

ORCHESTRA Day
12/12/2007, Stresa (Italy)

ORCHESTRA: Developing a Unified Open Architecture for Risk Management Applications

The ORCHESTRA Pilots

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The ORCHESTRA Pilots

- Focus of year 1 (2004 / 2005): the RM-OA
 - User Requirements, Policy Watch, Knowledge Modelling
 - Technology Assessment, Architecture Design, Meta-information Model, OA Services Specification
 - Top-down approach, with strong user direction
- Focus from year 2 (2005 / 2007): the Pilots
 - Internal competition for pilot ideas
 - Financial re-planning: 4 pilots
 - User Requirements, Scenarios, Applications
 - Mapping to services, OT Services Specification



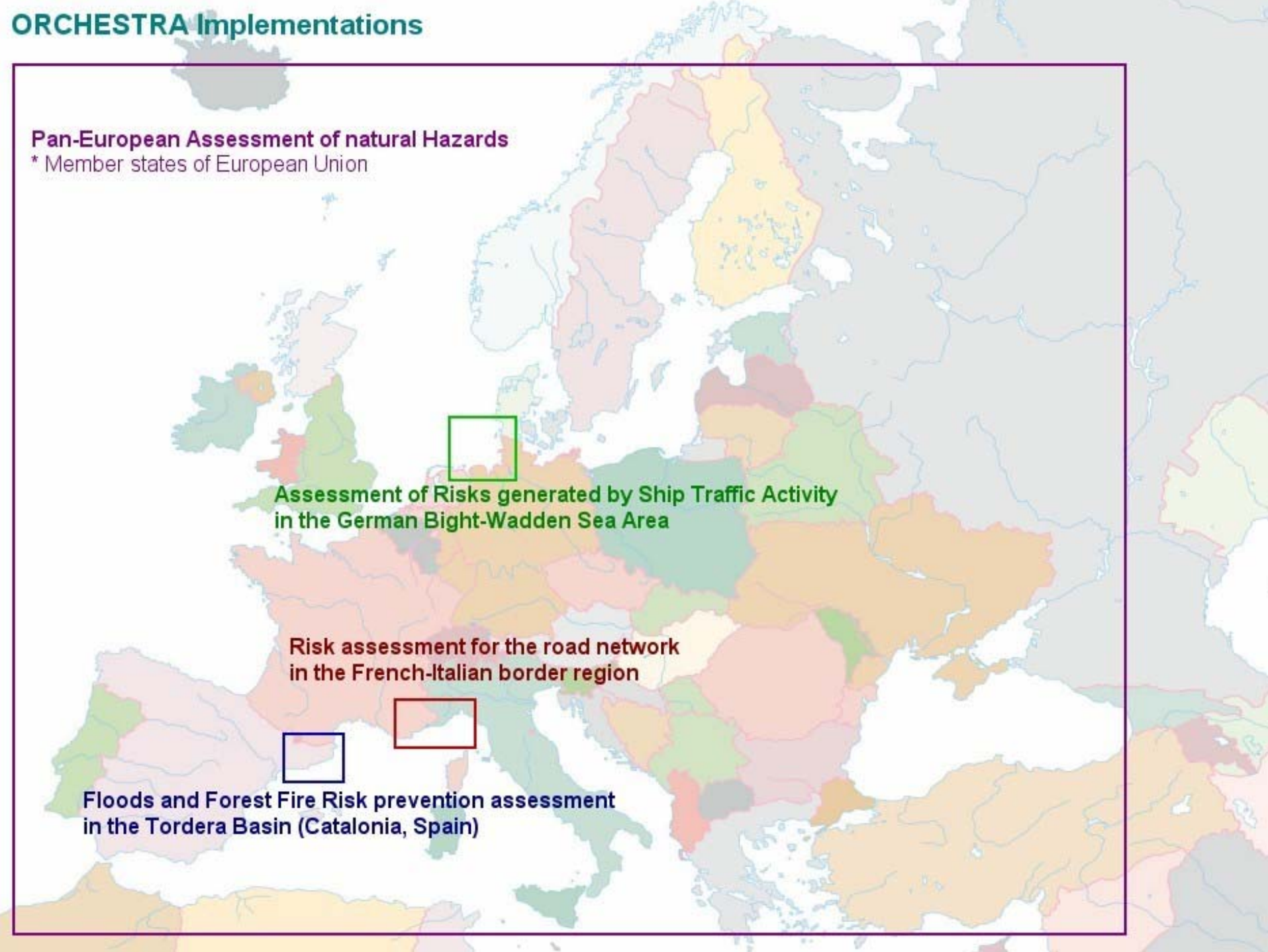
ORCHESTRA Implementations

Pan-European Assessment of natural Hazards

* Member states of European Union



Assessment of Risks generated by Ship Traffic Activity
in the German Bight-Wadden Sea Area



Risk assessment for the road network
in the French-Italian border region



Floods and Forest Fire Risk prevention assessment
in the Tordera Basin (Catalonia, Spain)

Pan-European Assessment of natural Hazards (PEUNHA)



- Leader: JRC-IES (the Joint Research Centre of the European Commission)
- Participants:
 - Within the consortium: JRC-IES, INTECS, BRGM
 - External: European experts, personnel from different EU DGs and from the INFOREST and WDNH (Weather Driven Natural Hazards) actions of the JRC
- Use Cases:
 - Forest Fire Application
 - Flood-related Damage Assessment Application



Pan-European Assessment of natural Hazards (PEUNHA)



Forest Fire Application

- Forest Fire Risk assessment through the combination of historic data on the frequency of forest fires and the damage they caused
- Application Functionalities
 - Interoperable access to heterogeneous MS fire records
 - Harmonisation of heterogeneous data into a common schema
 - Flexible and distributed Forest Fire Hazard and Risk mapping
- Services for Risk Management Application
 - Forest Fire Risk Assessment Service to assess fire frequency, density and risk, based on opaque chaining of distributed geo-processing operations
 - Translating Feature Access Service for harmonised access to forest fire records



Pan-European Assessment of natural Hazards (PEUNHA)



Flood-related Damage Assessment Application

- (Simulation of) Flood-related damage on population
- Application Functionalities
 - Flood simulation for river catchments in northern Europe
 - Assessment of damage on population caused by these floods or historic events
- Services for Risk Management Application
 - Flood Simulation Service and Damage Assessment Service based on opaque chaining of distributed geo-processing operations



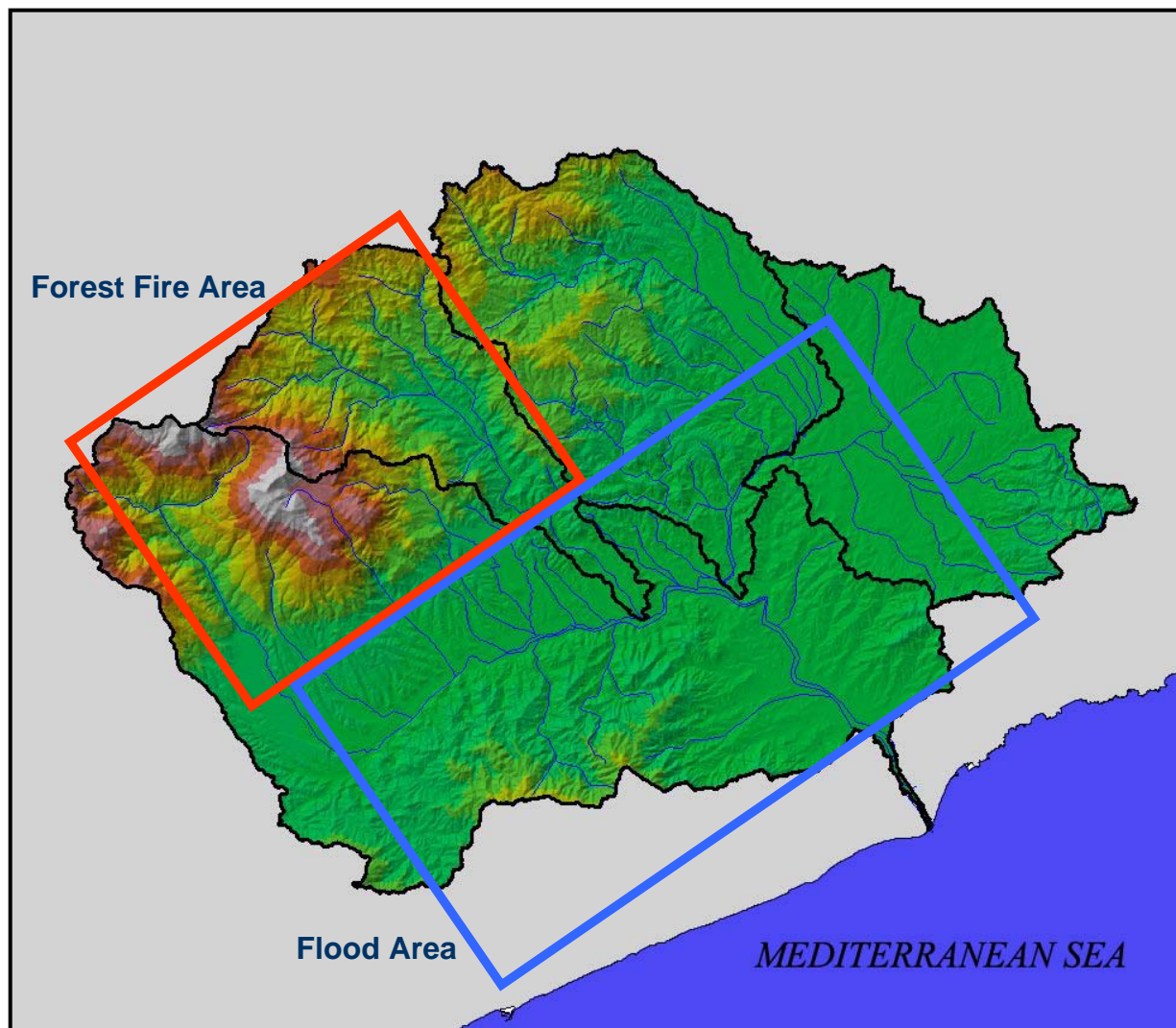
Floods and Forest Fire Risk prevention assessment in the Tordera Basin (Catalonia, Spain)



- Objectives
 - Improve the context of decision-making process in the prevention planning of various risks (floods and forest fires) in a river basin.
 - Improve the efficiency of information management and assessment services
 - Provide interoperability among the involved actors and systems
- Leader: TYPESA
- Participants:
 - Within the consortium: TYPESA, ATOS, INTECS
 - External: ACA, ICC, IGC, Departament de Medi Ambient



Floods and Forest Fire Risk prevention assessment in the Tordera Basin (Catalonia, Spain)



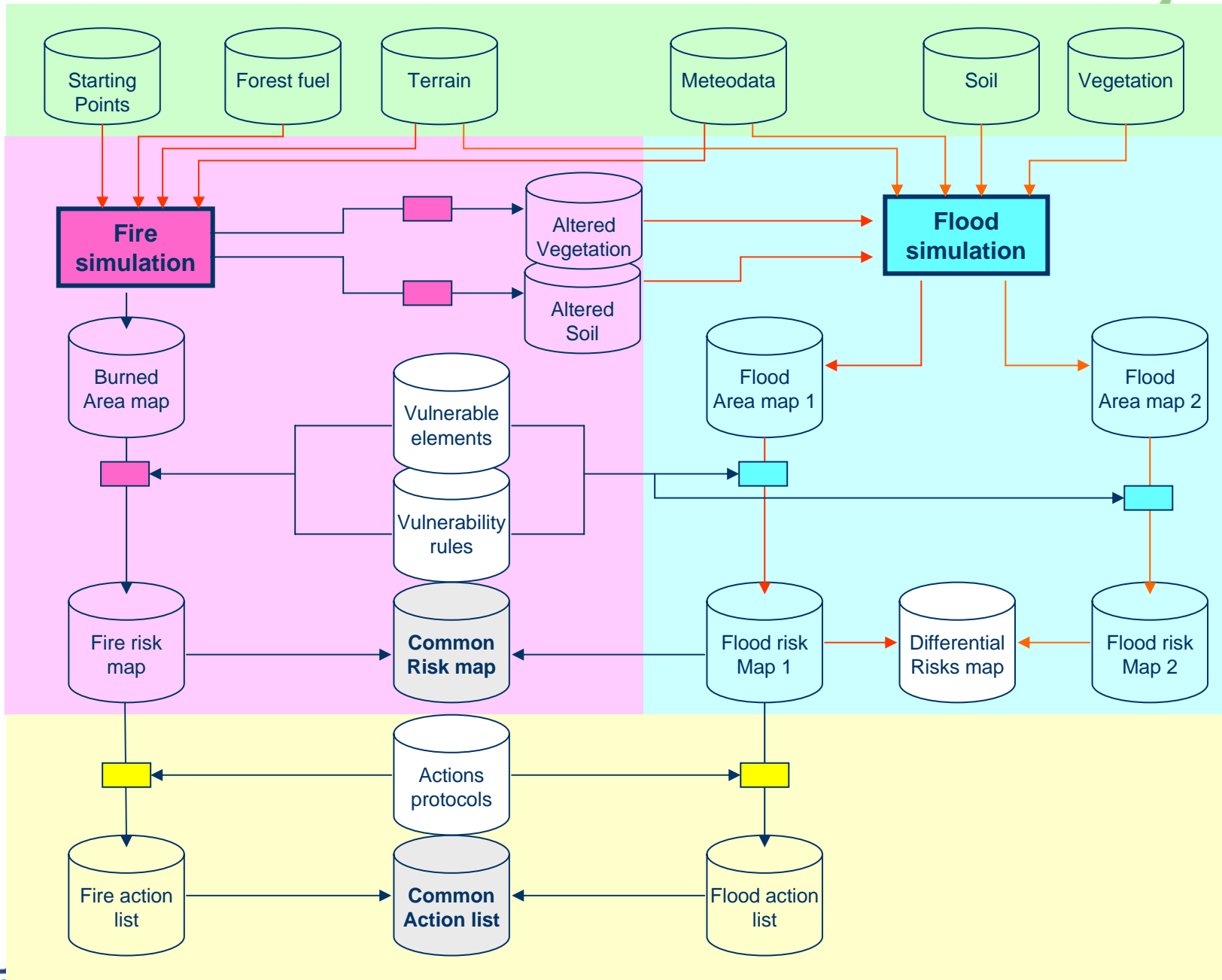
Forest Fire Area

Flood Area

MEDITERRANEAN SEA

ORCHESTRA Day





Risk assessment for the road network in the French-Italian border region



- The main objective of the pilot is to demonstrate how ORCHESTRA can be used to effectively support cross-border, regional and provincial risk management with a focus on the activities related to the vulnerability and consequence analysis of road infrastructure
- Leader: BRGM
- Participants:
 - Within the consortium: BRGM, Ordnance Survey, JRC-IPSC, JRC-IES, ARCS
 - External: Local authorities from Piedmont and Liguria Regions, Italian Transport companies, Italian Ministry of Transport, French Ministry of Transport and ESCOTA (operates the toll motorways)



Assessment of Risks generated by Ship Traffic Activity in the German Bight-Wadden Sea Area



- Objectives:
 - Assess and quantify the multi-environmental risks which are generated by ship traffic activity around the German Bight coastal zone region
 - Provide access to risk management spatial information to German Bight stakeholders and other users using the ORCHESTRA Architecture
- Leader: BMT
- Participants:
 - Within the consortium: BMT, AMRIE, ElsagDatamat, Fraunhofer IITB
 - External: BSH (Federal Maritime and Hydrographic Agency), Trilateral Wadden Sea Cooperation, Schleswig-Holstein (Ministerium für Landwirtschaft, Umwelt und ländliche Räume), GAUSS.



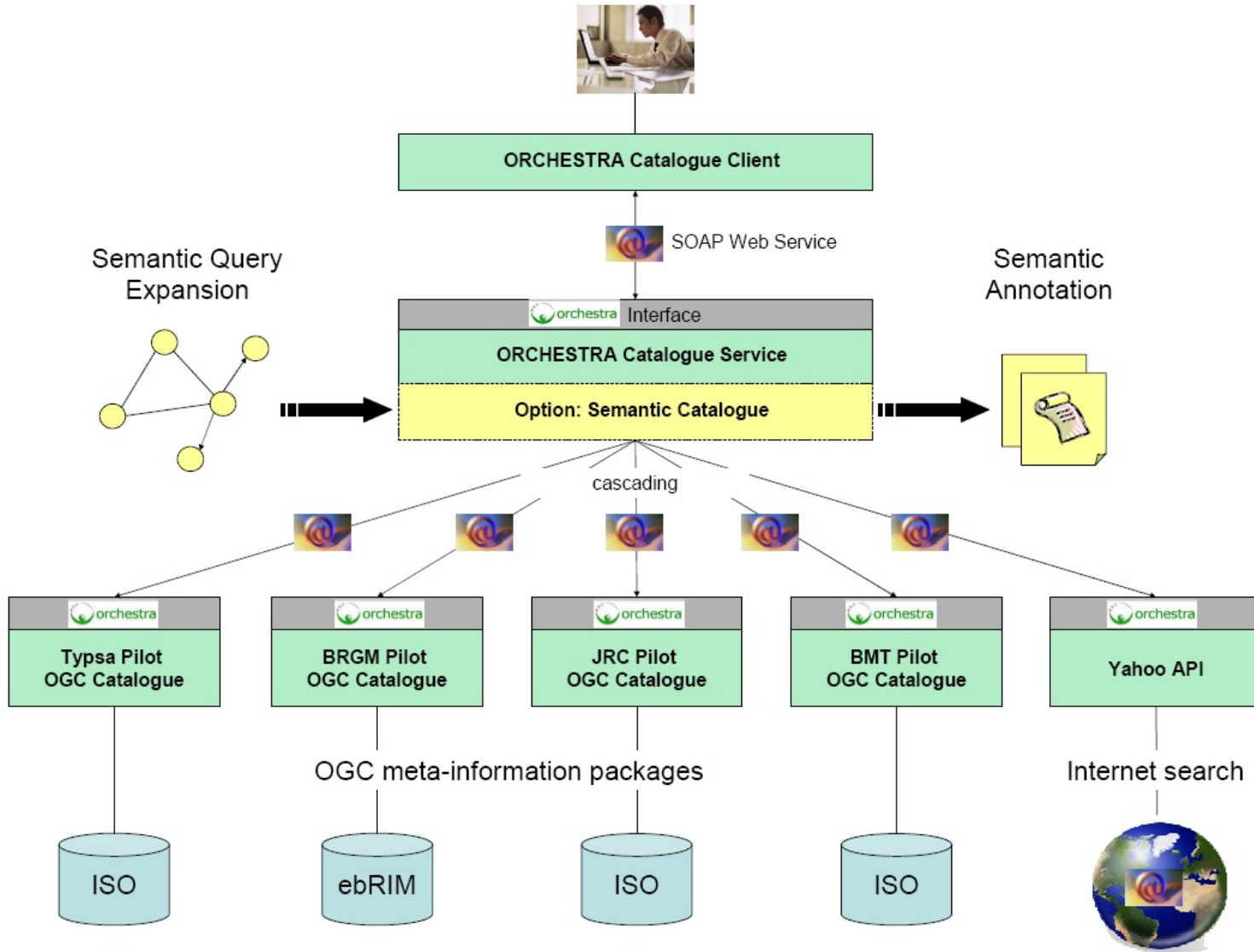


The ORCHESTRA Federated Pilot

- Resource Discovery in ORCHESTRA Service Networks
- Integrated search and access to information and services across all ORCHESTRA installations (pilots)
- Uniform search interface with mappings to OGC Catalogue (ISO and ebRIM) and Internet search (e.g. Yahoo)
- Cascading catalogues
- Semantic extensions:
 - Ontology-based query expansion
 - Ontology-based annotation of search results
 - Ontology-based ranking



The ORCHESTRA Federated Pilot





Lessons learnt

- 4 Pilots:
 - Broaden perspective, include varied scenarios
 - Use more services
 - Enable focusing on topics: service chaining, DRM, use of ontologies, etc.
- Working with legacy systems
 - Deploy ORCHESTRA services
 - Encapsulate existing SW as an ORCHESTRA service
 - Leave as it is
- Maturity of tools
- Rapid deployment (ORCHESTRA-WIN-ESA demo)
- Time needed for processing and data exchange
- Description of meta-information for service chain instances
- “DRM approach” – in line with OGC activity – is promising





Thank you for your attention

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