XBRL International Conference

XBRL Germany

Integrating Business Reporting Worldwide: "From SMEs to Large Companies"

Building Business Intelligence e-Services for the Financial Domain – The MUSING Experience

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Summary

- Business Intelligence in the Basel II-modified scenario
- Semantic-based Business Intelligence services
- The MUSING initiative www.musing.eu
- Preview of field-tested services (Credit workflow)
- First conclusions & outlook

Monte dei Paschi di Siena

- Banca MPS is the organization leading the Monte dei Paschi di Siena Group (Italy's third largest banking group).
- We pride ourselves with being the oldest bank in the world (founded in1472), yet maintaining strong inclination for product and services innovation.
- Since 2005 we publish on our website the Group's Balance Sheet in XBRL (first bank in Italy).

MONTE DEI PASCHI DI SIENA
BANCA DAL 1472

Next Generation Business Intelligence

- Performing business intelligence is a vital activity for the financial services industry (internal & external info)
- The Basel II-compliant modified scenario expands needs of both Financial Institutions and their Customers (enterprises as well as individuals) for ability of exploiting information
- Semantic-based Business Intelligence is going to enable sustainable processing of internal/external, quantitative/qualitative, structured/unstructured info
- The “MUSING” R&D project, relying on innovative semantic-based technologies and with a pervasive usage of XBRL, is developing a set of e-services to support the next generation of (Basel II-compliant) industrial processes

Semantic-based approach

- Semantic-web and human language technologies to support the “next generation BI”:
  - Automatic annotation
  - Reasoning
  - Multi-linguality
  - Ontologies (temporally evolving)
  - Pervasive usage of XBRL
- The need for R&D → No off-the-shelf solutions
- The main benefits:
  - Automation in human-intensive analysis processes
  - Reach
  - Reasoning
  - Knowledge building

Semantic-based flow

FRM ontologies

INTERNAT'N ontologies

IT OpR ontologies

General ontologies
Company - Document – Line – Loss Event – Management
Market – NACE – Ratio – Reputation – Risk

User

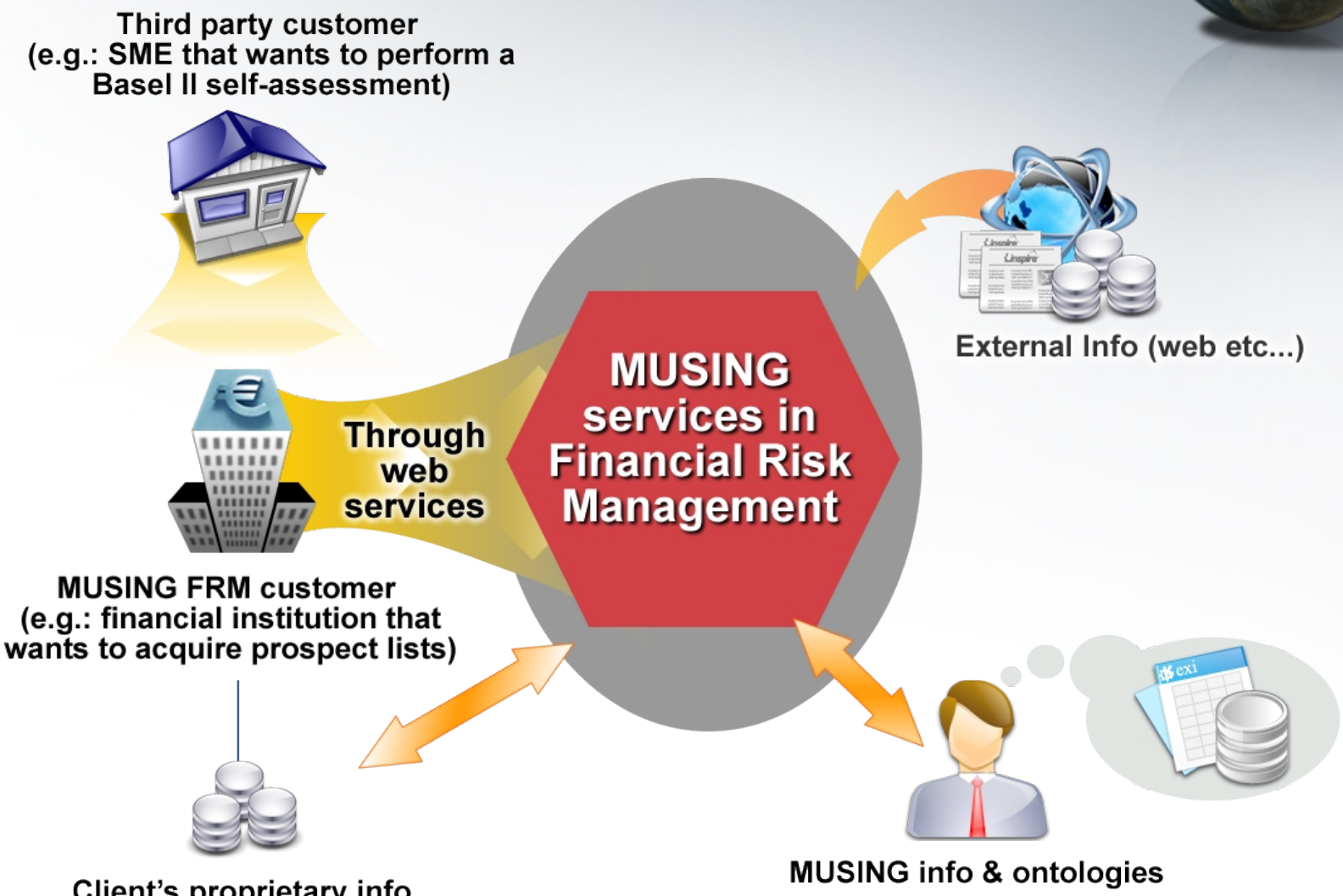
Knowledge repository (XBRL instance)

Data analysers (PDF2XBRL, IE, …)

Data (Business Registers, user-provided, …)

Knowledge Expoiters (models, evaluators, indicators,…)

Support to credit merit assessment for Customers & Prospects



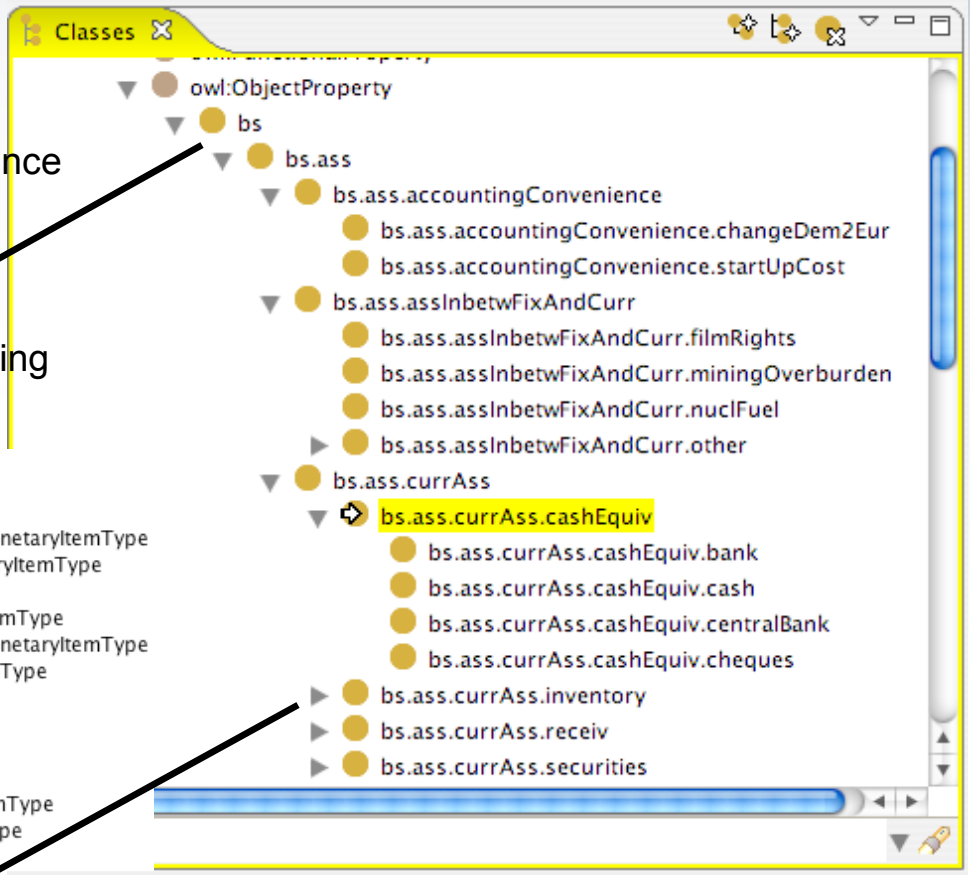
MUSING services

❑ Financial Risk Management value chain & services

FRM Value Chain	*Data Acquisition*	*Information Processing*	*Risk Measurement*	*Credit Issuing and Communic.*	*Credit Management*	*Delivery*
Process Description	Internal and external data acquisition	Quantitative and Qualitative information processing	Credit scoring techniques Rating	Credit issuing and comunication of information dealing with the rating evaluation	Management of credit issuing, credit monitoring and credit collecting process	BI product packaging and delivery
Services	• Quantitative and qualitative info extraction • BS processing • Business Inspector	• Bayesian quali-quantitative information integration for PD measurement				• EU-harmonised payment pool

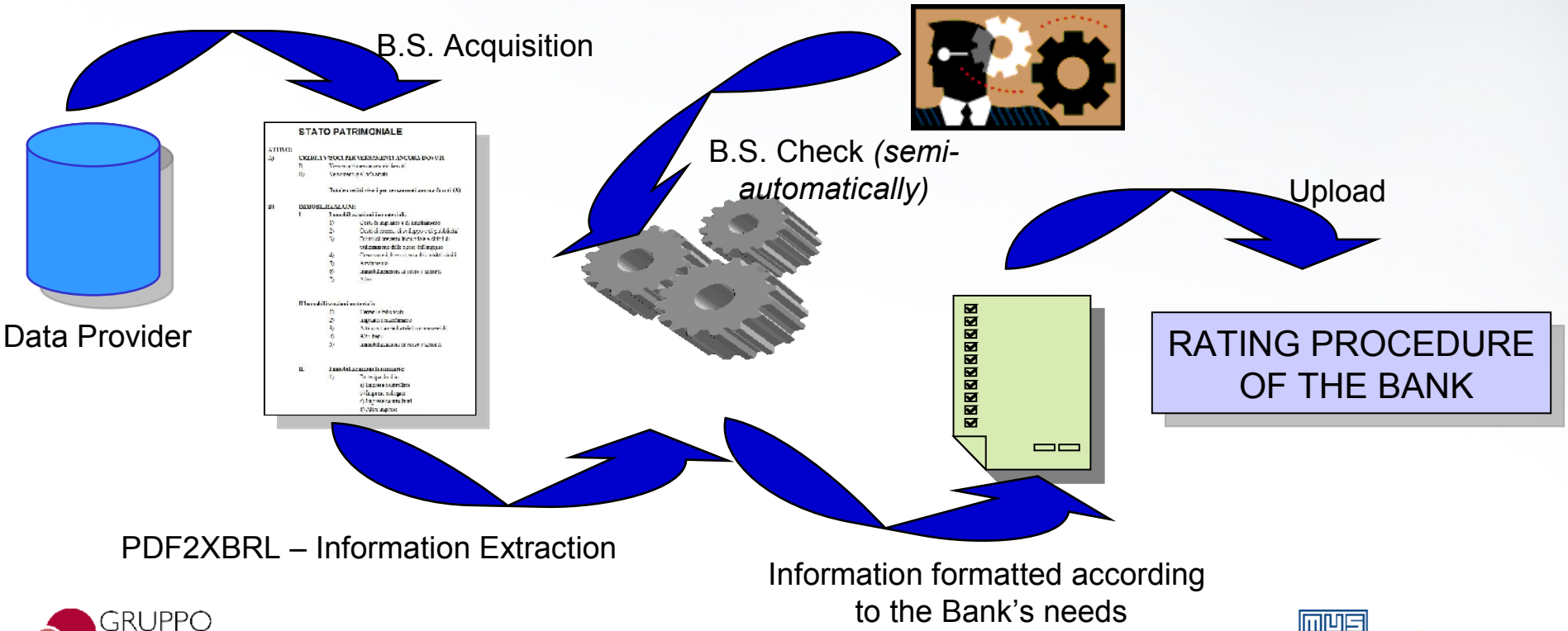
XBRL inside

- Linking taxonomies to ontologies: exploiting the full XBRL potential
- MUSING ontology architecture combines ontologies with relational tables
  - XBRL represented as property taxonomy
  - This is analogous to a relational table for balance sheets BUT
    - we make the XBRL hierarchy explicit by subclassing
    - we gain with the flexibility of labeling, linking metadata etc.



Field-tested services:
1. Balance Sheet processor

- Objective: automate upload of enterprises Balance Sheets (e.g., into an IRB system), according to a given XBRL taxonomy (tested: Germany & Italy).
- Current performances: precision>60%, recall~90%.



Field-tested services:
1bis. Balance Sheet processor

MUSING - Balance Sheet Viewer

Balance Sheet Viewer

View the Balance Sheet | View the connections with "Nota Integrativa" | View the financial indicators | View the XBRL instance

Informazioni generali sull'azienda | Stato patrimoniale in forma abbreviata | Conti d'ordine

Conto Economico in forma abbreviata

Field	2004-12-31
Istanza XBRL	
Stato patrimoniale (schema civ	
Attivo	
A) Crediti verso soci per	
B) Immobilizzazioni	
I - Immobilizzazioni i	
Valore lordo	
Ammortamenti	
Svalutazioni	-170591
Totale immobiliz	179375
II - Immobilizzazioni i	
Valore lordo	
Ammortamenti	
Svalutazioni	
Totale immobiliz	5169032
III - Immobilizzazioni	
Totale immobilizzazi	8784
C) Attivo circolante	
D) Ratei e risconti	
Totale attivo	1573954
Passivo e patrimonio netto	

Quantitative info acquisition

XBRL instance

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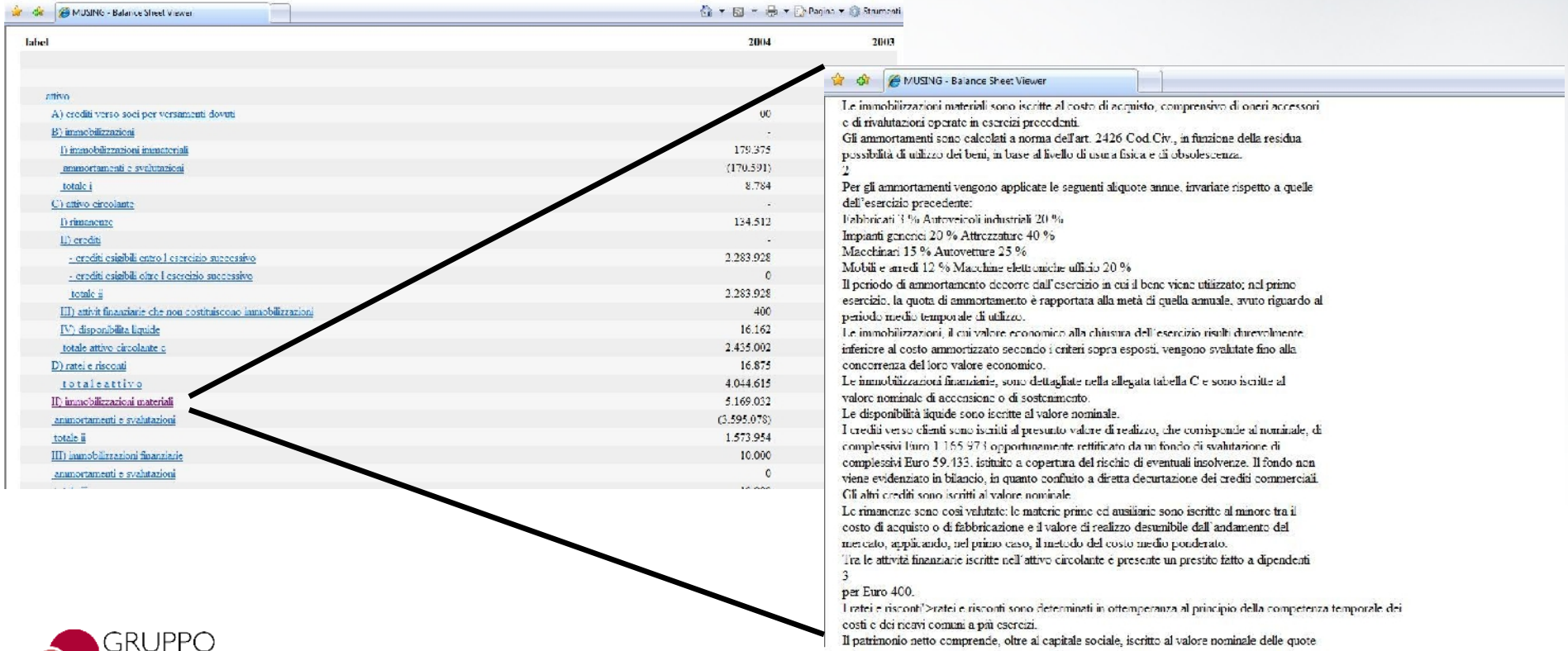
Field-tested services:
2. Qualitative info acquisition

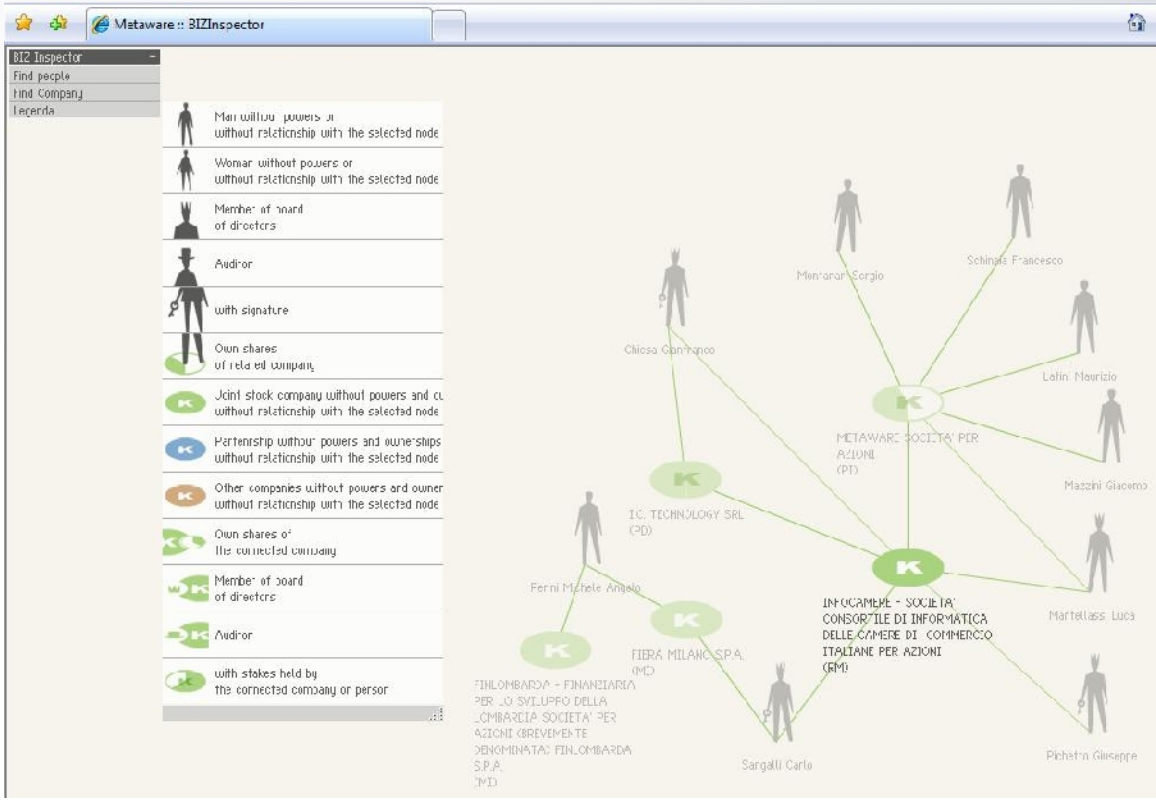
- Objective: automate acquisition of qualitative information
- Current performances: questionnaire acquisition, linkages Balance Sheet/unstructured annex



Original material supplied by MUSING partner Metaware (www.metaware.it) is gratefully acknowledged

Field-tested services:
3. Business Inspector

- Objective: explore complex connections among enterprises/individuals (e.g., ownership, board membership, cross-borders dependencies, etc.) and provide navigation-like interaction to the user.
- Current performances: tested on Italian data through EBR:
  - **Real-time**: Participations & Ownership; Partners & Members; Powers & Offices; Sector of Economic Activity.
  - **"asynchronous way"** (5to10 mins): Annual Accounts; Deeds.



“Host a pilot” – an opportunity to collaborate

- The MUSING Consortium proposes to selected institutions to host a pilot application of a semantic-based BI, customised service
- Part of the MUSING commitment towards the EC
- Concept designed according to a specific end-user need
- Your organisation’s data, the MUSING technology

Conclusions & outlook

- MUSING delivers semantic technologies-powered Business Intelligence e-services supporting the banking industry
- The main tangible benefit is more value from information, arising from cost-effective processing of it and/or more insightful analyses
- Linking ontologies and XBRL taxonomies
- With a workplan up to 2010, we intend to deliver more services for financial institutions and enterprises, covering (with a pan-European approach!) the Basel II-compliant value chain of Financial Risk Management
- Our next public event: the “MUSING Industry day” in Paris, November 2007

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Multi-Industry Semantic-based Business Intelligence
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Next Generation
Business Intelligence

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Information Society Technologies

GRUPPO MPS

Next Generation Business Intelligence