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# SSKE – A Knowledge Intensive Environment to Foster Service Innovation

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**Program Strategic pentru Promovarea Inovarii în Servicii prin  
Educație Deschisă, Continuă (INSEED)**

POSDRU/86/1.2./S/57748

*Proiect cofinanțat din Fondul Social European prin Programul  
Operațional Sectorial Dezvoltarea Resurselor Umane 2007-2013*

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# Agenda



- Service Science Knowledge Environment (SSKE) – a development path:
  - requirements elicitation
  - stakeholder's perspective on the SSKE
  - content definition – *knowledge resources*
  - collaborative interaction
  - information map defined in the SSKE
  - further development and collaboration on the SSKE

# Knowledge Environment for Service Science

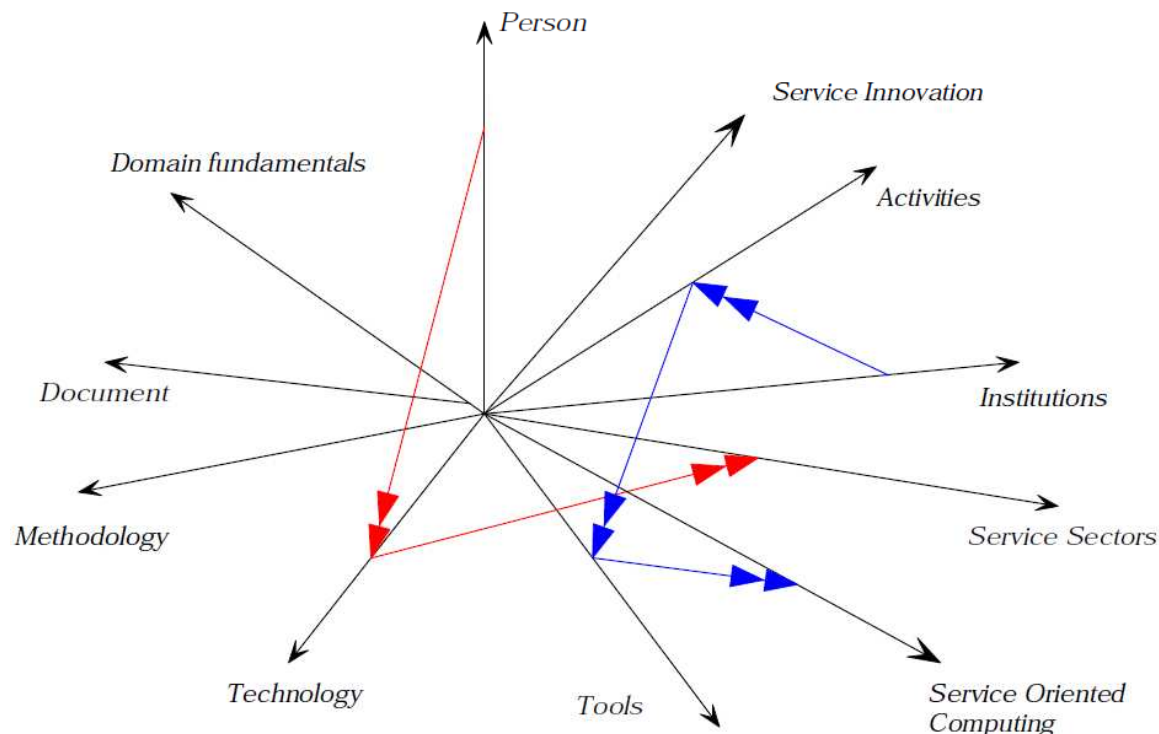


- Requirements elicitation:
  - To exploit a database highlighting an *educational knowledge path* on Service Science, fostering *service innovation* in different *service sectors*, based on *fundamental concepts* related to Service Science;
  - To *increase* the service companies *visibility*;
  - To report *new methods, tools and software applications* in order to develop IT services and to accomplish *service automation*, fostering *service innovation*

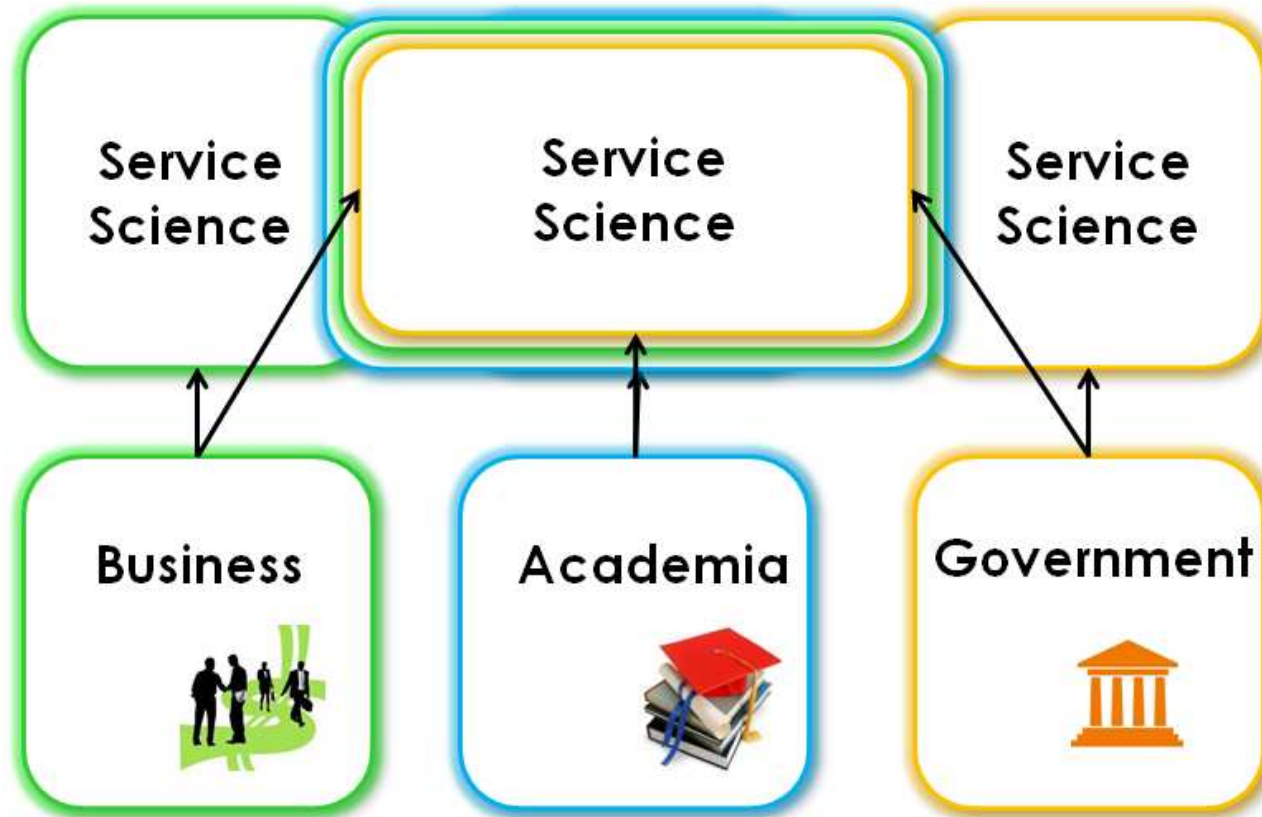
# Knowledge Environment for Service Science



- First hand solution:
  - the proposed *Knowledge Environment* was supposed to include and classify *knowledge resources* related to Service Science, for example Articles, Projects, People knowledgeable about Projects, that write Articles and use Technology in certain Service Sectors

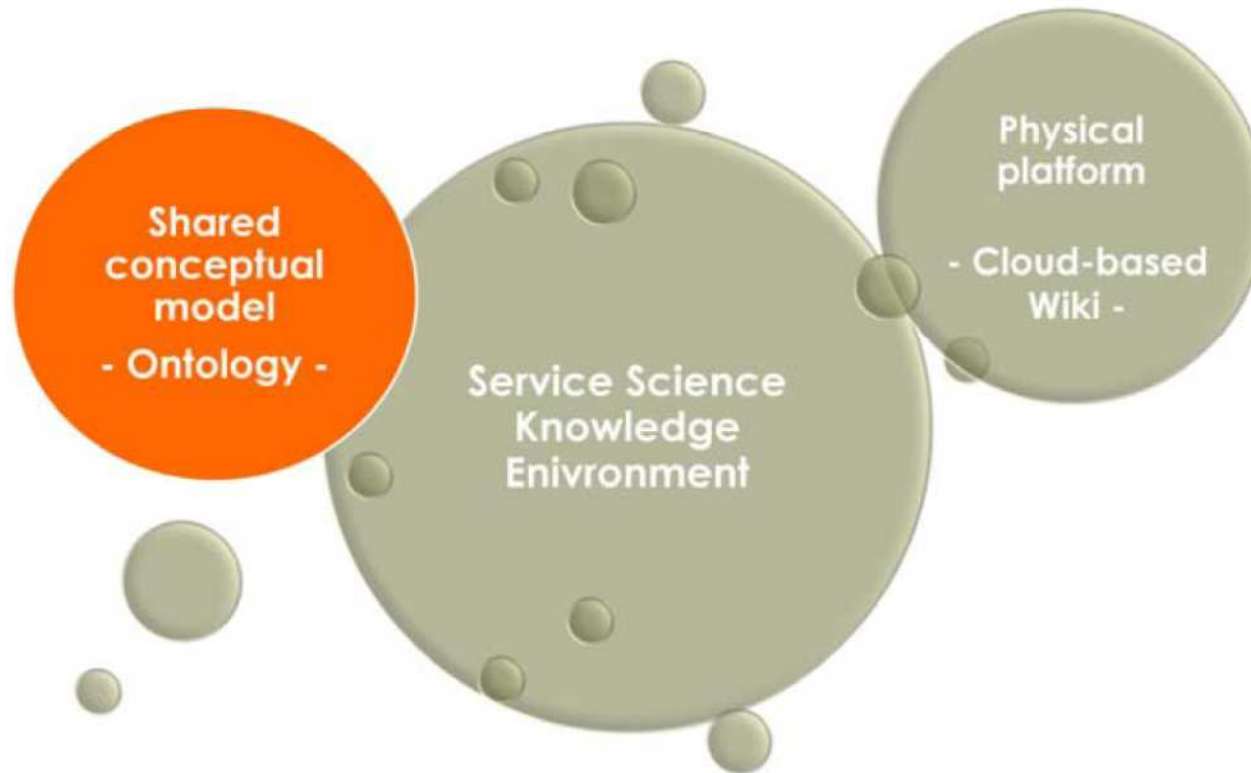


# Stakeholders' perspective on the SSKE





# SSKE – Solution



# Service Science Knowledge Environment – SSKE

<http://sske.cloud.upb.ro>



 New page

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 [Service Domain Fundamentals](#) [Activities for services](#) [Learning](#) [Service Innovation](#) [Service Sectors](#) [Methodologies](#) [Contributors to SSKE](#)

Last visited: [Main Page](#) | [Service Science Knowledge Environment](#)

## Keywords

## Documents

[Articles](#)  
[Books](#)  
[Journals](#)  
[Reports & Thesis](#)

## Projects

[Research](#)  
[Studies](#)  
[Education](#)  
[Commercial](#)

## Patents & Standards

## Events

[Workshops](#)  
[Conferences](#)  
[Virtual Exhibitions](#)

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[Solutions](#)  
[Technologies](#)  
[Products](#)  
[POC & Demos](#)  
[Training Centers & Programs](#)

## Service Science Knowledge Environment

[More](#)

The main goal the **Service Science Knowledge Environment (SSKE)** is to implement a collaborative environment that would gather together different academic partners with the overall aim of creating a modern educational framework in the areas of [Science](#), [Design and Management of services](#), while promoting [service innovation](#) in different [service sectors](#).

The **Service Science Knowledge Environment (SSKE)** targets also at creating a solid knowledge-based link between [academia](#), [industry](#) and [government](#), along with other [European institutions](#). It supports sharing relevant information on [Service Science](#) that would be stored in a structured way based on a common vocabulary using an integrated ontology.

The **Service Science Knowledge Environment (SSKE)** is delivered as a [service](#) in the [cloud](#). It will be further used for *managing service and service system related knowledge*. It intends to exploit the best opportunities for [business service innovation](#) using IBM cloud technology, which is used as a mean for *information service innovation* through *virtualization* and improvement of *service front ends* for academia, industry, as well as other stakeholders.

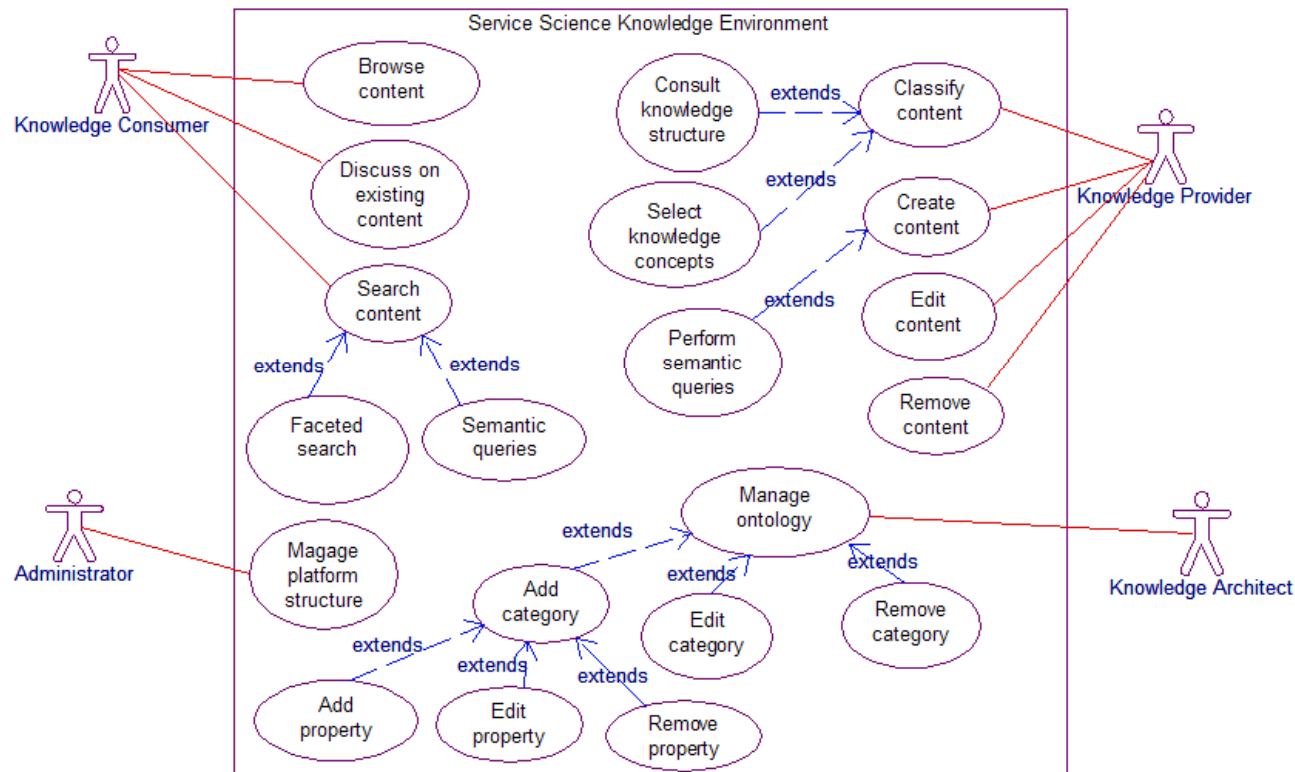
It aims at fostering [service innovation](#), sustaining this endeavor through the transfer of the research results in terms of [information](#), [Proof of Concepts](#) and [Proof of Technology](#), [methodologies](#), aiming to develop sustainable [service systems innovation](#) solutions.

The **Service Science Knowledge Environment (SSKE)** uses a *shared conceptual knowledge model* able to capture connections between different pieces of information in the multidisciplinary domain of [Service Science](#) (both on [fundamental concepts](#) as well on [technology](#) aspects). It is implemented as a tree of interrelated *ontology - based classified concepts* and it presents a *holistic view* on knowledge dedicated to the [Service Science](#) domain.





# SSKE – a collaborative interaction model



# SSKE – Ontological perspective on Service Science



- a holistic view on knowledge dedicated to the Service Science multidisciplinary domain
  - Information related to the multidisciplinary sub-domains gathered under the umbrella of the broader term "Service Science" to be classified as specific knowledge resources and
  - accessed through a dedicated knowledge base owning a specific ontology-based query formulation methodology

# SSKE – Information map



- Keywords**
- Documents**
  - Articles
  - Books
  - Journals
  - Reports & Thesis
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  - Conferences
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- Institutions**
  - Academic
  - Business
  - Government
  - Professional Organizations
- Persons**

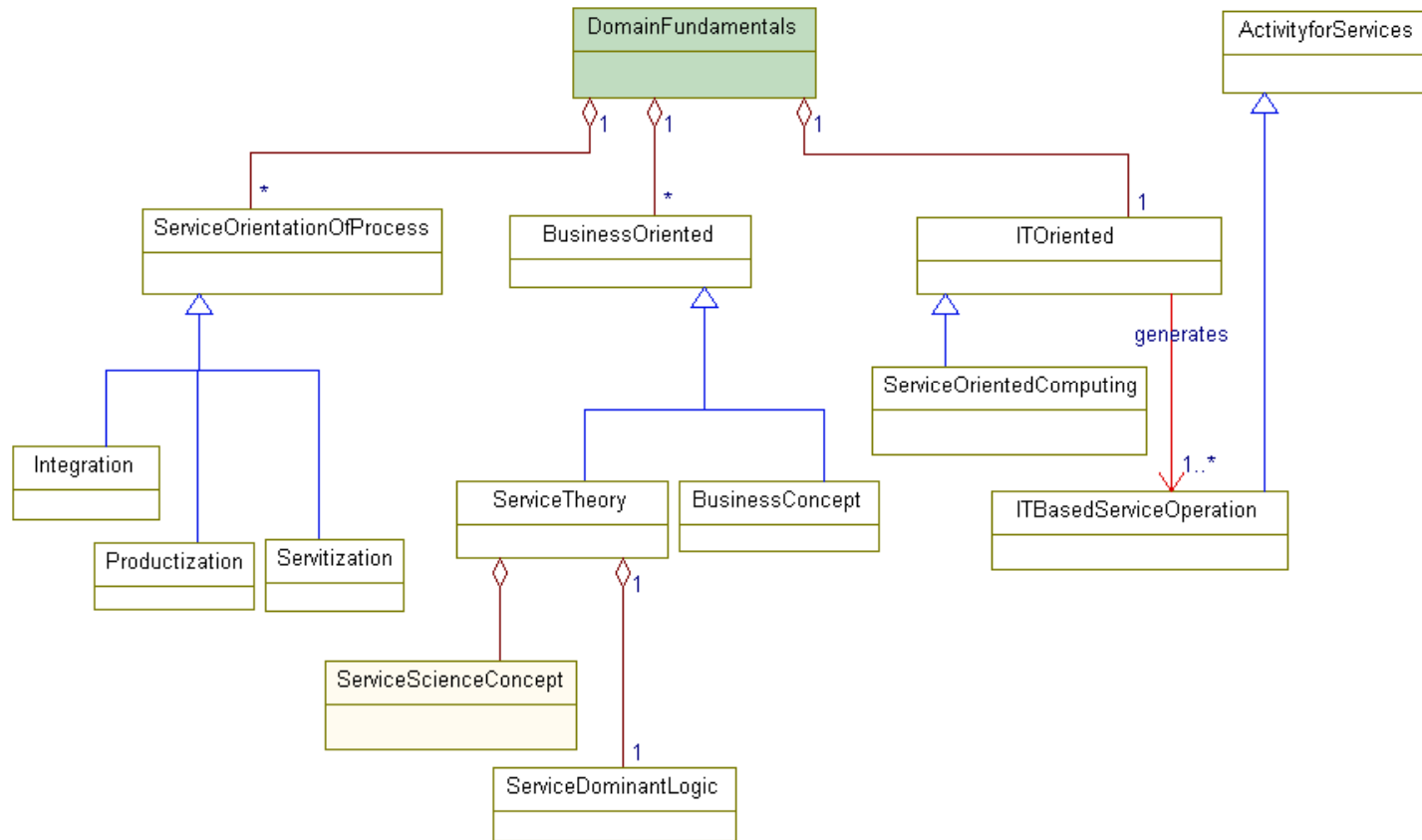
## Keywords

More ▾

- Domain fundamentals
    - Business oriented
      - Business concepts
        - Business
        - Business model
        - Service business models
        - Service classification
      - Service theory
        - Service-Dominant logic
          - Value proposition
        - Service science concepts
          - Service science
          - Service envelope
            - Economic system
            - Socio-cultural system
            - Technological system
            - Political-legal system
            - Natural-ecological system
        - Service system ecology
        - Service system
          - Service
            - Service outcome
            - Service measure
              - Quality
              - Productivity
              - Compliance
- Sustainable innovation
- Service resource
  - People
  - Technology
  - Shared information
  - Access right
    - Owned outright
    - Leased/Contracted
    - Shared access
    - Privileged access
- Service entity
  - Stakeholder
    - Customer
    - Provider
    - Authority
    - Competitor
    - Partner
- Service interaction
  - Value co-creation interaction
  - Governance interaction
  - Network
- Organizational envelope
- Organizational ecology
- Organizational system of systems
- Organizational system
- Envelope
- Ecology
- System of systems
- General system
- Viable system
  - Viable system core attribute
    - Multidisciplinary interpretative approach
    - Open systems
    - System boundaries
    - Autopoiesis and common finality
    - Homeostasis and self-regulation
    - Structures, systems and equifinality
    - Consonance and resonance
    - System viability
    - Adaptation and relationship development
    - Complexity and decision making
  - Viable system model
    - Template of VSM structure
- IT oriented
  - IT based service operations
  - Service oriented computing
  - Service oriented architecture
    - Service choreography
    - Service orchestration
    - Semantics
      - Workflow technology
    - Reusability
      - Composability
      - Discoverability
    - Information
      - Event driven architecture
  - Web services
  - Information system
  - Service orientation of processes
    - Integration



# SSKE – Domain fundamentals



# Knowledge resources (1)



[Home](#)
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**Articles**

220 articles currently included in SSKE.

	Author(s)	Keyword(s)
A Contribution to the Theory of Economic Growth	Robert M. Solow	Services sector productivity growth Neo-classical growth model
A Critical Evaluation of the New Service Development Process	Susan Paul Johnson Larry J. Menor Aleda V. Roth Richard B. Chase	Change categories for service innovation Incremental service improvement Radical service change
A Model for Open, On-Demand, Collaborative Education for Service Science	Theodor Borangiu Monica Dragoicea Virginia-Ecaterina Oltean Iulia Iacob	Service science Educational program
		Service science Service system

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**Company Solutions**  
 Solutions  
 Technologies  
 Products  
 POC & Demos

# Knowledge resources (2)



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- POC & Demos
- Training Centers & Programs
- Institutions**
- Academic
- Business
- Government
- Professional Organizations

## Journals More ▾

20 journals currently included in SSKE.

<input type="checkbox"/>	Editor(s) <input type="checkbox"/>	Keyword(s) <input type="checkbox"/>
Computer	Ron Vetter	
International Journal of E-Services and Mobile Applications (IJESMA)	Ada Scupola	
International Journal of Information Systems in the Service Sector (IJISSS)	John Wang	
International Journal of Quality and Service Sciences (IJQSS)	Su Mi Dahlgaard-Park	
International Journal of Service Science, Management, Engineering, and Technology (JSSMET)	Miguel-Angel Sicilia	
International Journal of Services Sciences (IJSSci)	Desheng (Dash) Wu	
International Journal of u- and e- Service, Science and Technology (IJUNESST)	Byeong-ho Kang Jianhua Ma	
Journal of Service Research (JSR)	Mary Jo Bitner	Customer satisfaction and service quality E-Service Economics of service Global issues in service Service human resources Service information systems Service marketing Service operations



# Knowledge resources (3)



Home | [Service Domain Fundamentals](#) | [Activities for services](#) | [Learning](#) | [Service Innovation](#) | [Service Sectors](#) | [Methodologies](#) | [Contributors to SSKE](#)

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Conferences

Virtual Exhibitions

**Company Solutions**

Solutions

Technologies

Products

POC & Demos

## Research More ▾

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**44 Research projects currently included in SSKE:**

Acronym	Name	Service Sector
	Analysis of Mental Health Services for Romanian Children	Healthcare & E-Health services
	Integrated Technical Dispatcher for Brasov County - Geospatial Electronic Services	E-Administration
	Vital Assistance for the Elderly	Healthcare & E-Health services
AIM	Adequacy of old-age income maintenance in the EU	E-Government Software services
AQUAMAR	Marine Water Quality Information Services AquaMar	E-Administration Software services
ASSIST	Alpine Safety, Security And Information Services and Technologies	E-Administration Software services
BIOINFOQSAR	The development of a QSAR type Bioinformatics system for the modeling of therapeutic agents acting against tumors and bone diseases in individual focused therapies	Healthcare & E-Health services

# Knowledge resources (4)



[Home](#)
[Service Domain Fundamentals](#)
[Activities for services](#)
[Learning](#)
[Service Innovation](#)
[Service Sectors](#)
[Methodologies](#)
[Contributors to SSKE](#)

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**Research**

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  - Education
  - Commercial
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  - Workshops
  - Conferences
  - Virtual Exhibitions
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  - Government

## Professional Organizations More ▾

List of professional organizations involved in service science:

22 professional organizations currently included in SSKE.

Organization 	Acronym 	Parent Organization 
CEN Technical Committee 251	CEN/TC 251	
Cloud Computing Special Technical Community	CS CC STC	IEEE Computer Society
Cloud Standards Customer Council	CSCC	Object Management Group
Cluster Observatory		Center for Strategy and Competitiveness
Distributed Management Task Force	DMTF	
Healthcare Services Specification Project	HSSP	
International Society of Service Innovation Professionals	ISSIP (pronounced i-Zip)	
Networked European Software and Services Initiative	NESSI	
OASIS Cloud Application Management for Platforms CAMP TC	OASIS CAMP TC	Organization for the Advancement of Structured Information Standards
OASIS Cloud Authorization CloudAuthZ TC	OASIS CloudAuthZ TC	Organization for the Advancement of Structured Information Standards
OASIS Identity in the Cloud TC	OASIS IDCloud TC	Organization for the Advancement of Structured Information Standards

# Knowledge resources (6)



<b>Keywords</b>
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Journals
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Research
Studies
Education
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<b>Patents &amp; Standards</b>
<b>Events</b>
Workshops
Conferences
Virtual Exhibitions
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Technologies
Products
POC & Demos
Training Centers & Programs
<b>Institutions</b>
Academic
Business
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Professional Organizations

## SEM Master Program More ▾

**Program name:** Service Engineering and Management

**Acronym:** SEM

**Language:** English

**Double Degree Agreement:** with MESH Master Program at Faculty of Engineering of the University of Porto (FEUP)

**Program director:** Theodor Borangiu

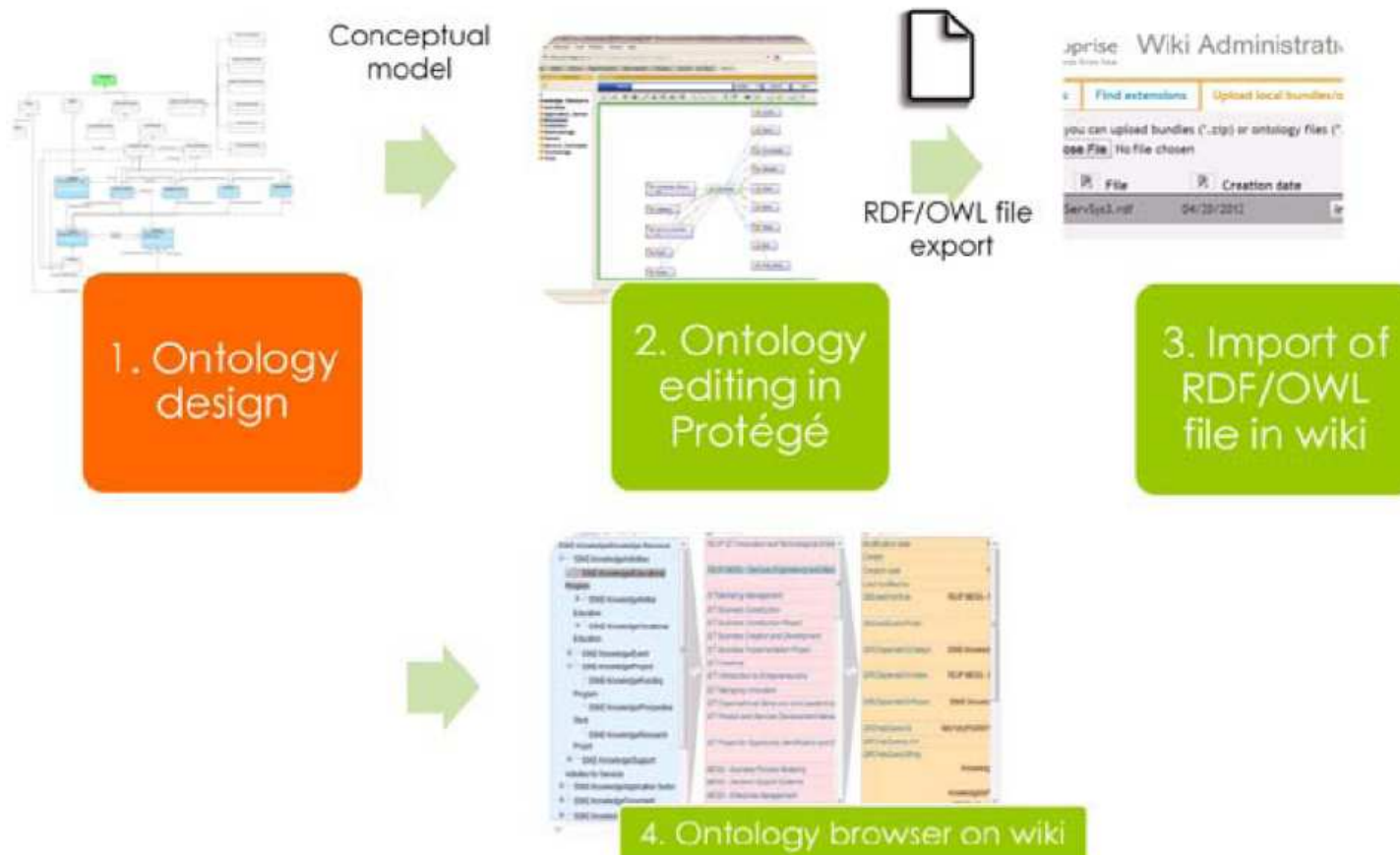
**Institution:** University Politehnica of Bucharest, Faculty of Automatic Control and Computers

**Program link:** <http://sem.cimr.pub.ro/index.html>

**Program objectives:** The new Master program "Service Engineering and Management" responds to the present worldwide demand of service innovation. The scale and complexity of globally dispersed service systems is growing rapidly and the importance of using resources efficiently, effectively and in a sustainable manner is rising, as service activities become an ever greater part of value creation in modern economies. Proportionally, we are paying more for experience, advice, information, assurances, use of infrastructures and leasing, and less on growing, building and owning physical goods.

In such a rapidly changing and increasingly complex world, service innovation requires new skills and deep knowledge that underpins the skill set. People are needed who can understand and marshal diverse global resources to create value. Frequently these resources are accessed using advanced information and communication technologies (ICT) and new globe-spanning business models. The people with new skills for service innovation are sometimes known as adaptive innovators for the continuous stream of improvement they identify and realize. Service innovation can improve customer-provider interactions and the experience of finding, obtaining, installing, maintaining, upgrading and disposing of products. Service innovation can enhance the capability of organizations to create value with key stakeholders. Service innovation can improve the quality of life of the individuals and

# SSKE - Design (step 1)



# SSKE – Deployment (step 2)



- The SS-KE is the knowledge resource sharing component of the INSER@SPACE, using cloud computing technology



# Final remarks



- could the community use further the SSKE for *managing service related knowledge*?
- is the Service Science community interested to foster *knowledge-oriented collaboration* on this common research and education topic?
  - is it possible to support the development of a common *reference ontology* for a group of organisations sharing the same business domain, i.e. Service Science?
    - interoperability of existing ontologies on Service Science: *merging / inclusion / mapping* ?
  - templates for contributors to the SSKE - [http://sske.cloud.upb.ro/sskemw/index.php/Contributors\\_to\\_the\\_SSKE](http://sske.cloud.upb.ro/sskemw/index.php/Contributors_to_the_SSKE)
- your feedback would be highly appreciated:  
[monica.dragoicea@acse.pub.ro](mailto:monica.dragoicea@acse.pub.ro)    [theodor.borangiu@cimr.pub.ro](mailto:theodor.borangiu@cimr.pub.ro)



*Thank you!*