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Fraunhofer Institute for Software and Systems Engineering ISST

Prof. Dr. Boris Otto · 11 October 2023

Data Sharing in Industrial Data Ecosystems

Business Rationale for Data Sharing in Data Spaces

Data Sharing in Industrial Data Ecosystems

Pattern	Business Rationale	Business Impact	Examples
A	Cost Sharing	– Ecosystem members share data to cope with a shared requirement (compliance, process efficiency, transparency) – Every member saves money and time by sharing the burden	
B	Joint Innovation	– A customer innovation can only be realized by ecosystem members working together – No single ecosystem member has all the necessary data	Mobility Data Space
C	Combined Forces	– Ecosystem members team up to prevent monopolies from emerging – No single ecosystem member has the necessary resources and commitment to do this alone	MANUFACTURING-X EuPro Gigant
D	Shared Marketplace	– Ecosystem members team up to provide quality-assured, easy access to data of a domain of common interest (open data, business partner data etc.) – Transaction costs go down for all ecosystem members	Mobility Data Space
E	Greater Common Good	– Public and private sector share data for a greater common, societal goal (e.g. climate protection, resilience)	Mobility Data Space MANUFACTURING-X

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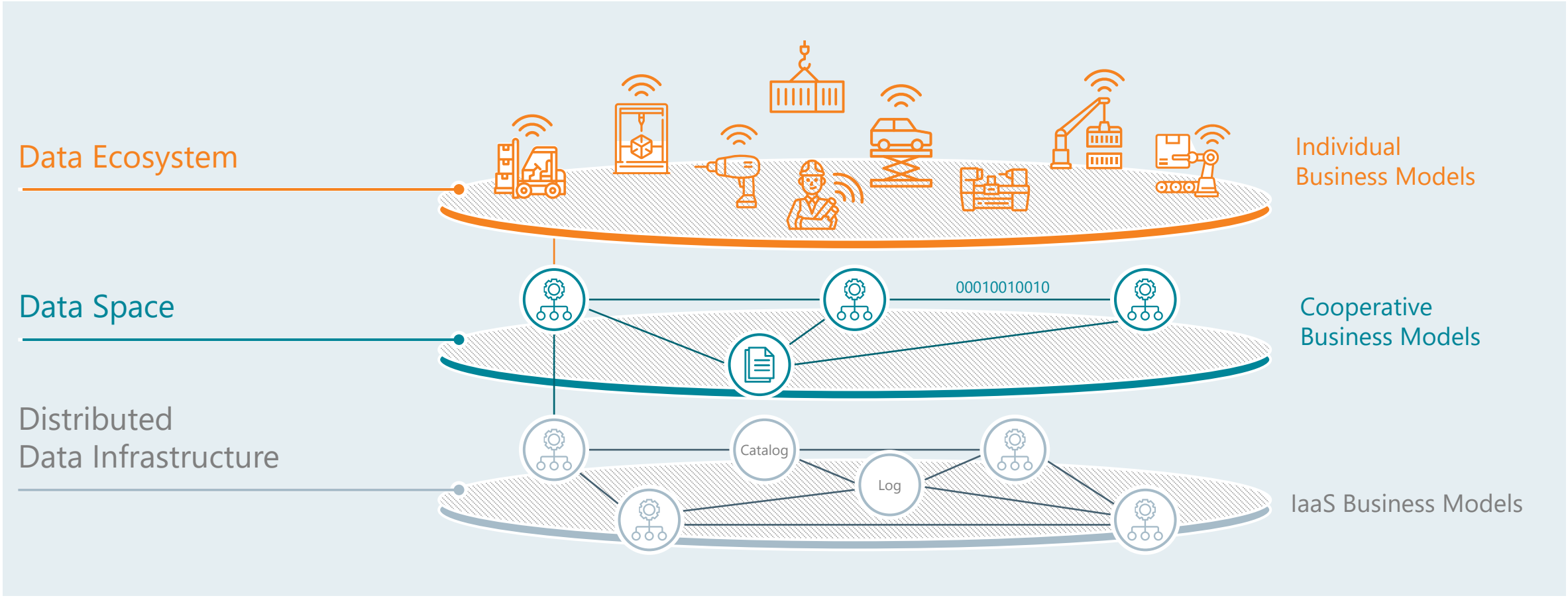
Data Ecosystems · Data Spaces · Data Infrastructures

Data Sharing in Industrial Data Ecosystems



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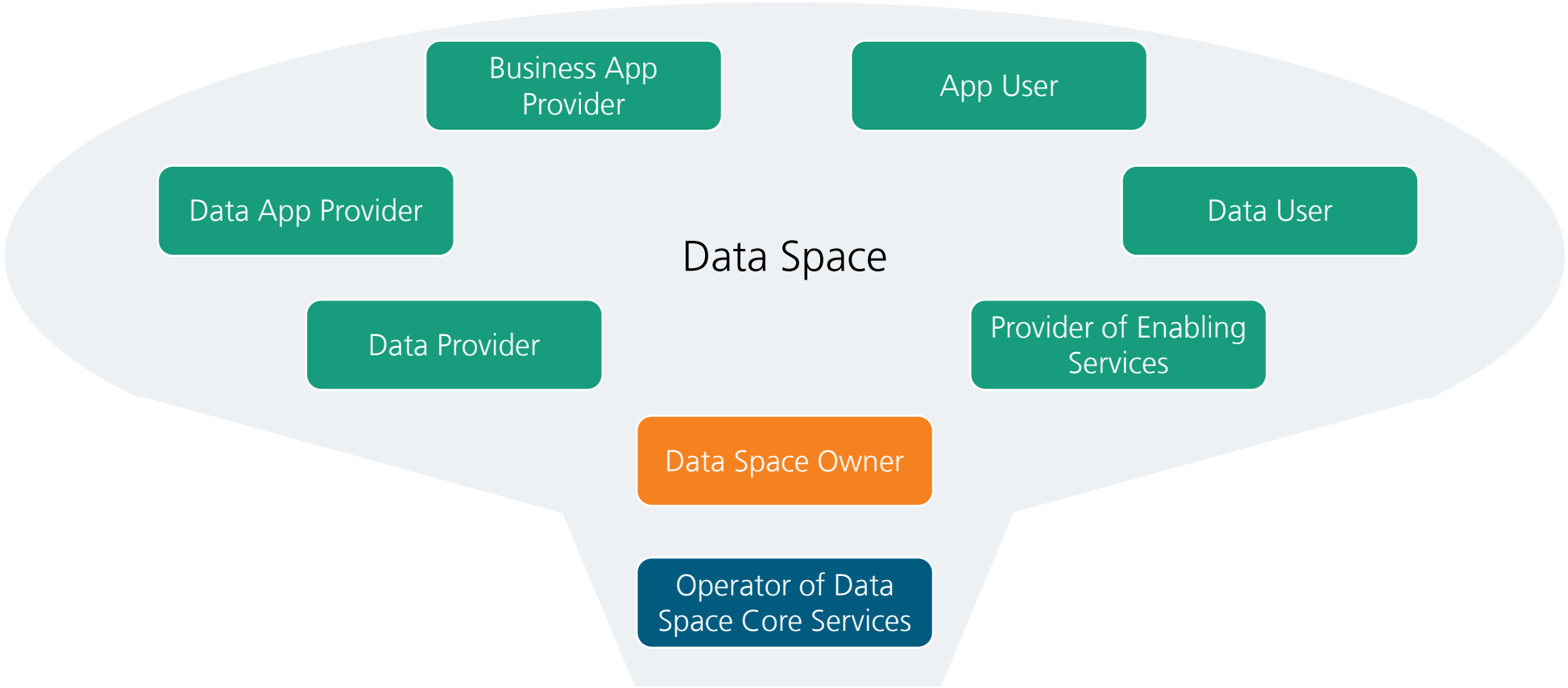
Typical Roles in Data Spaces

Data Sharing in Industrial Data Ecosystems



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Value Proposition of Data Spaces

Data Sharing in Industrial Data Ecosystems

Role	Business Model	Data Space Value
Data Provider	– Domain-specific – Data business	– Distribution/sales channel for data – Means for data sharing
Data App Provider	– Value-added data services (e.g. data quality, bundling)	– Distribution channel for app – Marketing, quality assurance etc. – Use of infrastructure services
Business App Provider	– Value-added software service (e.g. smart parking)	
App User	– Typically domain-specific (e.g. mobile traveler)	– Cost reduction – Transparency and compliance – Innovation
Data User	– Typically domain-specific (e.g. smart city)	
Provider of Enabling Services	– Integration services – Consulting services (e.g. On-boarding)	– Market access – Cross and up-selling potential – Scale-up potential
Data Space Owner	– Data sharing intermediary	– Raison d'être for being in business
Operator of Data Space Core Services	– IT service provider	– Recurring revenue through software services – Scale-up potential through data spaces federation

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»Data Travels at the Speed of Trust«

Data Sharing in Industrial Data Ecosystems

Trust among participants

Data sharing participants want to trust that …

- … the entity that is requesting data is actually the one they pretend to be
- … their claims for service capabilities are reliable

Trust in data and its use

Data providers want to trust that …

- … their data is not misused when shared
- … data users adhere to data usage policies

Data users want to trust …

- … shared data stems from a reliable source and
- … is free of conflicting rights etc.

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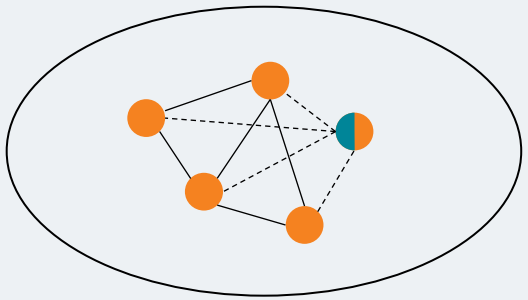
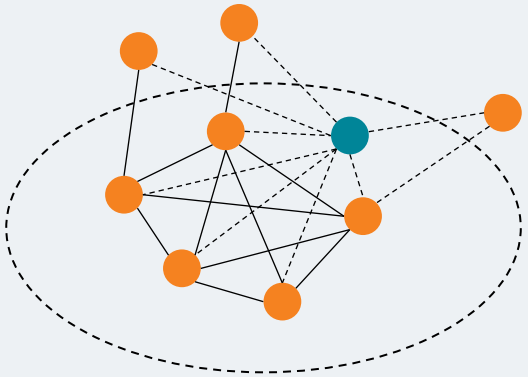
Evolution of Data Ecosystems

Data Sharing in Industrial Data Ecosystems

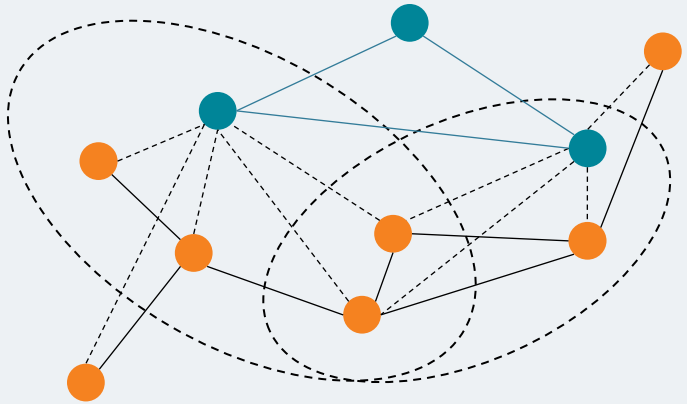
I Closed Ecosystem



II Open Ecosystem



III Federation of Ecosystems



Legend

Roles: Participant (Data Holder | Data User); Intermediary.

Data Exchanges: Shared data incl. metadata between participants; Metadata between participant and intermediary; Metadata between intermediaries.

Ecosystems: Closed; Open.

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If you want to go fast, go alone; if you want to go far, go together

Source: African proverb.

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