Organization of Industrial Product-Service Development for Global Markets

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Research Project Background

Organization of Industrial Product-Service Development for Global Markets (5,3 MSEK 2014-2016)

- Industrial product-services- an offer which includes product and service component
  - Specific focus on development of product-service portfolio
  - Complex products service combinations

- Focus on issues such as business models, integrated development process, customization to meet customer demands and focus on value-creation activities

- Global market and meeting diverse and conflicting customers demands
  - BRIC or emerging countries as well as established markets such as Scandinavia, central Europe and North America.
  - Role of delivery organization or network (e.g. Dealers, service partners)
**Partner Companies**

1. Volvo Construction Equipment  
2. Sandvik Coromant  
3. Höganäs AB  
4. Gestamp Hard Tech  
5. LIKO  
6. Ericsson  
7. LKAB  
8. SSAB  
9. Billerudkorsnäs  
10. Nordic Light  
11. Outotec  
12. GKN aerospace engine

**Industry Network**

1. Automation Region  
2. Swedish institute of computer science (SICS)  
3. IUC Norrbotten AB
Project Outputs

**Academic papers:** 5 international conference papers, 8 journal papers in ISI indexed outlets have been published. For example, findings from literature review has been published in Journal of Cleaner Production (Impact factor: 4.9) and capability models for global product-service innovation has been published in Journal of Business Research (impact factor 2.1) and Industry Marketing Management (Impact factor: 1.9).

**Practitioner papers:** 5 practitioner and/or popular publications in Swedish and English have been published in well-known outlets for maximizing dissemination of results. One example is “Vägen till globala tjänsteinnovationsförmågor hos tillverkningsföretag”, which was published in IMIT journal.
**Project Outputs**

**Identified development methods:** Based on systematic literature research and more than 60 formal and informal interviews (multi-level and multi-actor) as well as 122 responses from a survey with Finnish manufacturing companies and 135 responses from a survey of Swedish manufacturing companies, we have identified and gathered 25 plus methods for global product-service-system offering.

**Implementing and valuating methods:** From the identified methods, 6 plus methods have been implemented and validated with partner companies and intermediate companies. For example, risk management framework, capability development model and co-creation process model.

**Workshops and dissemination events:** Numerous workshops with partner companies and 5 large dissemination workshops have been co-organized with intermediate organizations.
Research Team

Johan Frishammar, Professor

David Rönnberg Sjödin, Assistant Professor

Sambit Lenka, Ph.D Candidate

Vinit Parida, Professor (Project leader)

Wiebke Reim, Ph.D Candidate

Joakim Wincent, Professor
Selling Advanced Product-Services

Wiebke Reim
Luleå University of Technology
2016-10-26
INDUSTRIAL PRODUCT-SERVICE AND FINANCIAL PERFORMANCE

Add-on customer services
Maintenance & product services
R&D-oriented services
Functional & operational services

Parida et al., 2014
KEY CHALLENGES IN ADVANCED PRODUCT-SERVICE PROVISION

• Managing conflicting logics
• Product-Service development
• Developing a new business model
• Risk management
• Managing networks
• Capabilities development
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DEVELOPING PRODUCT-SERVICE BUSINESS MODEL

**ACTIVITIES**

- Taking over activities from customers
- Improved resource utilization
- Localization of support services
- Development of digital platforms
- Managing risk of adverse market selection
- Structuring new revenue models

**DIMENSIONS**

- **VALUE CREATION**
- **VALUE DELIVERY**
- **VALUE CAPTURE**
DEVELOPING PRODUCT-SERVICE BUSINESS MODEL

ALIGNMENT PROBLEMS IN IMPLEMENTATION OF P-S BUSINESS MODELS

- Disregarded
- Deficient
- Disconnected
KEY CHALLENGES IN ADVANCED PRODUCT-SERVICE PROVISION

- Managing conflicting logics
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- Risk management
- Managing networks
- Capabilities development
ADVANCED PRODUCT-SERVICE RISK CATEGORIES

• Technical Risk
  – Machine breakdown
  – Problems with monitoring/information sharing

• Delivery Competence Risk
  – Inappropriate organizational structure
  – Lack of resources/capabilities
  – Complex supply chain

• Behavioural Risk
  – Careless customer behaviour
  – Opportunistic customer behaviour
  – Adverse selection/unbalanced portfolio
RISK RESPONSES

• Risk Avoidance
  – Do not take responsibility for outcomes

• Risk Reduction
  – Monitor equipment
  – Have extra stock of equipment

• Risk Sharing/transfer
  – Share risk and profits with customers
  – Risk transfer to external party

• Risk Retention
  – Charge risk premium
  – Offer to trusted customers
RISK MANAGEMENT DECISION TREE (1)
RISK MANAGEMENT DECISION TREE (4)
KEY CHALLENGES IN ADVANCED PRODUCT-SERVICE PROVISION

- Managing conflicting logics
- Product-Service development
- Developing a new business model
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- Managing networks
- Capabilities development
ADOPTION IN DISTRIBUTER NETWORK

• Categorization based on maturity/readiness
  – Early adopters
  – Majority
  – Laggards

• Categorization based on
  – Current offering
  – Distributer characteristics
<table>
<thead>
<tr>
<th>Offer</th>
<th>Early Adopters</th>
<th>Majority</th>
<th>Laggards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Care inspections</td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Extended warranty</td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Maintenance contracts</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Leasing/rental</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Telematics</td>
<td>x</td>
<td></td>
<td></td>
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<tr>
<td>Proactive maintenance</td>
<td>x</td>
<td></td>
<td></td>
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<tr>
<td>Gold contracts</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operation optimization (fuel consumption, operator</td>
<td></td>
<td>x</td>
<td></td>
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<tr>
<td>training)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Uptime/availability</td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Cost per ton</td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Total Care</td>
<td></td>
<td>x</td>
<td></td>
</tr>
</tbody>
</table>
### DEALER CHARACTERISTICS

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Early Adopters</th>
<th>Majority</th>
<th>Laggards</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dealer Capabilities</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Access to well-trained technicians</td>
<td>Easy</td>
<td>Hard</td>
<td></td>
</tr>
<tr>
<td>Ability and resources to use telematics</td>
<td>High</td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>Ability to bundle service into own contracts</td>
<td>High</td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>Relationship to and interaction with the manufacturer</td>
<td>Close</td>
<td>Minimal</td>
<td></td>
</tr>
<tr>
<td>Leasing/rental business to get services started</td>
<td>Exists</td>
<td>Does not exist</td>
<td></td>
</tr>
<tr>
<td>Ability to handle risks</td>
<td>Insurance/Portfolio</td>
<td>Not able</td>
<td></td>
</tr>
<tr>
<td>Willingness and ability to invest in services</td>
<td>High</td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td><strong>Market Related Characteristics</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distance to customer</td>
<td>&lt; 1h</td>
<td>&gt; 2000km</td>
<td></td>
</tr>
<tr>
<td>Market volume</td>
<td>3000 machines per year</td>
<td>5 machines per year</td>
<td></td>
</tr>
<tr>
<td>Customers’ ability to perform repairs and maintenance</td>
<td>Low</td>
<td>High</td>
<td></td>
</tr>
<tr>
<td>Urgency of work to be performed</td>
<td>Deadline Projects and critical tasks (Pavers)</td>
<td>occasionally used</td>
<td></td>
</tr>
<tr>
<td>Customer size</td>
<td>Sufficient</td>
<td>Big</td>
<td>Too Small</td>
</tr>
<tr>
<td>Customer concerns about safety and sustainability</td>
<td>High</td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td><strong>Customer Related Characteristics</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attitude towards services in the market</td>
<td>Open</td>
<td>Hesitant</td>
<td></td>
</tr>
<tr>
<td>Alternatives to authorized dealers</td>
<td>Few</td>
<td>Many</td>
<td></td>
</tr>
<tr>
<td>Local regulations concerning services and telematics</td>
<td>Supportive</td>
<td>Problematic</td>
<td></td>
</tr>
</tbody>
</table>
### SUPPORT MECHANISMS

<table>
<thead>
<tr>
<th>Business Model Adoption Support</th>
<th>Value Capture</th>
<th>Value Delivery</th>
<th>Value Creation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ceiling option</td>
<td>Insurances</td>
<td>Promotions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Incentives</td>
<td></td>
</tr>
<tr>
<td>Modules for free bundling</td>
<td>Infrastructure and delivery tools</td>
<td>Help center Calculation tool Logistics Standardized contracts</td>
<td>Advance selective training Pilot studies ICT / tool specific training</td>
</tr>
<tr>
<td>Common Vision: &quot;Sell solutions&quot;</td>
<td>Distributer Network Interaction / Benchmark</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Early Adopters</td>
<td>Majority</td>
<td>Laggards</td>
<td>Dealer Type</td>
</tr>
</tbody>
</table>
CONCLUDING REMARKS

• Selling advanced product-services globally is complex and challenging!

• Align activities to develop a common business model!

• Think risk management not only risk!

• Think of what distributer and cusotmer want and support their adoption of your business model!
QUESTIONS?

Wiebke Reim
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Concluding remarks and opportunities for future collaboration

David Rönnberg Sjödin, Assistant Professor
Entrepreneurship and Innovation
Luleå University of Technology
“I realize that we have not succeeded in answering all your questions. Indeed, I feel we have not answered any of them completely. The answers we have found only serve to raise a whole new set of questions, which only leads to more problems. To sum it all up, I feel we are just as confused as ever in some ways, but I believe we are confused at a higher level and about more important things.”

David Peoples, IBM (slight paraphrasing)
Some key points from today

- **Business model innovation is key to success**
  - We are lagging behind US companies – death of the western goods company?
  - Service logic as driver for business model innovation
  - Focus on value in use

- **Transition to selling advanced services is challenging**
  - Misalignment of business model elements
  - Understanding, selecting and managing risks
  - Managing diverse global markets, customers and delivery partners

- **Business modelling in digitalized multi-actor ecosystems**
  - The map is unclear
  - Stepping on toes of others
  - Industry convergence makes roles unclear

- This is complex stuff...
Impact of digitalization for business models

- Digitalization creates significant business models opportunities and challenges
  - Companies tend to have technology focus rather than business focus
  - Business model practices are too firm centric rather than eco-system

- Unresolved issues hinders the development of win-win relationships within the eco-system
  - E.g. distribution of activities, division of labor, costs, revenues, value creation and capture, and risk sharing.

- Lack business model innovation methods that facilitate alignment of interests and incentives across the eco-system actors.
Challenge driven innovation project

Business modeling in digitalized eco systems (project proposal)

Purpose:

- To develop, implement and disseminate sustainable business model innovation methods based on digitalization opportunities in eco-systems within the Swedish manufacturing industries

- Project actors: Ericsson, Fältcom and Volvo Construction Equipment (VCE)
  - 5G effort, remote controlled excavator, SME involvement
Challenge driven innovation project

Stage 1 focus (on-going; Aug- Dec 2016):
1. Initial mapping of opportunities for sustainable business models with project actors
2. Identifying potential customers cases from diverse industries
3. Identifying complementary eco-system actors and reference group
4. Building preliminary business cases and securing project commitment

Stage 2 focus: Development & pre-testing of sustainable business model innovation methods.

Stage 3 focus: Validating, implementation, and disseminating the sustainable business model innovation methods by applying it to the business cases
Invitation to collaborate

Would you like to work with us to identify new business model innovation and digitalization opportunities?

Please contact/talk to us now directly!

Sustainable business modelling in eco systems key contacts

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Please leave us your business card
Thank You!

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