

Enterprise **CO**llaboration & **IN**teroperability



Services for Enterprises: an European ICT research perspective

Keynote Speech at FIS2010 Conference

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The COIN Vision & Motto



COIN VISION: *“By 2020 enterprise collaboration and interoperability services will become an invisible, pervasive and self-adaptive knowledge and business utility at disposal of the European networked enterprises from any industrial sector and domain in order to rapidly set-up, efficiently manage and effectively operate different forms of business collaborations, from the most traditional supply chains to the most advanced and dynamic business ecosystems.”*

COIN MOTTO: *“Enterprise Interoperability and Enterprise Collaboration are the two sides of the same COIN”*



The COIN Integrated Project

Project No:	216256
Project Full Name:	Collaboration & Interoperability for Networked Enterprises
Duration:	48 months
Start date:	January 1 st 2008
Partnership:	21 partners, 9 countries
Strategic Objective:	FP7 ICT-2007.1.3 ICT in support of the networked enterprise
Total Eligible Cost:	14.383.834 EURO
EC Contribution:	9.996.480 EURO



The COIN Consortium & Funnel Model

Industrial Partners



Academic & Research Partners



Jožef Stefan Institute, Ljubljana, Slovenia

User Partners



Filas



Finanziaria laziale di sviluppo





The COIN Metaphore

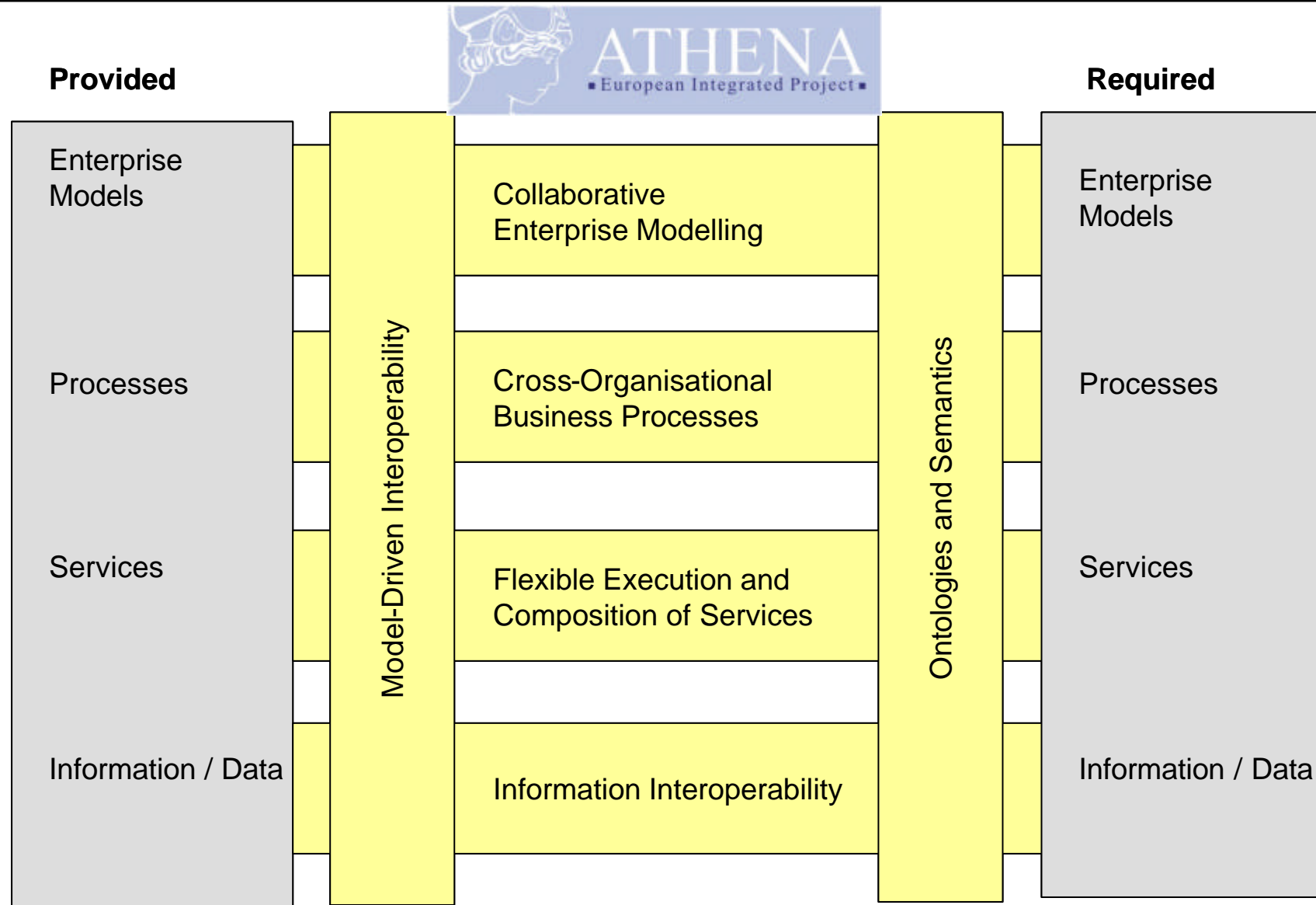
COIN MOTTO:

“Enterprise Interoperability and Enterprise Collaboration are the two sides of the same COIN”

- ***The SIDE A of the COIN: Enterprise Interoperability***
- ***The SIDE B of the COIN: Enterprise Collaboration***
- ***The Substrate of the COIN: Service Platform***
- ***The Value of the COIN: Software as a Service-Utility SaaS-U***
- ***The Market of the COIN: Enterprise Networks (mainly SMEs)***



COIN Side A: interoperability





COIN Side A: main innovations

- **The COIN Interoperability Cloud Space**

- ✍ To address **Information, Knowledge and Business** interoperability
- ✍ To support the **Federated** interoperability approach
- ✍ To integrate **Model- and Semantic- driven** interoperability methods
- ✍ To enable **Knowledge Profiles** semantic mediation
- ✍ To synchronize and optimize **collaboration Business Processes**
- ✍ To go beyond state-of-the-art 1:1 transactions:
 - ✍ Supporting **1:1 negotiations** (e.g. supplier-customer)
 - ✍ Enabling **1:n relations** (e.g. tender-bidders)
 - ✍ Allowing **n:m agreements** (e.g. sellers-buyers)

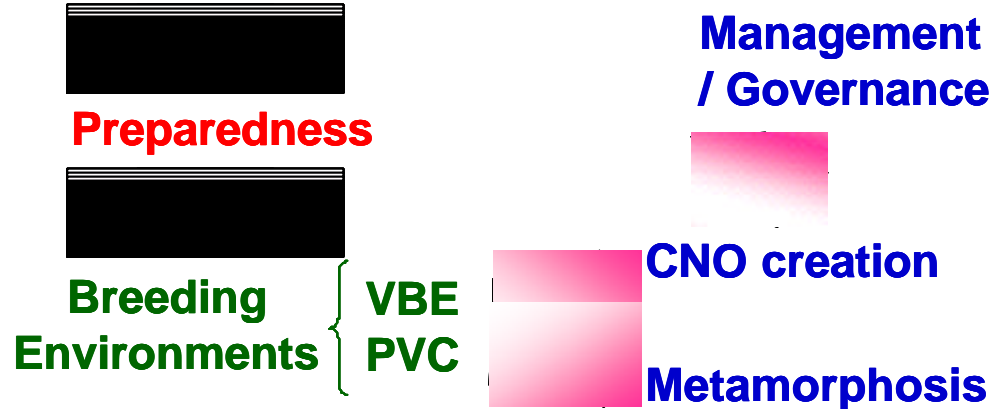
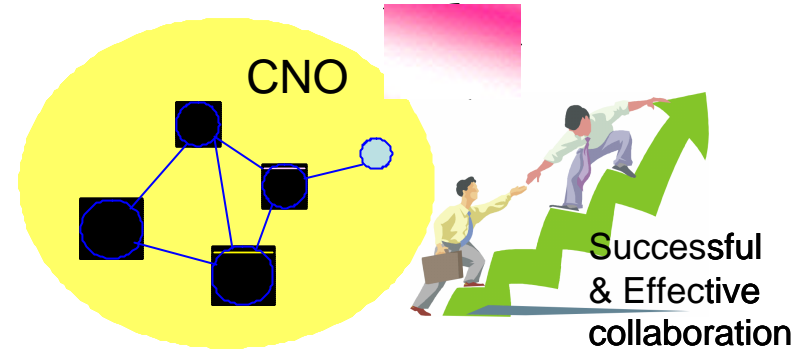


COIN Side B: collaboration



Short window of opportunity

Fast configuration of a temporary consortium well suited to the needs



© The ECOLEAD Integrated Project





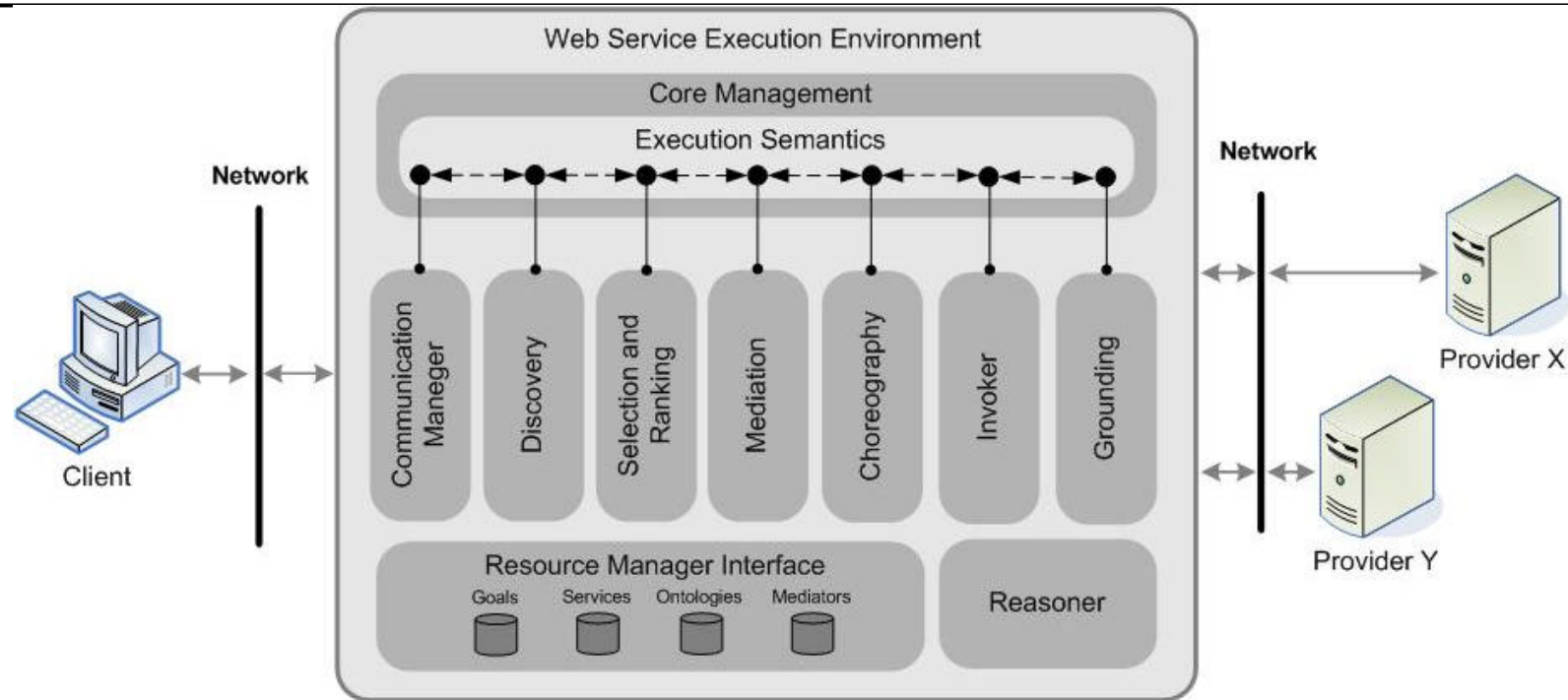
COIN Side B: main innovations

- **The COIN Collaboration Space**

- ✍ To allow **Endogenous** generation of Business Opportunities (LivingLabs & Open Innovation)
- ✍ To support **Product Design, Production Planning, Project Mgmt**
- ✍ To enable **Co-operativity** of Enterprise Applications (groups as users)
- ✍ To support **Web 2.0** and participative services (Enterprise 2.0)
- ✍ To involve also the Customers in the whole life-cycle of **Virtual Organizations (VOs)**:
 - ✍ **VO preparation** (get the enterprises prepared to form VOs)
 - ✍ **VO creation** (select partners and competencies)
 - ✍ **VO operations & mgmt** (performance indicators definition-governance)
 - ✍ **VO dissolution** (inheritance and knowledge transfer)



The COIN Generic Service Platform



COIN GSP + EI/EC Knowledge

- An improved WSMX (SESA)
- P2P Models Registry/Repository (scalability)
- Interoperability security gateways
- Embedded reasoning / negotiation
- EI/EC reference ontologies

Extra COIN open Collaborations

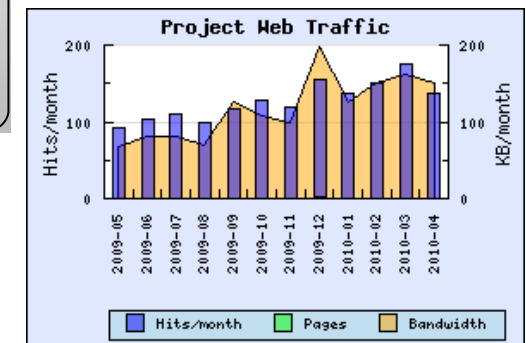
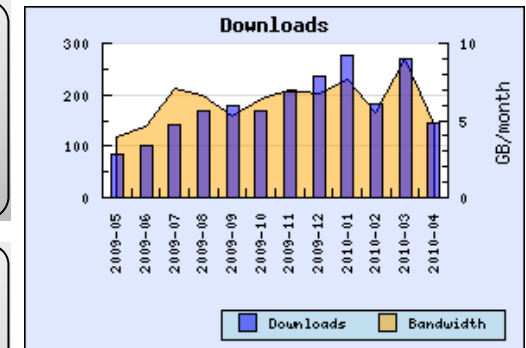
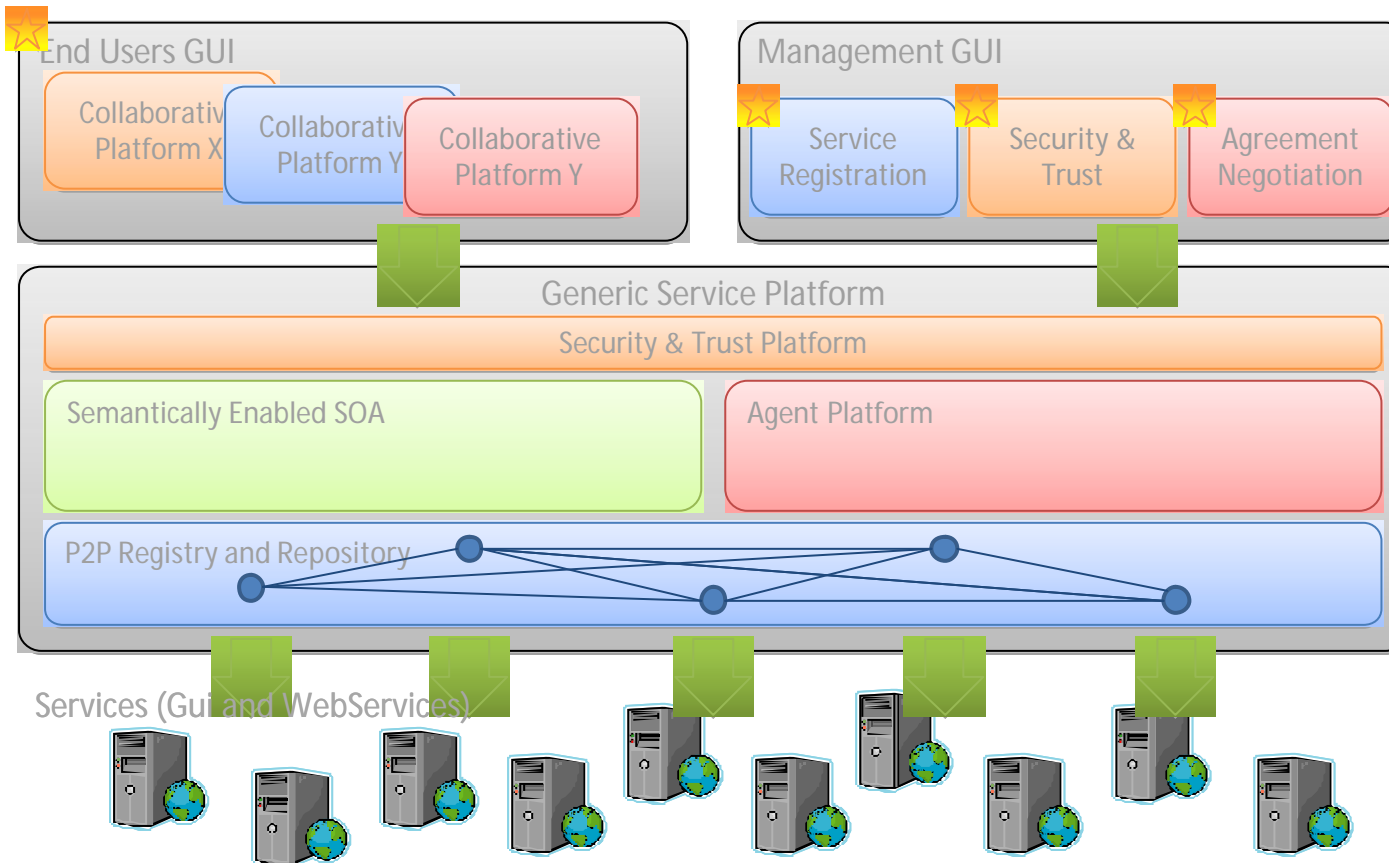
- iSURF (EI/EC services & platf.)
- STASIS (EI services & platf.)
- ECOSPACE (EC services & platf.)
- SOA4ALL (REST + Search eng.)
- RESERVOIR (Cloud Computing)



The COIN OSS E/EC Utility Platform

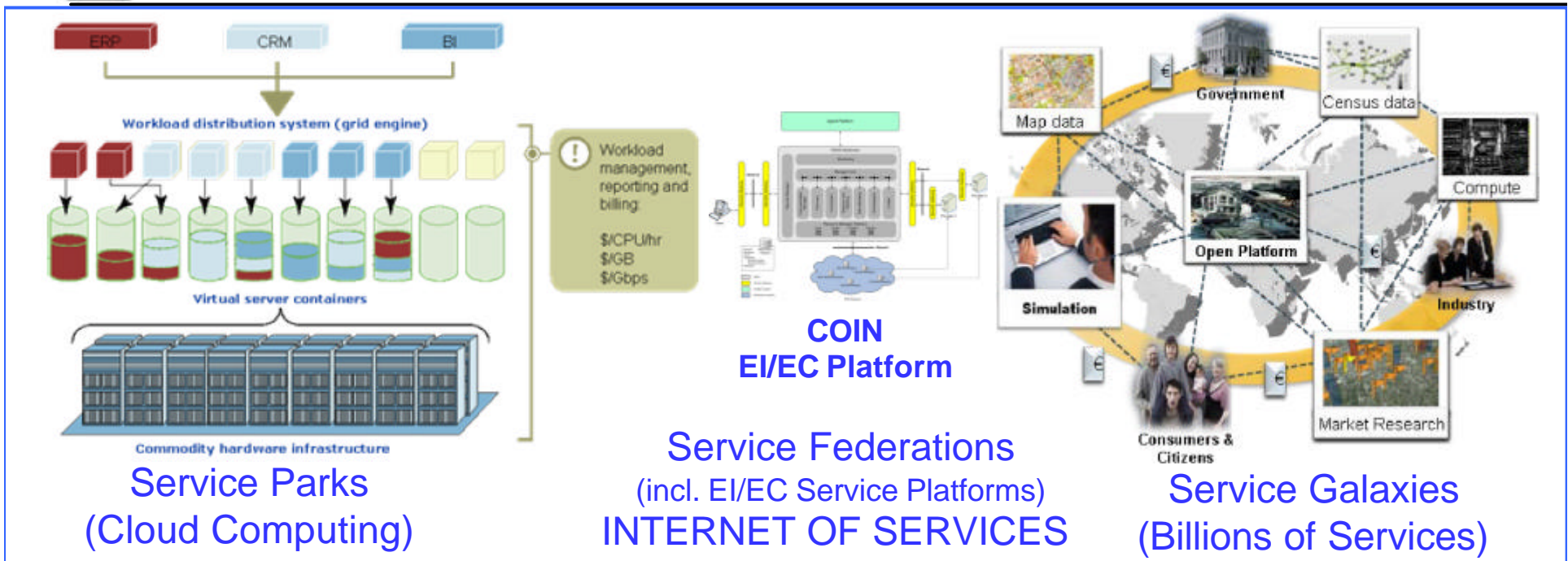
<http://sourceforge.net/projects/wsmx/>

- More than 800 downloads in the last year of the version 1.0 beta (the one delivered by COIN)
- 8 active developers communities
- More than 5k read transactions on SVN

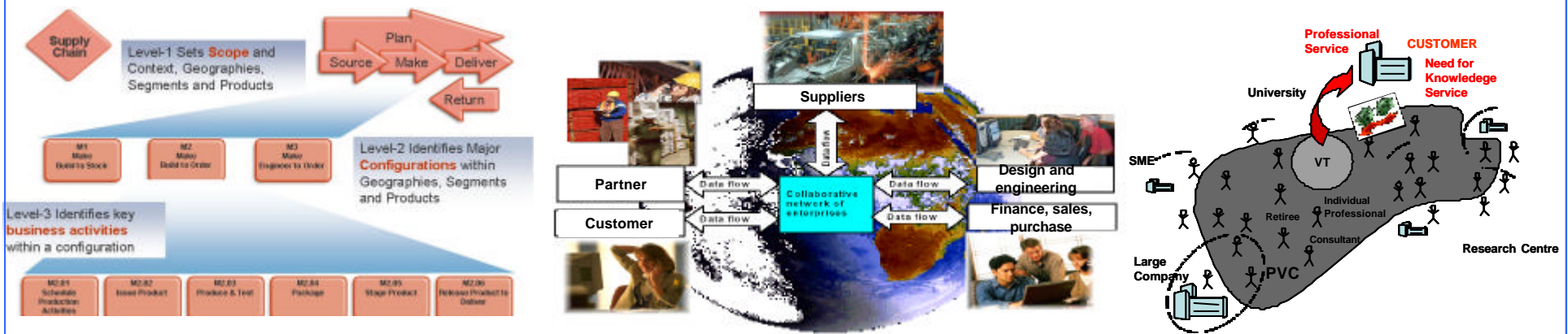




COIN General Architecture



ENTERPRISE COLLABORATIVE ENVIRONMENTS





COIN and Cloud Computing IoS

Data Storage

Utilize servers, storage, or network infrastructure via an Internet connection.

"Infrastructure as a Service"

Example: Amazon S3 Storage



Windows Azure Platform

App Development

Design, develop, test, deploy and host applications on Web-based platforms.

"Platform as a Service"

Example: Google App Engine



Applications

Use a Web browser as a platform from which to run Web-based applications and services.

"Software as a Service"

Example: Zoho.com



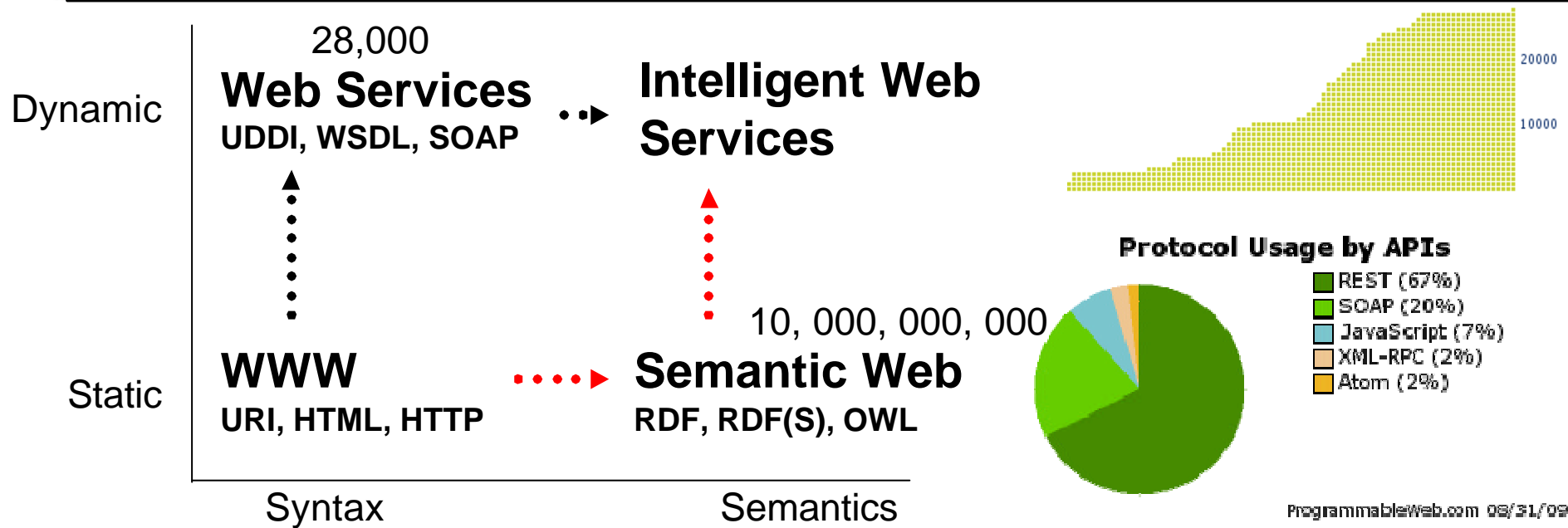
Source: Sebastian Muller, Google EU Policy Manager. The Future of Cloud Computing, DG INFSO D3, Bruxelles Jan 26th 2010

COIN related Research Issues:

- ICT Commoditization: from Applications to Platforms, from Platforms to Infrastructure
- EI & EC services/platforms Value Added & Utility Services/Platforms (SaaS-U BModel)
- Platforms federations: IaaS & SaaS are already here, what about PaaS? In the FI?
- Service Delivery / Development Platforms / Platforms Interoperability



COIN and Service Web IoS



COIN related Research Issues:

- More powerful/expressive Service Description languages
- Semantic crawling & search engines for providers
- Need for easy-to-use development platforms (beyond delivery): Front-End, pro-sumers
- Long-lasting Service Level Agreements for Enterprises and Business Processes

Tuesday 15 September 2009

PM welcomes Sir Tim Berners-Lee to Downing Street

The Prime Minister welcomed the creator of the World Wide Web, Sir Tim Berners-Lee, and Professor of Artificial Intelligence at the University of Southampton, Nigel Shadbolt, to Downing Street this morning.

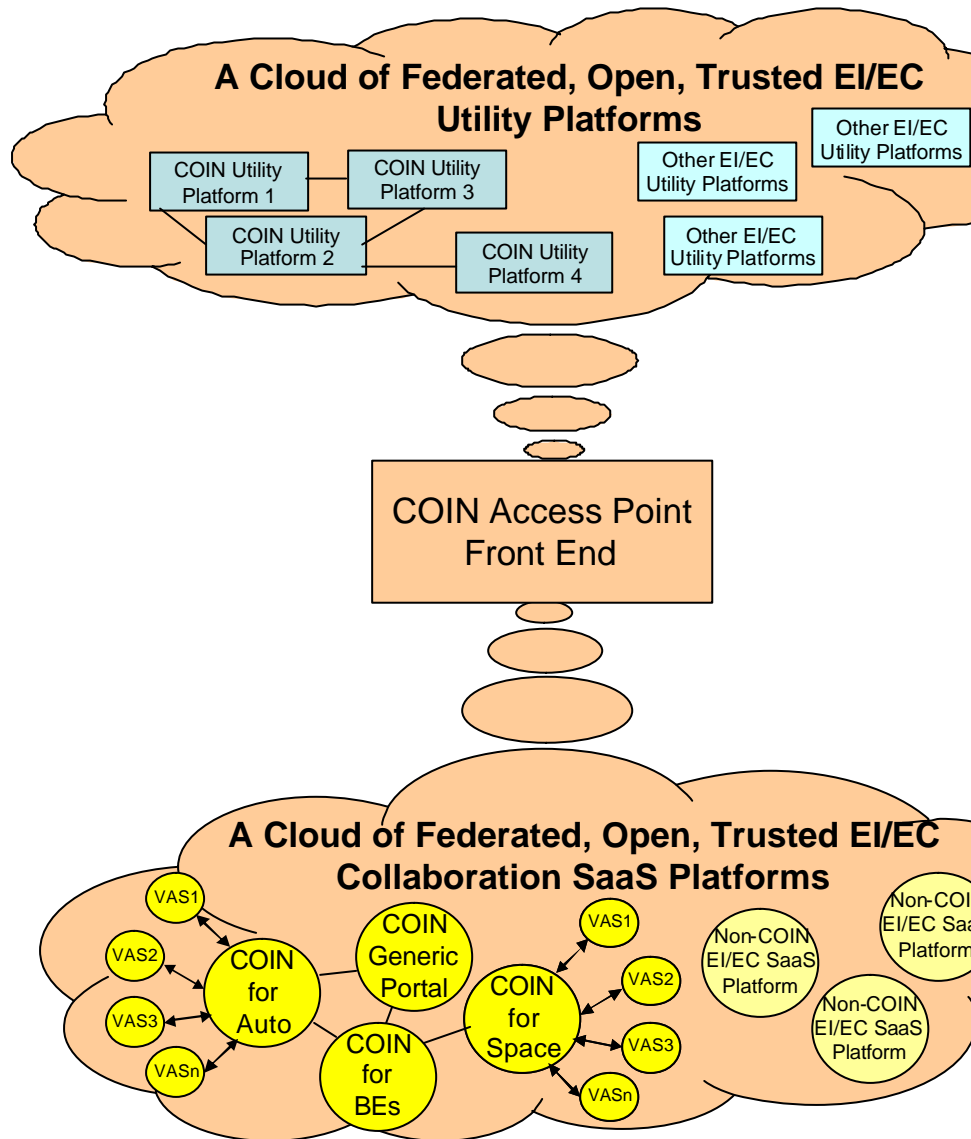
Mr Berners-Lee and Mr Shadbolt presented an update to Cabinet on their work advising the Government on how to make data more accessible to the public.

Gordon Brown has already spoken publicly about his aim of making the UK a world leader in opening up government information on the internet, an important element of [Building Britain's Future](#).



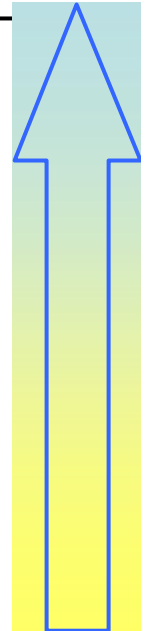


COIN architecture: a double cloud (butterfly)



- Search/Discovery of EI/EC VA Services (e.g. provided by another CP)
- Negotiation/Reasoning (+ Search-Discovery) of EI/EC USs (juxtapose)
- Composition/Ranking of EI/EC USs and VASs
- Execution/Monitoring of EI/EC USs and VASs
- Goals Decomposition

- End-Points of the Best VAs (from other CPs, e.g. c-PP c-PM c-PD)
- End-Points of the Best USs (inside the COIN EI/EC Platf., juxtapose)
- Composition/Ranking of EI/EC USs and VASs
- Execution/Monitoring Reports of EI/EC USs and VASs (SLAs)





COIN Value: state-of-the-art

Software as a Service is the delivery of application functionality via a subscription model. The customer does not take ownership of the software but rather 'rents' a total solution that is delivered remotely. (IBM)

Application Hosting Model
Customer pays on delivery of <u>software</u>
Customer responsible for software performance
Customer responsible to <u>customize</u> software to business requirements
Customer pays maintenance to fix software
Customer buys upgrades to keep current

Software as a Service Model
Customer pays for delivery of <u>functional services</u>
Provider responsible for software performance
Customer responsible to <u>configure</u> software to business requirements
Provider fixes software or pays penalty for failure to meet service levels
Provider ensures currency of solution



COIN Value: main innovations

- **The COIN SaaS-Utility model**

- ✍ An **evolution** of SaaS towards commoditized ICT services
- ✍ Study and Design new **Business Models** for SaaS-U
- ✍ Identify and develop a **Value Proposition** for SaaS-U
- ✍ Support the identification of criteria and **Design Principles** for EI/EC services to be provided as utilities
- ✍ An implementation of the **ISU Grand Challenge** (interoperability service utility)
 - ✍ Available at (very) low cost, under not-rivalry not-competitive rules
 - ✍ Accessible in principle by all enterprises (universal access)
 - ✍ “Guaranteed” to a certain extent & at a certain (set of common rules)
 - ✍ Not controlled or owned by any single private entity

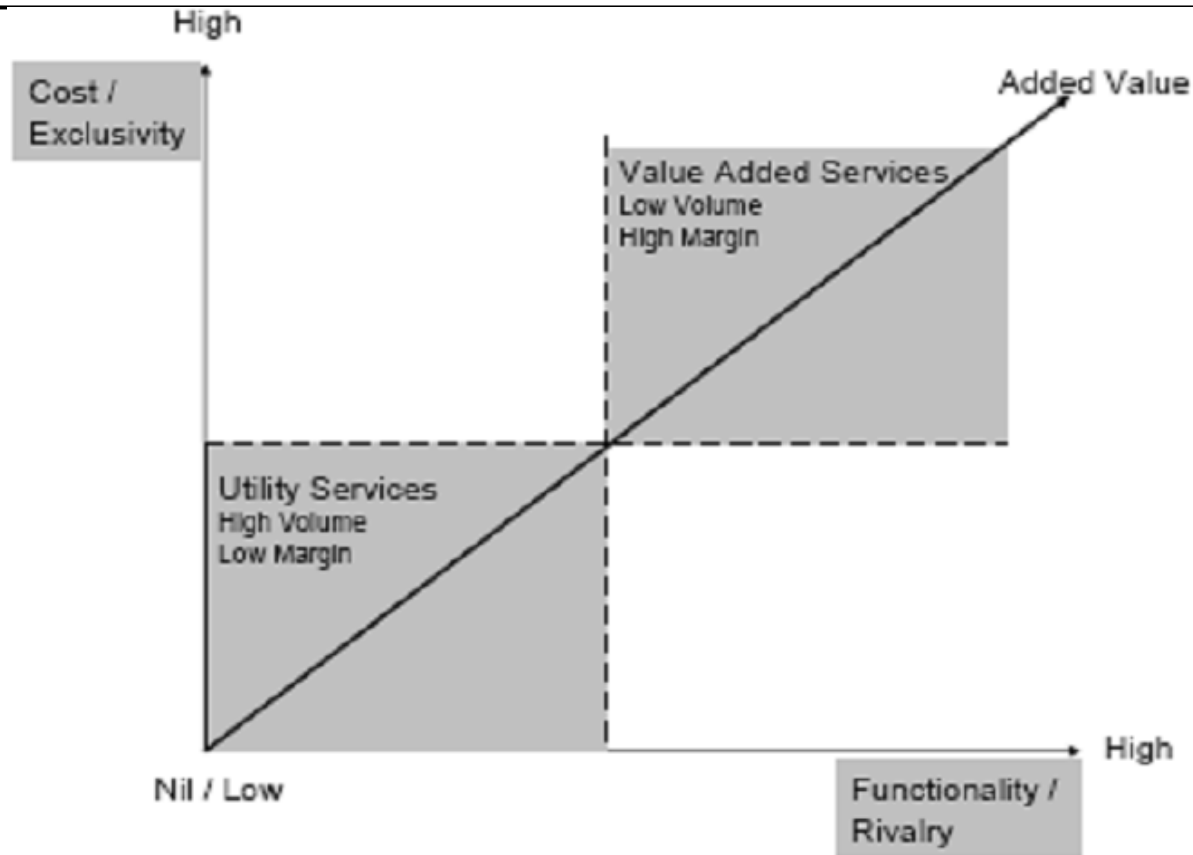


Utility Services Background

- **M. Rappa (2004) *The utility business model and the future of computing services***
Is computing the next utility? Public services: Necessity, Reliability, Usability, Utilisation, Scalability and Exclusivity. Type (9) e-Business Utility Model is based on metering usage and “pay as you go”
- **N. Carr (2003) *IT Doesn't Matter*, (2008) *The Big Switch from Edison to Google***
The evolution of information technology follows a pattern strikingly similar to that of earlier technologies like railroads and electric power. These "infrastructural technologies" become soon commodity inputs. PCs are over; our lives will soon centre around one planetary World Wide Computer – the FI
- **C. Anderson (2006) *The long tail*; (2009) *Free: The Future of a Radical Price***
This is the engine behind the new Free Economy. “Tech Is Too Cheap to Meter”. It is time to manage for abundance and to think through the difference between abundance- and scarcity-based business models (e.g. Freemium)



COIN Value: the IT Mixer



Fixed costs
Dedicated resources
Product oriented



IT Plug

Variable costs
Shared resources
Service oriented



IT Switch







Marginal cost > 0.0
Value based dynamic pricing
Service infrastructure as utility
Innovation focused



IT Mixer



COIN Market: starting point

	SupplyChain	Coll Network	Ecosystem
Social Business	Automotive Cluster (Slovenia) 	ISOIN Aeronautical Cluster (Spain) 	Healthcare Ecosystem (UK) 
Social Knowledge	Aerospace Supply Chain (Italy)  finanziaria laziale di sviluppo	ICT Collaborative Network (Hungary) 	Pulp & Paper Business Ecosystem (Finland) 



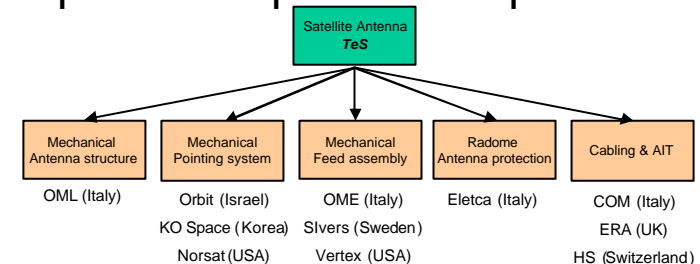
FILAS & Space Supply Chain

Teleinformatica e Sistemi (TeS) is a SME belonging to DTA cluster managed and supported by FILAS. Eutelsat/SNCF is TeS' end customer requiring 65 Antennas (4 pieces per month) to be mounted on the TGV.



Test case demo scenario

- 11 TeS Suppliers involved
- Actors make use of COIN innovative services to improve the production plan process all over the demo session



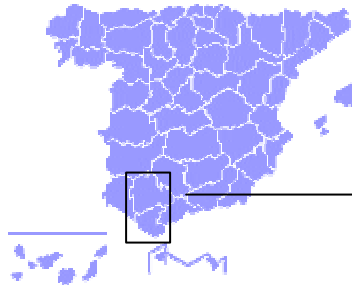
Benefits from using COIN

- More efficient production and maintenance planning life cycle
- Reduce shipping of defective components, reduce costs in replacing defective products, better in-time delivery and increase of production capacity
- Fasten problem solving actions among people involved in the production process
- Better human resources management/allocation costs

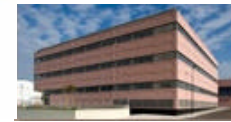
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ISOIN & Aeronautic Cluster



- **Openness** for the cluster, to other prime contractors and other business opportunities. Relation with other clusters



- **Open call for tender** processes. **Competence selection** of partners.

- **SaaS business models** in software implementation that **reduce costs, time and difficulty** for companies in the use of new services.

- Increase **collaboration** in business opportunities among companies, sharing valuable information without neglecting security.



Regional Government



Research centers

- Increase **communication** between companies, University and research centers.



Universities of Sevilla and Cádiz

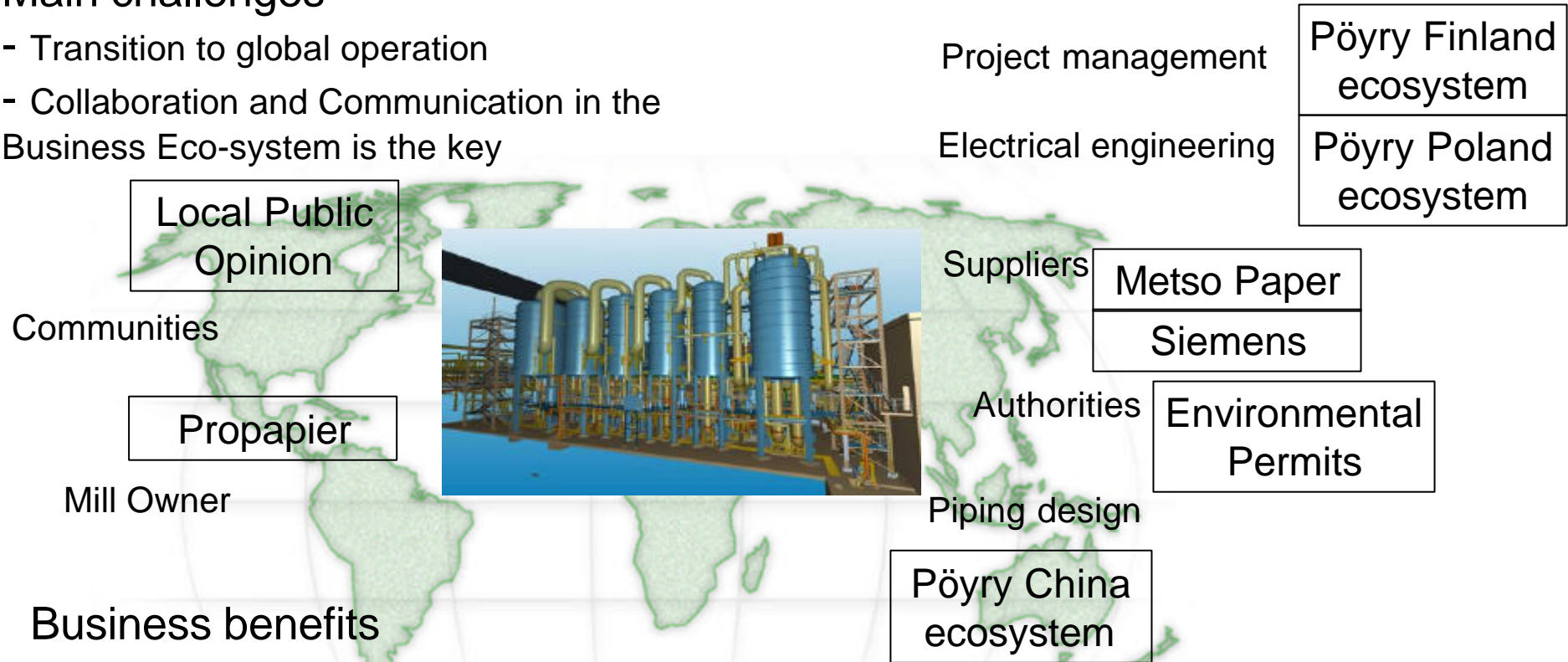
- Increase **Interoperability** among companies of the cluster and outside the cluster, facilitating the use of these services to the end user. SaaS can use **accepted standards in aeronautics** and by **main software developers**, enabling the integration of application and platforms.



POYRY & Pulp-Paper Ecosystem

Main challenges

- Transition to global operation
- Collaboration and Communication in the Business Eco-system is the key



Business benefits

- A new faster way to define what to do in a project
- A new faster way to define how to do it in the project
- Time needed to acquire sufficient project work practice and engineering knowledge.
- A way to find who is able to do it in the project
- Time to find the information about available skill
- The Project Alignment Model is a unified way to present knowledge and skill levels.



COIN Communities



**Seed and multiply
the COIN!**

<http://www.coin-ip.eu/>

The **COIN Community** mechanism aims to extend and multiply dissemination and exploitation of COIN concepts and outcomes to the external scientific, technical and industrial world. COIN Community is structured as a **Professional Virtual Community (PVC)** at three increasing levels of commitment: **Member, Testimonial, Angel.**

COIN Members need to register to the community by filling a simple Registration Form. They will receive periodical COIN Newsletters and participate at the Social life of COIN

COIN Testimonials are members with recognized expertise & competence in COIN topics of interest. They will participate in COIN workshops and increase the Knowledge dimension

COIN Angels are members who are committed to animate the COIN Community and stimulate the adoption of COIN scientific and applicative results in industry.

COIN Pilot Multipliers are additional test cases for COIN outcomes. They cover additional and complementary issues and domains just partially addressed in main COIN.



COIN Angels & Testimonials



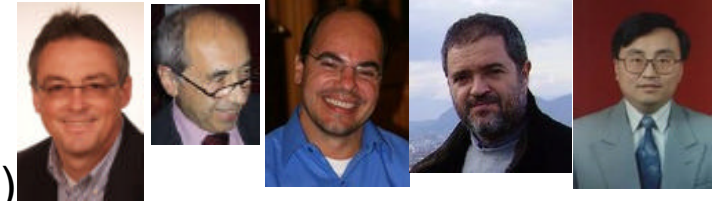
**Seed and multiply
the COIN!**

<http://www.coin-ip.eu/>

- **COIN Members (171)**

- **COIN Testimonials (13)**

- **COIN Angels (9 prospects)**



- ✍ Prof. Guy Doumeingts (Interop VLab) for ICE 2009
- ✍ Prof. Marc Pallot (Nottingham Univ.) for Esoce 2009
- ✍ Dr. Wolfgang Prinz (FhG FIT) for ICE 2010
- ✍ Dr. Piero De Sabbata (ENEA) for Esoce 2010 (Prof. Asuman Dogac (METU) Prof. Roberto Zicari (OMG))
- ✍ Prof. Ricardo Rabelo (UFSC Santa Caterina Brasil) & David Romero (ITM Monterrey Mexico) for IFAC 2011

- **COIN Angels 2010-2011 & Multipliers Prospects**

- ✍ COIN & Semantics (*John Domingue Open University*)
- ✍ COIN & Cloud Computing (*Philippe Massonet CETIC*)
- ✍ COIN and the FI PPP Core Platform
- ✍ EI/EC Services for Smart Cities-Health-Grids
- ✍ Prof. Xu Xiaofei: EI/EC for Chinese Manufacturing

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