Supporting highly-adaptive Network Enterprise collaboration through semantically-enabled knowledge services

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SYNERGY – Partners

Coventry University (UK)

FZI (Germany)

ICCS (Greece)

CIM College (Serbia)

Loughborough University (UK)

Douglas Connect (Switzerland)

Technology Application Network (UK)

EBM Websourcing (France)
Assumes that information interoperability is achievable

**BUT:**

Misunderstanding can cause inadvertent compromise of IPR confidentiality missed

The Collaborating Partner

The Virtual Organisation
**Moderator Services**
Identify potential decision conflict between partners, and orchestrate timely resolution.

Identify opportunities for enhanced collaboration.

Use knowledge about factors critical to partner performance, rather than needing access to core IPR.

needed knowledge whilst implementing protection as required.
SYNERGY Research Focuses

Knowledge Structuring & Sharing

Collaboration Patterns

Collaboration Moderator

Adaptable & Learning

Service & Integration

Pilots
Validation
Evaluation
**SYNERGY Objectives**

**Basic Collaboration Support**

- Collaboration registry services that allow publication of and search for capabilities
- Information and process interoperability services that may include data mediation at the message level, protocol mediation at the service orchestration level, process knowledge at the process level, and partner-knowledge management services to support entry to the "collaboration space"
- Collaboration pattern services that support entry to the "collaboration space" and organize collaborations into specific collaborative tasks
- Moderator services which in a specific collaborative engagement, collaborate in collaboration patterns, identify opportunities for improved collaboration, and mediate conflicts and communication problems.

**Enhanced Collaboration Support**

- Collaboration evolution support services that may include data mediation at the message level, protocol mediation at the service orchestration level, process knowledge at the process level, and partner-knowledge management services to support entry to the "collaboration space"
- Collaboration pattern services that support entry to the "collaboration space" and organize collaborations into specific collaborative tasks
- Moderator services which in a specific collaborative engagement, collaborate in collaboration patterns, identify opportunities for improved collaboration, and mediate conflicts and communication problems.
**SYNERGY Conceptual Architecture**

**ISU Services**
- Information and Process Interoperability Services
- Collaboration Patterns
- Partner KM Services
- Moderator Services
- Learning Services
- Collaboration Registry Services

**Local Repositories**
- Networked Enterprise
- Distributed Knowledge Repositories
- Enterprise IPR
- Collaboration Experience
- etc..
- ISU Knowledge Registry
- Moderator Knowledge
- Industry Knowledge
- Collaboration Capabilities
- Collaboration Patterns
- etc..

Access to ALL Knowledge Repositories through ISU Services
Collaboration Knowledge Service Framework

- a structural framework for knowledge repositories and collaboration services defining mechanisms to manage correct sharing and protection of the knowledge.

Collaboration Moderator Services

- raise awareness of opportunities, needs, possible consequences and likely outcomes in collaboration activities between the partners of the VO.

Collaboration Pattern Services

- By adopting collaboration patterns as the organizational model of collaboration, users will work in a more complete context for their actions and be burdened by fewer manual integration tasks.

Knowledge Evolution Services

- Enables self-adaptive collaboration, learning from experience and continuous adaptation of collaboration patterns and their usage preconditions.
SYNERGY Domains and Sectors

KNOWLEDGE ORIENTED COLLABORATION

SYNERGY addresses the need of enterprises to share information, processes and especially knowledge, whether ICT or human based, so as to enhance the competitiveness of a collaborative network of enterprises coming together to exploit a particular product or service opportunity.

A key advantage for enterprises in the developed world to continue to compete for low-volume, high-tech business.

Enables the rapid creation of a network of collaborating companies with the necessary core competences to design, market, manufacture, distribute and profit in a world where product life-cycles are becoming progressively shorter.

SYNERGY sectors: not specific – uses Manufacturing and Pharmaceutical use-cases.
GC1: Interoperability Service Utility.

- SYNERGY provides services to be offered through and ISU
- SYNERGY does not directly address issues of ISU implementation
- SYNERGY does not directly address issues of ISU implementation

GC2: Future Internet and Enterprise Systems.

- Whilst SYNERGY does not address issues of ISU, it does participate in the delivery of services to users.
- SYNERGY strongly supports the need for independent ISUs delivering services to users from a network ecology of providers.

GC3: Knowledge-Oriented Collaboration & Semantic Interoperability.

- SYNERGY delivers support for all aspects of Knowledge Oriented Collaboration as defined in EIRR v4.0.
- SYNERGY will build upon previous and new results on information interoperability, based on semantic interoperability.
- SYNERGY will extend semantic interoperability through delivery of ontologies for collaboration, moderation, and adaptable VO interoperability.

GC4: Enterprise Interoperability Science Base.

- SYNERGY will build directly on this GC, based on information interoperability.
- SYNERGY will contribute to the science base from their research results.
SYNERGY – Forms of Collaboration

Supply Chains

Enterprise Networks

Digital Ecosystems

Business Ecosystems

Innovation Ecosystems

Knowledge Oriented Collaboration Services

VOs, Networks, Ecosystems, etc.

Knowledge Oriented Service Provider Ecosystem

SYNERGY Collaboration Ecosystems

VPEI Collaboration Forms
SYNERGY – Interoperability Area of Concern

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Model-Driven Interoperability

- Cross-Organisational Business Processes
- Ontologies and Semantics
- Flexible Execution and Composition of Services
- Information Interoperability

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Integrated?

Rarely possible in the domain envisaged by SYNERGY.

Unified?

Temporary, when ecosystems are in a stable life-cycle phase.

Federated?

SYNERGY primarily recognises this as the normal state of a collaboration.
SYNERGY response to Future Internet Issues

Future internet, however it develops will be an enabling technology for delivery of services – Knowledge Oriented Collaboration Services in the SYNERGY context. However SYNERGY is not focused on defining internet services, and nor is it expecting to define requirements for internet services.

SYNERGY defines and provides KOC services for delivery by whatever delivery technology evolves.
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