EU-Project ABILITIES

Application BUS for Interoperability among SMEs in New EU Member States

Karsten Tolle – University of Frankfurt
Application Bus for InteroperabiLITy
In enlarged Europe SMEs
# Project details

<table>
<thead>
<tr>
<th>Project Acronym</th>
<th>ABILITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Name</td>
<td>Application Bus for InteroperabiLITy In enlarged Europe SMEs</td>
</tr>
<tr>
<td>Project Code</td>
<td>IST-4-027306-STP</td>
</tr>
<tr>
<td>Contract Start Date</td>
<td>01 January 2006</td>
</tr>
<tr>
<td>Project Duration</td>
<td>24 months</td>
</tr>
<tr>
<td>Costs</td>
<td>about 3 Mio. €</td>
</tr>
</tbody>
</table>
List of Participants

EUROPE

Krasme - Kaunas regional association of small and medium enterprises
In the project we have five different industry test beds:

- Retail Industry in Lithuania;
- High-Tech Industry in Slovakia;
- Agro-food Industry in Turkey;
- Wood Industry in Romania;
- Tourism Industry in Hungary.

Most industrial participants of ABILITIES are incubators and work together with a number of SMEs.

- For each test bed:
  - stay within the country and within the domain;
  - customize UBL 2.0 messages for domain and county specifics (UBLtc).
Why important?

• The number of SMEs is high → improvements will have big impact
  - E.g. about 23,000 small and medium retail enterprises in Lithuania
  - Quote: “The report from KPMG shows that the sum of the smallest SME’s is responsible for the largest part of transactional business messages.” (Mikkel Hippe Brun & Christian Lanng: Reducing barriers for e-business in SME’s through an open service oriented infrastructure)
Situation I

- Using phone and fax for every-day business

<table>
<thead>
<tr>
<th>Indicators \ End-user SMEs</th>
<th>INNOVA</th>
<th>KRASME</th>
<th>CASSOVIA</th>
<th>FILBAC</th>
<th>MATISZ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average number of telephone conversation occurrences between supplier and its customers within a month</td>
<td>4200</td>
<td>1000</td>
<td>2000</td>
<td>1000</td>
<td>1000</td>
</tr>
<tr>
<td>Average number of misunderstandings during telephone conversations within a month</td>
<td>250</td>
<td>100</td>
<td>70</td>
<td>100</td>
<td>10</td>
</tr>
<tr>
<td>Average number of mistakes while filling a document</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2%</td>
</tr>
<tr>
<td>The possibility of finding the previous document in 2 minutes</td>
<td>25%</td>
<td>25%</td>
<td>30%</td>
<td>40%</td>
<td>20%</td>
</tr>
<tr>
<td>The percentage of expense related to postal services, fax and telephone services</td>
<td>0,1%</td>
<td>0,8%</td>
<td>15%</td>
<td></td>
<td>5%</td>
</tr>
<tr>
<td>The percentage of documents delivered by postal service</td>
<td>10%</td>
<td>15~20%</td>
<td>20%</td>
<td>20%</td>
<td>5%</td>
</tr>
<tr>
<td>The percentage of business documents that are stored electronically</td>
<td>5%</td>
<td>10%</td>
<td>3%</td>
<td>10%</td>
<td>85%</td>
</tr>
<tr>
<td>The possibility of losing the document</td>
<td>10%</td>
<td>20%</td>
<td>7%</td>
<td>20%</td>
<td>5%</td>
</tr>
</tbody>
</table>
Industrial Goals

Reduce:
• Time
• Mistakes
• Needed manpower

Save money or even make more money!
• Business of SMEs (in NMS):
  – Only few legacy systems,
  – Limited IT knowledge and manpower,
  – Limited financial background,
  – High customized products,
  – Need of flexibility.

• Solution needs to:
  – reduce barriers! \( \rightarrow \) providing basic functionalities; hide complexity; reduce effort to link to legacy
  – Reduce every-day work – collaboration and negotiation
Current Project Status

- Requirements collected ✓
- Specification completed ✓
- Development
  - Prototype planned for Spring 2007
- Testing and Integration
  - Incremental finish by end of 2007
TOC – addressed issues by ABILITIES

- Business Process approach
- Customization of UBL 2.0
- Working on Ontology level (Reconciliation)
- Multi-Media Enrichment
- Negotiation
- Collaboration support
Business Process approach

• To keep it simple:
  – Concentrating on order-to-invoice
  – Companies need to register
  – Basic agreements are defined during registration
  – Collaborative Process is defined inside a template (defined for each Test Bed)
Collaborative Business Process
Global Templates
Private Process Abstraction

• Global Templates model the intercompany collaboration
• Need to capture and model the private processes in each collaborating partner, in a context where low BP support is available
• Need to model the coordination between the two levels of abstraction
• Models of private processes need to include support for human actions to support flexibility and organisational constraints of SMEs.
Low level Abstraction

- Needs to be modeled by a business manager of the partner.
Where are we?

• Business Process approach
• **Customization of UBL 2.0**
• Working on Ontology level (Reconciliation)
• Collaboration and Multi-Media Enrichment
• Negotiation
• Collaboration support
Customization

• Customizations caused by law
  – Identifier of Lithuanian invoice must consist of two fields - serial number and number. Different invoices can have same numbers if their serial numbers are different, but all numbers must be different if they have same serial number.

• Customizations caused by common practice
  – In Slovak invoice and other documents it is common to include grand total written in words to avoid mistakes entering numbers.
### Customization

<table>
<thead>
<tr>
<th>Customization Name</th>
<th>Customization Description</th>
<th>Customization Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>New field:</strong> Party-&gt;PartyType</td>
<td>Add new field. Cardinality 1. Possible values &quot;Ltd&quot; or &quot;Corp.&quot; etc.</td>
<td>Types of corporations</td>
</tr>
<tr>
<td>Party-&gt;Address-&gt;PostBox</td>
<td>Add field from UBL 2 to field Address</td>
<td>A post office box number</td>
</tr>
<tr>
<td><strong>New field:</strong> Party-&gt;Address-&gt;MainStreetName</td>
<td>Add new field. Cardinality 1.</td>
<td>The name of the avenue or boulevard</td>
</tr>
<tr>
<td><strong>New field:</strong> Party-&gt;PartyTaxScheme-&gt;RegisteredTaxOffice</td>
<td>Add new field. Cardinality 1.</td>
<td>The tax number and tax office name which the company is registered should be presented on the invoice which is required by the invoice regulation in Turkey. Therefore tax office name will be added to “PartyTaxScheme”. The CompanyID field corresponds to the tax number.</td>
</tr>
</tbody>
</table>
Customization

Part of Forward Instruction – Turkey
Where are we?

• Business Process approach
• Customization of UBL 2.0
• Working on Ontology level (Reconciliation)
• Multi-Media Enrichment
• Negotiation
• Collaboration support
Company internal customization

- Need to map UBLtc to legacy Data/Application
- Special needs for single company possible
- Goal: Reduce effort to adopt solution!

Ontology

Δ-Editor

Based on OWL

UBLtcX

ABILITIES

Reconciliation Engine

Rules
Where are we?

- Business Process approach
- Customization of UBL 2.0
- Working on Ontology level (Reconciliation)
- Multi-Media Enrichment
- Negotiation
- Collaboration support
Support by Multi-Media

• I need a chair exactly the same as the one I have. → use a picture to describe the chair
• Tourism industry – during the sourcing phase
• Agro-Food – to ensure quality

Questions we address:
• How to handle files?
  – Where to store?
  – How to ensure consistency (fraud protection)
Where are we?

- Business Process approach
- Customization of UBL 2.0
- Working on Ontology level (Reconciliation)
- Multi-Media Enrichment
- Negotiation
- Collaboration support
Why negotiation?

• Barging conditions and prices is common praxis!
• Currently not supported by tools
  – No company-unique way of doing it
  – No visibility to customers
  – Might annoy customers (who paid more)
• Cycle using OrderResponse and OrderChange documents takes too much time!
Negotiation

Order

Define Negotiation Rules

ABILITIES

Order

Define Negotiation Rules

Note: Price per Item changed from 4,10€ to 4,00€ during negotiation

Negotiation Engine
Where are we?

- Business Process approach
- Customization of UBL 2.0
- Working on Ontology level (Reconciliation)
- Multi-Media Enrichment
- Negotiation
- Collaboration support
Collaboration/Communication

• Support of communication between parties
  – Finding dates and times to communicate
  – Providing communication channels
    • Phone, Fax, SMS, e-mail, Skype

• Can be triggered by the system in case needed
  – Failure during negotiation
  – Errors
  – Usage of Multimedia
ABILITIES Architecture at Operation Time

ABILITIES UI

Collaboration Module

Task Manager Front End

Human

ABILITIES Interoperability Bus

Synchronization Module

Reconciliation Engine

Negotiation Engine

Collaboration Multimedia Manager

Client Legacy Systems

Legacy Interface

Enterprise Service Bus

Messages Event Handler

BPEL Engine

Task Manager

Repositories

Negotiation Rules

Reconciliation Rules

Multimedia

Messages

Users
Project Description

ABILITIES
Application Bus for InteroperabilITy In enlarged Europe SMEs

Study, design and develop a federated architecture implemented by a set of intelligent and adaptive UBL active messages (an Application Bus for EAI) and basic interoperability services, which aims at supporting SMEs EAI in e-commerce contexts, specifically in less developed Countries and less Research and Technology Development intensive industrial sectors.
Additional Information

• http://services.txt.it/abilities/project.html - Project Website

• http://www.viewzone.org/abilities/ - Portal describing and tracking project relevant standards

• Contact: tolle@dbis.cs.uni-frankfurt.de
UBL has an extreme high potential for SMEs to enter new markets and to provide new business opportunities.

Thank you for your attention!

Questions?
UBL International 2006

http://www.ublconference.com

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Source for presentation slides (updated 2006-11-24):

From the UBL International 2006 Home Page

UBL International 2006 is running its inaugural event in Copenhagen Denmark (Scandinavian Trade Building in Allerød) the week of November 13-17, 2006.

UBL International is a training summit bringing together worldwide Universal Business Language expertise to deliver full-day and half-day lectures and hands-on courses from commercial training companies, and a full day of free symposium presentations, this year marking the launch of UBL 2.0!