

Towards a business model to federate data marketplace platforms



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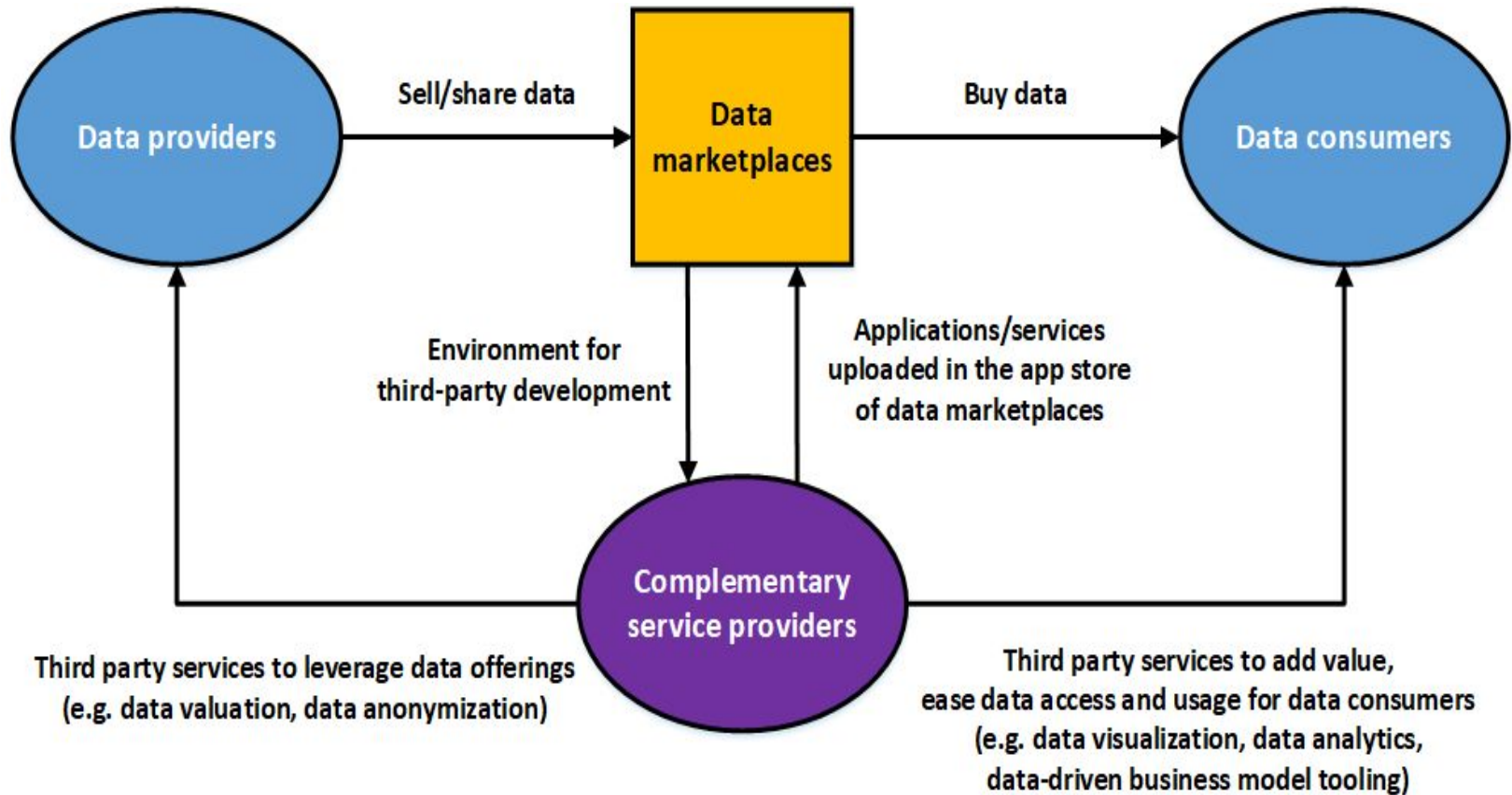
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What is data trading?

- Data trading = Exchange of data against remuneration at scale



What are data marketplaces?



Users, value, ecosystems: hardly studied

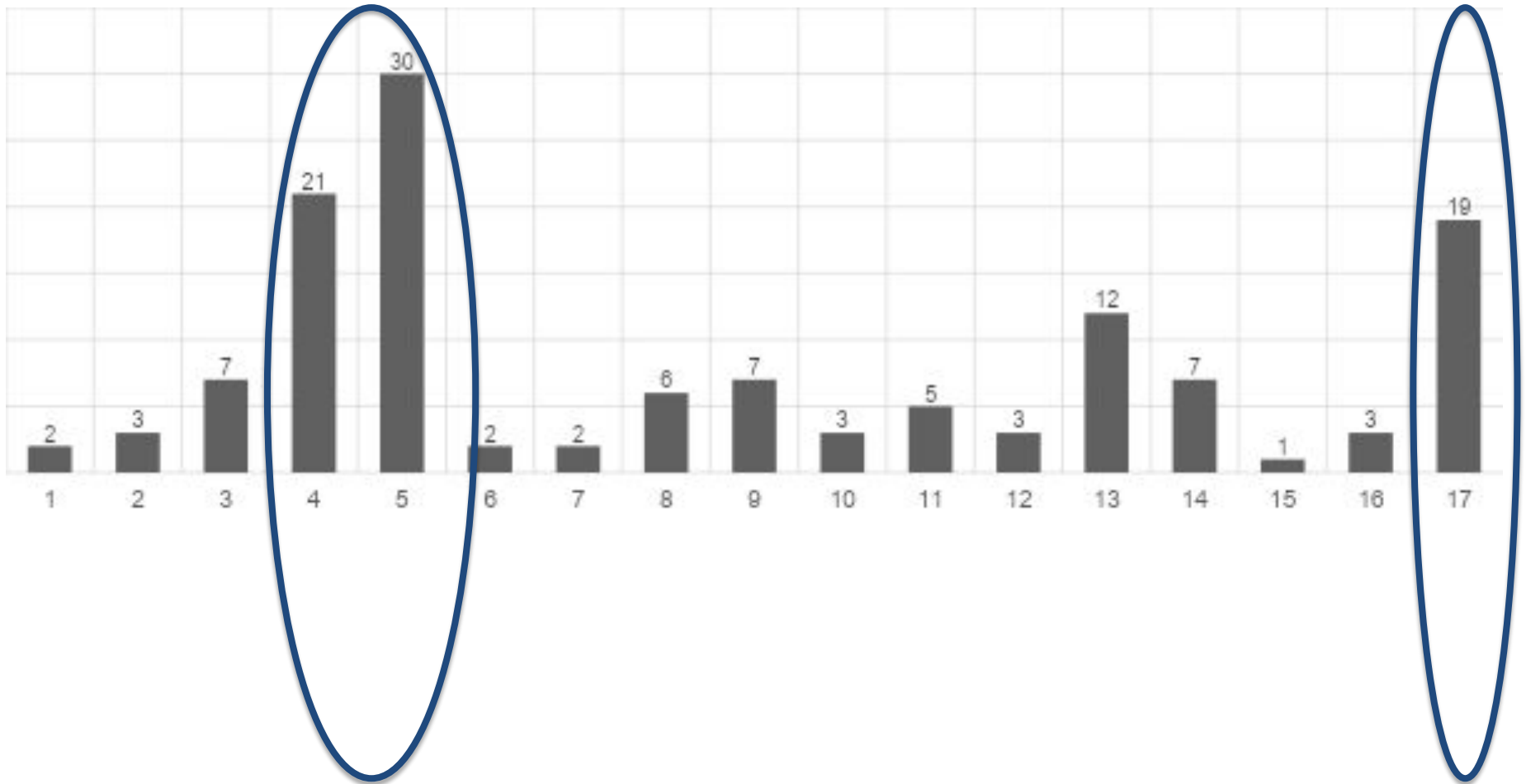


Figure 2. The selected articles categorized using the STOF model (n=133)

Business models are diverse...

	Aggregating data marketplace	Aggregating data marketplace with brokering	Consulting data marketplace	Facilitating data marketplace
<i>Example</i>	<i>TomTom and INRIX</i>	<i>HERE</i>	<i>Caruso</i>	<i>IOTA and Ocean Protocol</i>
<i>Orientation</i>	<i>Hierarchical</i>	<i>Mixed hierarchical/market</i>	<i>Mixed hierarchical/market</i>	<i>Market</i>
<i>Ownership</i>	<i>Private</i>	<i>Consortium</i>	<i>Consortium</i>	<i>Independent</i>
<i>Domain</i>	<i>Location</i>	<i>Location</i>	<i>Automotive</i>	<i>Cross-industry</i>
<i>Data quality</i>	<i>Reviews by data marketplace owner</i>	<i>Reviews by data marketplace owner</i>	<i>No info</i>	<i>Reviews by users</i>
<i>Privacy</i>	<i>Anonymized</i>	<i>Encrypted</i>	<i>Anonymized</i>	<i>Encrypted</i>
<i>Contract</i>	<i>Negotiated contract</i>	<i>Both negotiated and standardized contract</i>	<i>Negotiated contract</i>	<i>Standardized contract</i>
<i>Platform access</i>	<i>Closed</i>	<i>Open</i>	<i>Closed</i>	<i>Open</i>
<i>Platform infrastructure</i>	<i>Centralized</i>	<i>Centralized</i>	<i>Centralized</i>	<i>Decentralized</i>
<i>Data pricing mechanism</i>	<i>Set by data marketplace owner</i>	<i>Both set by data marketplace owner or data seller</i>	<i>Set by data seller</i>	<i>Set by data seller</i>

... and data marketplaces fragmented

- National / city-level
- Industry-specific (e.g. mobility, industry, ...)
- Data type specific (e.g. IoT, personal, business)

- There's no winner that takes all
- Multi-homing doesn't come for free!

EU policy favours single market for data



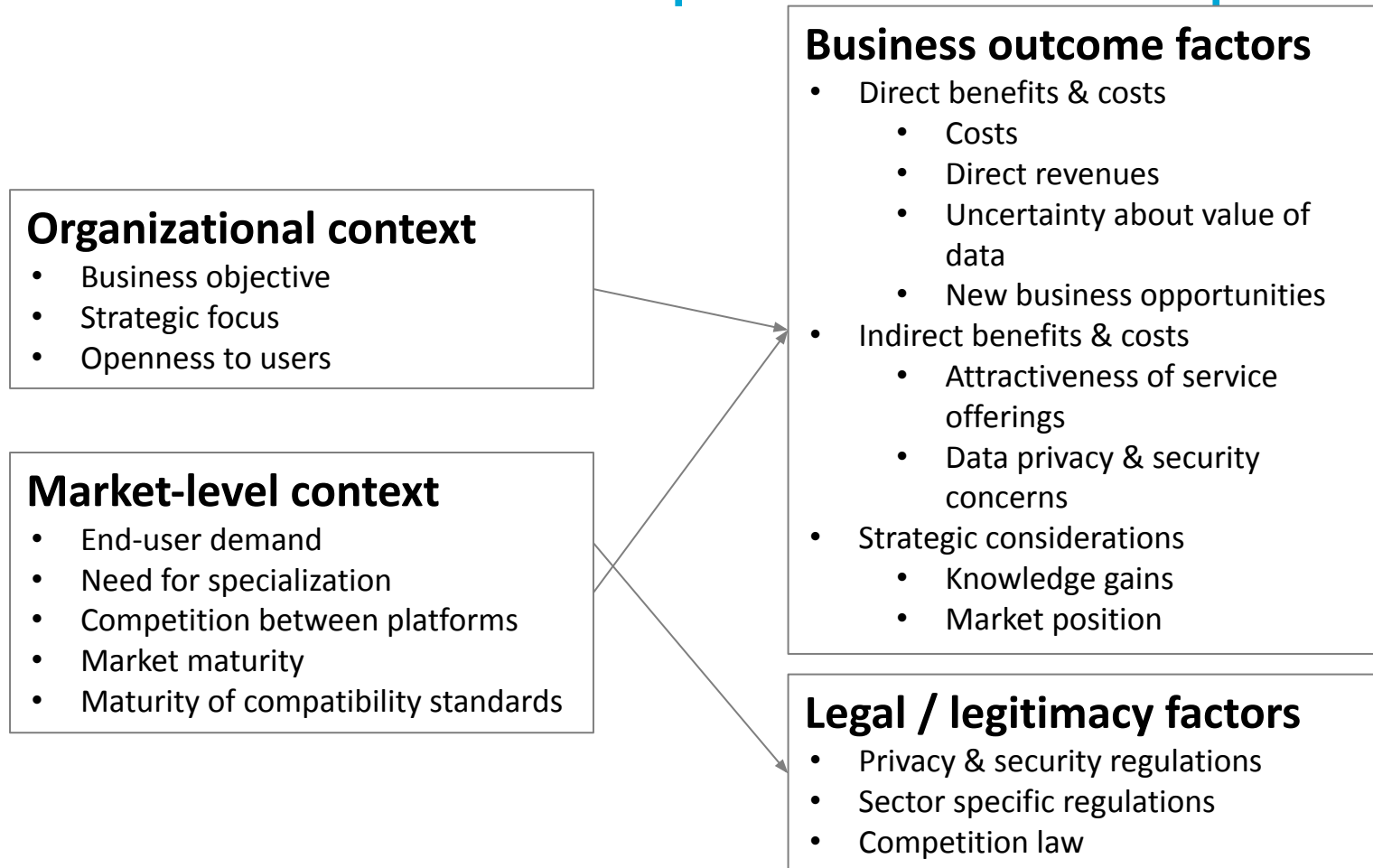
How can platforms work together?

Idea	Example	Reference
Platforms build on each other	Android forking	Karhu et al 2018
Platforms nest within others	Facebook authentication	Tiwana 2013
Third party bridges	Smart lighting	Hilbolling et al 2020
Technical interoperability	Payment platforms APIs for data transfer	Ondrus et al 2015 Ochs & Riemann 2017

And what about data marketplaces?

- Linkages between platforms
 - E.g. EU's Gaia-X standard for data platform interoperability
- Meta-platforms
 - = federation of heterogeneous platforms
 - E.g. IoT platform brokers (Mineraud et al 2016)
 - E.g. `data spaces`?

Trade-offs to make platforms interoperable



Mosterd, L., Sobota, V. C., van de Kaa, G., Ding, A. Y., & de Reuver, M. (2021). Context dependent trade-offs around platform-to-platform openness: The case of the Internet of Things. *Technovation*, 108, 102331

From data marketplace to federation

	No (or Low) Degree of API Integration	High Degree of API Integration
<p>Multiple Features (aggregating information with additional services)</p>	<p>Commissioned brokerage</p> <ul style="list-style-type: none"> Consulting for solution-based assets 	<p>One-stop-shop</p> <ul style="list-style-type: none"> Providing common standards and infrastructures
<p>Single Features (only aggregating information)</p>	<p>Discovery</p> <ul style="list-style-type: none"> Searching assests via a single catalog 	<p>Smart recommendation</p> <ul style="list-style-type: none"> Automatically recommending relevant assets

How TRUSTS contributes

- Systematic overview of archetypical data marketplace business models
- Factors to decide about (not) federating data platforms
- An exemplar business model for data marketplace federation
- A roadmap: from data marketplace to federated platform