# Business Models for Data Assets - The Linked Data Business Cube Revisited*

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Workshop: Governing Value - The Practice of Exploiting Data Value
@ Semantics 2018 Conference

September 11, 2018 - 09:00 to 17:30
University of Technology, Vienna

Organizing Committee: Judie Attard, Rob Brennan, Markus Helfurt, Pieter De Leenheer

Webpage: http://2018.datavalue.adaptcentre.ie/

* Pellegrini, T., Dirschl, C., Eck, K., 2014. Linked data business cube: a systematic approach to semantic web business models. ACM Press, pp. 132–141. doi:10.1145/2676467.2676489

**Acknowledgment:** Funded by the Austrian Federal Ministry of Transport, Innovation and Technology (BMVIT) under the program "ICT of the Future“ in the DALICC (www.dalicc.net) project. Runtime: November 2016 - October 2018. More information https://iktderzukunft.at/en/

# Service Science

- Term framed by IBM Research (2004): „**Service Science, Management, Engineering and Design (SSME+D)**“. Research since early 1990s (de Grandbois 2013).

- **Basic premises** (Vargo & Lusch 2004):
  - From a Goods-dominant Logic to a Service-Dominant Logic
  - From Value in Use to Value in Context → Value is uniquely determined by the beneficiary
  - Co-Creation of value
  - From operand to operant resource integration

- According to Ostrom et al. (2015, p. 127) the relevance of **Service Science** is derived from …

  - Increasing share of services in the global economy
  - Increasing mediation of services through technology & platforms
  - Changes in organisational and institutional conditions of value creation, especially through modes of co-production & co-creation
  - The increasing complexity of control and governance of value creation and innovation processes

de Grandbois, Y., 2013. The business of Service Science. Business Information Review 30, 204–209. doi:10.1177/0266382113518837
Vargo, S.L., Lusch, R.F., 2004. Evolving to a New Dominant Logic for Marketing. Journal of Marketing 68, 1–17. doi:10.1509/jmkg.68.1.1.24036
Ostrom, A.L., Parasuraman, A., Bowen, D.E., Patrício, L., Voss, C.A., 2015. Service Research Priorities in a Rapidly Changing Context. Journal of Service Research 18, 127–159. doi:10.1177/1094670515576315

# Digitization & Asset Diversification

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***Pre-Digital Diversification prior to 1980*** / Service-Reference **implicit & unidirectional**

- Content
- Hardware

***Digital Diversification after 1980*** / Service-Reference **implicit & unidirectional**

- Content
- Software
- Hardware

***Digital Diversification from 2000*** / Service-Reference **explicit & bidirectional**

- Content
- Services
- Software
- Hardware

***Digital Diversification since 2010*** / Service-Reference **explicit & multidirectional**

- Data
- Metadata
- Ontologies
- Content
- Services
- Software
- Hardware

# Data Assets – Institutional Perspective

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**Data Assets** **Legal Frameworks**

| | Copyright | Database Right | Competition Law | Patent Rights |
|---|---|---|---|---|
| **Instance-Data** | Case by Case | Yes | Yes | Case by Case |
| **Metadata** | Case by Case | Yes | Yes | Case by Case |
| **Ontologies** | Yes | Yes | Yes | Case by Case |
| **Content** | Yes | No | Yes | No |
| ***Services*** | *Yes* | *No* | *Yes* | *Yes* |
| ***Software*** | *Yes* | *No* | *Yes* | *Yes* |

**Licensing Policy**

Public Domain → Permissive → Weakly Protective → Strongly Protective → Proprietary

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Pellegrini, Tassilo (2012). Semantic Metadata in the News Production Process. Achievements and Challenges. In: Lugmayr, Artur; Franssila, Heljä; Paavilainen, Janne; Kärkkäinen, Hannu (Eds). Proceeding of the 16th International Academic MindTrek Conference 2012, Tampere / Finland. ACM SIGMM, p. 125-133

# Central Concepts

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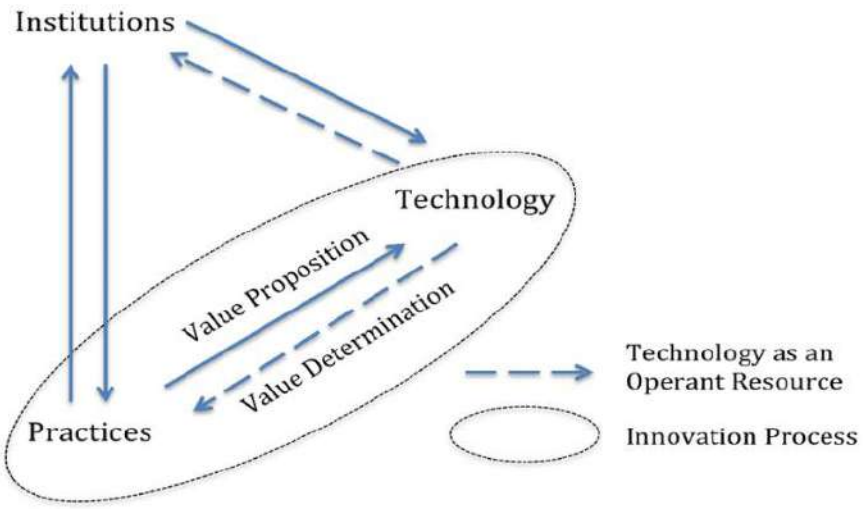
- **Business Model =**
  - a "heuristic logic that connects technical potential with the realization of economic value" (Chesbrough 2002).

  - a system-level approach to explaining how firms commercialize their products and services, utilize productive factors – such as technology – to diversify their business practices, propose value and realize it through innovation.

- **Value Propositions** =
  - "the promised set of benefits the firm offers to its consumers" (Biloshapka, V., Osiyevskyy, O., 2018)

  - value propositions mobilise assets and link them together to leverage value-creating processes that unfold through co-creation between resource-integrating actors.



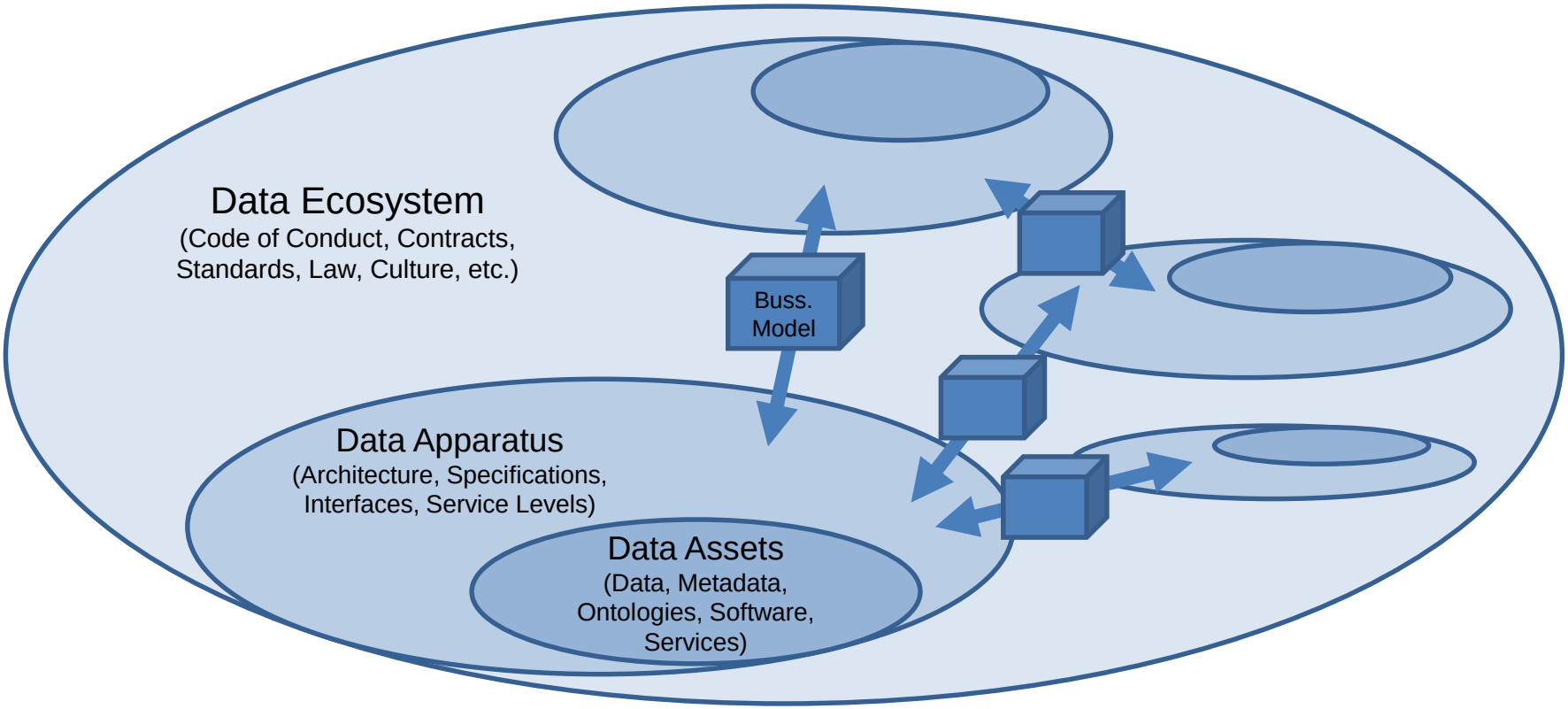

**4 categories of resources in service systems:**
(1) resources with rights, (2) resources as property, (3) physical entities, and (4) socially constructed resources. (Maglio et al. 2009)


Chesbrough, H., 2002. The role of the business model in capturing value from innovation: Industrial and Corporate Change 11, 529–555. https://doi.org/10.1093/icc/11.3.529

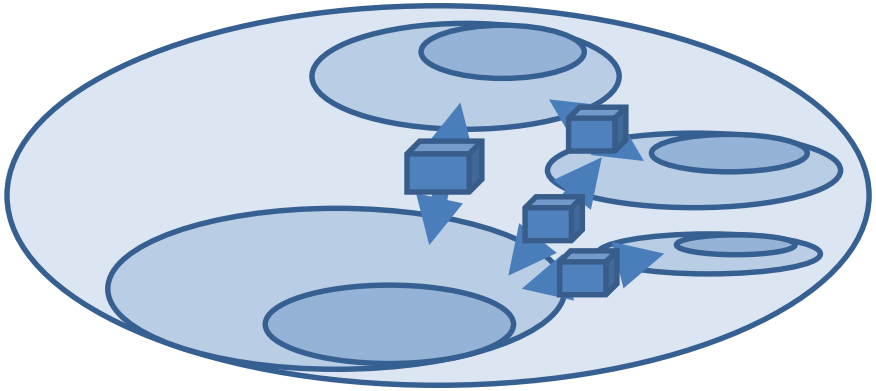
Maglio, P.P., Vargo, S.L., Caswell, N., Spohrer, J., 2009. The service system is the basic abstraction of service science. Information Systems and e-Business Management 7, 395–406. doi:10.1007/s10257-008-0105-1

Biloshapka, V., Osiyevskyy, O., 2018. Value creation mechanisms of business models: Proposition, targeting, appropriation, and delivery. The International Journal of Entrepreneurship and Innovation 19, 166–176. https://doi.org/10.1177/1465750318782774

# Data Ecosystems



# Data Ecosystems



**Data Assets =**

- instance data, metadata, ontology, content, service and software.
- Assets are being created by applying intellectual property law to valuable artefacts.

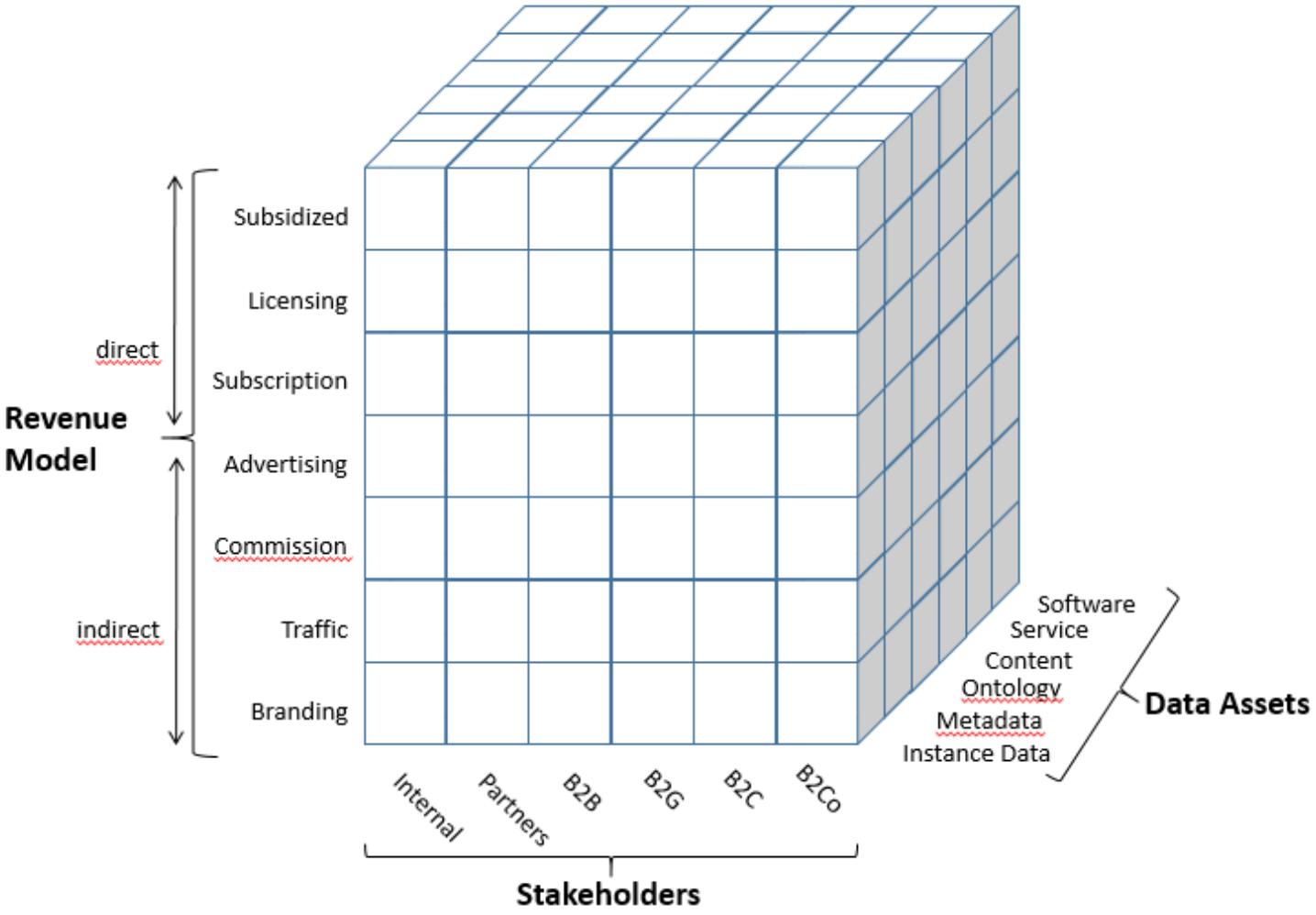
**Data Apparatus =**

- “the technical equipment or machinery needed for a particular activity or purpose” [33].
- refers to the system-level design and functional combination of data assets in the production and processing of data. The apparatus determines the assets’ specificities and the value propositions that can be assigned to them [28] in the course of service delivery.

**Data Ecosystem =**

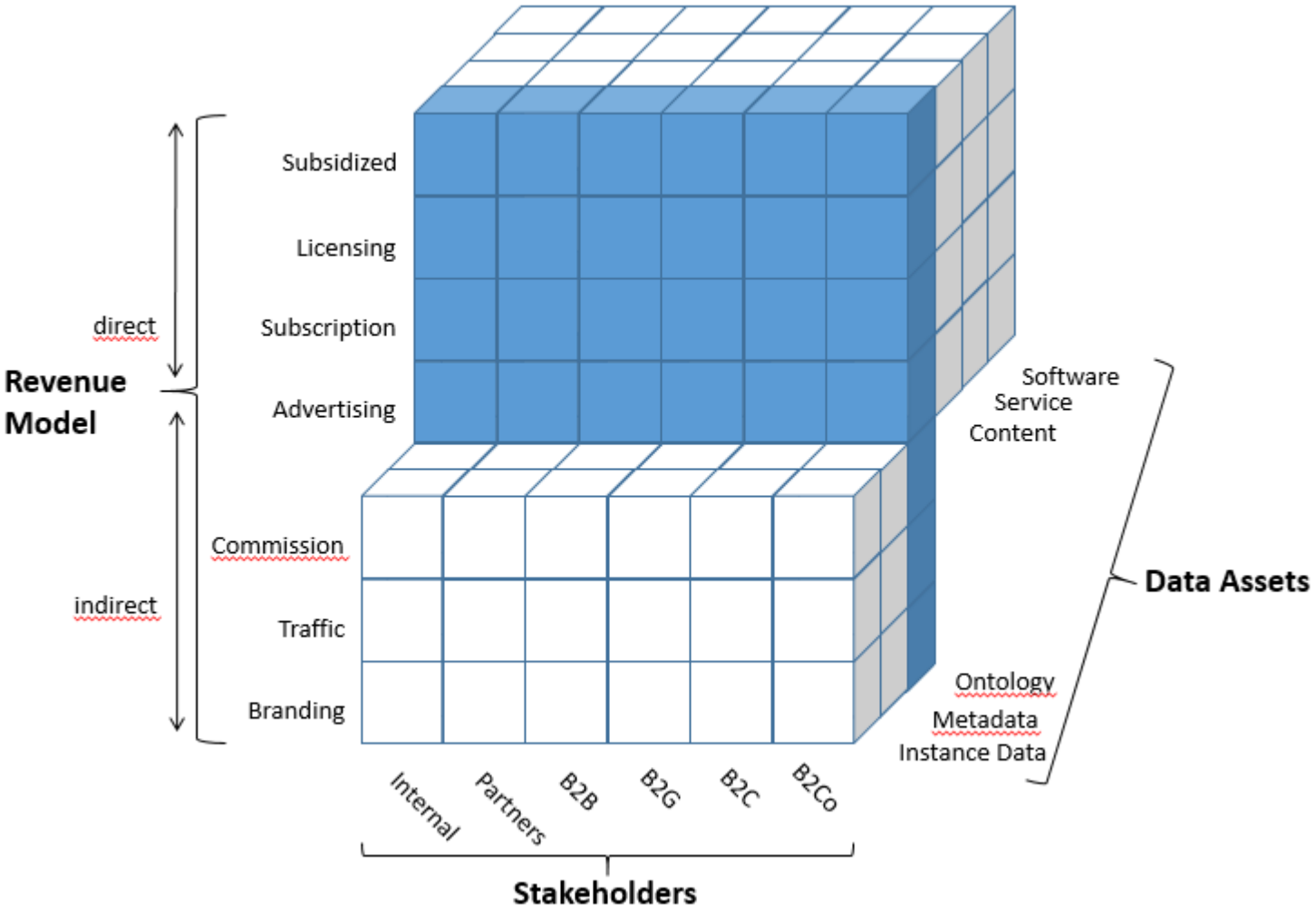
- “relatively self-contained, self-adjusting systems of resource integrating actors connected by shared institutional logics and mutual value creation through service exchange” [24].
- evolve from the functional coupling of two or more data apparatuses with the purpose to derive value from data assets by applying business models.

# Data Business Cube



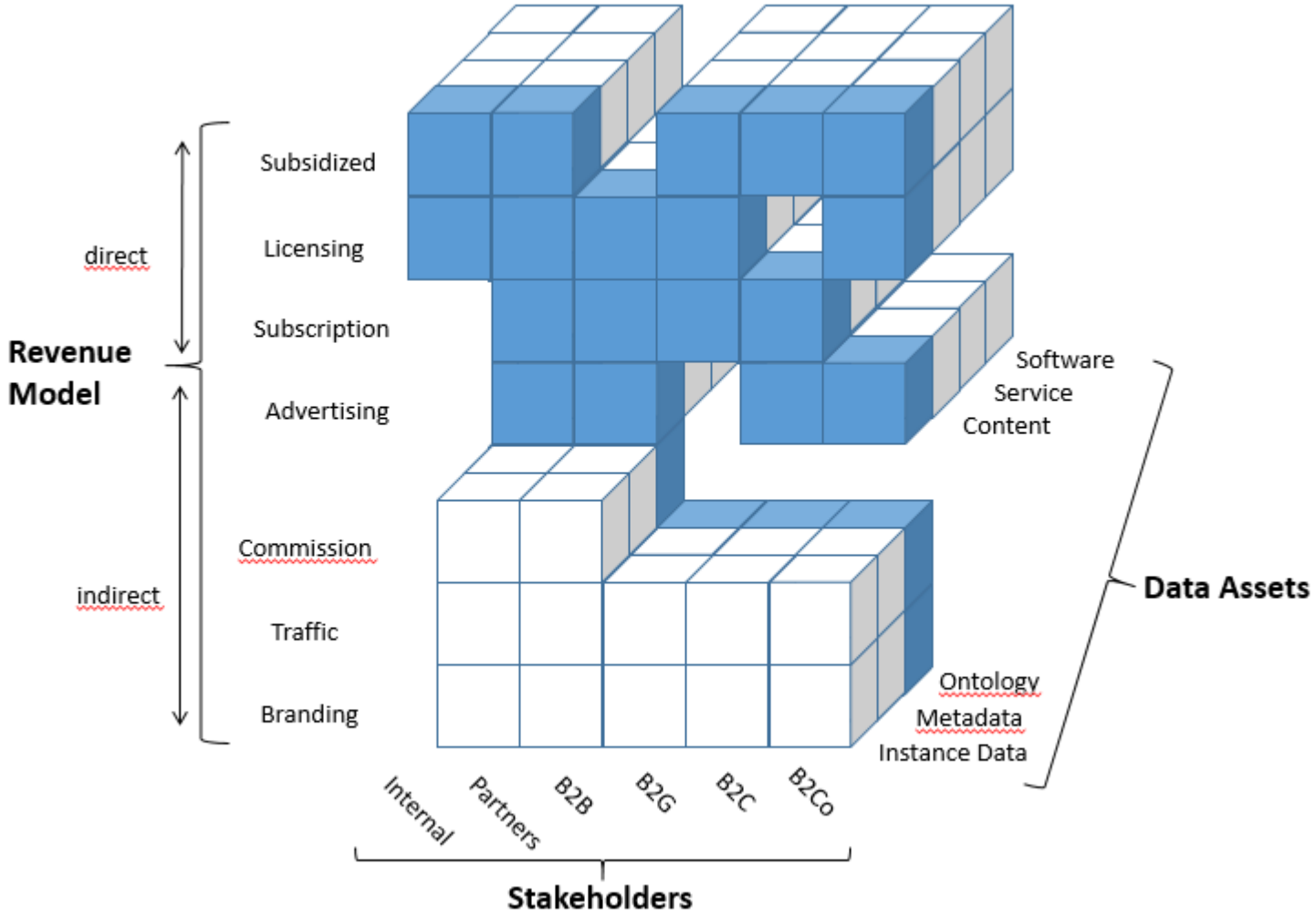

Pellegrini, T., Dirschl, C., Eck, K., 2014. Linked data business cube: a systematic approach to semantic web business models. ACM Press, pp. 132–141. doi:10.1145/2676467.2676489

# Revenue Models & Data Assets




Pellegrini, T., Dirschl, C., Eck, K., 2014. Linked data business cube: a systematic approach to semantic web business models. ACM Press, pp. 132–141. doi:10.1145/2676467.2676489

# Revenue Models & Data Assets & Stakeholders

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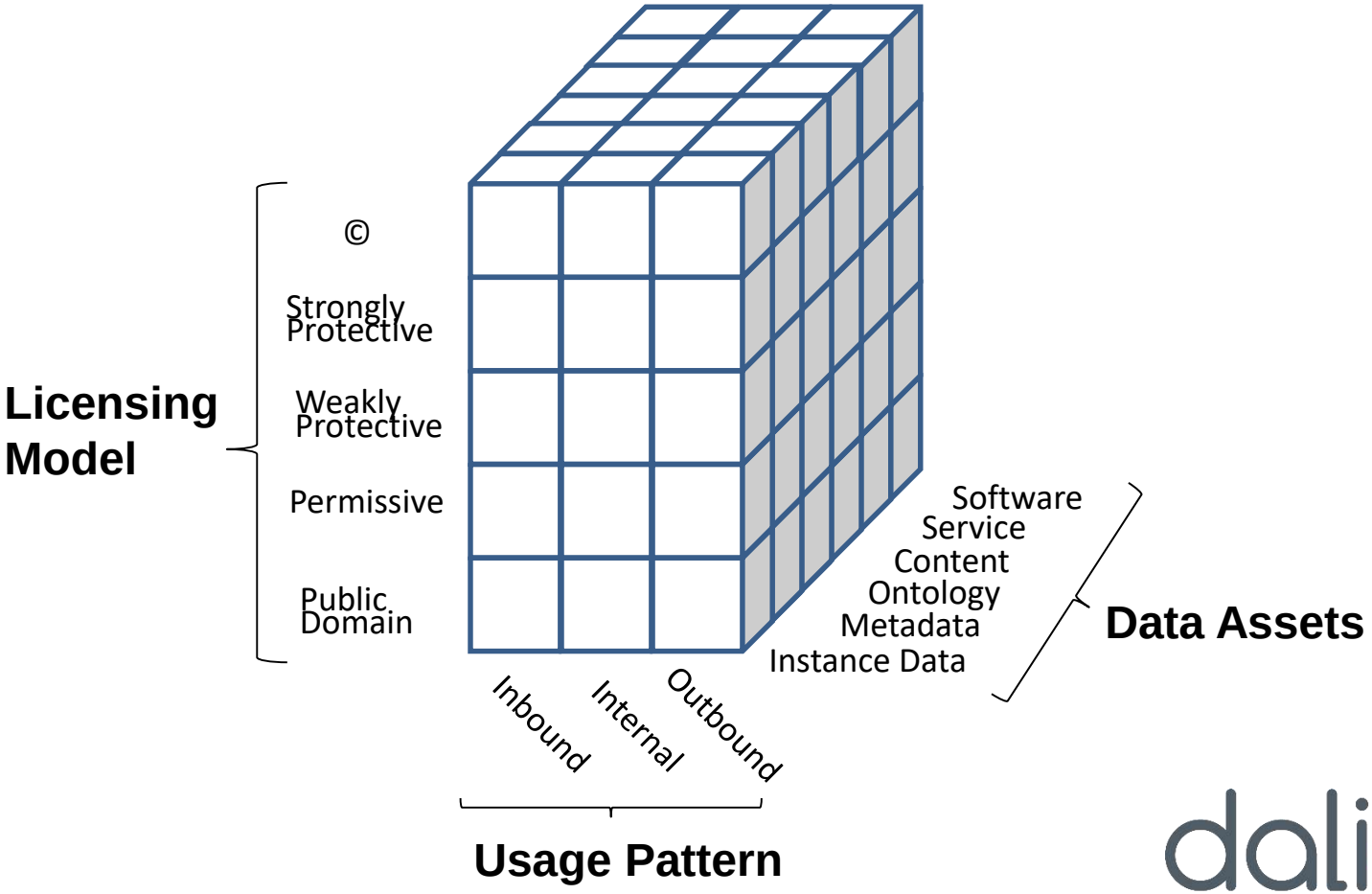
# Data Business Cube – The Licensing Perspective




DATA LICENSES CLEARANCE CENTER

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# Discussion

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- The Linked Data Business Cube is a **heuristic method** to model and investigate business models for data assets.
- Data assets can have various **asset specificities**, depending on the licensing terms under which they are being provided.
- **Asset specificities** determine to a high degree the applicable **revenue models** and **stakeholders** involved in the value creation process.
- Having a good understanding of the interactions between assets specificities, revenue models and stakeholders is crucial in assigning value propositions for data assets and designing the **data apparatus** and applying appropriate **licensing policies**.

# Literature

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