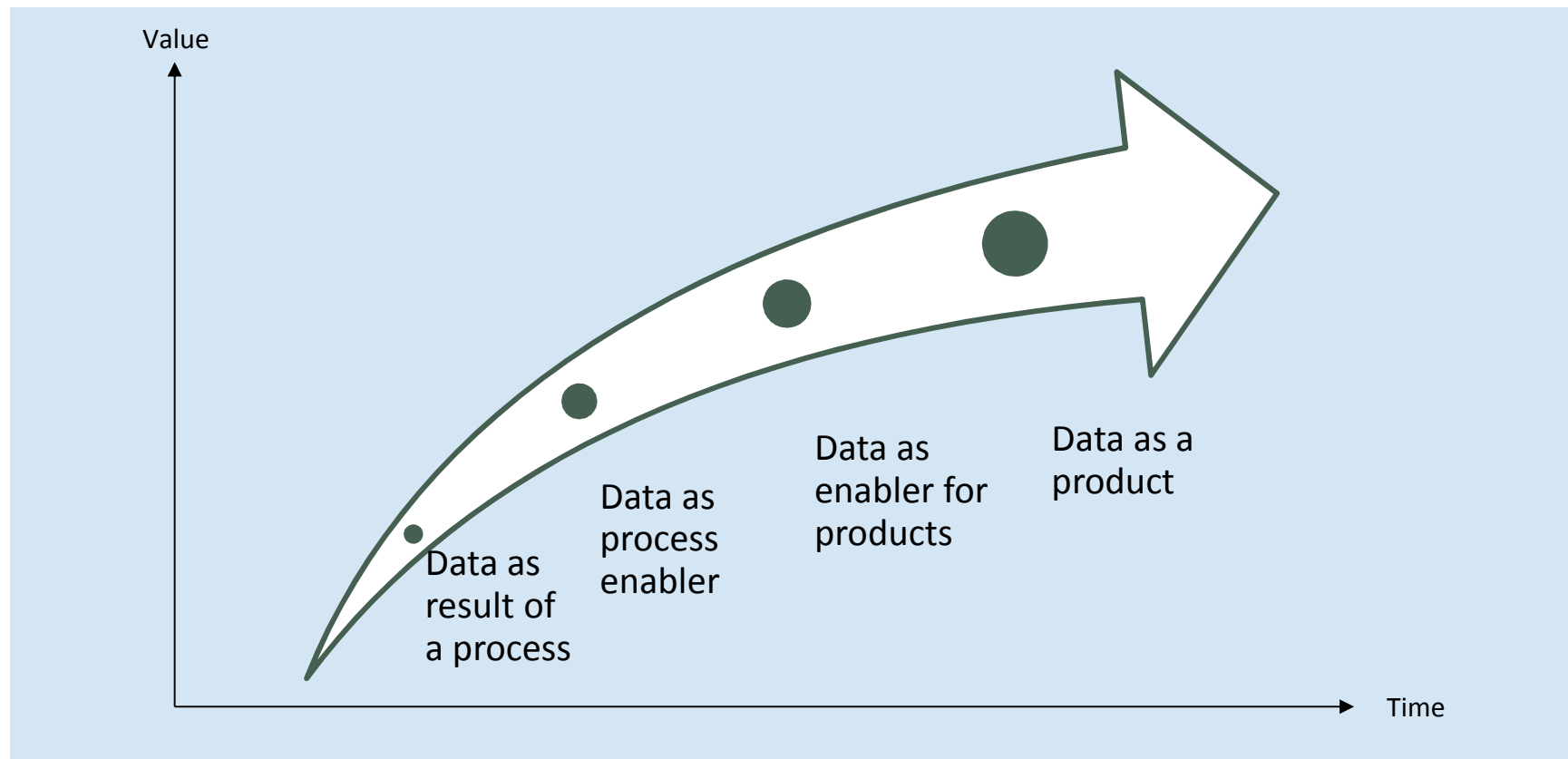
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Products are becoming hybrid: Integration of classical & digital services



Role of Data is Changing



Data Quality Definition

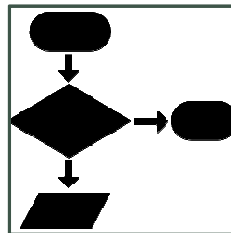
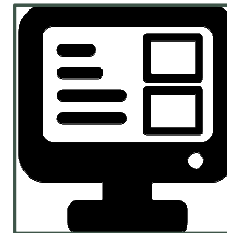


Product-oriented

- Based on features of the product

Application-oriented

- Fulfills requirements of users



Process-oriented

- Compliance of production process with specifications

Value-oriented





- Price-performance ratio



How to measure the value?

- What is the value of a product?
 - Costs of its production
 - Market value (negotiation, auction, ...)
 - Usefulness / value of benefit for a specific business process
 - Which additional costs would occur if you do not have that product?
- Can this also be applied to data?
 - Data is a digital product, it can be copied easily

Data Items are Goods with a Value

Company	Service	Ctry	Data Type	Valuation	Value per Data item
	Super Markets	US	Customer profiles incl. Buying profile	Market value	1,6 EUR ¹
	Social Network	US	User profiles	Market value	225 USD ^{2,3}
	Automation technology	DE	Parts master data	Production costs	500 to 5.000 EUR ⁴
	Agro chemicals	CH	Parts master data	Value of benefit	184 CHF ⁵

1) <http://www.wsj.de/nachrichten/SB11446175161338053998704580212211843086060>

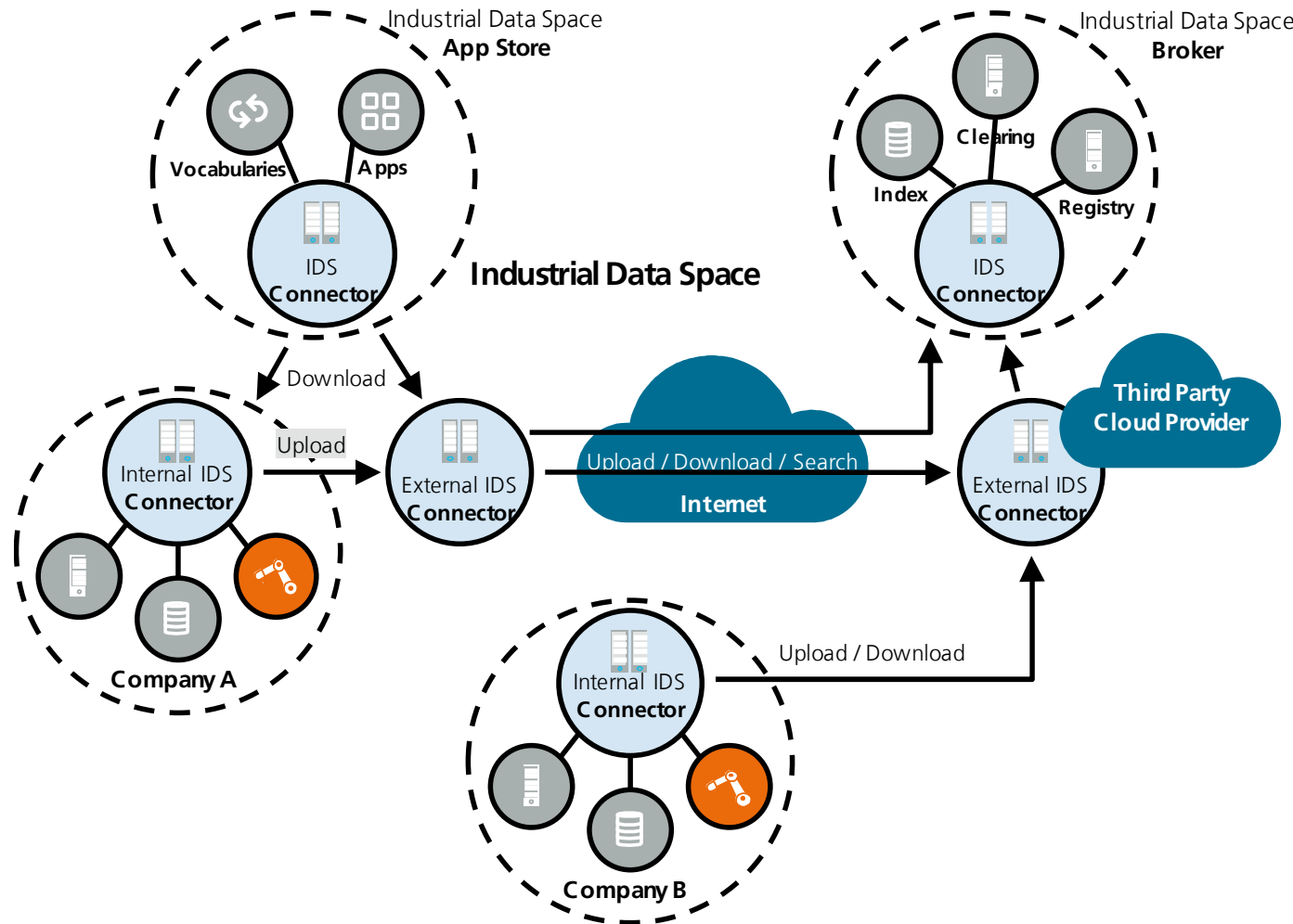
2) <http://en.wikipedia.org/wiki/Facebook>; 890 million daily active users.

3) <http://www.ft.com/cms/s/0/ecc0f050-37a3-11e4-bd0a-00144feabdc0.html#axzz3RH6OPOTH>; Marktkapitalisierung von 200 Mrd. USD.

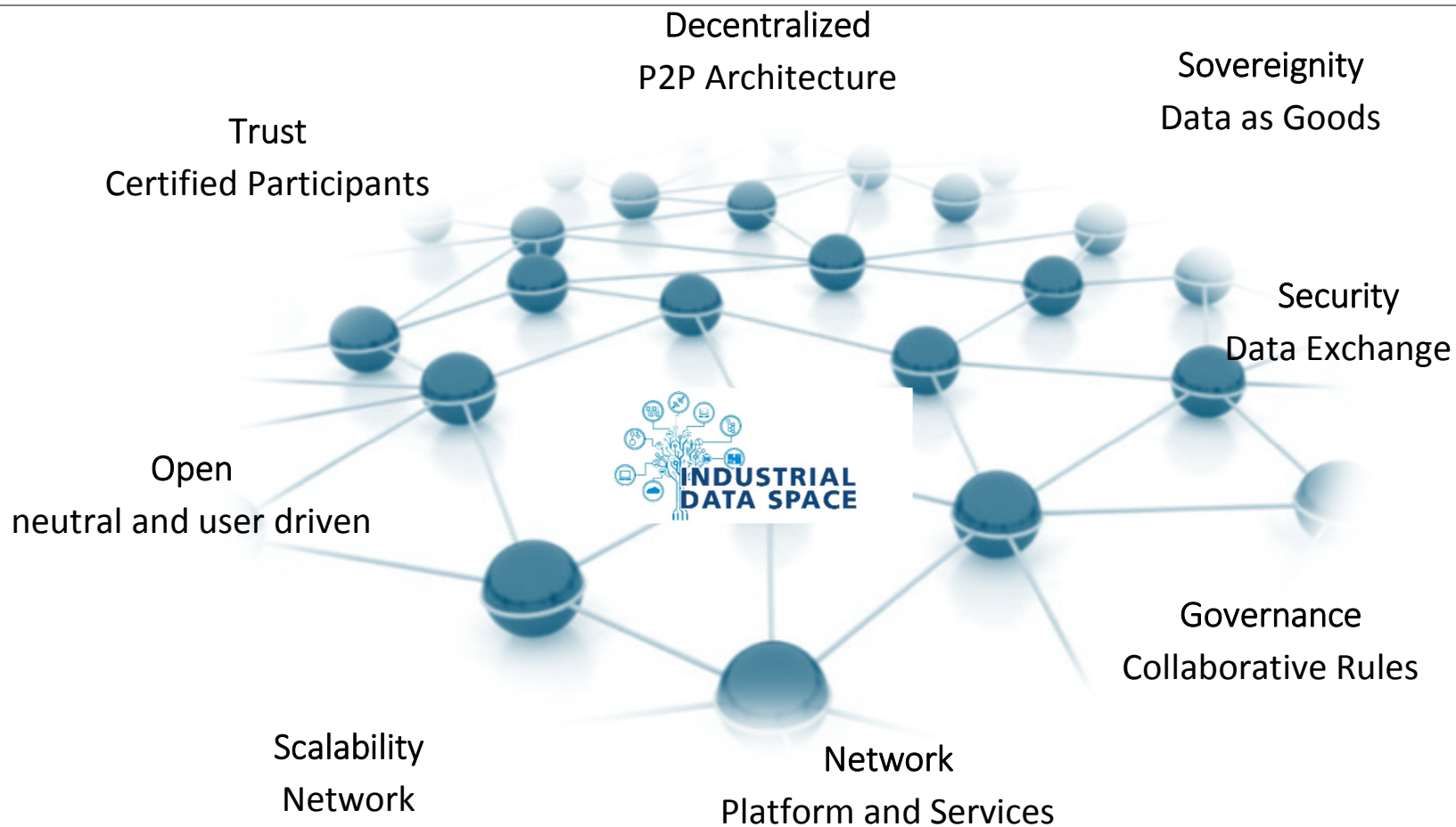
4) Vgl. Otto, Boris: Managing the business benefits of product data management: the case of Festo. In: Journal of Enterprise Information Management 25 (2012), Nr. 3, S. 272-297, DOI: 10.1108/17410391211224426; 5.000 EUR pro Neuanlage, 500 EUR jährliche Pflegekosten.

5) <http://www.marketwatch.com/investing/stock/syt/financials> (Abruf am 9.2.15); Umsatz: 13,85 Mrd. CHF; Zahl Materialstammdaten: ca. 1.5 Mio; Kostensenkungspotential durch hohe Datenqualität gemäß Experteninterview: 2 Umsatzprozent.

Industrial Data Space – An Initiative in Germany

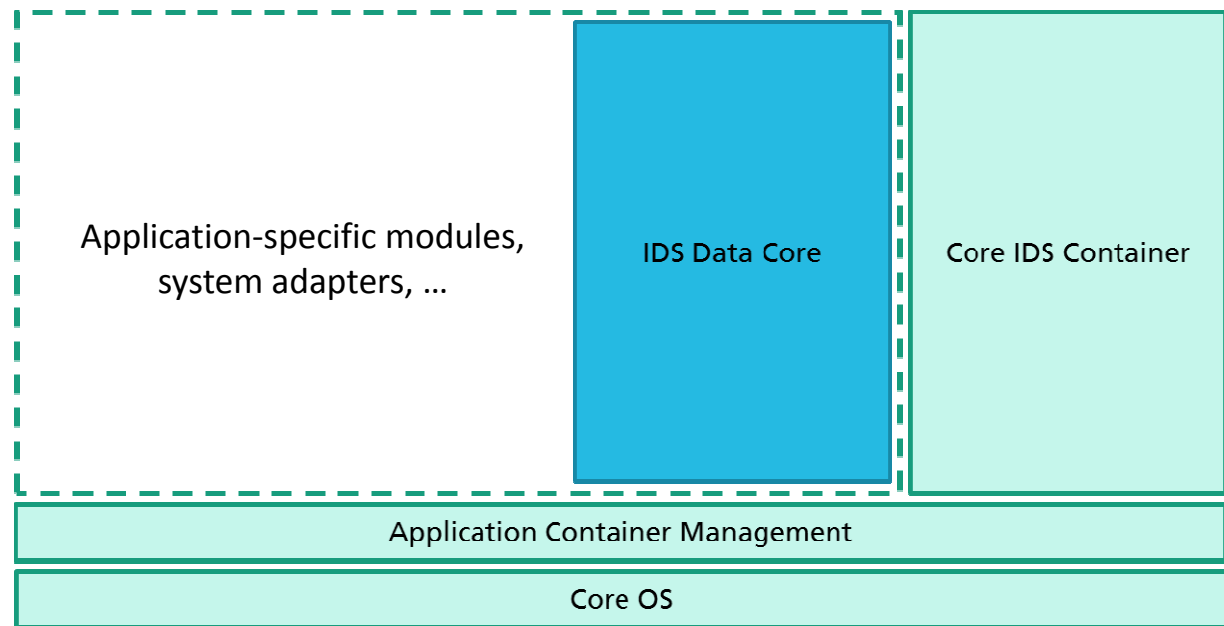


Key Features of the IDS



Technical Architecture of an IDS Connector

- Connectors provide a controlled environment for the basic functions and data exchange
- Control is guaranteed by a virtualization concept with specific security functions (application container technology, e.g., Docker)
- There are different levels of security



Data Quality in the IDS

- Data is traded like a product
- Does it need quality control like for regular products?
 - Who will perform the quality checks?
 - Provider
 - Consumer
 - Some trusted third party
- Data quality control needs to be integrated into the data exchange process
- Quality of the process
 - Certification of software
 - Can only guarantee basic functionality, compliance with rules, but not the quality of the data management processes
 - Certification of participants



Conclusion

- Digital services are being integrated into classical products
 - Features of the classical product become less important
- Data is a product and has a value
- Industrial Data Space provides an infrastructure for data exchange in a secure environment with certified software and certified participants
- Challenges
 - Valuation of data
 - Data quality control
 - Value-oriented and quality-oriented data integration