Paavo Ritala

Professor of Strategy & Innovation

LUT School of Business & Management

Email: ritala@lut.fi

Twitter: @PaavoRitala

LinkedIn: https://www.linkedin.com/in/paavo-ritala-6475a31/

MY RECENT RESEARCH

Networks, ecosystems, platforms

▸ Thomas, L. D., & Ritala, P. (2022). Ecosystem legitimacy emergence: A collective action view. Journal of Management, 48(3), 515-541.

▸ Ritala, P., De Kort, C., & Gailly, B. (2022). Orchestrating Knowledge Networks: Alter-Oriented Brokering. Journal of Management (available online)

▸ Karhu, K., & Ritala, P. (2021). Slicing the cake without baking it: Opportunistic platform entry strategies in digital markets. Long Range Planning, 54(5), 101988.

Digital technology, data, and strategy/organization

▸ Dąbrowska, J., Almpanopoulou, A., Brem, A., Chesbrough, H... & Ritala, P. (2022). Digital transformation, for better or worse: a critical multi-level research agenda. R&D Management.

▸ Kostis, A., & Ritala, P. (2020). Digital artifacts in industrial co-creation: how to use VR technology to bridge the provider-customer boundary. California Management Review, 62(4), 125-147.

Sustainability and circular economy

▸ Bocken, N., & Ritala, P. (2022). Six ways to build circular business models. Journal of Business Strategy.

SELLING AND MONETIZING DATA IN B2B MARKETS: FOUR DATA-DRIVEN VALUE PROPOSITIONS

Paavo Ritala
Professor of Strategy and Innovation (LUT

Joona Keränen
Associate Professor (RMIT)

Jessica Fishburn
Junior Researcher (LUT)

Mika Ruokonen
Industry Professor of Digital Business (LUT)

THE STARTING POINT

- Leveraging data is increasingly a source of competitive advantage for firms

- With an increasing amount of data available for modern industrial B2B firms, the core question is **how to turn such data into concrete value propositions for customers?**

- In other words, **how to sell and monetize data as part of the products and services of the firm?**

KEY LITERATURE STREAMS & RESEARCH GAPS 1/3

- **Digital servitization:** "the transformation in processes, capabilities, and offerings within industrial firms and their associate ecosystems to progressively create, deliver, and capture increased service value arising from a broad range of enabling digital technologies" (Kamalaldin et al., 2020).

- Digitalization & servitization increase hand-in-hand, yes… but what is the role of data?

- Procuct- riented, use-oriented & outcome-oriented PSSs → how to design these around data-driven offerings?
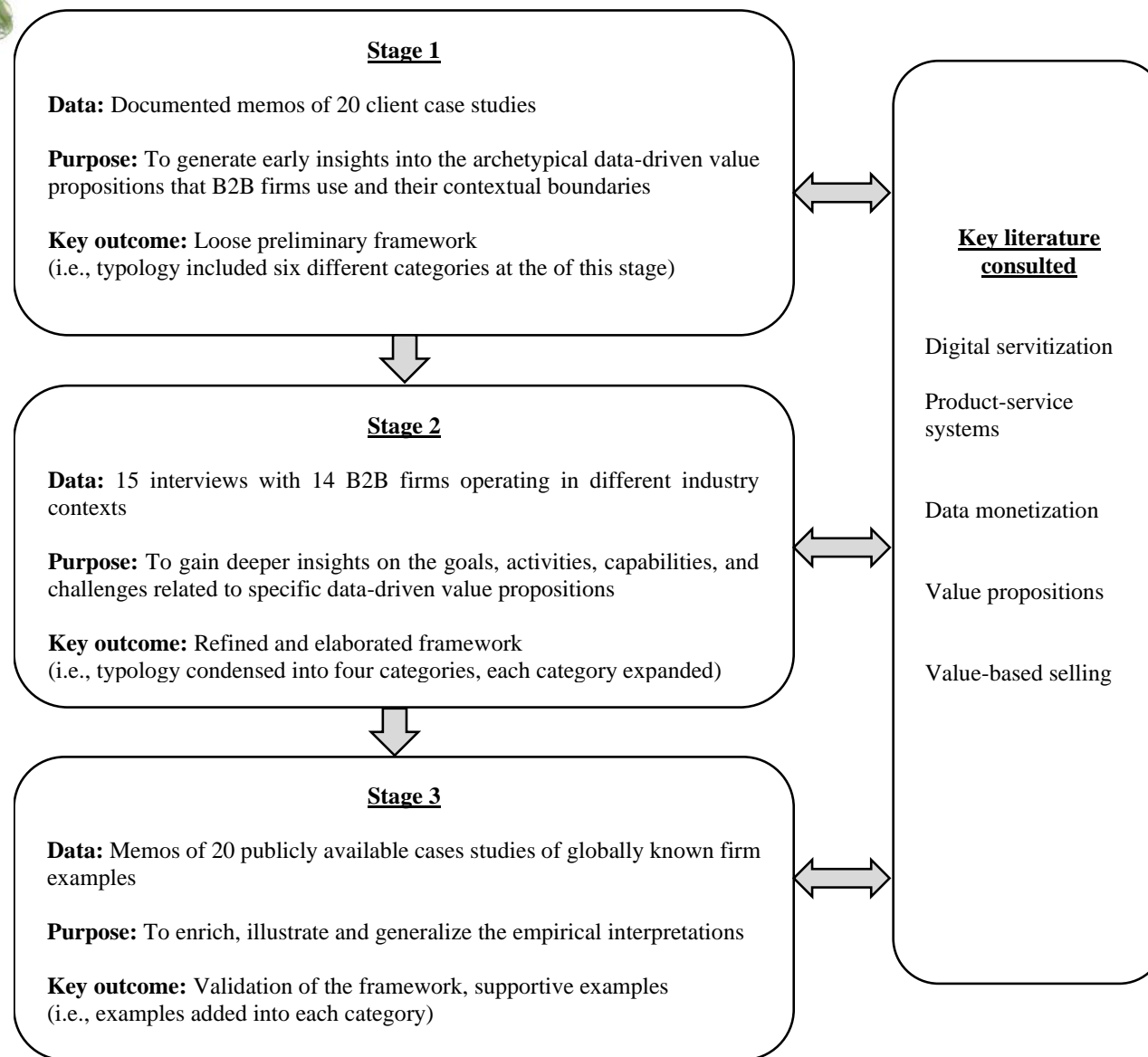
KEY LITERATURE STREAMS & RESEARCH GAPS 2/3

- **Value-based selling (& value propositions)**

  - Selling value (instead of selling a product) leads to increasing amount of co-creation between vendors and customers and also to an increase in vendors' responsibility → how to utilize data and monetize data in this context?

  - How to set the right revenue model?

    - What is the customer willing to pay for?

    - How to make concrete the added value of data-driven elements of the value proposition?

KEY LITERATURE STREAMS & RESEARCH GAPS 3/3

- **Economics of data**

  - **Nonrival nature of data:** once acquired, firms can reuse and resell it with little or zero additional costs (Jones & Tonetti, 2020)

  - However, there is a lack of market structures and conditions for selling of data (Koutroumpis et al., 2020)

  - Challenges with ownership, IP, and appropriability

    - → Who owns the data? Who can access the data?

    - → Under which conditions it can be used?

    - → How and by whom is value captured from data?

DATA COLLECTION & ANALYSIS: ABDUCTIVE APPROACH

Stage 1

Data: Documented memos of 20 client case studies

Purpose: To generate early insights into the archetypical data-driven value propositions that B2B firms use and their contextual boundaries

Key outcome: Loose preliminary framework
(i.e., typology included six different categories at the of this stage)

Stage 2

Data: 15 interviews with 14 B2B firms operating in different industry contexts

Purpose: To gain deeper insights on the goals, activities, capabilities, and challenges related to specific data-driven value propositions

Key outcome: Refined and elaborated framework
(i.e., typology condensed into four categories, each category expanded)

Stage 3

Data: Memos of 20 publicly available cases studies of globally known firm examples

Purpose: To enrich, illustrate and generalize the empirical interpretations

Key outcome: Validation of the framework, supportive examples
(i.e., examples added into each category)

Key literature consulted

Digital servitization

Product-service systems

Data monetization

Value propositions

Value-based selling

EXAMPLE OF A CODING TREE

MAIN DATASET (STAGE 2)

- Qualitative and interview-based multiple case study with 14 different firms in B2B markets

- Interviewed firms from a wide range of different industries (*some firms anonymized per request)

Firm (n = 14)	Industry	Informants (n= 15)
Arvova	Software	CEO
Platform of Trust	Software	Chief Operations Officer
EagleAlpha	Data solution/software	Head of Data Sourcing & Advisory
SalesLeaderSoft*	Software	Sales Lead
Telia	Telecom	Head of Business Analytics
Metso Outotec	Mining	Remote Services Product Manager
Kyndryl	IT	Digital Transformation Leader
ExploderCorp*	Mining	Coordinator Asset Information (Global)
Jakamo	Software	CBDO
HeavyDutySolutionsCo*	Maritime	Director Digital Solutions
Hilti	Construction	Sales Director
PharmaCo*	Pharmaceuticals and medical devices	Health Economics & Market Access Manager
Kemira	Chemicals	Director, Markt & App Dev (Industry & Water); Director, Markt & App Dev (Pulp & Paper)
ABB	Power & Automation	VP Digital Lead

FOUR DATA-DRIVEN VALUE PROPOSITIONS

	DATA AS A PRODUCT	DATA-ENHANCED PRODUCTS	DATA-DRIVEN SERVICES	DATA-ENABLED PERFORMANCE OUTCOMES
Key idea	Raw data is sold (or shared via digital platform) to another party	Existing product/service offering is enhanced with data	Data is used to optimize customers' business or organizational processes	Data is used to deliver performance and/or capacity
What is being sold	Raw data and insights, analysis, and reports based on data	Data-enhanced product offerings	Diagnostic, audit, training and consulting services based on data	Guaranteed and measurable performance outcomes based on data
Key customer benefit	Access to new knowledge & information	Optimized product and usage experiences	Process optimization	Realized performance outcomes and available capacity
Revenue model	Product-based or subscription	Product-based premium pricing; data included in the product price	Service and consulting fees (work-based or performance-based)	Premium pricing based on realized use value; Subscription
Data source	Any data	Product usage data	Customer´s process, operations, & performance data	Customer´s process, operations, & performance data
Data ownership	Customer gets access to or ownership of the data	Vendor keeps the ownership	Vendor gets access to customer's data	Vendor keeps the ownership; customers get access to their own process data
Data-related vendor capabilities	Data collection, analysis, interpretation and delivery capabilities	Product development and monitoring capabilities	Data analysis and consulting capabilities	Performance outcome prediction and control capabilities
Vendor data activities	Packaging data into a product that can be sold or shared with other parties	Embedding data into a physical product to create smart functionalities	Deriving insights from the data to optimize customer's business and organizational processes	Using data to take responsibility over customer's processes
Key challenge	Data ownership, privacy, and legal risks; customers' challenges with large and/or uncurated datasets	Customer's (in)ability to use smart features	Access to and quality of customer data; (in)ability to derive data-driven insight	Outcome realization, capacity availability and risk management

#1: DATA AS A PRODUCT

- **The key idea:** Sell raw or processed data to customers and/or other parties. Vendors usually sell their own data or data collected from a public domain or from other companies

- **Value proposition:** By buying data as a product, customers gain new knowledge and information about their target customers and market environment that would have been otherwise inaccessible for them

- **Revenue model:**

  - Product- or subscription-based pricing models for data products, depending on whether the data is sold as on-off transaction (i.e., individual reports and analyses)

  - Continuous pricing (real-time market analyses, data dashboards, tools etc.), and where the size of the premium depends on the value and scarcity of the data

#1: DATA AS A PRODUCT

- **EagleAlpha and SalesLeaderSoft** collect and sell industry and company-specific data to help their customers with sales, marketing, investment, and industry analyses

- **Arvova** collects customer-, market-, and/or industry-based data, and sells this either as one-off analyses and strategic reports or as a continuous service to its clients

- **Telia** sells aggregated and anonymized location data

- Data intermediaries and integrators sell and transfer data across different parties; e.g., **Platform of Trust** and **Jakamo**

EXAMPLE: ARVOVA

DIGITAL TOOL FOR TRANSPARENT CUSTOMER VALUE FLOW

Navigation

Navigation

Navigation

Navigation

Pillars4 Customer Value

	CREATE VALUE	CALCULATE VALUE	COMMUNICATE VALUE	CAPTURE VALUE
DESIGN	ADD ITEM +	ADD ITEM +	ADD ITEM +	ADD ITEM +
DELIVER	ADD ITEM +	ADD ITEM +	ADD ITEM +	ADD ITEM +
DEVELOP	ADD ITEM +	ADD ITEM +	ADD ITEM +	ADD ITEM +

OPEN PROJECTS

Example project 1

Example project 2

Example project 3

NEW PROJECT +

TRENDS & INSIGHTS

RECOMMENDATIONS

DO

Task

CHECK

Task

Task

STOP

DATA SETS:

✓ Example data set

Example data set

IMPORT DATA SET +

RESEARCH

EXAMPLE: Eagle Alpha

LUT University

Eagle Alpha

Platform ⌄   **Solutions** ⌄   Events   Resources ⌄   Company ⌄   Login   Get a Demo

Marketing & Lead Generation

We help you present your dataset to the right buyers in the right manner to drive engagement in the marketplace.

- Conferences
- Webinars
- Targeted outbound campaigns
- Buyer Meeting Access
- Sponsorship

Vendor Platform

Our platform allows data vendors to present their company and datasets through a customized profile page.

- List & Manage Your Dataset Profile
- Proprietary Data Buyer Insights
- Data Connection & Dataset Insights
- Trial Data Facilitation
- Personalized CRM
- White Papers
- 1-1 Booking Platform

Legal & Compliance

One of the greatest hurdles from trials to sales are the legal and compliance needs from vendors. We offer one place to create your profile and manage all of your documents.

- FISD Standard DDQs
- Trial Agreement

Eagle Alpha

Platform ⌄   **Solutions** ⌄   Events   Resources ⌄   Company ⌄   Login   Get a Demo

Buyer Platform

Our platform allows data buyers to search comprehensive data vendor profiles to find the best fit for your strategy.

- 1,600 + Dataset Profiles
- Sample Data
- DDQs
- Tearsheets
- Use Cases
- White Papers
- 1-1 Booking Platform
- Trial Data Direct Delivery
- API
- Conference and Event Assets

Expert Advisory

We elevate our offerings through expert advisory, bespoke training, live webinars and premium content to optimize your buying journey. Advisory includes:

- Custom Data Discovery & Prioritization projects
- Data Strategy & Processes
- Legal & Compliance (in collaboration with Schulte Roth & Zabel and FISD)
- Working with Alternative Data

EXAMPLE: TELIA CROWD INSIGHTS

"Crowd Insights is based on selling insights on how people move, ... It's not only enhancing, but the actual offering is the data."
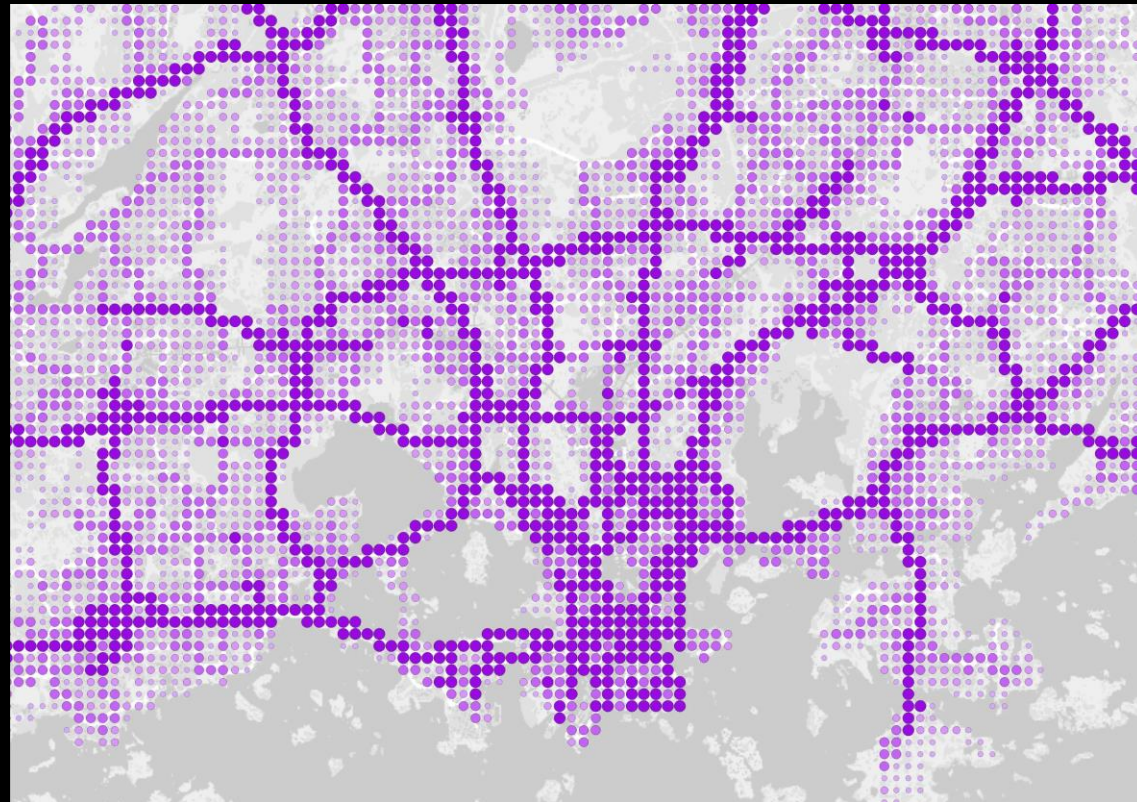
#2: DATA-ENHANCED PRODUCTS

- **The key idea:** enhance existing product offerings with data

- **Value proposition:**

  - Vendors sell physical products embedded with smart sensors, intelligent technologies, software, and/or IoT applications, which allows vendors to collect, analyze, and monitor data on how, where, and when customers use their products.

  - By leveraging this data, vendors can provide new product features and functionalities, such as remote and real-time monitoring, location and condition diagnostics, and automated software updates and upgrades.

- **Revenue model:** Premium embedded in the product or separate pricing for a service level

#2: DATA-ENHANCED PRODUCTS

- **Hilti smart power tools:** The tools can indicate where they are and when are due for maintenance, repair, or calibration, allowing Hilti to provide overarching value propositions for their customers equipment needs

- **Kemira chemical products, and PharmaCo pharmaceutical products** → both are increasingly augmenting their products with product usage data that helps their customers to improve process quality and process efficiency, and to better manage of product stocks and logistics
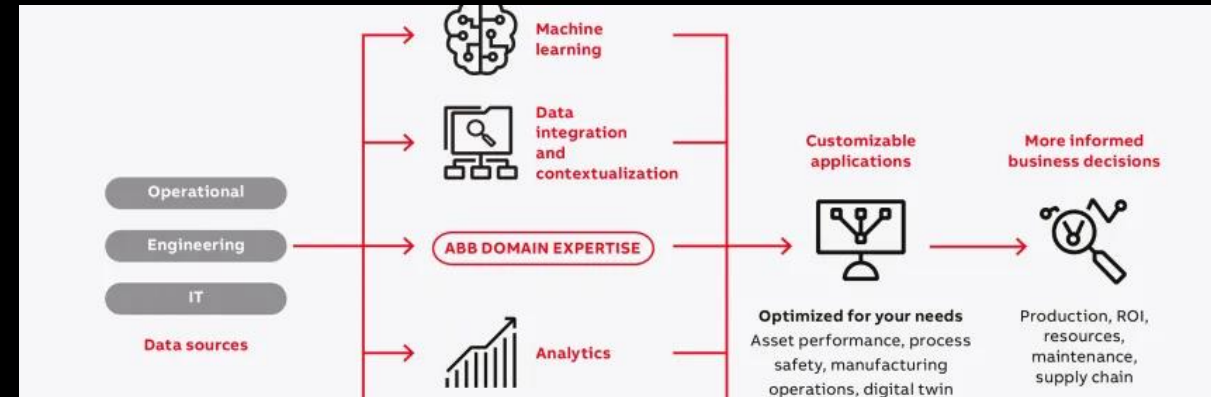
#3: DATA-DRIVEN SERVICES

- **The key idea:** use vendor´s accumulated data to analyze, predict, and optimize customer´s business operations and organizational processes

- **Value proposition:** vendors sell intangible insights and know-how in the form of recommendations and various consulting services that highlight and propose potential improvement opportunities in the customers´ processes

- **Revenue model:**

  - Vendors can sell data-driven services either as an add-on to their data-enhanced products (see previous category), or together with "smart solutions" that deliver data-enabled performance outcomes (see the next category),

  - It is also possible to sell data-driven services without the accompanying products, and even to customers using competitors' products

#3: DATA-DRIVEN SERVICES

- **ABB** provides equipment and energy optimization services

- **Jakamo** provides data transfer and integration services in supply chains,

- **Kyndryl** sells IT infrastructure and management services

kyndryl™

JAKAMO

#4: DATA-ENABLED PERFORMANCE OUTCOMES

- **The key idea:** combine data-enhanced products and data-driven services into complete smart solutions that can deliver performance outcomes

- **Value proposition:** Vendor takes over the responsibility of specific processes on behalf of their customers and sell measurable and guaranteed performance and/or capacity/availability outcomes.

- **Revenue model:** often value-based and performance-based pricing customized to the realized value of the offering and involving specific KPIs
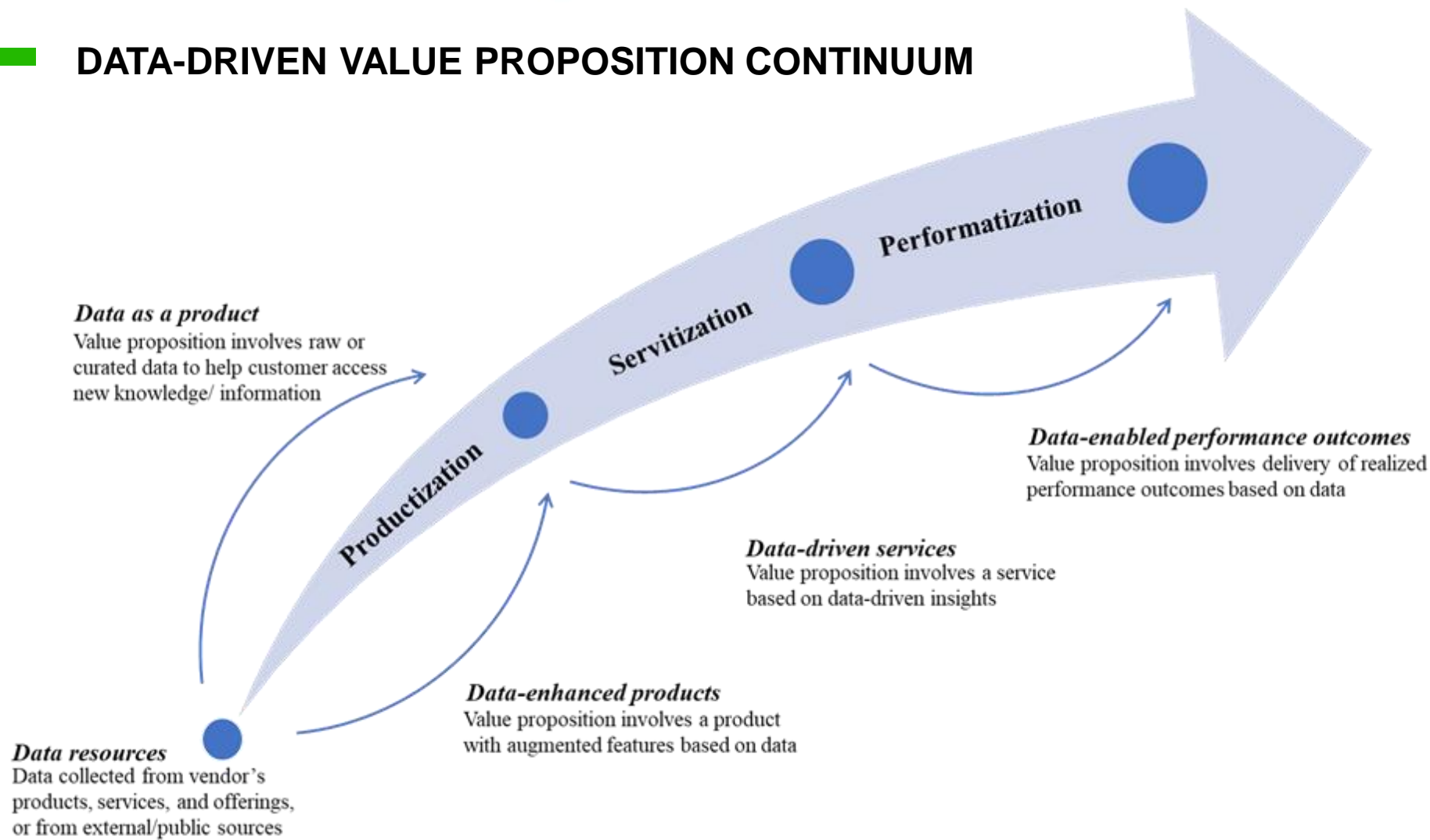
#4: DATA-ENABLED PERFORMANCE OUTCOMES

- **Kemira** collects real-time data on the chemical processing activities of their customer and helps the customer to improve and steer their operations based on mutually set KPIs.

- **Hilti** uses their customer data, and analyzes it to sell tool fleet management outcomes.

- **ABB** can help their customers by providing service models that focus on optimizing large industrial systems and processes.

DATA-DRIVEN VALUE PROPOSITION CONTINUUM

Data as a product
Value proposition involves raw or curated data to help customer access new knowledge/ information

Productization

Servitization

Performatization

Data-enabled performance outcomes
Value proposition involves delivery of realized performance outcomes based on data

Data-driven services
Value proposition involves a service based on data-driven insights

Data-enhanced products
Value proposition involves a product with augmented features based on data

Data resources
Data collected from vendor's products, services, and offerings, or from external/public sources

CONTRIBUTIONS TO LITERATURE 1/3

▶▶ **We identify four different data-driven value propositions** (data as a product, data-enhanced products, data-driven services, data-enabled performance outcomes) that industrial firms can use to sell and monetize data-driven offerings in B2B markets.

▶▶ Response to recent calls to explore **alternative value capture methods** and **revenue models** that enable firms to profit from data-driven service offerings (Gebauer et al., 2020; Kohtamäki et al., 2022).

▶▶ Previous studies have mainly considered how firms can capture value from data, they tend to focus on internal performance improvements (e.g., Urbinati et al., 2019; Cappa et al., 2021). In contrast, we expand these insights by demonstrating four different ways how firms can package data into value propositions that can be sold to new or existing customers for enhanced revenues and profits.

LUT University

CONTRIBUTIONS TO LITERATURE 2/3

▶▶ We identify **unique data-related characteristics, key capabilities, and challenges** that are related to each specific value proposition.

▶▶ Our results demonstrate how the specific features of data complement product-centric offerings, but also allow to expand from those offerings far beyond the tangible products due to the possibility of aggregation and reconfiguration of data (Alaimo et al., 2020) and learning from data over time (i.e. "data network effects"; Gregory et al., 2021).

▶▶ We demonstrate how data resources are subject to new types of challenges related to their ownership (see also Nguyen & Paczos, 2020) and difficulties to concretize the added value of data; features which might prevent or hinder selling different types of data-driven value propositions.

    ▶▶ *QUOTE FROM AN INFORMANT: "they are fearing that something in the data that they release as product is something that is violating someone's rights or against the GDPR"*

CONTRIBUTIONS TO LITERATURE 3/3

‣ We develop a continuum that illustrates how firms can **productize, servitize, and/or performatize** their data resources. This provides an overarching view to the firm's decision-making processes regarding monetizing data resources, in which firms can implement all three processes at different times or for different value propositions.

‣ The continuum helps explain how and why value propositions change during the digital servitization process (Chen et al., 2021), and what are the critical capability bottlenecks when moving towards more advanced data-driven value propositions (Hasselblatt et al., 2018: Huikkola et al., 2022).

‣ The continuum is not unidirectional: organizations can also move "backwards" in the continuum, and scale-back from data-driven services to data products when feasible or strategically suitable.

PRACTICAL TAKE-AWAYS:
WHICH DATA-DRIVEN VALUE PROPOSITION TO CHOOSE?

- **Data products** are more standardized and require less relational capabilities, making them potentially attractive options for vendors who want to focus on productizing data and optimizing product sales.

  - However, buying data products might require capabilities from customers: *"The biggest challenge is if a customer doesn't utilize any CRM or they are not mature to utilize the data. Then if the data isn't taken into action or to any system, it doesn't provide value."*

- While **data-driven services and performance outcomes** offer potential for higher revenues and value-based pricing, they require additional capabilities and more customization, and are usually both more expensive and riskier to deploy

- **Could a firm "do it all"?** Many firms seem to experiment with multiple data-driven value propositions concurrently, and (pursue to) sell combinations of data products, data-enhanced products (or "smart products"), data-driven services, and data-enabled performance at the same time. This type of approach enables tailoring based on the B2B customer needs, and might be a viable option for firms with a large product/service portfolio.