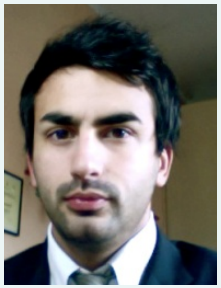
A Business Model approach to the Servitization of SMEs

Nicola Saccani – Università di Brescia (IT)

AGENDA

Research group and activities → Research context and objectives → Preliminary results

The research group on supply chain and service management



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The network

ASAP SMF
Service Management Forum

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+90 Workshop, 5 CEO meetings, 10 Plenary Conferences
+ 5000 participants overall in ten years

+140 postgraduates + 10 Ph.D. students on Service Management topics

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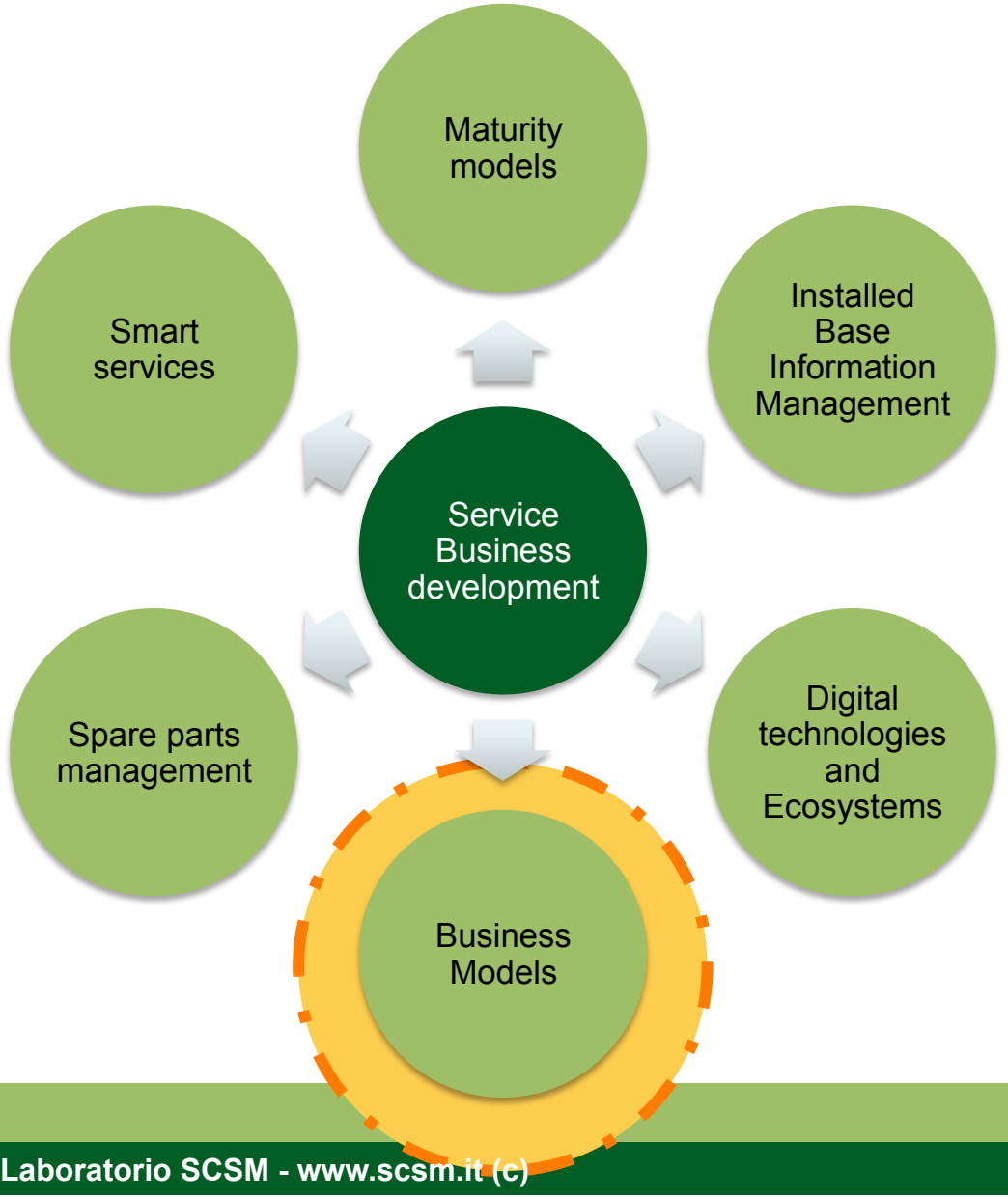
Our research streams



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Servitization as a Business Model (BM) innovation

Many product-based companies are seeking to increase their competiveness by moving towards a **service-based business model**.

Kindstrom, 2010

Many manufacturers are considering the adoption of a **business model** in which the use or the function of a product is sold instead of the product itself, namely a **Product Service System**

Ostaeyen et al., 2011

*Servitization is a **Business Model innovation** of organizations processes and capabilities wherein manufacturing companies make a shift from selling product to selling integrated products and services, with the aim to satisfy customer needs enhance the firm's performance and achieve competitive advances*

Visjnic (2010), Ren&Gregory (2007), Neely (2008)

A manufacturing enterprise that changes from the fabrication of products to offering Extended Product solutions and transforms its supplier base into an ecosystem of network partners will have to analyze and **adapt the elements in all building blocks to create a new and competitive BM** (Wiesner et al. 2014)

Recent research on service-based BM

'the more radical the innovation, and the more challenging the revenue architecture, the greater the changes likely to be required to traditional business models.

Teece, 2010

- Moving towards services can be considered as an evolutionary change in the business model (Kindstrom, 2010)
- Business model innovation can be seen as the process of aligning and/or changing the business model and its inherent parts, in response to internal and external stimuli (Kindstrom and Kowalkowski, 2014)
- Business model innovation refers to organizations rethinking their dominant value logic and coming up with new ways of creating value for their customers and themselves (Fielt, 2012)
- Managers can use business models, and a business model innovation perspective, to visualize how and when changes might occur, which should increase internal transparency, understanding, and awareness of service opportunities and necessary changes (Kindstrom and Kowalkowski, 2014)
- Other works: Kujala et al (2010 & 2011) Rese et al (2012), Barquet et al (2013), Ng et al (2013), Wiesner et al (2014)

Service-based BM: some gaps

PRACTICE

*Especially in terms of Business Model, there is a **grey area for manufacturers trying to achieve a successful "transformation to services"** and to capture and create value through the provision of product-service solutions.*

Neely, Benedettini and Visnjic (2011)

*Top managers still struggle to understand how they should best address and manage the shift towards servitization, as it often **involves a new strategic direction, which requires the development of new, service-based, business models***

Kindström, 2010,

*Even if a firm can use its business model and innovation resources and capabilities to take advantage from current product-based opportunities, **firms seldom understand** how the resources and capabilities that underpin manufacturing extend to enable service innovation*

(Spring and Araujo, 2013; Ulaga and Reinartz, 2011).

RESEARCH

***Relatively little is known about service-based business models**, and the phenomenon is both complex and context- bound*

Kindström, 2010,

Lack of research centered on business model innovation processes

Kindström, 2010, Kindstrom-Kowalkowski 2014

*Despite this huge variety of existing studies, there **is little research on business models PSS** and the existing research lacks structure.*

Rese et al (2012)

The transition towards service-based BM in SMEs

- empirical and conceptual studies about the transition from products to solutions have focused mainly on large multinational companies

  Paiola et al., 2013

- SMEs endowment of capabilities and resources affect this transition (e.g. external sources of knowledge, outsourcing of service provision, …)

- The diffusion of these new **service-oriented business models** is still quite low especially among SMEs: it is not easy for smaller firms to develop a service strategy leveraging on limited installed base and financial resources

Summary of gaps

- Characterization of service-Based BM
- Support in identifying when and how to switch to Service-based BM or align it
- Focus on SMEs

Research objectives

Development of:

- a BM description method (dimensions and variables)

- a **typology** of service-based BM
- **Tools** to support BM definition and implementation:
  - e.g. a framework that can provide a maturity assessment in the transition to service-based BM
- Application to **SMEs** in **capital goods sectors**

RESEARCH TEAM:
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Context
T-REX project

T-REX
INNOVATIVE STRATEGIES FOR RENOVATION AND REPAIR IN MANUFACTURING SYSTEMS

UNIVERSITA DEGLI STUDI DI BRESCIA
SCSM CENTRO DI RICERCA SU SUPPLY CHAIN E SERVICE MANAGEMENT
DIPARTIMENTO DI INGEGNERIA MECCANICA E INDUSTRIALE

LIFECYCLE EXTENSION THROUGH PRODUCT REDESIGN AND REPAIR, RENOVATION, REUSE, RECYCLE STRATEGIES FOR USAGE&REUSAGE-ORIENTED BUSINESS MODELS

SEVENTH FRAMEWORK PROGRAMME

Oct 2013 – Sept 2016
Overall funding by the EU: 3,6M€

IK4 TEKNIKER Research Alliance
PREDICT
KINE ROBOT SOLUTIONS
ULMA Carretillas Elevadoras
FIDIA
CIE Automotive
esenergia
TECNO MECHANICAL TECHNOLOGIES
Fraunhofer
UNIVERSITÀ DEGLI STUDI DI BRESCIA

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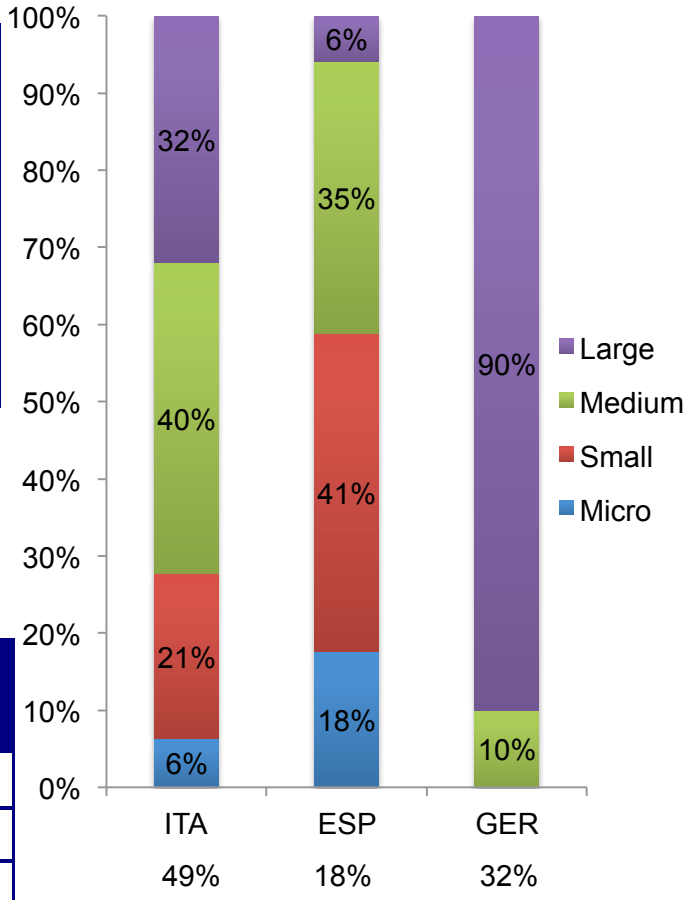
EXPLORATORY SURVEY → REFERENCE FRAMEWORK

SAMPLE DESCRIPTION

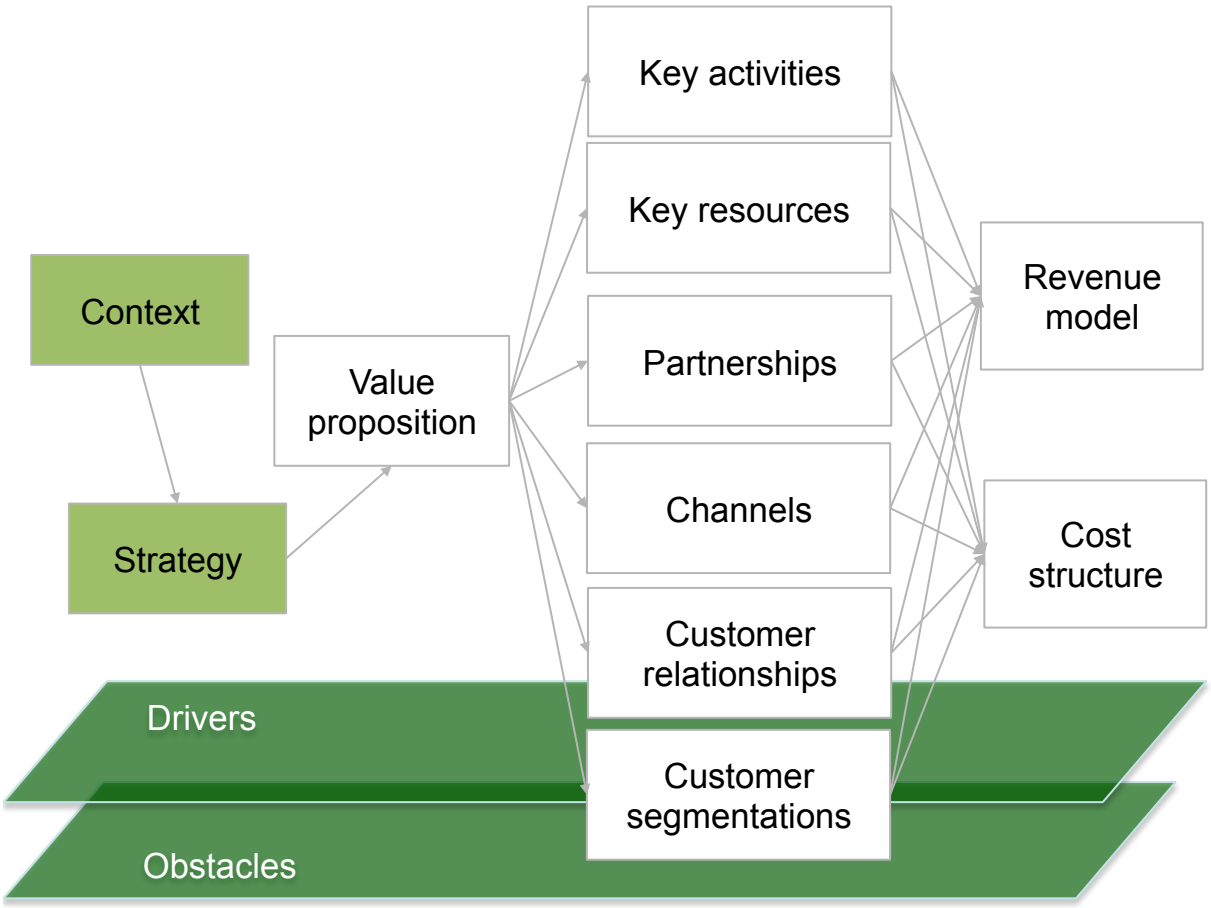
(95 companies)

Company Size *	No.	% of the sample	Average # of employees	Average turnover
Micro	6	6%	6	€ 562.500
Small	18	19%	33	€ 4.725.591
Medium	28	29%	117	€ 24.023.214
Large	43	45%	2.959	€ 696.712.195
Total	**95**	**100%**	**1410**	**€ 325.782.612**



Company sector	No.	% of the sample	Average # of employees	Average turnover
Machinery	64	67%	1.188	€ 312.754.001
Automation	15	16%	3.270	€ 589.726.667
Transportation	8	8%	621	€ 168.635.000
Others	8	8%	358	€ 66.106.250
Total	**95**	**100%**	**1.410**	**€ 325.782.612**

Survey Framework



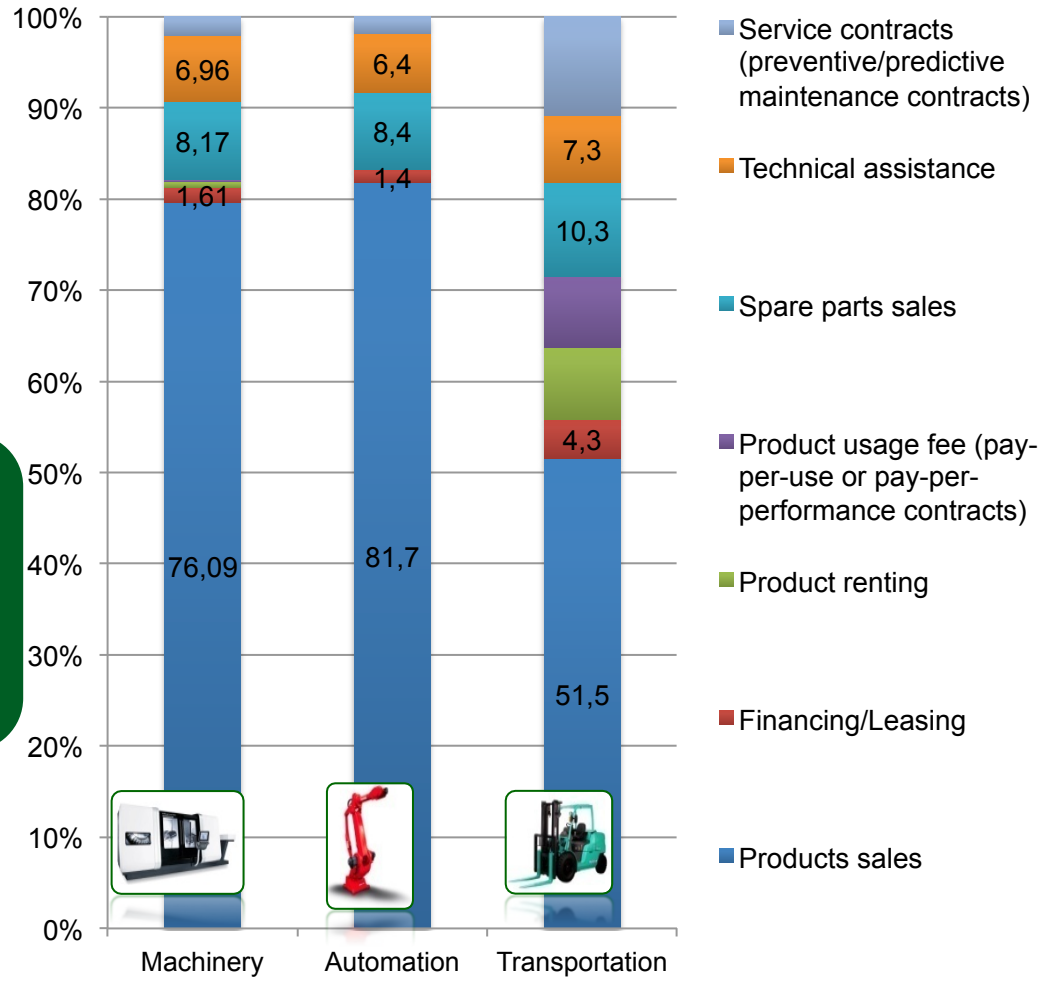
Based on the *Business Model Canvas* (Osterwalder and Pigneur, 2010)

For each building block, several variables investigated

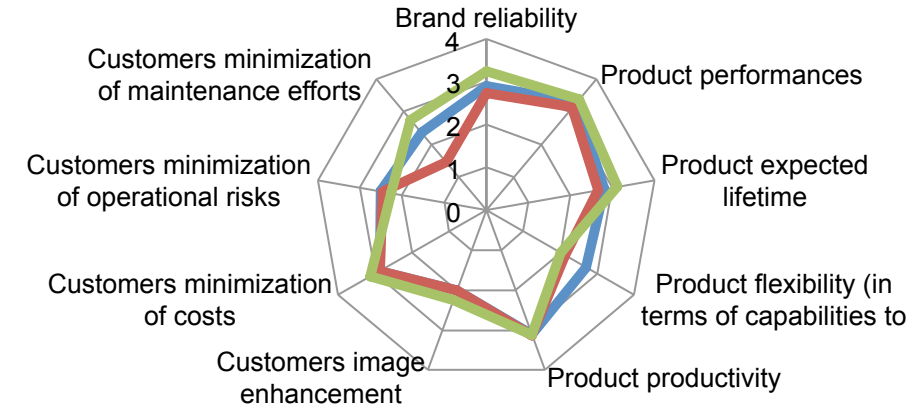
REVENUE MODEL

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

The transportation industry seems to be a step ahead the machinery and automation: the revenue model of transportation companies is more service-oriented



VALUE PROPOSITION:
Customer value sources



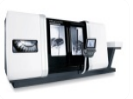
Value attached by customers to different aspects of firm's offer
(0 – Not at all, 1 – Slightly, 2 – Moderate, 3 – Quite high, 4 – Extremely high)

According to the providers:

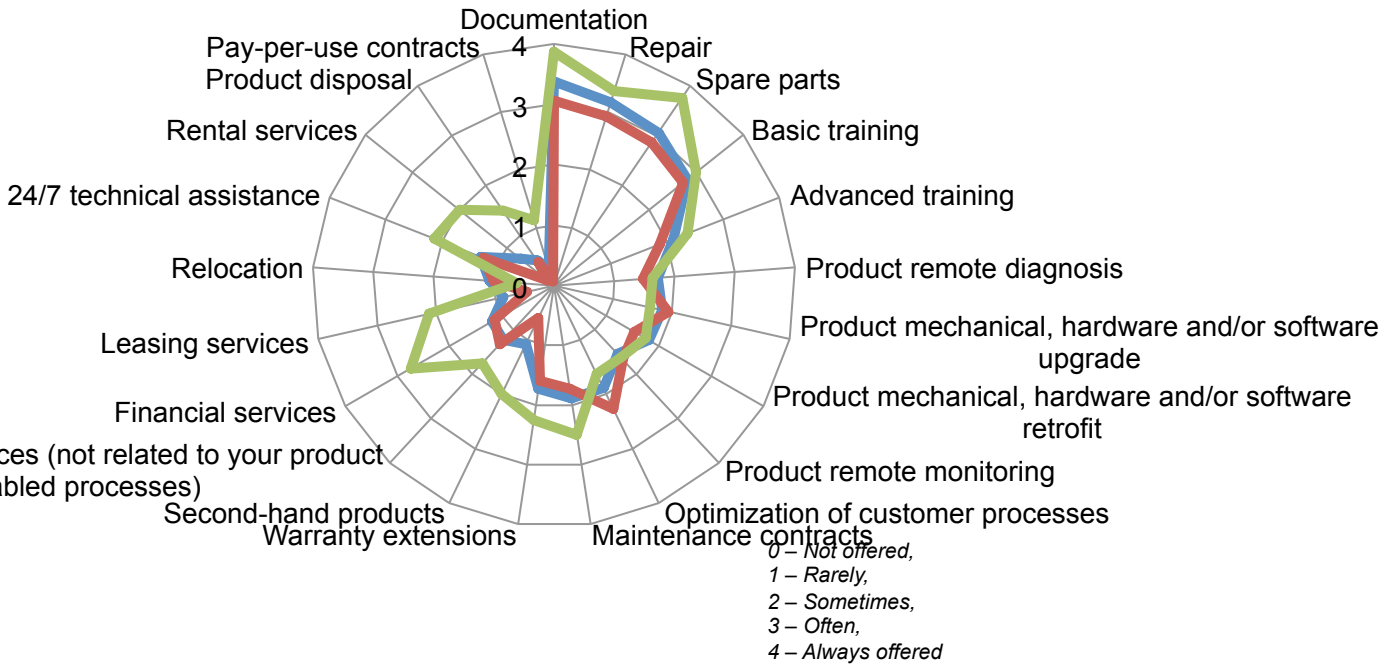
- Main sources of value for customers are still **product performance**, and **product productivity**.
- Moderate importance is attached to value generated through **minimization of customer maintenance efforts**.
- Typical of SOBM items, such as the minimization of customer costs or its operational risks are still receiving little attention from customers

VALUE PROPOSITION:
Service offering

Service offerings are still **mainly anchored to traditional services**
Basic services are extensively offered (documentation, repair, spare parts, basic training),
Advanced services are sometimes offered (advance training, remote monitoring and product remote diagnosis, product upgrade/retrofit, warranty extension and maintenance contracts)..

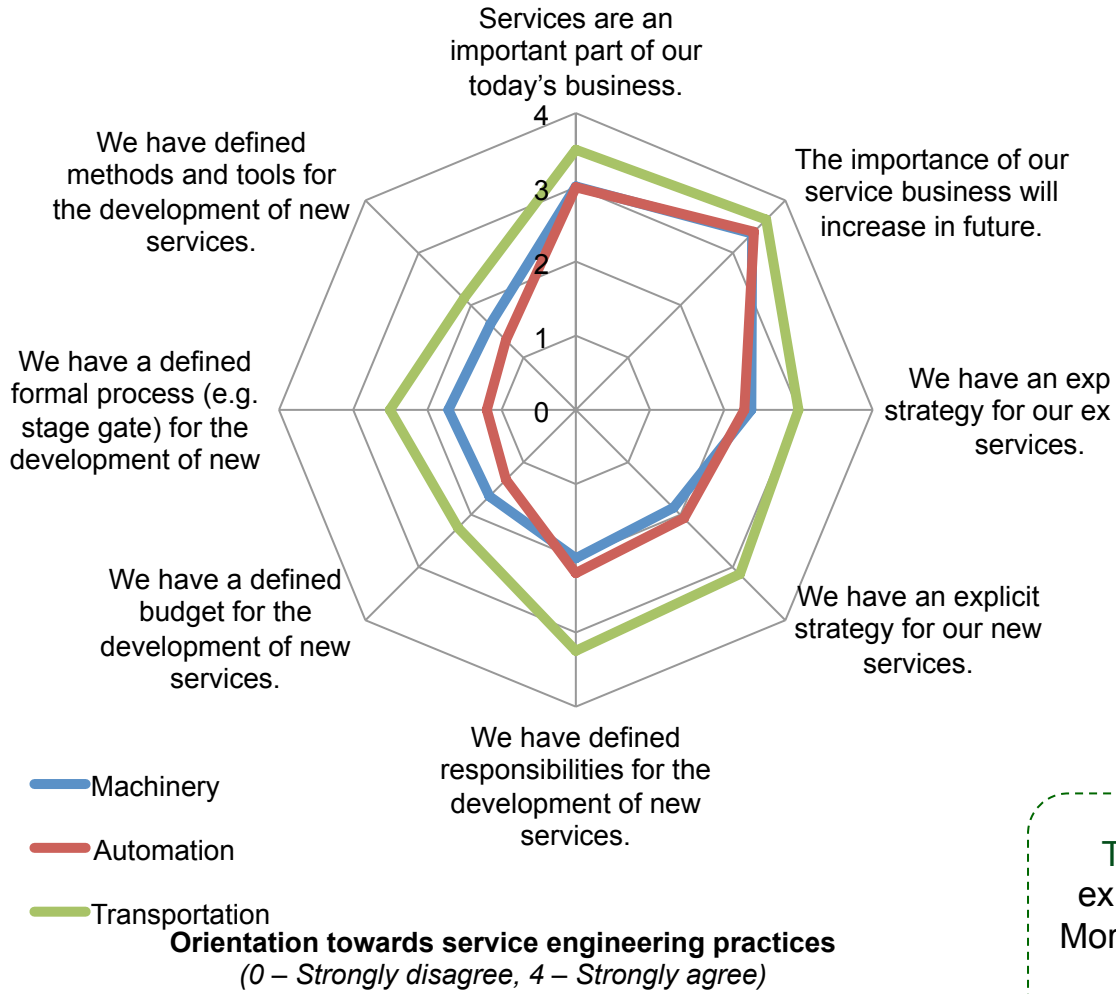


Machinery
Automation
Transportation



0 – Not offered,
1 – Rarely,
2 – Sometimes,
3 – Often,
4 – Always offered

KEY ACTIVITIES:
Service engineering

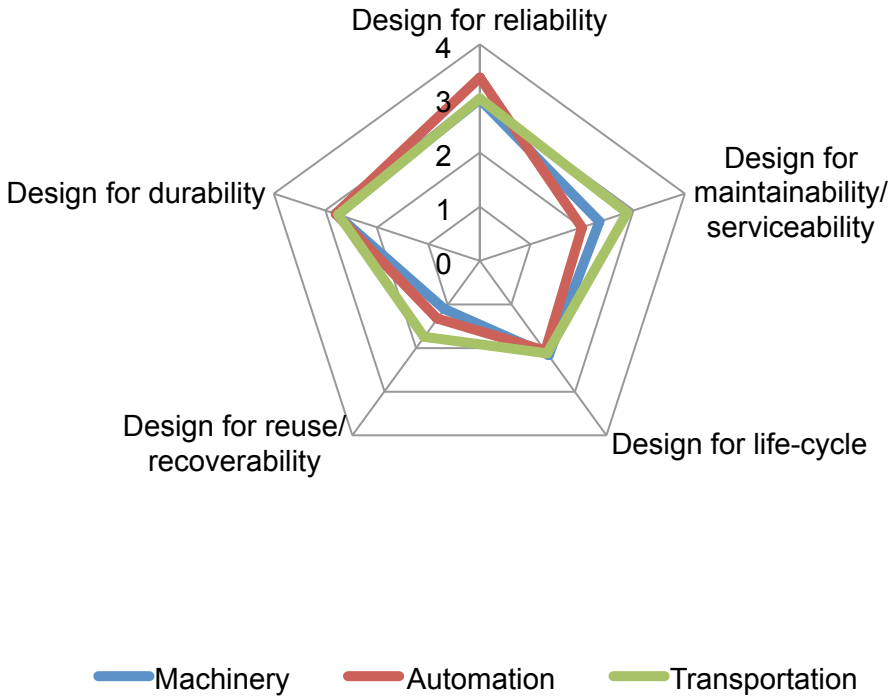


Orientation towards service engineering practices
(0 – Strongly disagree, 4 – Strongly agree)

- Companies consider **services as an important part** of their business and also think that importance of services will increase in future.
- Companies **do not have defined yet** explicit strategy, responsibilities, budget, formal processes and methods for the development of new services.

Transportation companies have defined an explicit strategy for existing and new services. Moreover they have also defined responsibilities for the development of new services.

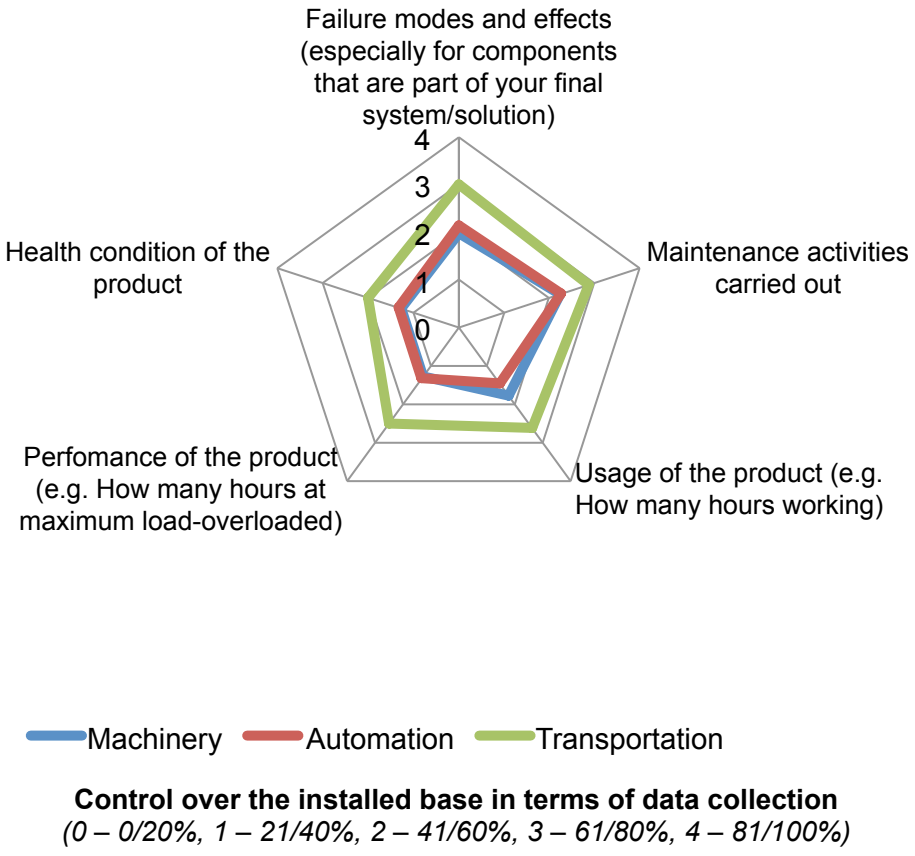
KEY ACTIVITIES:
Design for X



Experience on DfX practices to develop new products
(0 – Very low, 1 – Low, 2 – Medium, 3 – High, 4 – Very high)

- Companies have high experience in design for reliability and medium in design for maintainability/ serviceability, durability and life-cycle techniques.
- Companies have **low experience in the design for reuse/recoverability**.

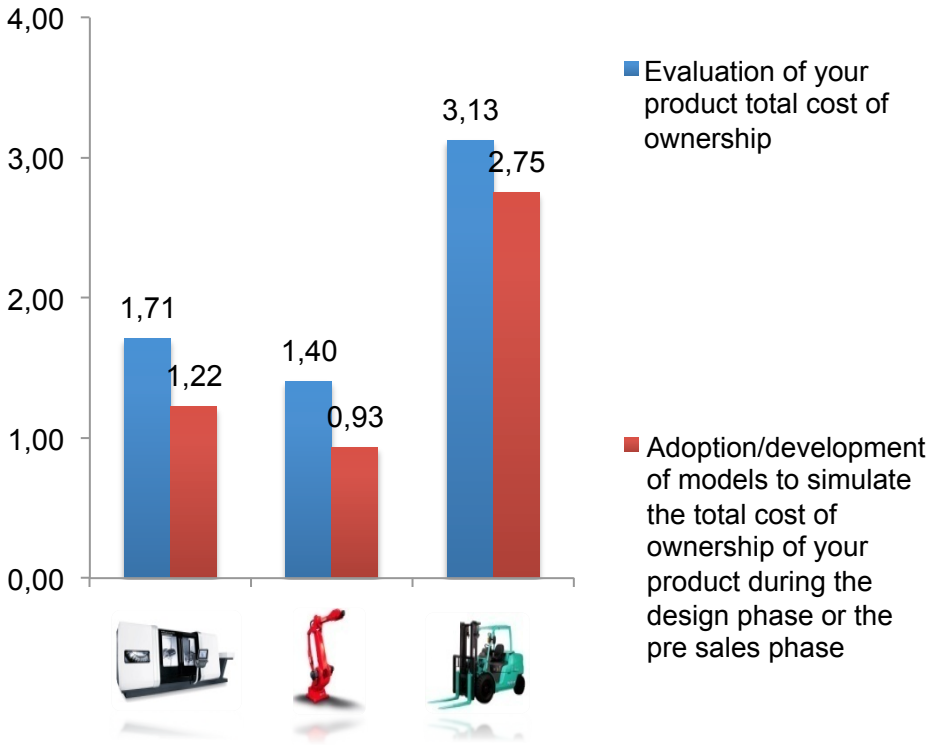
KEY ACTIVITIES:
Installed base condition monitoring



Control over the installed base in terms of data collection
(0 – 0/20%, 1 – 21/40%, 2 – 41/60%, 3 – 61/80%, 4 – 81/100%)

- Information related with **maintenance** activities performed and with products/ components failure causes are collected on average on a high percentage of the installed base (around 50%),
- More complex and less easy to collect data such as **product usage, performance and health conditions** are available for a very small part of the installed base

KEY ACTIVITIES:
Total Cost of Ownership

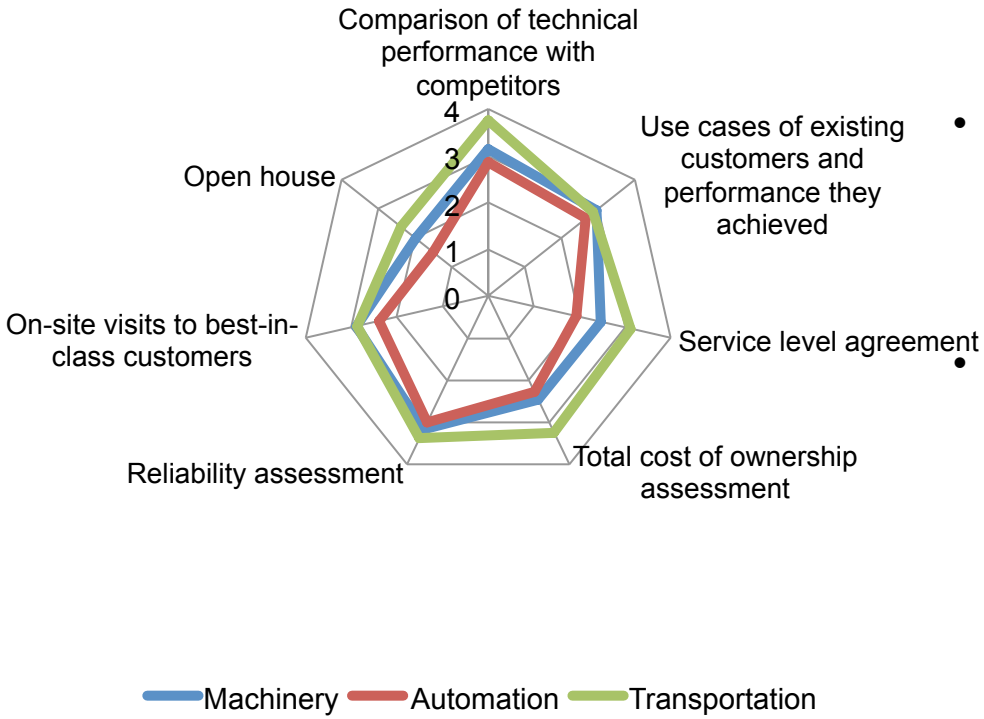


Adoption level of TCO models

(0 – Very low, 1 – Low, 2 – Medium, 3 – High, 4 – Very high)

- Companies have medium experience in the evaluation of TCO.
- Companies have **low experience** in the **adoption/ development of model to simulate TCO** of their products.

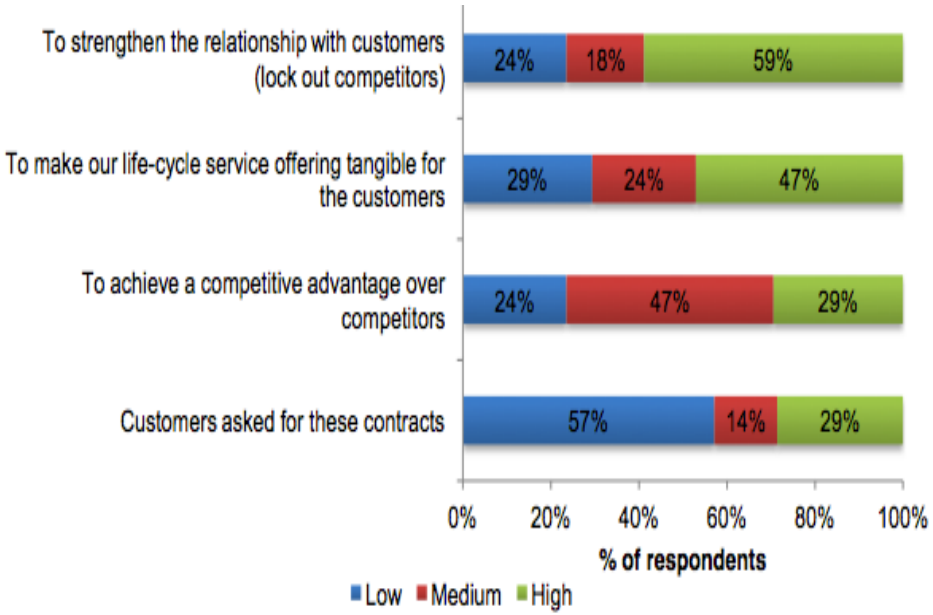
CHANNELS:
Perceived importance in offering evaluation



Perceived importance to support the customer evaluating the offering
(0 – Not at all important, 1 – Slightly important, 2 – Moderately important, 3 – Quite important, 4 – Extremely important)

- Companies perceive as quite important use cases, reliability assessment, **comparison of technical performance** and on-site visit best-in-class customer.
- Companies consider **moderately important** for the evaluation of their offer the **total cost of ownership assessment**, service level agreements and open house.
- Transportation sector gives to all tools as more importance than other sectors

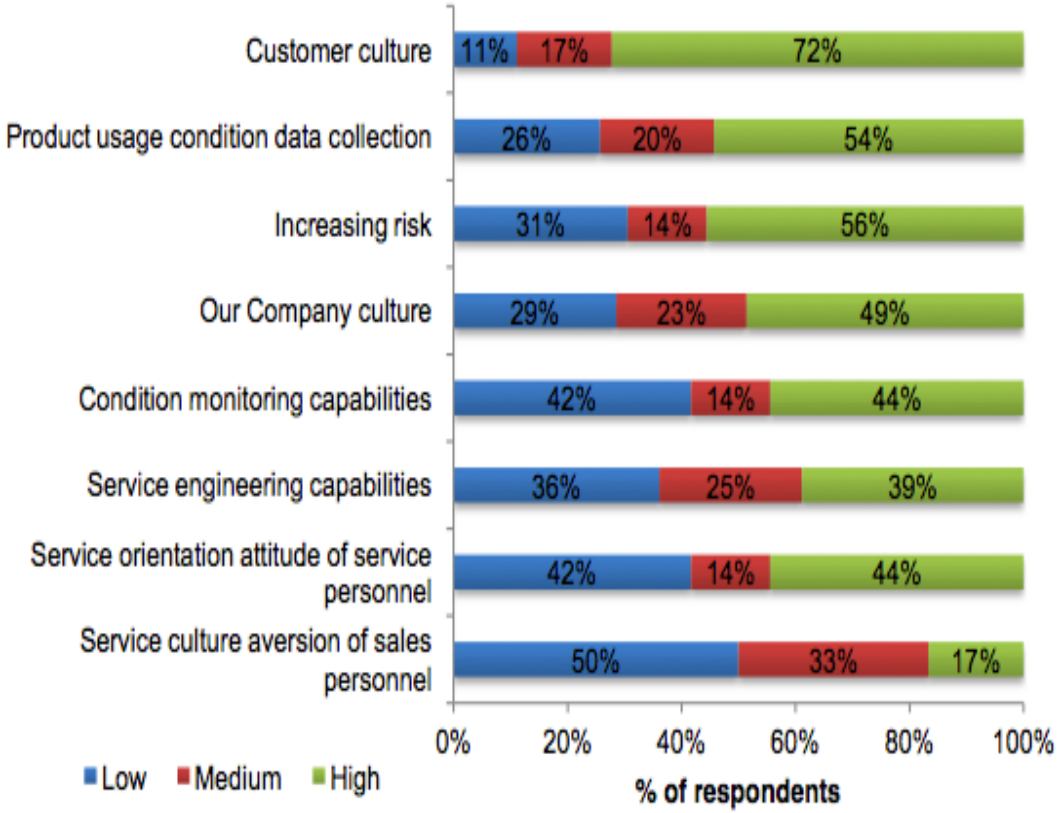
DRIVERS
Why offering “pay-x-…” contracts?



The most important driver that pushes manufacturers to design and offer “pay-per-x“ contracts, therefore evolving their business model towards new usage-oriented ones, is considered the possibility to **strengthen relationships with their customers** and hence locking out competitors.

The second more important driver is the possibility, through these contracts, to make **product life-cycle costs tangible** for the customers.

OBSTACLES
to offering “pay-x-…” contracts



Companies perceive as an obstacle to develop and offer “pay-per-x“ contracts the **customers’ culture**.

Other obstacles are the **difficulty to monitor the product usage conditions and related data**, and the **increasing risk** suffered

SUMMARY OF MAIN FINDINGS AND GAPS

SOBM	• The adoption of service-oriented business models is low in the studied industries, in particular with regards to the machine tools and automation sectors.
Revenue models	• Are dominated by product sales, with a contribution of services close to 20% dominated by corrective maintenance and spare part sales. Rental or “Pay-per-x” contracts are an almost negligible revenue source.
Service	• Service offerings are still mainly anchored to traditional services. • Service is an important part of company’s business and its importance will increase in future. • However, most companies have not yet formalized the service development activities, with no explicit strategy, responsibilities, budget, formal processes and methods in place.
Key activities	• Product design practices aimed at products/components reuse, recoverability and serviceability are rarely supported by formal techniques. • Fleet operation and maintenance practices are carried out by companies on less than 50% of the installed base
TCO	• Companies have increasing awareness, but still very low adoption of models and tools to simulate the TCO • On the other hand, no pressures by customers on these issues
ICT	• Information systems and automation have a great unexploited potential (internal management of product and customer information and at the interface with product/customers)
Customer	• Relationships are still transaction-based

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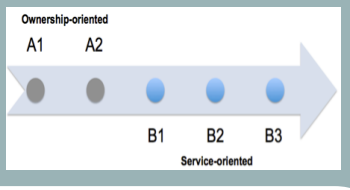
EXPLORATORY SURVEY → REFERENCE FRAMEWORK

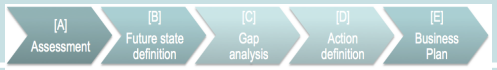
T-REX Business Model Reference Framework

To support the identification of “service-based BM by SMEs and the transition

Level 1: BM Typologies



Level 2: BM Innovation Process

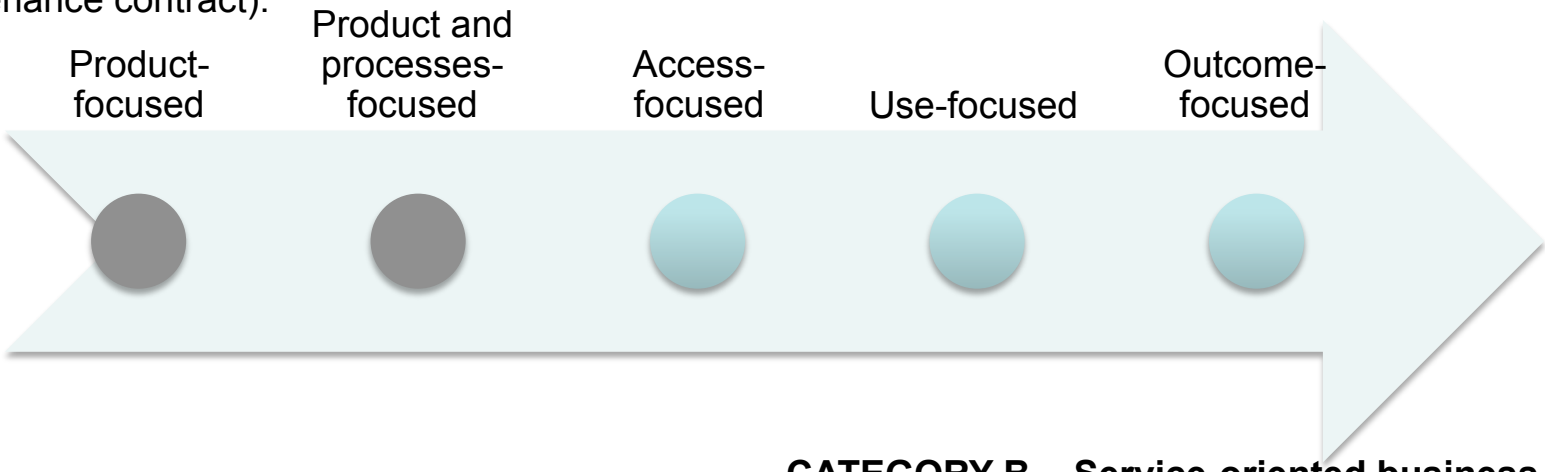


Level 3: BM Innovation Methods and tools

Business model Typologies

CATEGORY A - Ownership-oriented business model

Product sales are the main source of revenue; services are sold as an add-on of the product. Service can be sold both transitionally (e.g. corrective technical assistance without any contractual agreement) and relationally (e.g. maintenance contract).



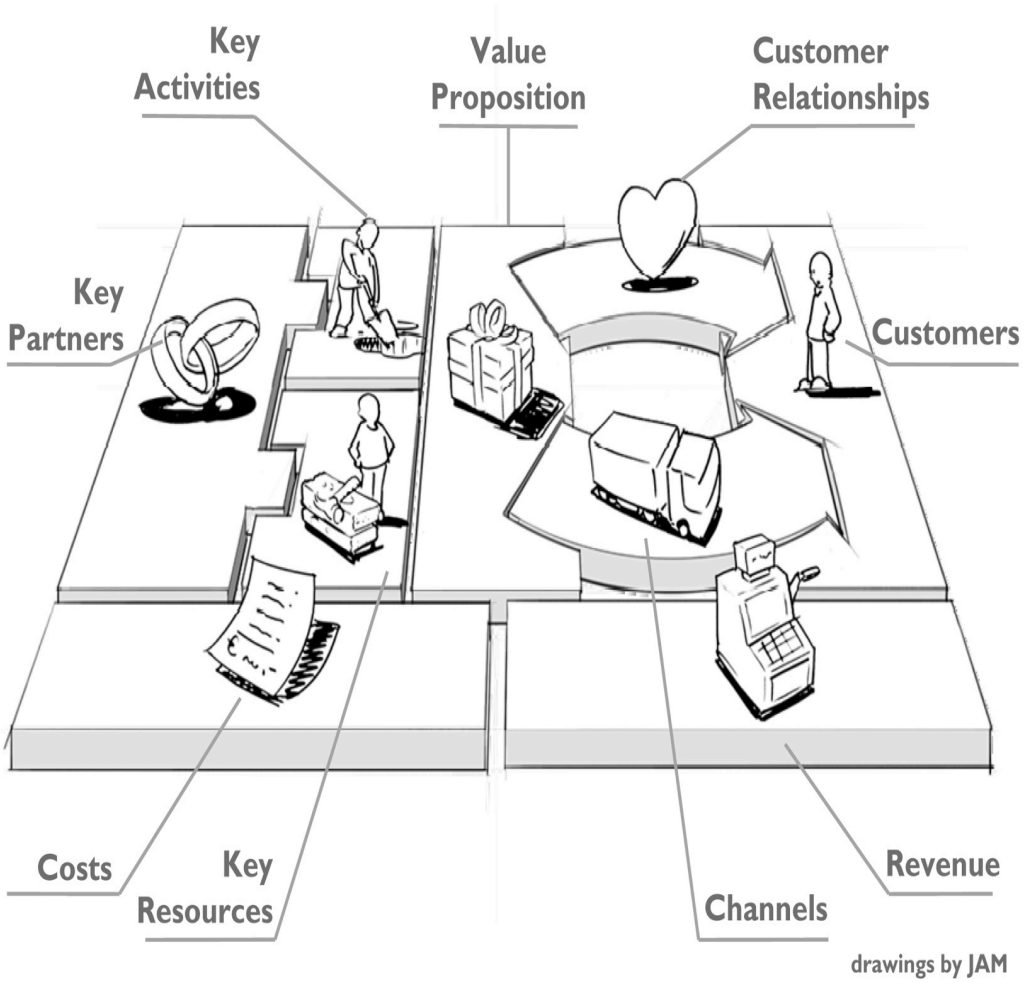
CATEGORY B - Service-oriented business model

Services strictly linked to the access/usage of a product are the main source of revenue. The ownership of the product is not transferred to the customers. Services are sold through relational contracts with generally medium-long term duration. Add-on services can also be sold on a transactional base outside the contractual agreement

Business model description: the BM Canvas

A business model describes the rationale of how an organization creates, delivers, and captures value *(Osterwalder and Pigneur, 2010)*

The BM is described thorugh several aspects identified for each Building block



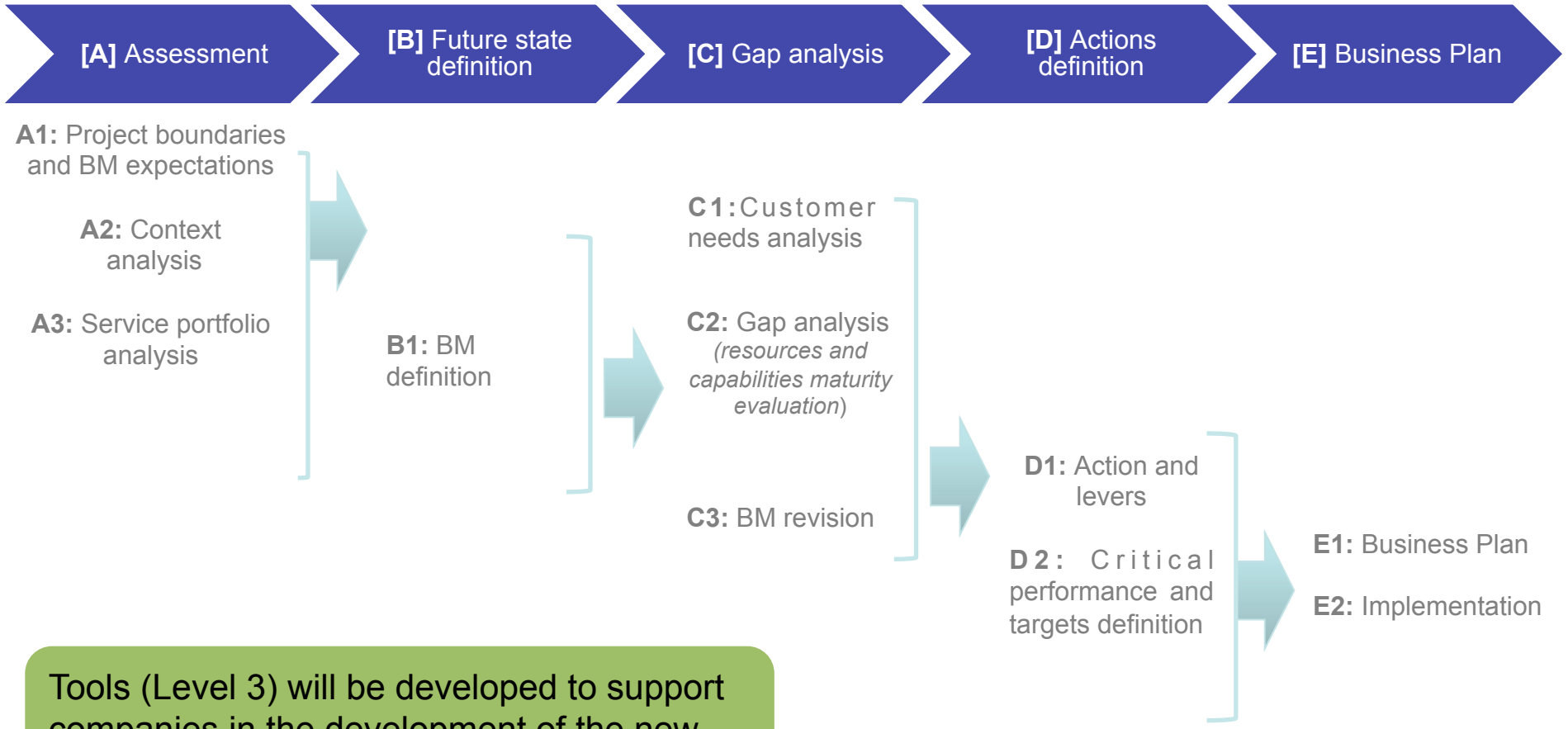
Business Model Typologies: value proposition (1)

A1: Product-focused	A2: Product and processes focused	B1: Access-focused (rental or leasing)	B2: Use-focused (pay-per-service unit/use/ output unit)	B3: Outcon (pay-per-p availability)
The provider sells the product or system and **(separately) services that are needed during the use phase** of the product (e.g. break-fix repair, maintenance contract).	The provider sells product and offers services, both in the pre- and after-sale phases, which aim to **optimize customer processes**. Services can be bundled with the product sales	The customer does not buy the product but pays **a fixed regular fee** to gain access to it. The fee is not related to product actual usage and may include additional services (e.g. maintenance and assurance costs may be included in the fixed fee-per-month paid by a customer)	The customer does not buy the product or system but **pays a variable fee that depends on its actual usage** of the product (pay-per-usage time, pay-per-usage unit or pay-per-output unit).	The customer does not buy the product or system but **pays a fee that depends on the achievement of a contractually set result** in terms of product/system performance or outcome of its usage (for instance the final output volume).
Value-in-exchange Property of the physical product	*See A1*	**Value-in-use** Access and use of the product	**Value-in-use** value is defined as the benefit the customer obtains through use.	**Value-in-results** Availability of the product / Result of the use of the product /

BM typologies: Value Proposition (2)

Var	A1: Product-focused	A2: Product and processes focused	B1: Access-focused	B2: Use-focused (pay-per-service unit/use/ output unit)	B3: Outcome-focused
Product ownership	The product **ownership is transferred** to the customer	*See A1*	The product in general is **owned by the provider** who can be responsible for maintenance/ensuring the product functionality. **The same product can be sequentially used** by different users	The customer does not own the product, only the output of the product according to the **level of use** (e.g. number of copy printed)	The customer does not own the product. The provider agrees with the customer the delivery of a **agreed result/outcome** (e.g. availability of the product in a pre defined period)
Types of service portfolio	**Sales of the product with 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	**Sales of the product** with extra services which have the purpose to improve or restore the functionality of the product, such as corrective and preventive maintenance, maintenance contracts, …. 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*

Level 2 – BM innovation process



Tools (Level 3) will be developed to support companies in the development of the new BM

Testing the framework and tools

KINE ROBOT SOLUTIONS

ULMA Carretillas Elevadoras

FIDIA

Preliminary case studies (identification of current BM and “obstacles” to servitization)

Identification of new service-oriented BM

Roadmap to implementation / Assessment of eco-eco benefits

CONTACTS

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