Enterprise COllaboration & INteroperability

Services for Enterprises: an European ICT research perspective

Keynote Speech at FIS2010 Conference
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Sergio Gusmeroli
TXT e-solutions SPA, COIN Project Coordinator
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

<table>
<thead>
<tr>
<th><strong>Project No:</strong></th>
<th>216256</th>
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</thead>
<tbody>
<tr>
<td><strong>Project Full Name:</strong></td>
<td>Collaboration &amp; Interoperability for Networked Enterprises</td>
</tr>
<tr>
<td><strong>Duration:</strong></td>
<td>48 months</td>
</tr>
<tr>
<td><strong>Start date:</strong></td>
<td>January 1(^{st}) 2008</td>
</tr>
<tr>
<td><strong>Partnership:</strong></td>
<td>21 partners, 9 countries</td>
</tr>
<tr>
<td><strong>Strategic Objective:</strong></td>
<td>FP7 ICT-2007.1.3 ICT in support of the networked enterprise</td>
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<tr>
<td><strong>Total Eligible Cost:</strong></td>
<td>14,383,834 EURO</td>
</tr>
<tr>
<td><strong>EC Contribution:</strong></td>
<td>9,996,480 EURO</td>
</tr>
</tbody>
</table>
## The COIN Consortium & Funnel Model

<table>
<thead>
<tr>
<th>Industrial Partners</th>
<th>Academic &amp; Research Partners</th>
<th>User Partners</th>
</tr>
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<tbody>
<tr>
<td>TXT e-solutions</td>
<td>VTT</td>
<td>IND</td>
</tr>
<tr>
<td>IC FOCUS</td>
<td>SINTF</td>
<td>PÖYRY</td>
</tr>
<tr>
<td>Atos Origin</td>
<td>ESI</td>
<td>ISOIN</td>
</tr>
<tr>
<td>ESoNET</td>
<td>European Software Institutes</td>
<td></td>
</tr>
<tr>
<td>SIEMENS</td>
<td>Jožef Stefan Institute, Ljubljana, Slovenia</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Filas</td>
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Financial support by: ACS
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: 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
- Successful & Effective collaboration
- Preparedness
- Breeding Environments
- VBE
- PVC
- Management / Governance
- CNO creation
- Metamorphosis

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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)
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)
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 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
COIN architecture: a double cloud (butterfly)

A Cloud of Federated, Open, Trusted EI/EC Utility Platforms

- 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

A Cloud of Federated, Open, Trusted EI/EC Collaboration SaaS Platforms

- 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)
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)

<table>
<thead>
<tr>
<th>Application Hosting Model</th>
<th>Software as a Service Model</th>
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<tbody>
<tr>
<td>Customer pays on delivery of <strong>software</strong></td>
<td>Customer pays for delivery of <strong>functional services</strong></td>
</tr>
<tr>
<td>Customer responsible for software performance</td>
<td>Provider responsible for software performance</td>
</tr>
<tr>
<td>Customer responsible to <strong>customize</strong> software to business requirements</td>
<td>Customer responsible to <strong>configure</strong> software to business requirements</td>
</tr>
<tr>
<td>Customer pays maintenance to fix software</td>
<td>Provider fixes software or pays penalty for failure to meet service levels</td>
</tr>
<tr>
<td>Customer buys upgrades to keep current</td>
<td>Provider ensures currency of solution</td>
</tr>
</tbody>
</table>
COIN Value: main innovations

• The COIN SaaS-Utility model

ध An evolution of SaaS towards commoditized ICT services

ध Study and Design new Business Models for SaaS-U

ध Identify and develop a Value Proposition for SaaS-U

ध Support the identification of criteria and Design Principles for EI/EC services to be provided as utilities

ध 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”

  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

  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

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

- Fixed costs
  - Dedicated resources
  - Product oriented
- Variable costs
  - Shared resources
  - Service oriented

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

IT Plug
IT Switch
IT Mixer
## COIN Market: starting point

<table>
<thead>
<tr>
<th>Social Business</th>
<th>SupplyChain</th>
<th>Coll Network</th>
<th>Ecosystem</th>
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<tbody>
<tr>
<td>Aerospace Supply Chain (Italy)</td>
<td>Filas</td>
<td>ICT Collaborative Network (Hungary)</td>
<td>Pulp &amp; Paper Business Ecosystem (Finland)</td>
</tr>
<tr>
<td>Automotive Cluster (Slovenia)</td>
<td>ACS</td>
<td>ISOIN Aeronautical Cluster (Spain)</td>
<td>Healthcare Ecosystem (UK)</td>
</tr>
</tbody>
</table>
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
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.

- 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.

- **Regional Government**

- **Research centers**

- **Universities of Sevilla and Cádiz**
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.
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.

http://www.coin-ip.eu/
COIN Angels & Testimonials

- **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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