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From ownership to service-oriented business model: a survey in capital goods companies and a PSS typology

by

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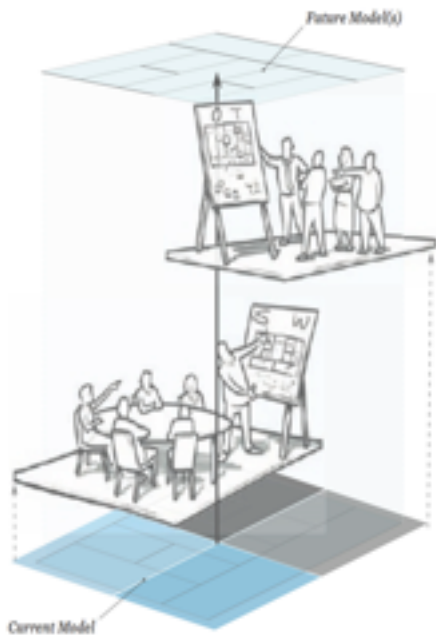
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RESEARCH MOTIVATIONS

- Evidences from literature show that **extending the service business** can lead to generate new, less imitable, competitive advantages and additional revenues
- New trends for product-centric firms push towards not to sell the product but rather **to sell either the usage/performance of the product**

To be successful in this transformation, a company should not only adapt its proposition from product-centric to a product-service system, but also needs to redesign its business model

(Baines et al., 2009; Slepnirov et al., 2010)



Figure, Osterwalder et Pigneur, 2010

Despite the growing interest towards the move from product to solutions by manufacturers:

Theoretical side

- Relatively little is known about service oriented business models (Kindström, 2010)
- A better understanding of how service oriented business models should be configured and implemented is required (Kindstrom, 2010; Meier et al., 2010; Reim et al, 2014)

Practical side

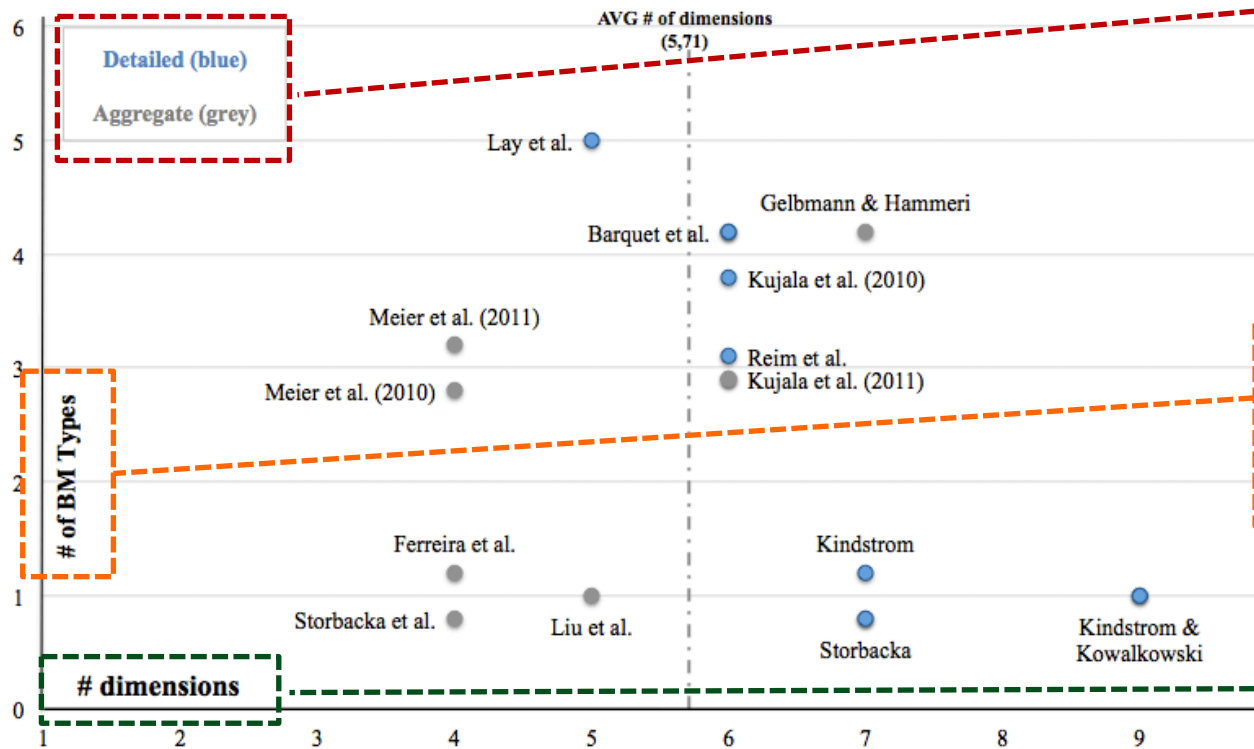
- Insights about how companies can adopt and implement service oriented BM is still very limited (Baines et al., 2007; Meier et al., 2010; Yoon et al., 2011; Gaiardelli et al., 2014; Reim et al 2014).
- There is little previous work offering guidelines, tools or techniques that practitioners can apply to help in service design and organizational transformation (Baines et al 2008)

THEORY: SOME EVIDENCES

Systematic literature review to understand to what extent the scientific literature adopts a BM perspective when analyzing the transition from products to solutions of product-centric firms:

14 papers propose a structured business models framework

- (i.e. structured ways of describing BM, based on a set of formalized dimensions)



- “*aggregate*”: the BM dimensions are simply mentioned or vaguely described in the paper.
- “*detailed*”: dimensions are described in a more complete way, and specific sub-aspects for each dimension are explicitly mentioned

Presence of a Typology (#BM Types > 1) that represents the range of BM options described

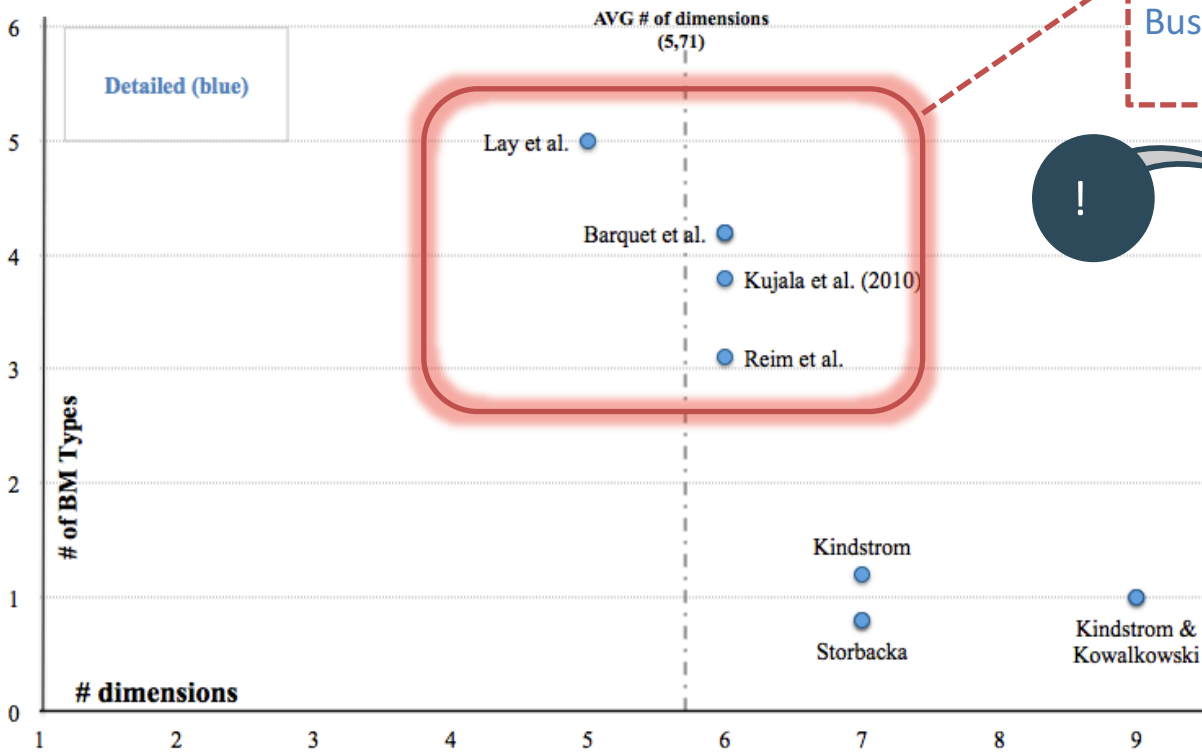
The number of aspects/elements used to describe the business model framework (grouped into a set of common dimensions)

Source: Adrodegari & Saccani, 2015 - under review

THEORY: SOME EVIDENCES

The findings from the systematic literature review confirm a **little adoption of the business model approach in the PSS/servitization literature**

7 papers develop a detailed description: list and define specific aspects/variables for each Business Model dimension



Identification of research directions:

1. Develop a structured and more detailed description of service oriented business models
2. Develop a PSS BM Typology that can provide a categorisation of different BM types

Source: Adrodegari & Saccani, 2015 - under review

RQ and METHODOLOGY

RQ

How PSS business models of product-centric firms moving towards servitization can be characterized?

OBJ

Develop a structured **PSS business models typology**, that can represents the range of BM options for companies that “servitize”



Literature review (Business Model - PSS/Servitization):
 Analysis of existing BM frameworks, relevant element and aspects (general and PSS)



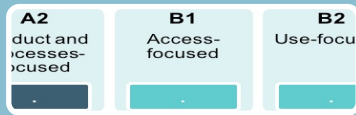
Develop a service-oriented Business Model Framework

1



Exploratory survey

2



Identify the PSS Business Model Typology

3

A2: Product and processes-focused	B1: Access-focused (rental or leasing)	B2: Use-focused (pay-per-use)
Product as a core solution, generated by a physical product. Revenue is generated by the sale of the product. Additional and relationship sources of value for the customer are generated by the maintenance of the product through the sale of spare parts and services.	Service as core solution, value for the customer is generated by the reduction of initial investment and ongoing costs. Revenue is generated by the sale of the product and the provision of maintenance and repair services.	Service as core solution, value for the customer is generated by the reduction of initial investment and ongoing costs. Revenue is generated by the sale of the product and the provision of maintenance and repair services.

Provide a detailed and structured description of the new typology according to identified BM dimensions

4

ACTIVITIES

A FRAMEWORK FOR SERVICE-ORIENTED BUSINESS MODELS

1

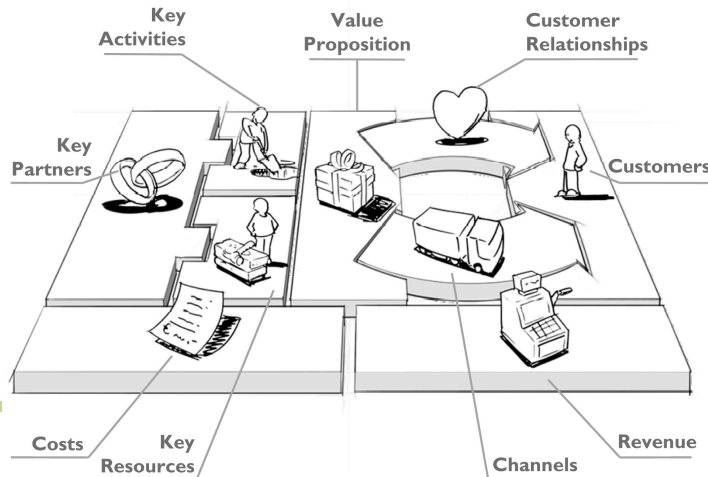
Develop a detailed service-oriented business model **FRAMEWORK** for product-centric companies, identifying the relevant business model dimensions and variables

DIMENSIONS

Framework based on a **Business model Canvas**:

- represents the consensus of a large group of experts from academy and industry.
- has empirical evidence that supports the performance of this model

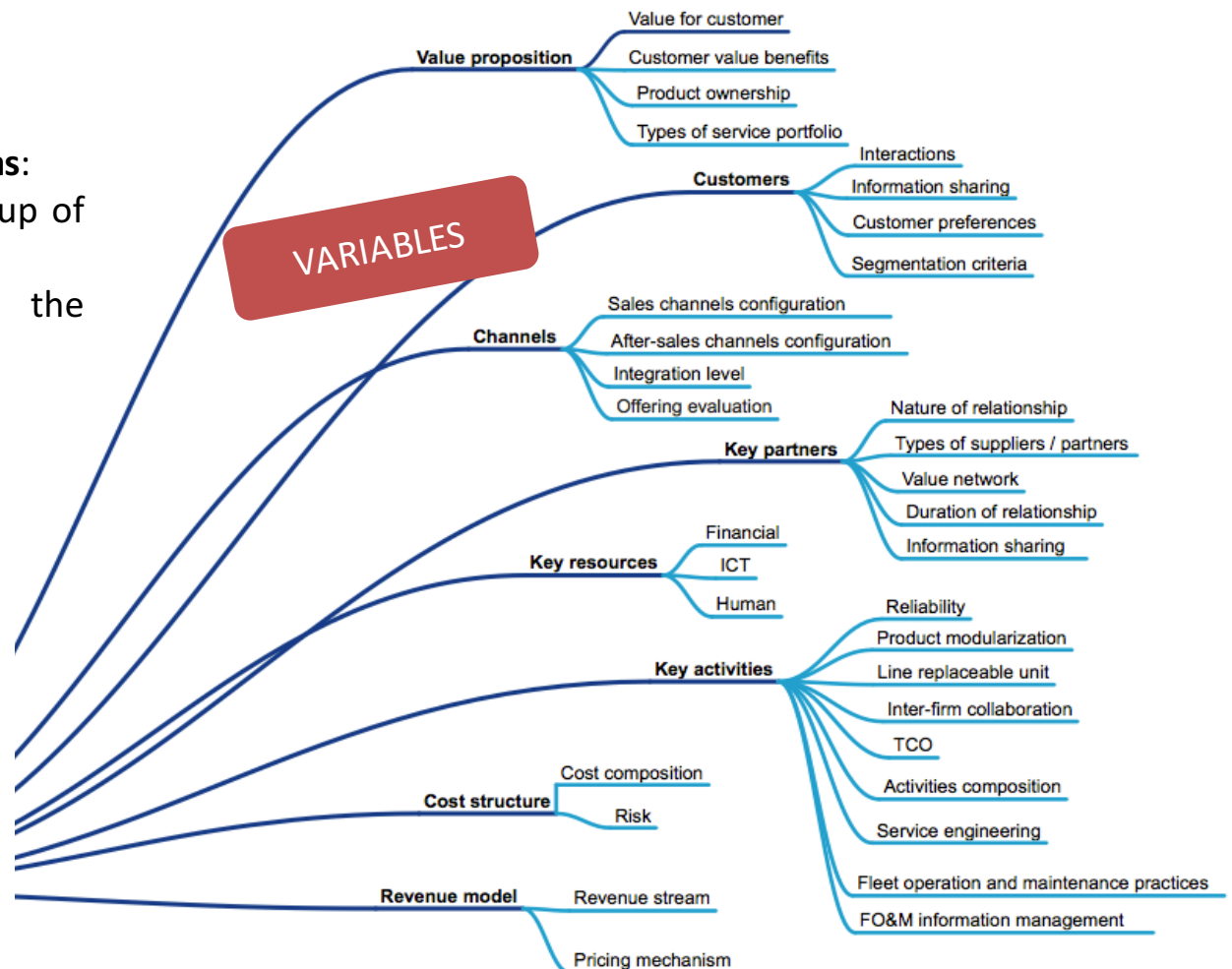
Barquet et al. (2013)



Osterwalder and Pigneur (2010)

drawings by JAM

VARIABLES



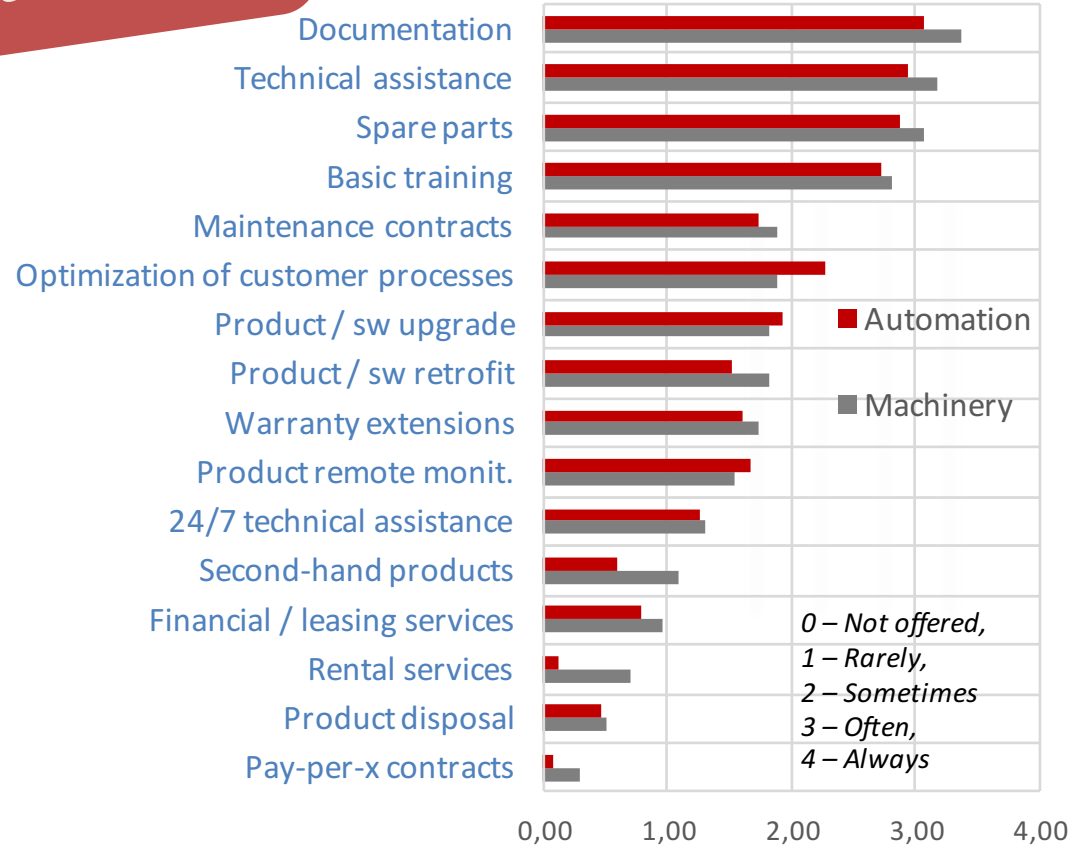
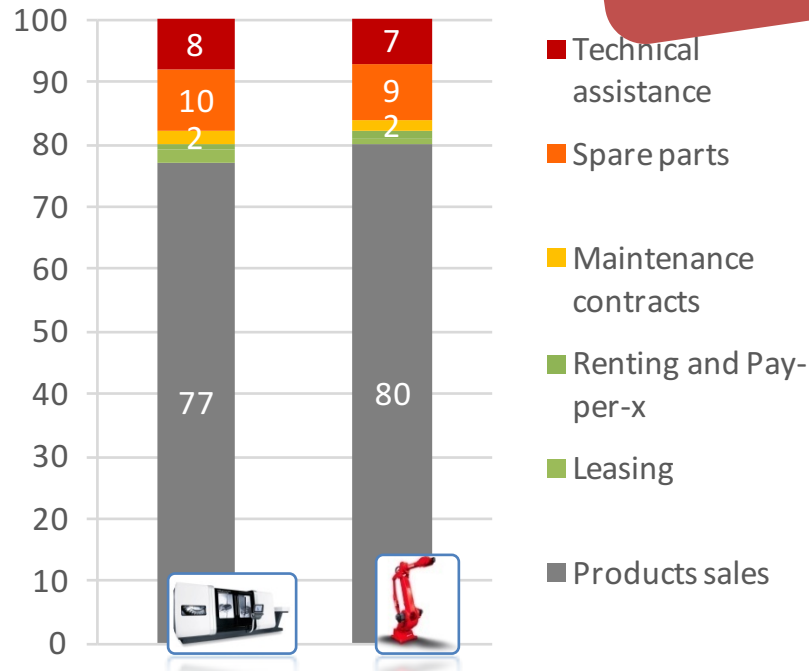
SURVEY RESULTS

Exploratory survey on 95 companies:
 • 64 machinery, 15 automation, + others
 • Large (45%) and medium (30%)

A limited application of service oriented business models has been observed

Revenue model

Value proposition (service offering)



Revenue models are dominated by product sales, with a contribution of services close to 20%. In particular service contracts and leasing represent less than 2% each. Renting and pay-per-x contracts almost **don't generate revenue**.

Service offering is still mainly anchored to traditional services. Advanced services and service that are related/enable the new BM are rarely/never offered.

PSS BUSINESS MODEL TYPOLOGY: 5 BUSINESS MODEL TYPES

3

Define archetypal PSS business models (BM) that can describe the transition towards a more service-oriented configuration and allow to better explain the main similarities/differences among different BM types

Based on Tukker (2004)

Ownership oriented

Product sales are the main sources of revenue and service are sold as an add-on of the product

A1

Product-focused

The provider sells the product or system and (separately) services that are needed during the use phase of the product

A2

Product and processes-focused

The provider sells product and offers services, both in the pre- and after-sale phases, which aim also to optimize customer processes

Service oriented

The ownership of the product is not transferred to the customers

B1

Access-focused

The customer does not buy the product but pays a fee to gain access to it. The fee is fixed and regular and is not related to product actual usage

B2

Use-focused

The customer does not buy the product but pays a variable fee that depends on its actual usage of the product

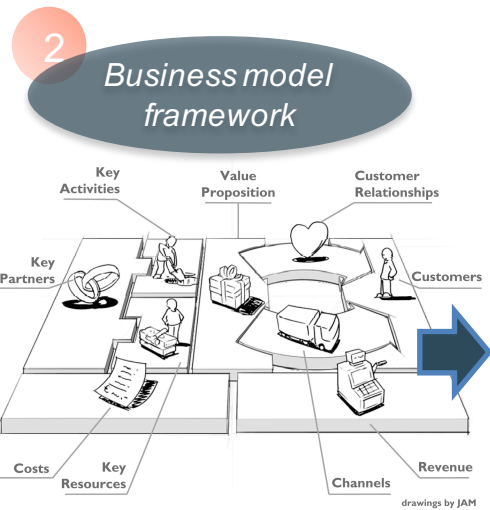
B3

Outcome-focused

The customer does not buy the product but pays a fee that depends on the achievement of a contractually set results (e.g. performance or expected outcome)

PSS BUSINESS MODEL TYPOLOGY: DETAILED DESCRIPTION

4 Provide a detailed and structured description of the PSS Business Model typology, describing the theoretical configuration of BM dimensions and relevant variables in each BM types



3 Business model typology

A1 Product-focused	A2 Product and processes-focused	B1 Access-focused	B2 Use-focused	B3 Outcome-focused
Dimension_1 •Variable_1: detailed configuration for A1 •Var_2: ...	Dimension_1 •Variable_1: detailed configuration for A2 •Var_2: ...	Dimension_1 •Variable_1: detailed configuration for B1 •Var_2: ...	Dimension_1 •Variable_1: detailed configuration for B2 •Var_2: ...	Dimension_1 •Variable_1: detailed configuration for B3 •Var_2: ...
...
Dimension_n •... •varN	Dimension_n •... •varN	Dimension_n •... •varN	Dimension_n •... •varN	Dimension_n •... •varN

RQ **4**

Describe how the BMs of product-centric companies that move from product to solutions should be shaped

PSS BM typology: value proposition – example

	A1: Product-focused	A2: Product and processes focused	B1: Access-focused	B2: Use-focused	B3: Outcome-focused
Value Proposition: Product ownership	The product ownership is transferred to the customer	See A1	The product in general is owned by the provider (manufacturer, dealer, ...) who can be responsible for maintenance/ensuring the product functionality. The same product can be sequentially used by different users.	The product in general is owned by the provider who is responsible for maintenance and ensuring the product functionality.	The customer does not own the product who is responsible for ensuring the agreed results/outcomes
Value proposition: value for customer	Product as a core solution: value for the customer is generated by product technical performances, flexibility, reliability, price . Also technical assistance delivery could be a source of value for the customer.	Product as a core solution: value for the customer is generated by product technical performances, flexibility, reliability, price. Additional and supplementary sources of value for the customer include the optimization of customer usage-processes through the "optimal" use of the product	Service as core solution: value for the customer is generated by the reduction of initial investment and guaranteed operating costs. The customer may perceived also the provider's incentive to prolong product-life	Service as core solution: value for the customer is generated by the reduction of initial investment, the minimization of operating costs and risks in the product usage (Some activities can be outsourced to the provider e.g. maintenance).	Service as core solution: value for the customer is generated by the reduction of initial investment, the minimization of operating costs and risks to achieve an expected outcome . Provider feels incentive to continually improve the product (lifecycle performance)
Value proposition: Types of service portfolio	Services mostly concern the after-sales phase and the product support: additional services which have the purpose to improve or restore the functionality of the product , such as corrective maintenance. Services are standard and not customized	As A1, but here usually also corrective and preventive maintenance, maintenance contracts are offered during the sale of the product. Moreover, in relation to the product sold, the provider gives advice on its most efficient use (e.g. advice and training on customer processes)	Services that guarantee the functionality and extend the product life-cycle are offered, such as preventive maintenance, product upgrade, retrofit and revamping. Moreover, product disposal and sale of second-hand product could also be an enabler of this BM	Advanced services such as remote monitoring and diagnosis, advanced training, consultancy on product-enabled processes, predictive maintenance are a prerequisite to offer this BM	See B2

PSS BM typology: economical aspects - example

	A1: Product-focused	A2: Product and processes focused	B1: Access-focused	B2: Use-focused	B3: Outcome-focused
Financial aspects	High capital base is needed to manufacture the product: financial capability is a critical resource		High financial capabilities are a prerequisite of this kind of models (the provider remains the owner of the product, the need for capital is high). In fact, the payback period of the value delivered is often longer than payback period of the physical product sales. Provider must have the financial resources or receive support from its financing partners to bridge this period. Financial and accounting practices need adaptation since the timescale of the financial flows change considerably		
Revenue stream	Sales and service are both transitional and generate two different revenue streams. In particular the main revenue stream is represented by product sales .	Sales and service are both transitional and generate two different revenue streams. In particular the main revenue stream is represented by product sales in which is included also a pre-sales service related component .	Revenues are generated by a payment of a fixed rate which would cover both the product and service that would be made available throughout the product life-cycle	Revenues are generated by payment fee that depends on the usage of the product (number of copy, hours of usage, ...). Usually the fee includes both product and service components	An outcome-based contract could be contracted on a fixed payment basis tied to agreed performance (e.g. SLA) or expected outcome , with pain and gain sharing mechanisms in place.
Coststructure: Risk	Provider's risk assumption: until product sale	See A1	Provider's risk assumption: until product disposal except for operating and market risks. Customer liability is critical.	Provider's risk assumption: availability, operating errors, preterm wear of the product . Define in advance how risk is going to be share among the actors involved	Provider's risk assumption: result of the use of the product: non conformity costs of product are borne by the provider.

MANAGERIAL IMPLICATIONS

The structured and detailed configuration of each BM Types:



provide to companies a deeper understanding of PSS business models characteristics and can help them to comprehend in a more holistic way the servitization process



define a range of options for product-centric companies that wants to move/are moving towards a new (more) service oriented configuration

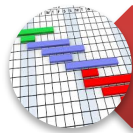
The PSS business model typology can be seen as a **reference point** that can support practitioners to :



appreciate the differences among the different PSS business model types



assess companies current position and select the new service oriented BM best suited for their situation



define possible actions to achieve the desired configuration (using the typology as a guidelines)

LIMITATION AND NEXT STEPS



Scientific validation

Improve/refine the description of the five BM types



- Analyze more in details which are the factors/dimensions usually used in literature to define/configure a PSS business model types
- Complete and refine the configuration of the relevant BM variables in each PSS business model types



Empirical testing

Test the typology



- Use notable exemplary cases from literature providing a description of each case through proposed framework and typology
- Use the typology as a reference for developing a new methodology and integrated toolkit to support companies to chose and develop a new service oriented BM

Acknowledgments



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