

# Systematic Development of Product Services using the RISP model

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## Abstract:

Services and product services are considered essential cornerstones of a sustainable economy. The client receives the actual benefit by a service without becoming the owner of material products.

Following the logic of a sustainable economy one expects that by product services replacing the selling of products, responsibility for the whole life cycle of product by the service provider will be taken. As a result of this responsibility, serviceable, repair friendly, less energy intensive, re-useable and recyclable products will be developed. Re-using products or shared use of products promises a better use of scarce resources.

But in practice product services are not too successful in the market. By now it have not been researched, which barriers are there for the introduction of sustainable services in practice. These facts make the broad adoption of product services questionable.

RISP wants to make a methodical start and find instruments for a systematical and risk free development of product services for a sustainable economic development.

The development of RISP was funded by a grant from the Austrian Factory of Tomorrow programme ([www.fabrikderzukunft.at](http://www.fabrikderzukunft.at)).<sup>2</sup>

**Keywords:** product service development, stage gate model

The development of the RISP model followed two lines:

1. RISP uses the instrument of FMEA (Failure Mode and Effect Analysis). The accessible literature and a number of case studies were analysed which important risks exist in the process of developing the service and which mistakes act as barriers in the successful application of product services.
2. RISP uses a stage gate model. The process of developing a product service is modelled as a step-wise procedure. The stages for the development of a service are:
  - Generation of an idea
  - Identification of the scope of the idea
  - Identification of the framework and boundary conditions
  - The actual development office service

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<sup>2</sup> The authors are especially thankful to Hans Günther Schwarz and Michael Paula of the Austrian Secretariate for Innovation and Transport

- Test of the service
- Market introduction
- Review

In between the individual stages are gates. At these gates questions have to be answered. Only after answering the questions positively, the gates are past to the next stage. The questions are conceived in such a way, that the identified risks are recognised and known mistakes in developing services are avoided.

For the description of risks following studies (from the program „Fabrik der Zukunft“ from BMVIT: „Homeservices“, „Leuchttürme für Produktdienstleistungen“, the workshop program „Produktdienstleistungen“ and „Ecosolutions“, the VDI paper „Ingenieurdienstleistungen“, different projects from the 5<sup>th</sup> and 6<sup>th</sup> program („MEPPS“) and case studies from different product services have been researched to find existing knowledge and risks in the process development.

The effects regarding sustainability of different services are difficult to picture in a comprehensive way as these effects are often reached at only after longer periods. Using the example of services around housing (maintenance, cleaning, mobility, care taking, consulting, energy supply) it was shown, that customer mostly do not ask for explicitly ecological services. They accept what doesn't cost more compared to accessible alternatives and what does not mean any loose of comfort. Explicitly social services are accepted if they are really urgently needed. The client is controlled primary by convenience.

Starting points for the development of product services are seen especially in the Business to Business area and especially regarding supporting processes, which means processes outside the value creating processes of companies.

The following success factors were defined for the development of marketable services:

- higher quality of living (health, safety and comfort)
- externalisation of responsibility, risk and warranties
- supporting legal and fiscal boundary conditions
- cost reductions (less investment costs, reduction of operating costs, co-operations)

The following barriers could be identified:

- higher investment
- lacking information, knowledge and know how
- legal barriers
- short-term thinking (lacking life cycle analysis and lacking cost analysis)

Analysing of case studies has shown, that a systematic approach to innovation including relevant groups of actors (supplier, clients, associations, promoters) is necessary to introduce new sustainable services.

The practical work showed that product-supporting services have a big potential. The additional customer benefit differentiates the producer from his competitors. The good introduction of services needs intensive work for information finding and offensive marketing.

The following elements are parts of the process development for product services:

The development of product services is based on customer oriented visions and strategies. The starting point is a detailed understanding of the value creating chain and the preferences of the future customer.

Most important element is the systems analysis of the value creating chain, the visualization of the developing steps and a good communication within the development team.

All the steps are executed in a co-operation of client and service provider. Communication and co-operation are in the front. Common to all stages is, that several variants of solutions must be researched, tested and evaluated. Each step must be documented to guarantee quality and reproduction of the service

The inclusion of potential stake holders , a strategic approach to quickly changing environments, as well as building on existing co-competencies, products and markets and the extension to new competencies, products and markets, for example by new partnerships are input elements in the successful development of sustainable product service.

These instruments were applied in several case studies successfully.

Looking for potential risks and failures the following additional analysis were done:

Using the well-known theories for motivation by Maslow, Herzberg and Kano, motivation for buying services was investigated. Enthusiasm feeling features are unexpected features, which the client doesn't expect and which differentiate the service compared to competition. A small increase in performance can yield a decisive benefit. Approaches to a systematic analysis and identification of the enthusiasm feeling function of a product of a service are described.

Many new products and services however fail in spite of delivering big benefit with the client. The reason for this mostly is not so much the quality of the newly developed service but irrational behaviour of men. Apparently this is important to state that in the analysis of benefit for a client, not only functional benefit, but also benefit by status, by aesthetic design, by security, simple use or social acceptance has to be considered.

An essential aspect of accepting sustainable services is the discrepancy between knowing and doing. Actual doing is almost always resulting from evaluating different opinions and beliefs, which are conflicting.

All this is only acceptable if the services are targeted for a specific market of a relevant size.

In interviews with financing partners, the essential elements of the evaluation of a new business model were described. This is a realistic business plan, an evaluation of the personal capability, realistic market analysis and the development of business according to the business plan.

Using the stage gate model of Cooper a process model of 6 stages was elaborated, starting from the idea to the implementation of new service on the market.

In all the stages in parallel there is a technical description of the service, the development of a marketing approach and the consideration of sustainable development. The approach is oriented on a progress from the generic to the detailed.

In-between the stages, gates were defined. Questions were derived, which have to be answered before passing through the gates. For the documentation of the analysis at the gates, a formula could be found.

Table 1: The RISP process for the development of a service including the models used, the products of the stages and a description of the gates

Stage No.	Description of stage	Model	Product	Gate	Description of Gate
1	Idea generation		Idea of the service	1	Idea check
2	Identification of the scope	Client model	Specification	2	Strategy check
3	Definition of the frame	Service model (Process model)	Service concept	3	Visibility check
4	Development of the service	Resource model (time and effort)	Business plan	4	Visibility check
5	Test of the service		Test plan	5	Acceptance check
6	Market introduction		Market success	6	Market check
7	Review				

The following failure modes got the highest risk priority numbers (Table 2):

Table 2: The most relevant failure modes at the development of product services

Stage No.	Description of stage	Relevant Failure Possibilities
1	Idea generation	<ul style="list-style-type: none"> <li>Not enough or irrelevant definitions of the project idea (target group, service idea, customer satisfaction)</li> </ul>
2	Identification of the scope	<ul style="list-style-type: none"> <li>Not a complete model of the customer (systems model), lack on information of cultural and social environment</li> <li>Less attractively market</li> </ul>
3	Definition of the frame	<ul style="list-style-type: none"> <li>Not a complete service model (process model)</li> <li>No brand concept</li> <li>Too low willingness to pay from customer</li> </ul>
4	Development of the service	<ul style="list-style-type: none"> <li>Not a complete resource model (time and cost model)</li> <li>Too less customer connections to clarify activities</li> <li>No business plan</li> </ul>
5	Test of the service	<ul style="list-style-type: none"> <li>Lack on test criteria</li> <li>Lack of customer feedback</li> </ul>
6	Market introduction	<ul style="list-style-type: none"> <li>Unspecified marketing concept</li> <li>Lack on controlling</li> </ul>
7	Review	<ul style="list-style-type: none"> <li>Review has not been done</li> </ul>

The gates were created to prevent failures with highest risk priority numbers.

The questions on the gates analyse the economical potential, the technical feasibility and the sustainable aspects of the service simultaneously.

These questions are asked at the solutions between the different steps with different weightings (description of the idea, service concept, functional specifications, business plan, test plan, market success). The different steps are differently detailed.

The process model was applied to four case studies:

- development of an evaporation plant, which is operated for waste water treatment by a project partner at a clients side
- development of the ECOPROFIT model especially for the Korean market
- refinement of an innovation training course (SUPPORT)
- development of the service cleaning and disposal for a project partner

One year after the end of the project, all four services are successful in the market.

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