A MULTI LAYER FRAMEWORK FOR VIRTUAL ORGANIZATIONS CREATION IN BREEDING ENVIRONNEMENT

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Outline

- Introduction
- Requirements
- Multi layer framework
  - Service Domain layer
  - Management system layer
  - Semantic layer
- Conclusion
Enterprises collaboration can be seen as a composition of business services.

- **Service addressed to support activities**: (ex: IT system, accounting, ...)
- **Service addressed to supply product**: (ex: design, packaging, ...)
- **Service supplied for product functioning**: (ex: maintenance, training, assistance...)
- **Support Service supplied to customer**: (ex: marketing, logistic support, financing, ...)
- **Interface with partners**

The strategy and the economic model define the frontier of the firm; the services outside the firm boundary will be managed through partnership.
Two parallel developments for collaboration paradigm

- **Business approach:**
  - Focused on the management process of VBE and VO
  - General reference architecture model remains to be established
  - Only “local” interoperability for the supporting tools

**Problem**

How to associate these two complementary approaches to developp a consistant MDE?

- **IT approach through Service Oriented Architecture:**
  - Focused on dynamic interaction
  - Adaptable IT infrastructure can be bundled and offered as IT or Web services
  - Generic methodologies to develop high level services remains to be established

**Requirements**
- Multi layer framework
- Service Domain Layer
- Management System Layer
- Semantic Layer
- Conclusion
MULTI LAYER FRAMEWORK Proposed

* Multi layer framework * Service Domain Layer * Management System Layer * Semantic Layer * Conclusion
BUSINESS Level

CONTEXTUAL SERVICE ORIENTED MODELING AND ANALYSIS (CSOMA): Metamodel (prove09)

BUSINESS SOA Level

IT SOA Level

Legend
- Service Description
- Service Interactions
- Service Adaptability

*Service Domain Layer* *Management System Layer* *Semantic Layer* *Conclusion*
Concepts involved in the Business service profile

Business service: is a core class modelling entity in our business SOA meta-model

- Business services are responsible for expressing business logic through service-orientation
- Business services are identified when analyzing enterprise business processes
- Business services can be atomic services called functional or composite services called service domains
a high level structure used to manage enterprise IT services to:

- hide complexities from service consumer
- simplify deployment for service providers
- be used as building block to implement collaborative business processes

with a support architecture:
Now we have at our disposal
building block to implement collaborative business processes

But we need
methodology to design and implement collaborative business processes
The Managers are implemented as set of services
Management System Layer * Semantic Layer * Conclusion

.community: set of firms with the same class of activities (a bit different of VBE)

Management Needs (detection, attracting, evaluation, ...):

- Intangible competencies (behaviour, management, ...)
- Operationnal competencies (technical, functionnal): list of service domains proposed

✓ Community manager
✓ Reputation manager

Organization:

✓ Ressources manager
  - Roles assigned to the partners in the VO (depending on their features and ressources)
  - Common ressources management

✓ Business Decision Making manager
  - VBE level: makes information clearer on business opportunities
  - VO level: supports collaborative work
**Semantic Layer**

- **Domain ontologies** help in the collaborative work and ensure that organizations are negotiating about the very same good/product/service.

- **VO Organisation Ontology**
  - Roles modelling (mission ensured, macro-competencies needed, commitments required, constraints, ...)
  - Goals modelling

- **Ressource Sharing Ontology** describes information resources that is understandable and usable by the VBE members.

- **Service Integration ontology** is to perform mediation processes in order to resolve the semantic heterogeneity problem between services participating in a VO.
**Conclusion**

**Key Contributions**

- Business Service approach and collaboration processes are increasingly embedded
  → a three layer framework based on a service oriented architecture
  - A high level structure to encapsulate business process of partners
  - A decision making support to design and manage collaborative business process
  - A semantic modeling of VO concepts to improve the integration of partners

**Work in progress**

- Fully developed (models, methodologies and IT support)
- To complete (generally IT supports to develop)
- To extend (concepts, models and support to add)
- To study (just mentioned)

- Test the proposed framework on an empirical case
In more depth ...

BOUKADI. K., GHEDIRA. C., VINCENT. L., "Enhancing Enterprise Collaboration Using Context-Aware Service Based on Aspects". 10th International Conference on Enterprise Information Systems (ICEIS 08), Barcelona, Spain


BOUKADI. K., VINCENT. L., BURLAT P., “Modeling adaptable business service for enterprise collaboration". 10th IFIP Working Conference on Virtual Enterprises (PROVE09), Thessaloniki, Greece


Thanks for your listening