Supporting the Performance Assessment of Product-Service Systems during the Use Phase

Julian Wilberg, Christoph Hollauer, Mayada Omer
Supporting the Performance Assessment of Product-Service Systems during the Use Phase

© 2015 Prof. Lindemann

Agenda

Introduction
Motivation
Research Methodology
Findings of the Literature Review
Performance Assessment of PSS
Discussion
Conclusion & Outlook
Introduction

• Basics
  – Product-Service Systems (PSS) are a combination of a product and service
  – Offering PSS leads to competitive advantages because the user need is addressed more precisely
  – Compared with normal products the PSS provider often stays the owner of the product
  – The responsibility of the provider is larger compared with a regular product manufacturer

[1],[2]
Motivation

• Relevance of the Use Phase
  – PSS deliver the customer value during the use phase

  – The performance of the PSS during use is important for the customer instead of the ownership of a product

  – The PSS provider becomes responsible for the performance of the PSS during the use phase

  – Due to enlarged responsibility the entire lifecycle must be considered by PSS providers

Use phase monitoring and assessment is of great importance for PSS providers

[3],[4]
Motivation

• **Potential of Use Phase Assessment**
  – Important information is generated during the use phase
  
  – Systematically collecting information during use is very beneficial for PSS providers
  
  – Gathered knowledge helps to improve the current PSS in use or develop better PSS in the future

• **Existing approaches**
  – Many of the existing approaches in literature focus only on the development phase

  ![Approach needed to support PSS providers to set up the performance assessment system](3],[5]
Research Methodology

1. Initial literature review
2. Use phase support for PSS
3. Performance assessment
4. Process to derive a performance measurement system

Requirements for the process
Available methods for performance assessment
Results of the Literature Review

• **Use Phase Support for PSS**
  – PSS providers face additional complexity because they act more as a service provider rather than a producer
  – The additional responsibilities requires the application of additional tools and methods
  – A service strategy and objectives needs to be defined
  – PSS providers must set up a performance measurement system that allows a constant monitoring of the achievement of the objectives
  – An iterative process is required because the customer expectations need to constantly exceeded

[2],[4],[6]
Results of the Literature Review

• Performance assessment in General
  – Decision makers face an increasing complexity and assessing the performance through metrics increases the transparency

  – Two general categories of metrics exist:
    » (K)PIs – (Key) Performance indicators
    » (K)RIs – (Key) Result indicators

  – KPIs are of special interest because they help to obtain insights concerning the measures required to achieve the future objectives

  – A mix of different KPIs – performance measurement system – is needed

  – Using KPIs serves various benefits but the effort must also be considered

[7],[8],[9]
Results of the Literature Review

• **Need for a Performance Measurement System**
  – Being a PSS provider requires a shift in the companies role including the application of new tools and methods

  – Constant performance measurement is an important aspect to ensure that the promised customer value is delivered

  – Existing methodologies for PSS support especially for the development phase rather than the use phase

  – KPIs are often only used to assess the performance of projects

  **Using a performance measurement systems** in the new context seems promising to assess the PSS performance

[10],[11]
Performance Assessment of PSS

• **Supporting the implementation of performance measurement system**
  – No approaches exist that use KPIs to assess the PSS performance during the use phase

  – Setting up a PSS specific performance measurement system requires an iterative process

  – Focus on supporting the use and result-oriented PSS

  – Incorporation of a performance measurement system includes three general steps: Design, implementation, and use
Performance Assessment of PSS

- Generic process for the implementation of a performance assessment system
- Iterative design to allow a constant adaption and improvement
Performance Assessment of PSS

Development of the PSS (e.g., [5] or [13])

Focus of this work: Derive PSS specific KPIs
Performance Assessment of PSS

- Critical success factors (CSFs) help to link the PSS strategy and KPIs
- Process needs to be conducted regularly to respond to the dynamic environment
- The set of derived KPIs should serve a balance between the customer and company perspective
Discussion

- Mentoring the performance of a PSS is an important task for PSS providers.

- Implementing a performance measurement system helps to obtain a clear picture concerning the achievement of objectives and serves as a trigger for continuous improvement.

- KPIs need to be embedded in an organizational structure that not only measures the performance but also decides about measures.

- Using KPIs means also effort and does not serve benefits right from the beginning.
Conclusion and Outlook

• Conclusion
  – PSS providers must assess the performance of PSS during the use phase to ensure that the customer value is delivered and to allow for constant improvement
  – Existing methodologies for PSS focus only on the development phase
  – Deriving a PSS specific performance measurement system helps to monitor the achievement of objectives and increases the transparency
  – The developed iterative process guides PSS providers through the development of a specific performance measurement system

• Outlook
  – Applying the developed process in a case study in order to test the usefulness
  – Using a performance measurement system in combination with simulation models to evaluate the potential to support the development process of PSS
Contact & Literature

Contact:
Julian Wilberg, M.Sc.
wilberg@pe.mw.tum.de
+49.89.289.15129

Institute of Product Development
Technische Universität München
Boltzmannstr. 15
85748 Garching, Germany


