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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

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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

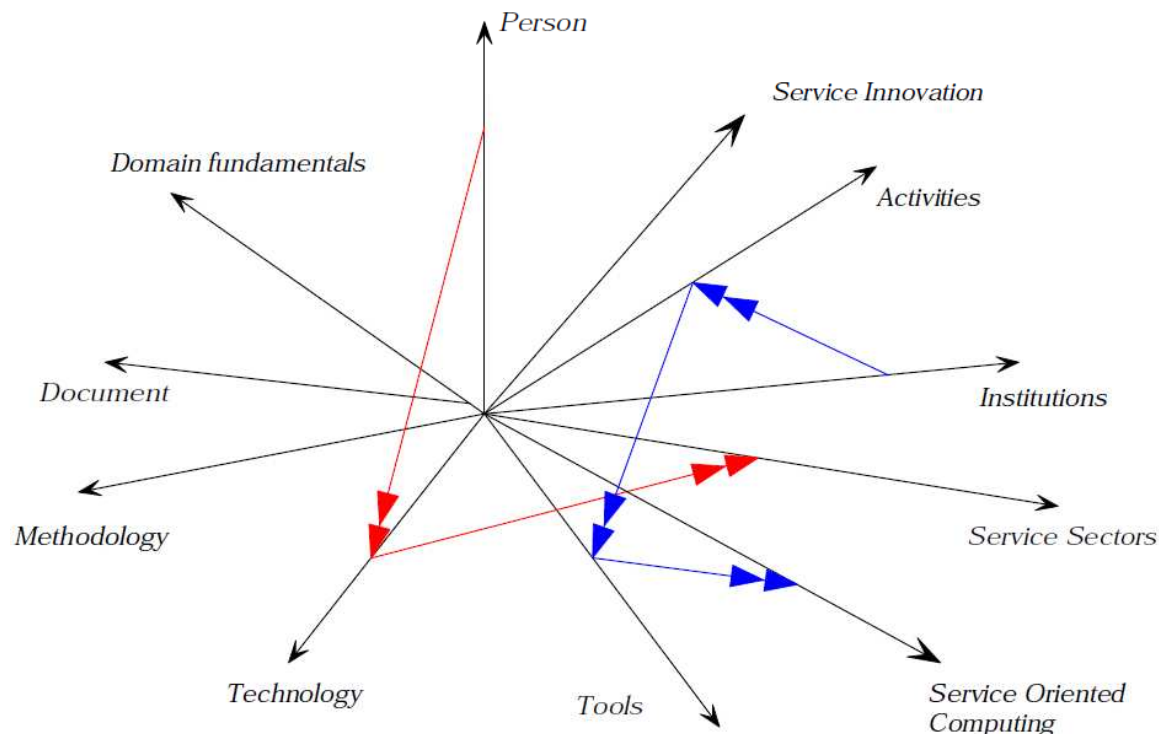


- Requirements elicitation:
 - To exploit a database highlighting an *educational knowledge path* on Service Science, fostering *service innovation* in different *service sectors*, based on *fundamental concepts* related to Service Science;
 - To *increase* the service companies *visibility*;
 - To report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

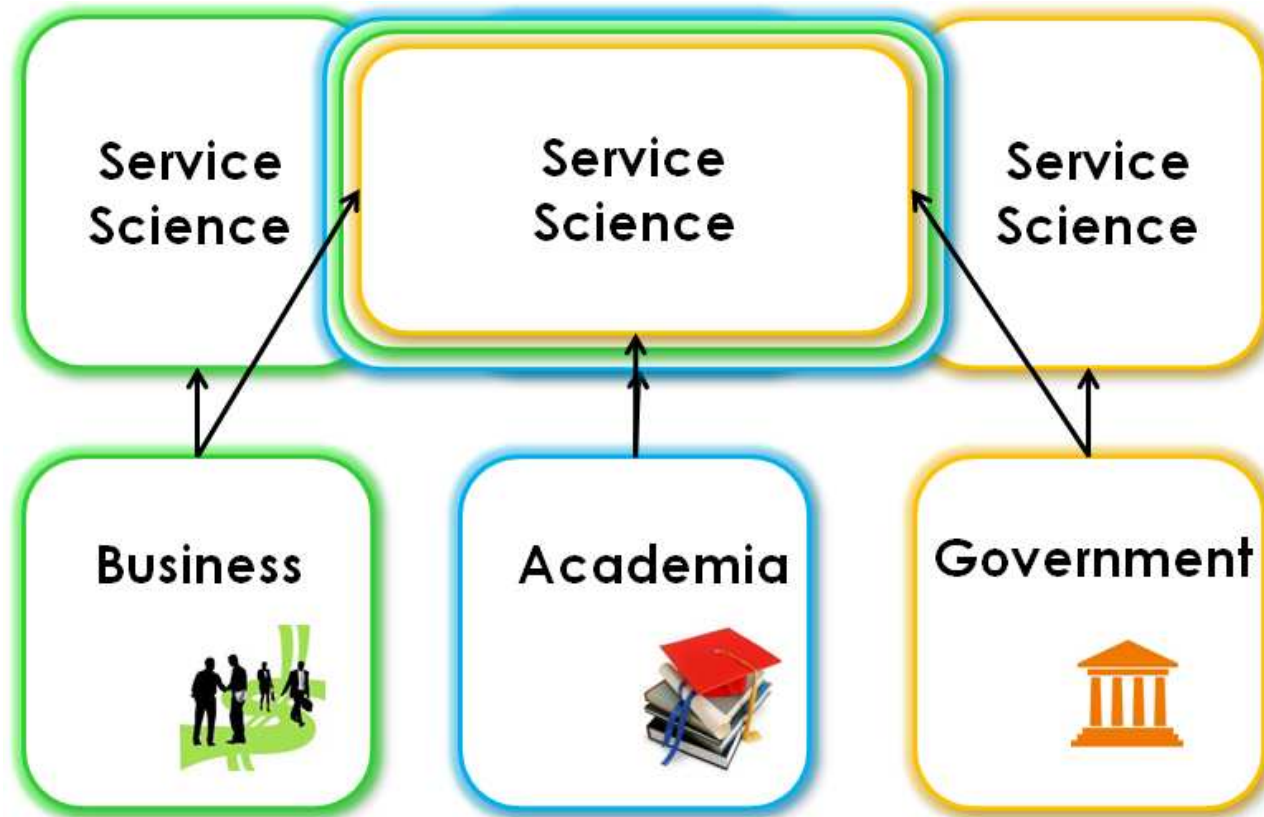
Knowledge Environment for Service Science



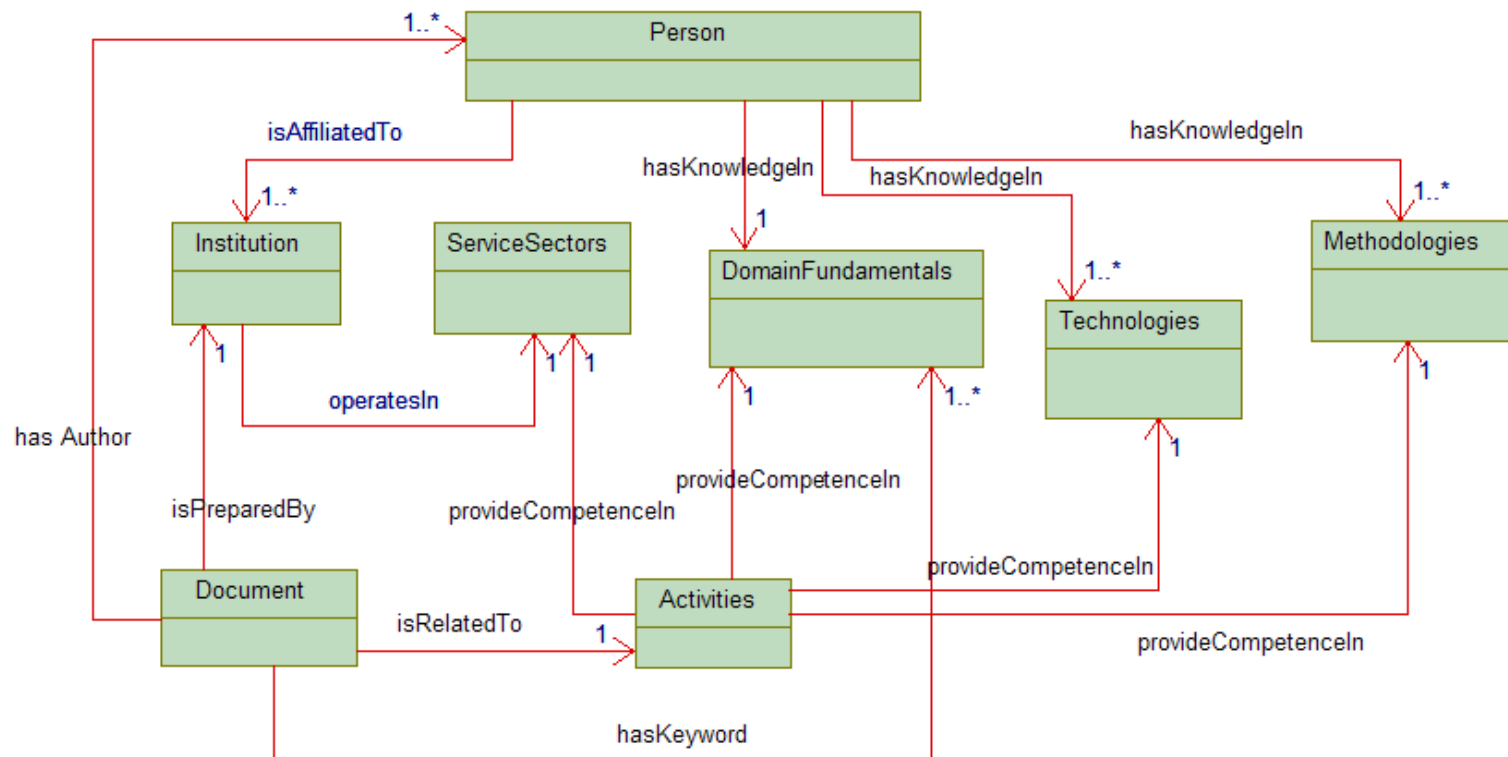
- First hand solution:
 - the proposed *Knowledge Environment* was supposed to include and classify *knowledge resources* related to Service Science, for example Articles, Projects, People knowledgeable about Projects, that write Articles and use Technology in certain Service Sectors



Stakeholders' perspective on the SSKE

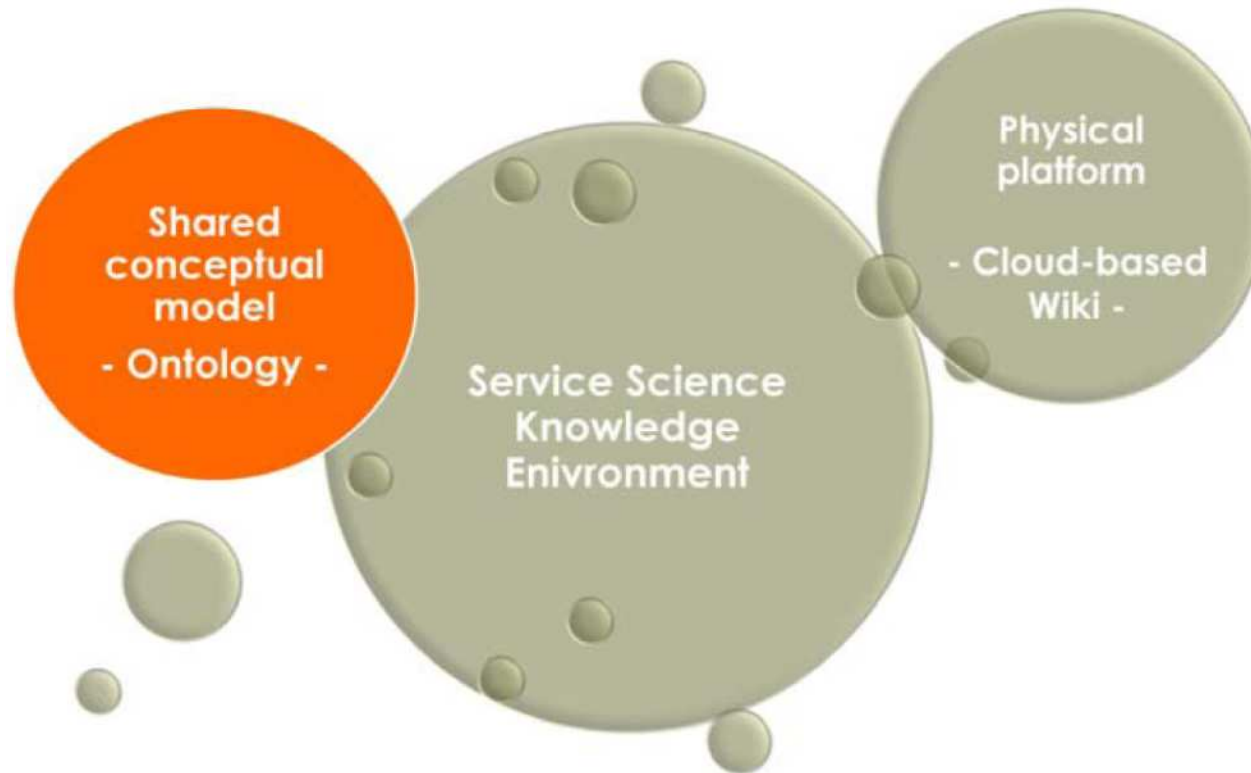


SSKE – knowledge resources (main ontology concepts)



- a tree of interrelated concepts - an ontology - based classification
- aims at the creation of a digital library to include specific knowledge on Service Science.
 - to *classify* and to *manage* knowledge resources

SSKE – Solution



Service Science Knowledge Environment – SSKE

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



INSER@SPACE

E-Learning

Service Science Knowledge Environment

Cloud@UPB

Data Explorer | Query Interface | Change view | Log in

SSKE

New page

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Service Science Knowledge Environment

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**.

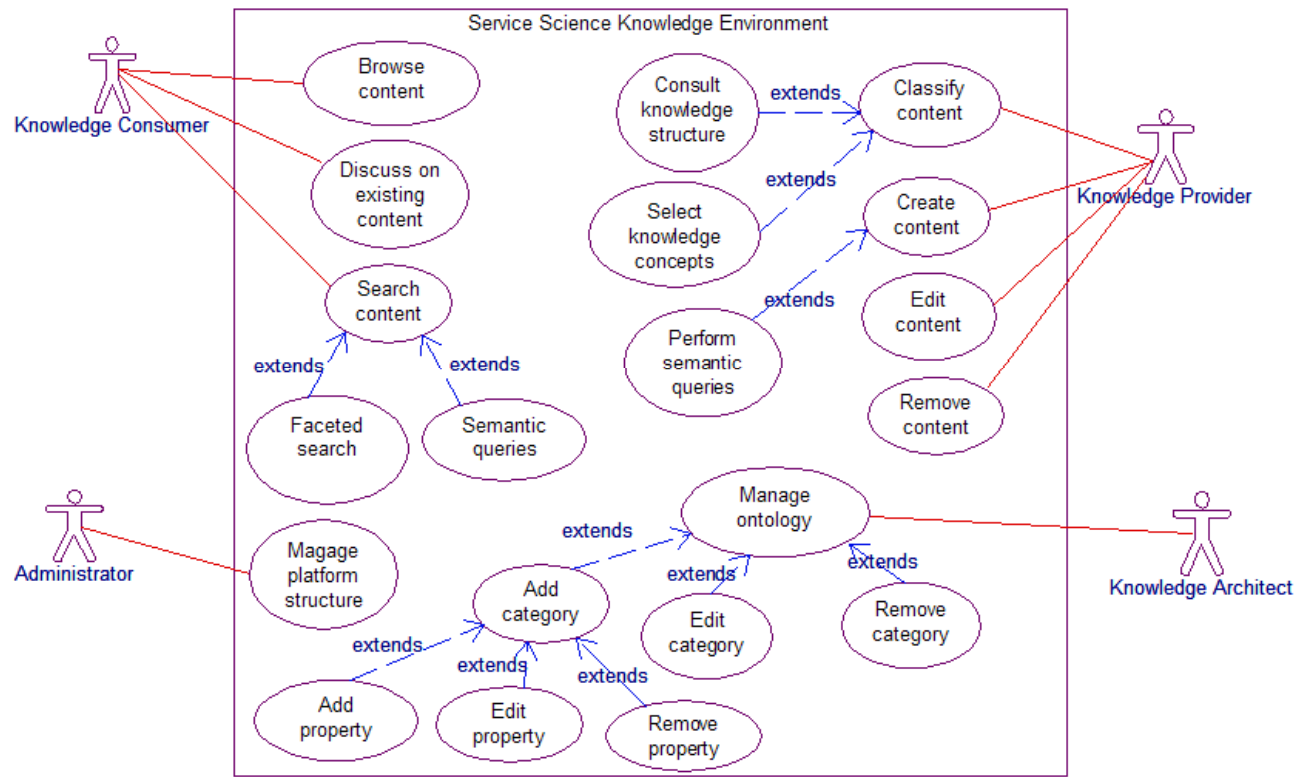
The **Service Science Knowledge Environment (SSKE)** targets also at creating a solid knowledge-based link between **academia, industry and government**, along with other **European institutions**. It supports sharing relevant information on **Service Science** that would be stored in a structured way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

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 (1)



- Keywords**
- Documents**
- Articles
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- Training Centers & Programs
- Institutions**
- Academic
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- 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

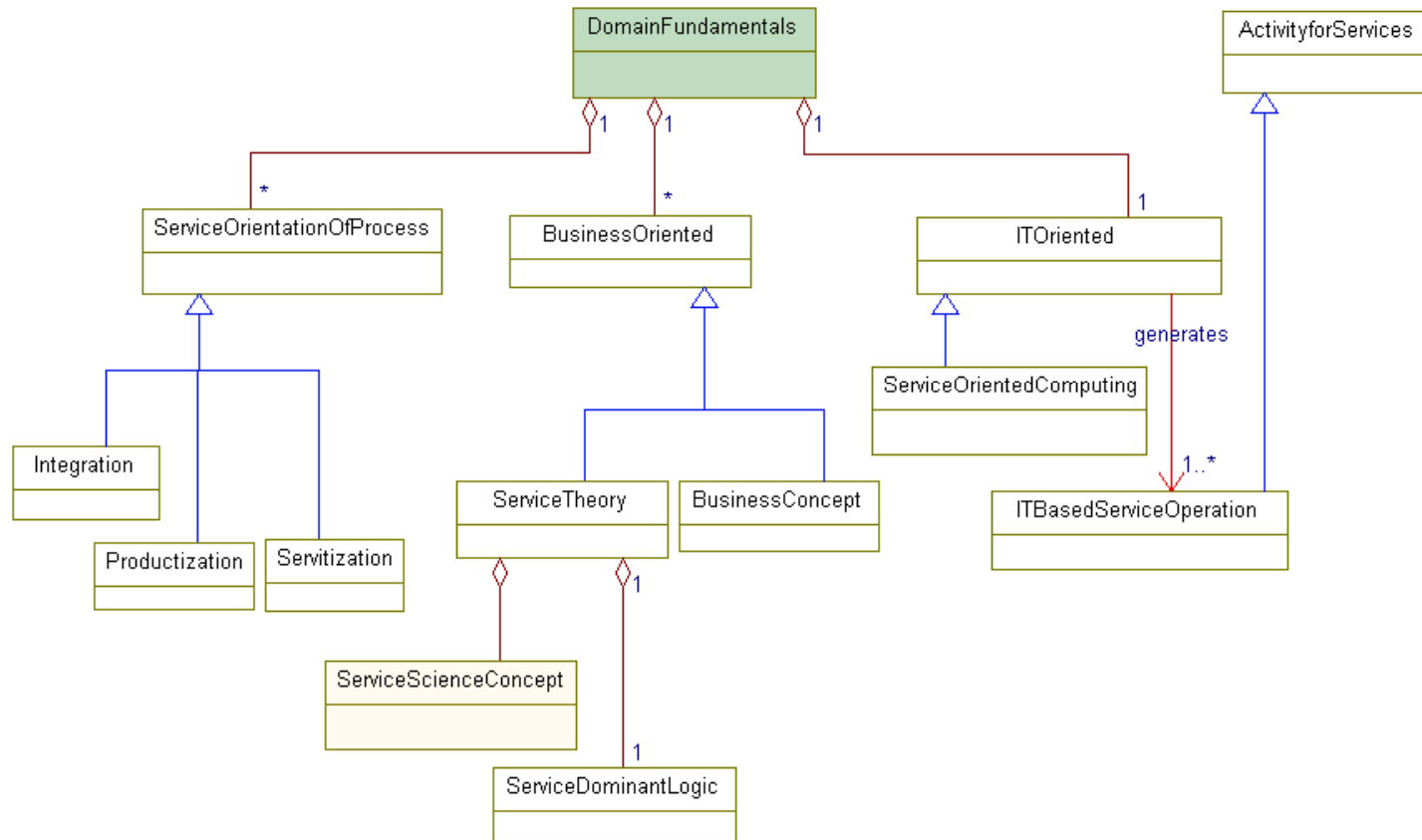


SSKE – Information map (2)



- Service orientation of processes
 - Integration
 - Integration standards
 - Vertical integration
 - Star integration
 - Horizontal integration
 - Productization
 - Servitization
 - Business to business
 - Activities for services
 - Core activities for services
 - Service delivery
 - Service design and development
 - Service marketing
 - Service operations and management
 - Support activities for services
 - General management
 - Human resource management
 - Technology development
 - Service performance evaluation
 - Methodologies
 - Business process modelling
 - Business process
 - Process diagram
 - Business process management
 - Business process management suite:
 - Business process automation
 - Business process improvement
 - Business process re-engineering
 - Business process model and notation
 - Business process model and notation
 - Business process modelling tools
 - Service blueprinting
 - Optimization
 - Queuing theory
- Service innovation
 - Innovation
 - Dimensions of innovation performance
 - Innovation indicators
 - Composite innovation indexes
 - User innovation
 - Services sector productivity growth
 - Neo-classical growth model
 - Knowledge Intensive Services
 - Science and technology-led services in
 - Smart service system
 - Service innovation levels
 - Adaptive innovator
 - Trends entailing service innovation
 - 2-dimension value creation logic
 - Typology of service innovation
 - Service Sector Innovation Index
 - Product-Service System
 - After-sales service
 - Product-result service
 - Product-utility service
 - Service research
 - Research stimulating service innovation
 - Service innovation framework
 - Change categories for service innovation
- Service sectors
 - E-Administration
 - Public health
 - Health insurance portability and accountability act
 - Centers for disease control and prevention
 - Electronic medical record
 - Electronic office
 - Digital identity
 - Public policy
 - Electronic voting
 - E-petitions
 - E-participation
 - E-democracy
 - E-procurement
 - Decision support systems
 - Social media
 - Open government maturity model
 - Business model perspective
 - E-Government
 - Public administration
 - Administrative processes
 - Government-to-Business
 - Government-to-Citizen
 - Transparency
 - Government-to-Government
 - Intra-government
 - E-government implementation
 - E-government architecture

SSKE – Domain fundamentals



Knowledge resources (1)



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Articles More ▾

220 articles currently included in SSKE.

<input type="checkbox"/>	Author(s) <input type="checkbox"/>	Keyword(s) <input type="checkbox"/>
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

Knowledge resources (2)



Keywords
Documents
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Solutions
Technologies
Products
POC & Demos
Training Centers & Programs
Institutions
Academic
Business

Books

[More](#)

164 books currently included in SSKE.

	Author(s)	Editor(s)	Keyword(s)
A Virtualization Experience: IBM Worldwide Grid Implementation	Alex Zlatsin Colm Malone Joshua Woods Moon Kim Nianjun Zhou Soobaek Jang		Grid Computing Virtualization
A general theory of competition: resources, competences, productivity and economic growth.	Shelby D. Hunt		Goods dominant logic
Against the Gods: The Remarkable Story of Risk	Peter L. Bernstein		Governance interaction
Agent-Based Service-Oriented Computing (book)		Kuo-Ming Chao Nathan Griffiths	Service oriented computing
Basics of Supply Chain Management	Ed Hill Lawrence D. Fredendall		Supply chains and logistics
Brain of the Firm	Stafford Beer		Template of VSM structure Viable system model
Building Enterprise Information Architectures: Reengineering Information Systems	Melissa Cook		Information
			Business model

Knowledge resources (3)



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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 (4)



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Research More ▾

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 (5)






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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)



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- Institutions**

Solutions More ▾

14 solutions currently included in SSKE.

Name	Organization
Analytics for Education	IBM
Archestra – A Proven Industrial Service Oriented Architecture	Archestra
Digital Collection Building Virtual Libraries	IBM
EVINTER	EDCG Informatica
IBM Cloud Computing VCL Solution for Education	IBM
IBM Manufacturing Integration Framework	IBM
IBM Platform Computing Solutions	IBM
IBM Rational Solutions for Complex Systems and Software Engineering	IBM
IBM Rational Workbench for Systems and Software Engineering	IBM
IBM Smart Metering	IBM
InfoPub	OPT
Interacting with the SOA-Based Internet of Things	
SAP Enterprise Solutions	SAP
SAP Manufacturing Integration and Intelligence - Turbo charge your SAP Applications with IBM Power	SAP IBM

Knowledge resources (7)



Keywords
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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

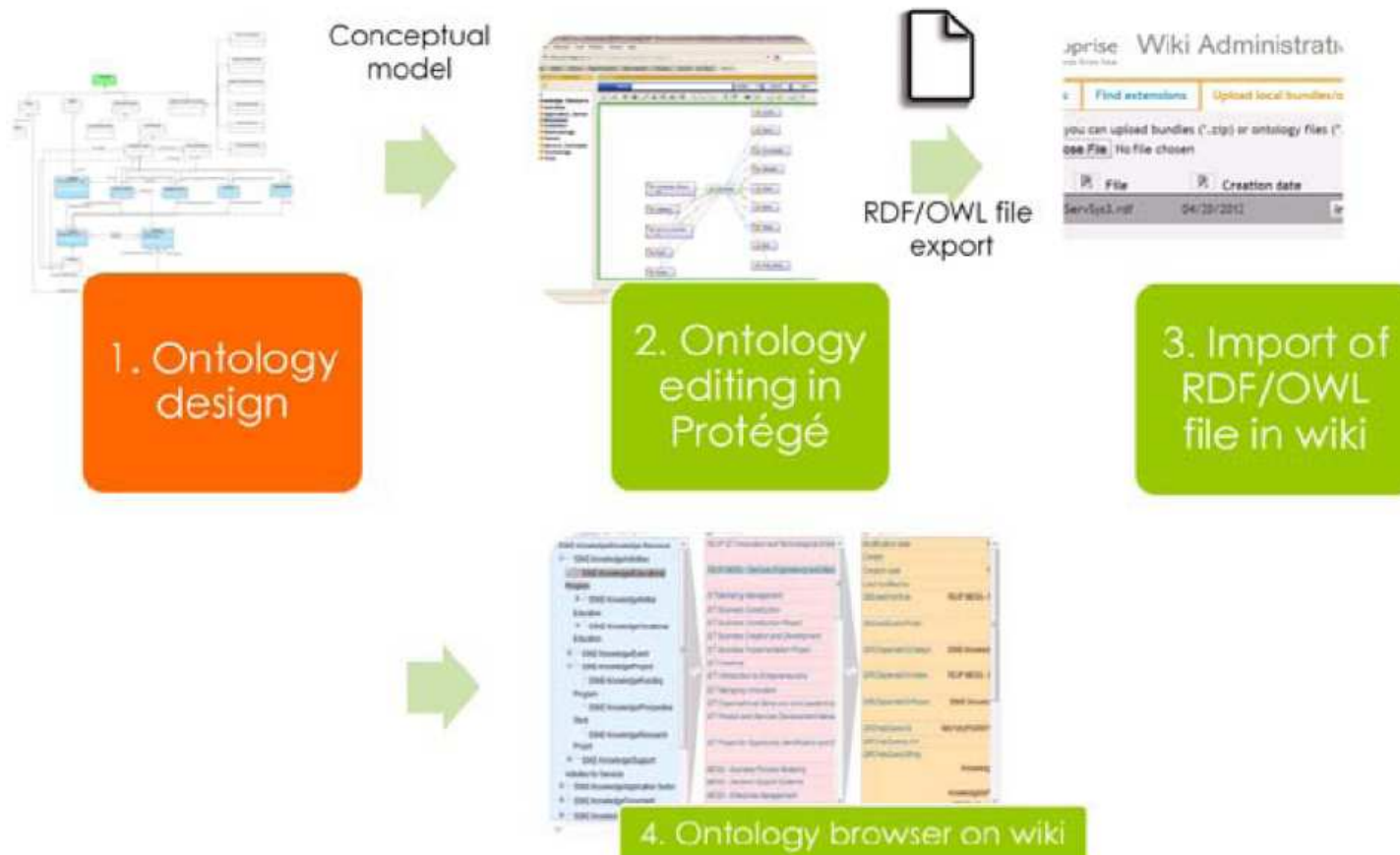
Institution: University Politehnica of Bucharest, Faculty of Automatic Control and Computers

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
- your feedback would be highly appreciated:
monica.dragoicea@acse.pub.ro theodor.borangiu@cimr.pub.ro



Thank you!