

# Architetture orientate ai servizi per applicazioni di eGovernment

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# Presentation Outline

- ✍ eGovernment issues
- ✍ eGovernment maturity model
- ✍ On going local projects
- ✍ Service Oriented Architectures
- ✍ Emerging issues
- ✍ Conclusions

# E-Government

- ✍ Public Administrations (PAs) all over the world are undergoing important innovation processes as a result of eGovernment projects such as provision of new services (eServices) to citizens
- ✍ the arena of eGovernment is one of fast change as services are modernized and integrated
- ✍ new concept of public service are emerging and they involve:
  - ✍ the breaking down of barriers between departments and units
  - ✍ the negotiation and implementation of multi-disciplinary and multi-agency networks and protocols and
  - ✍ more efficient and effective communication, transaction and co-ordination



# eGovernment Maturity Model

## First Generation

- ✍ introduction of new channels and media in the delivery of public services
- ✍ information Web Sites

*M.Martin, B. Wessels, Y. Dittrich, S. Eriksén, M.Marchese and G.Jacucci – “eGoss” initiative*

- ✍ issues of editorial control, maintenance and co-ordination
- ✍ requirements to go beyond simple form handling and the introduction of electronic transactions

## Second Generation

- ✍ services integration and intermediation
- ✍ support transactions associated with service access and delivery.

- ✍ new demands and opportunities for restructuring the administration processes
- ✍ context of significant changes at organisational and policy levels

## Third Generation

- ✍ integration within and outside PA
- ✍ service brokerage support
- ✍ supporting Environments for users

# Trentino “maturity” state-of-the-art

	Intranet	Extranet
First generation	<ul style="list-style-type: none"> <li>✗ Electronic archives, databases, GIS</li> <li>✗ Distributed local document repositories</li> </ul>	<ul style="list-style-type: none"> <li>✗ Regional Web Site</li> <li>✗ Major Municipalities Web sites</li> <li>✗ Local Municipalities Web sites</li> </ul>
Second generation	<ul style="list-style-type: none"> <li>✗ Tools to support navigation and editing/updating</li> <li>✗ Tools to support collaborative work between units in associated services</li> <li>✗ Extension to all back-office/front-office services</li> </ul>	<ul style="list-style-type: none"> <li>✗ Design of municipal OSS for selected procedures</li> <li>✗ National distributed document repositories</li> <li>✗ Design of Regional OSS</li> <li>✗ Electronic signature to support transactions</li> </ul>
Third generation	<ul style="list-style-type: none"> <li>✗ Back-office architectures supporting workflows management and transactions</li> <li>✗ Supporting environments for knowledge creation and sharing</li> <li>✗ Architectures supporting security</li> </ul>	<ul style="list-style-type: none"> <li>✗ Full deployment of OSS front-offices (physical and virtual)</li> <li>✗ Supporting environments for OSS service delivery</li> </ul>

# On-going projects

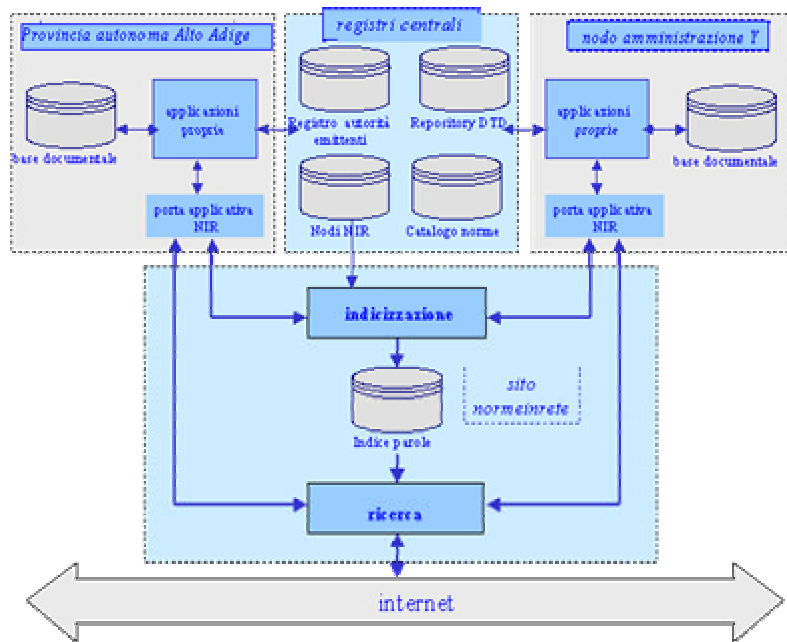
- ✍ Design and implementation of national distributed data repositories
- ✍ Introduction of collaborative work tools in small municipalities with associated internal services
- ✍ Feasibility study for regional OSS

# National distributed data repositories:

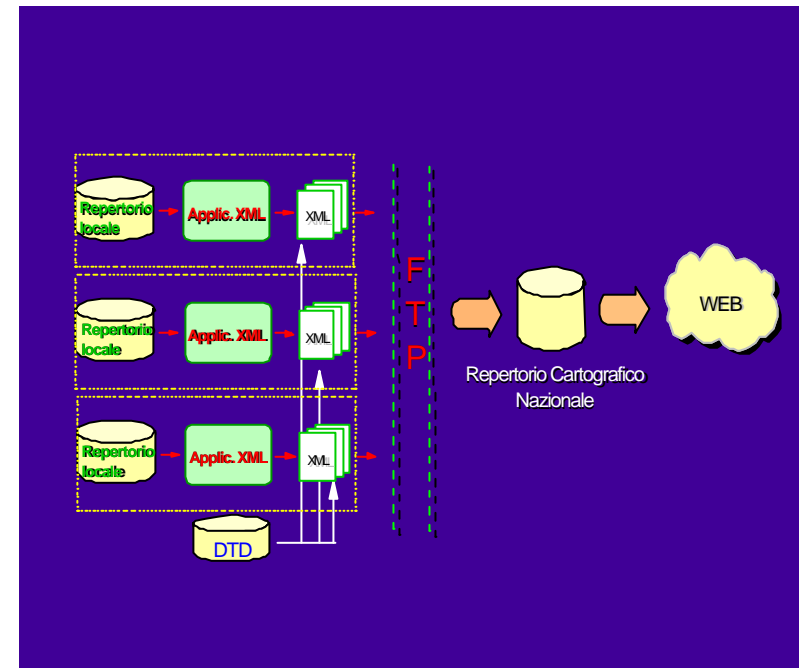
- ✍ **“NormeInRete”** is being realized through the incremental implementation of a national web portal capable of search functionalities on different regional normative documents accessible on local web sites of the involved PA
- ✍ **Shared national GIS metadata repository:** sharing of information within national administrations. Here the main objective is to develop suitable architectures and tools to enable certified national agencies the access to both cartographical and associated data objects, collected and published electronically by local administrations.

# Original architectures for national repositories

- LexBrowser for “NormeInRete”

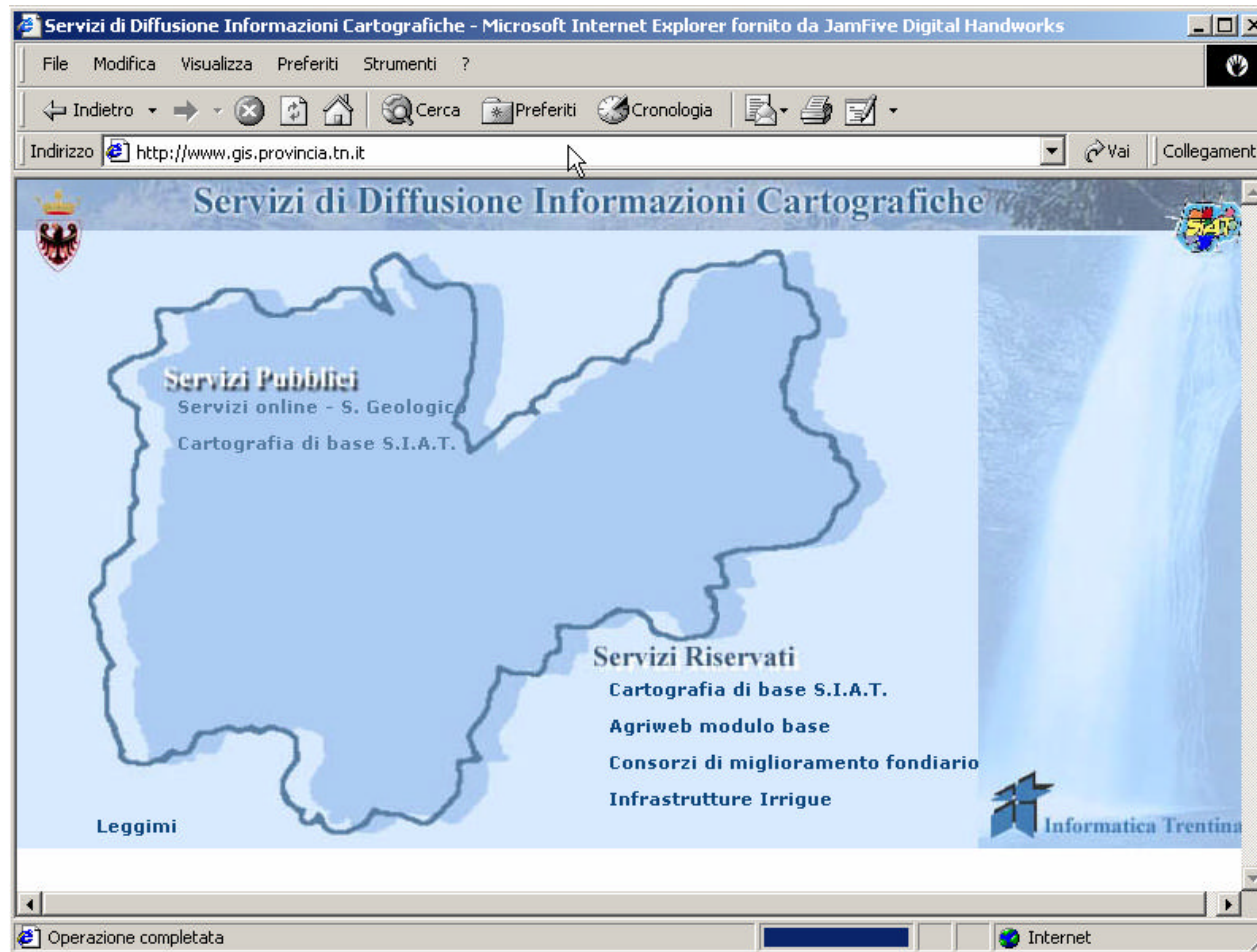


- Shared national GIS metadata repository





# GIS services: examples

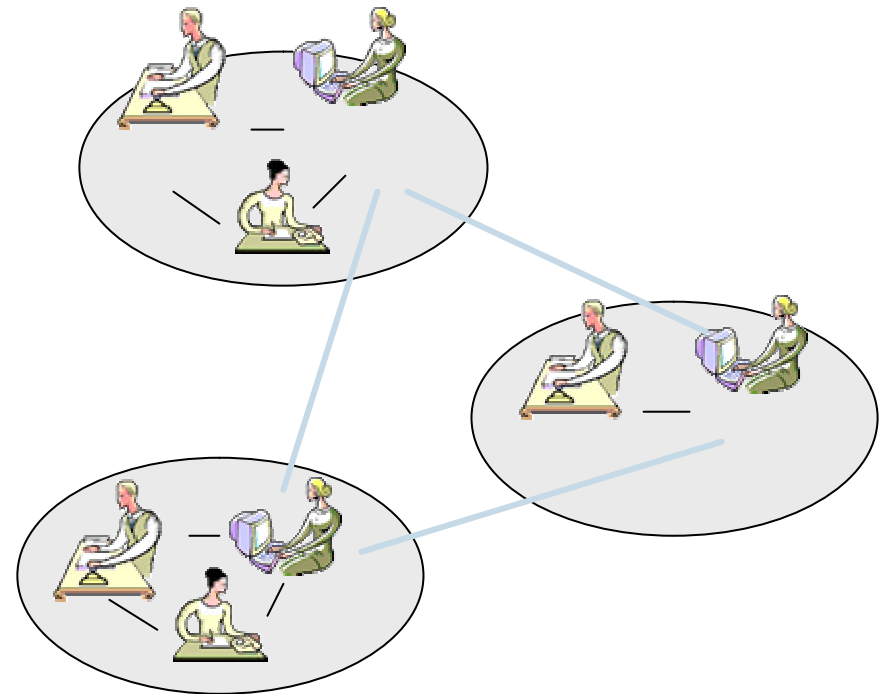


# MEDIASITE Project – “Mori” Scenario

- ✍ introduction of new ICT tools (MediaSite CSCW platform) in the collaborative work practice of associated internal services
- ✍ research teams composed by social scientists and computer scientists involved in ethnographical studies within associated PAs
- ✍ exploration of relationships between shared practices in associate fiscal management, technology and its design, and the introduction of new information systems

# Mori Scenario – Emerging issues

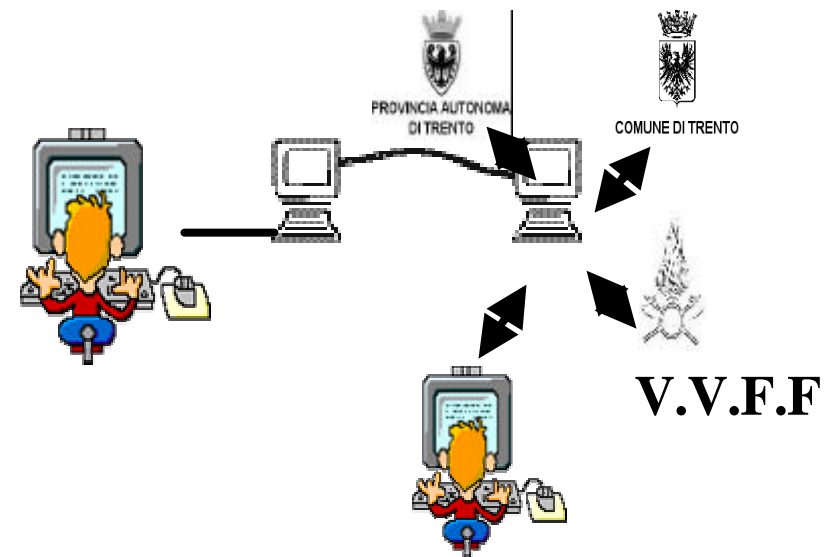
- ✍ Facing the “monster”
  - complicating their life forcing them to work more than before and causing them to invest more time for the same results
  - to best support the variety of working situations that occasionally emerge, we need heterogeneous and modular tools



- ✍ Communities of Practice vs. Communities of Interests

# One-Stop-Shops “services”

- ✍ One point access (physical and/or virtual) to PAs costumers both citizens and enterprises
- ✍ Internal and external “services” coordination and provision
- ✍ Front-Office / Back-Office integration
- ✍ Processes reengineering
- ✍ Internal and external culture shift:



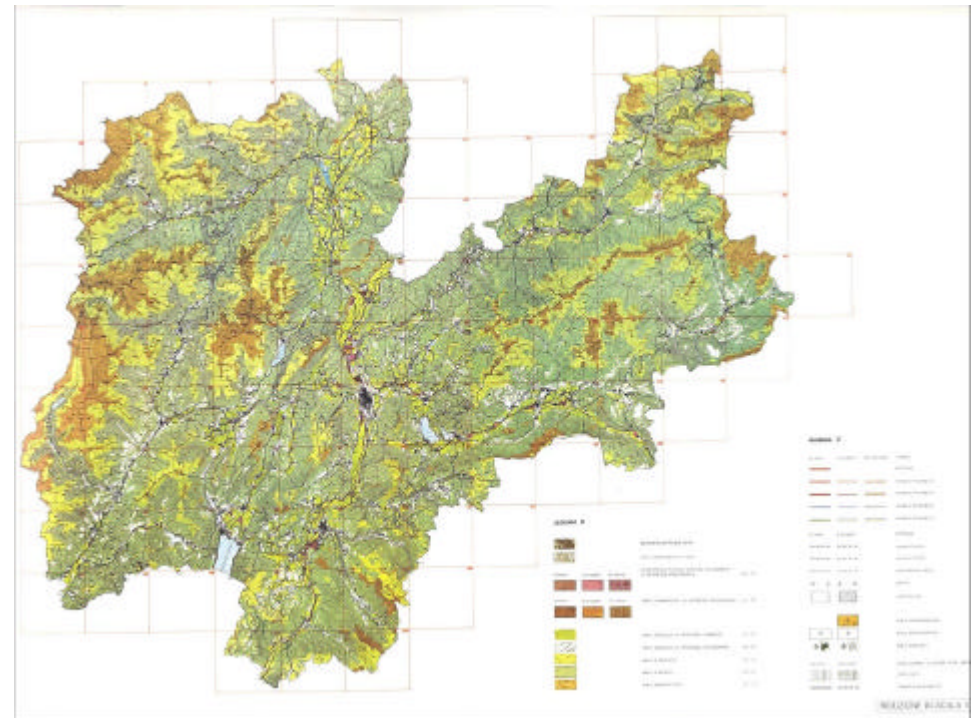
- ✍ changes in PA work practices, hierarchy and power distribution
- ✍ changes in costumers-PA interactions

# The SPO.T. Project - Overview

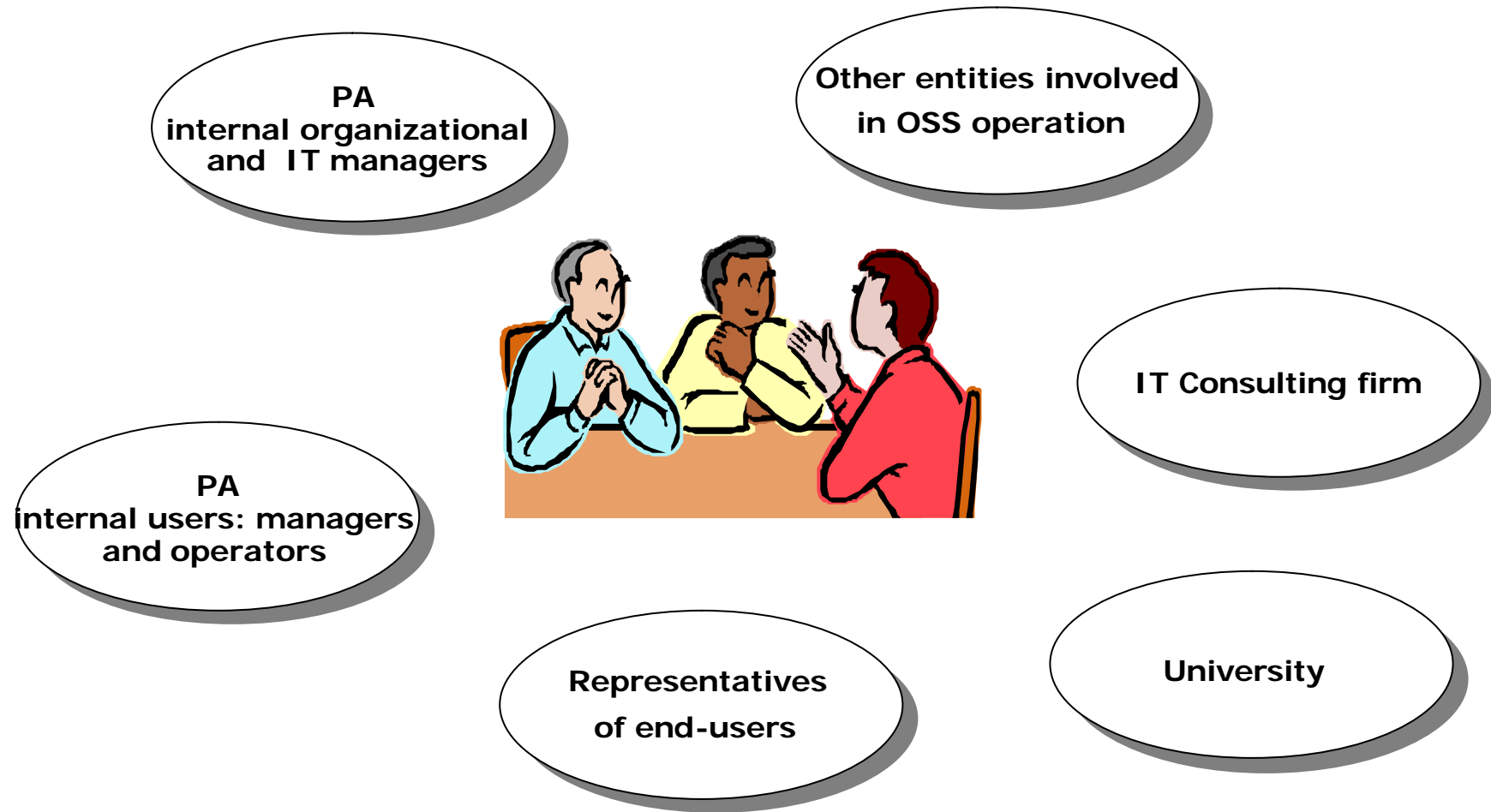
- ✍ SPO.T. Project aims at the analysis, development, deployment and evaluation of tools and environments to support the people who plan, deliver, use and evaluate user-centred provision of One-Stop-Shop services to citizens.
- ✍ The “SPO.T.” project has focused on two requirements:
  - the support tools and environments must facilitate the active involvement of all stakeholders in the definition and evolution of eGovernment applications and services,
  - they must embody a set of architecturally coherent “services” which reflect the new roles and relationships of public administration

# The SPO.T Project – Targated PAs

- ✍ Local Government,  
Provincia di Trento PAT,  
(ca. 500.000 inhabitants)
- ✍ Main Municipalities  
Trento, Rovereto  
(> 3000 inhab., 25  
municipalities)
- ✍ Small Municipalities  
(ca. 200)

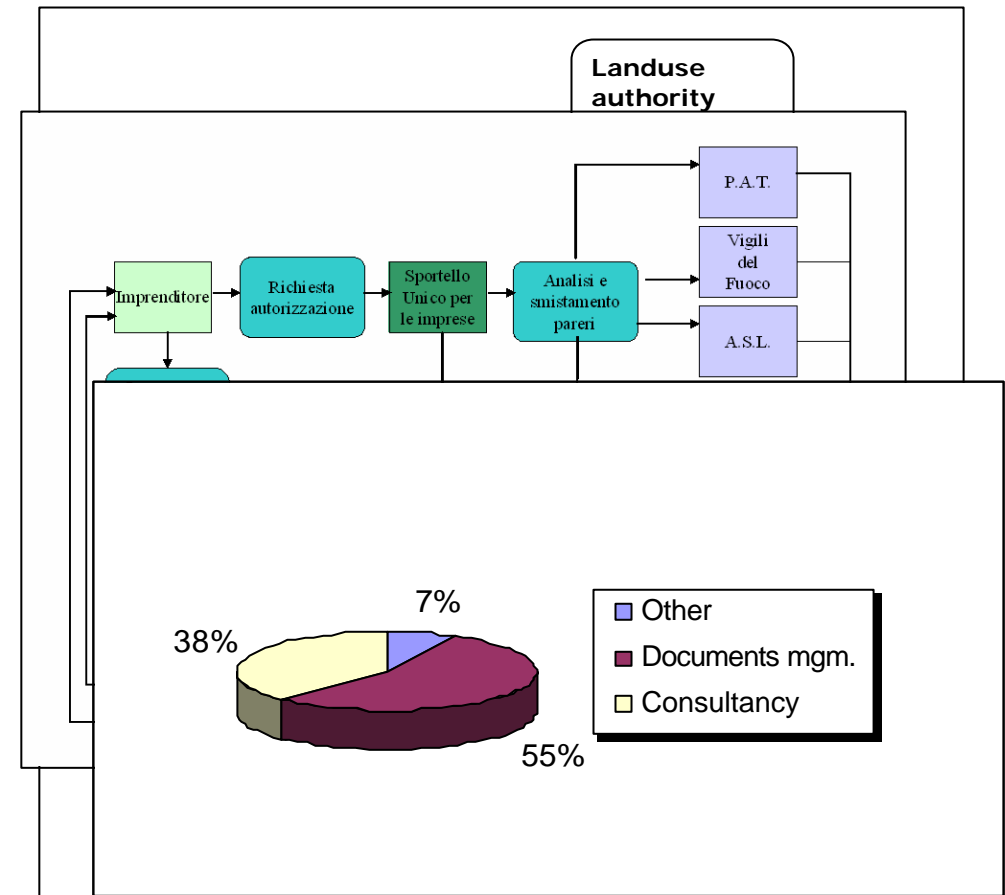


# Working group



# Preliminary activities

- ✍ **Administrative processes modeling**
  - Actors analysis
  - Roles definition
- ✍ **Mapping of internal procedures**
  - Agreement on a general schema
  - Different detailed workflows to try out
- ✍ **Workload monitoring and analysis**
  - Questionnaires
  - Data entry and analysis

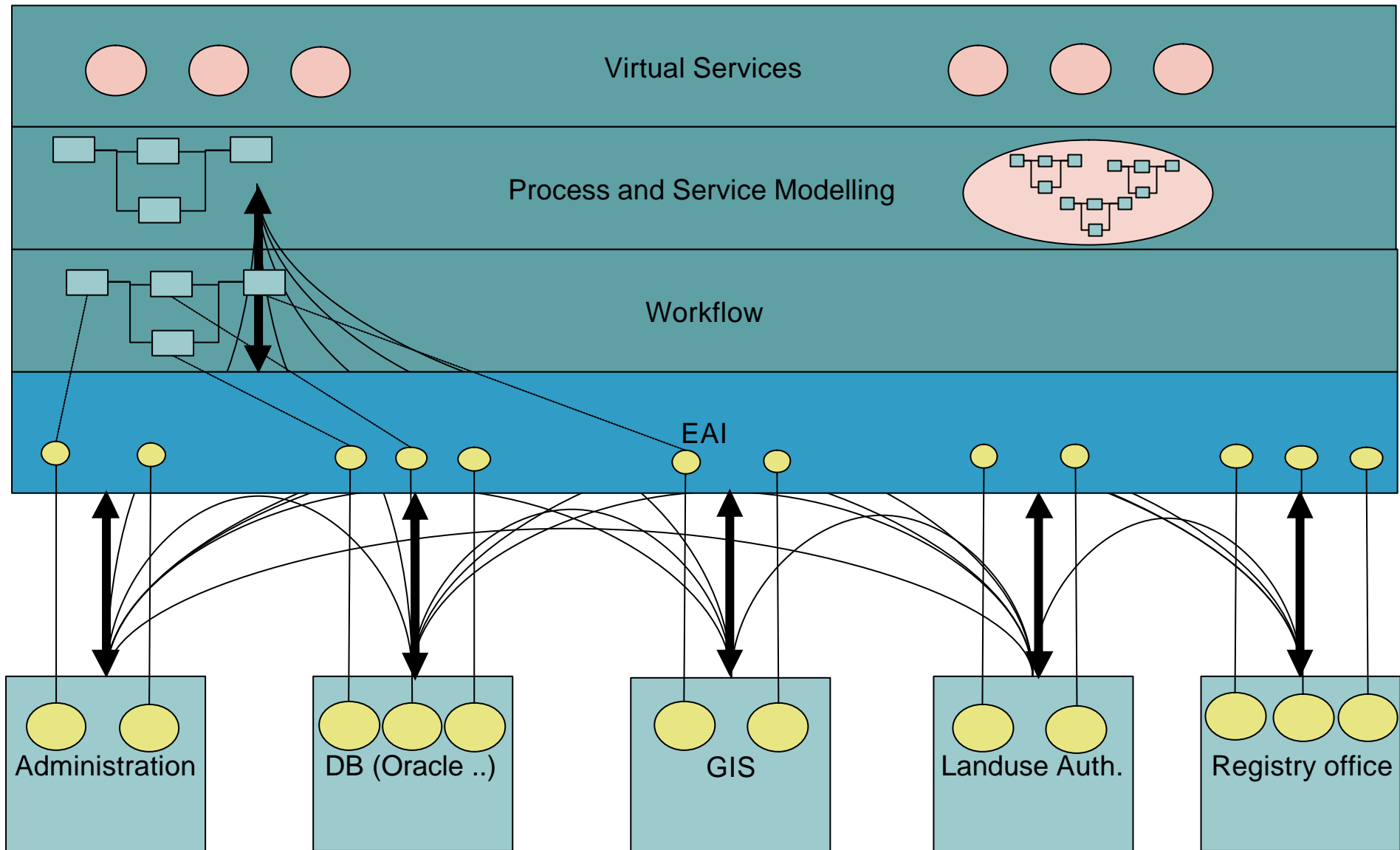




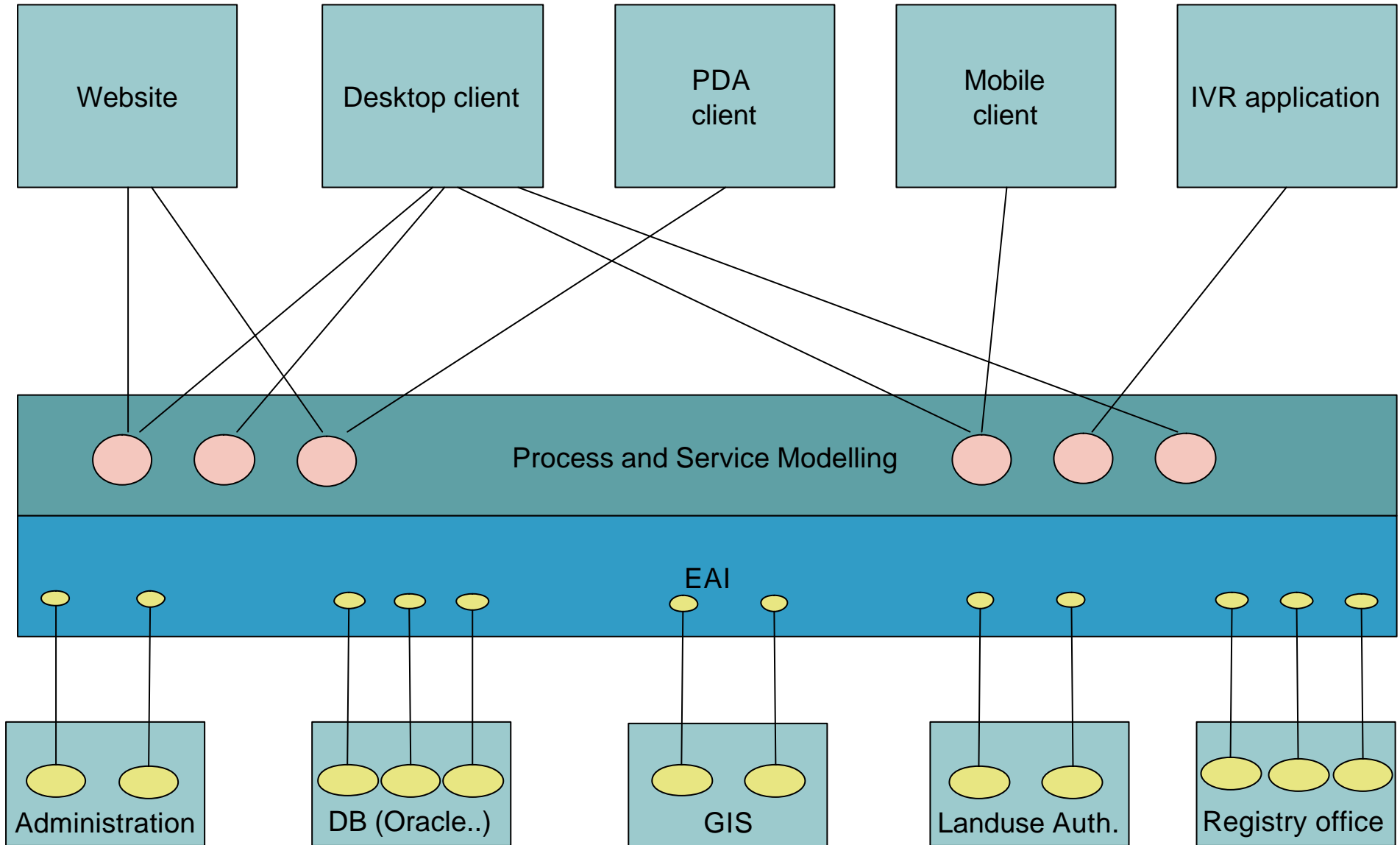
# Emerging issues

- ✍ Architectural discourse
- ✍ IT discourse
- ✍ Participatory design discourse

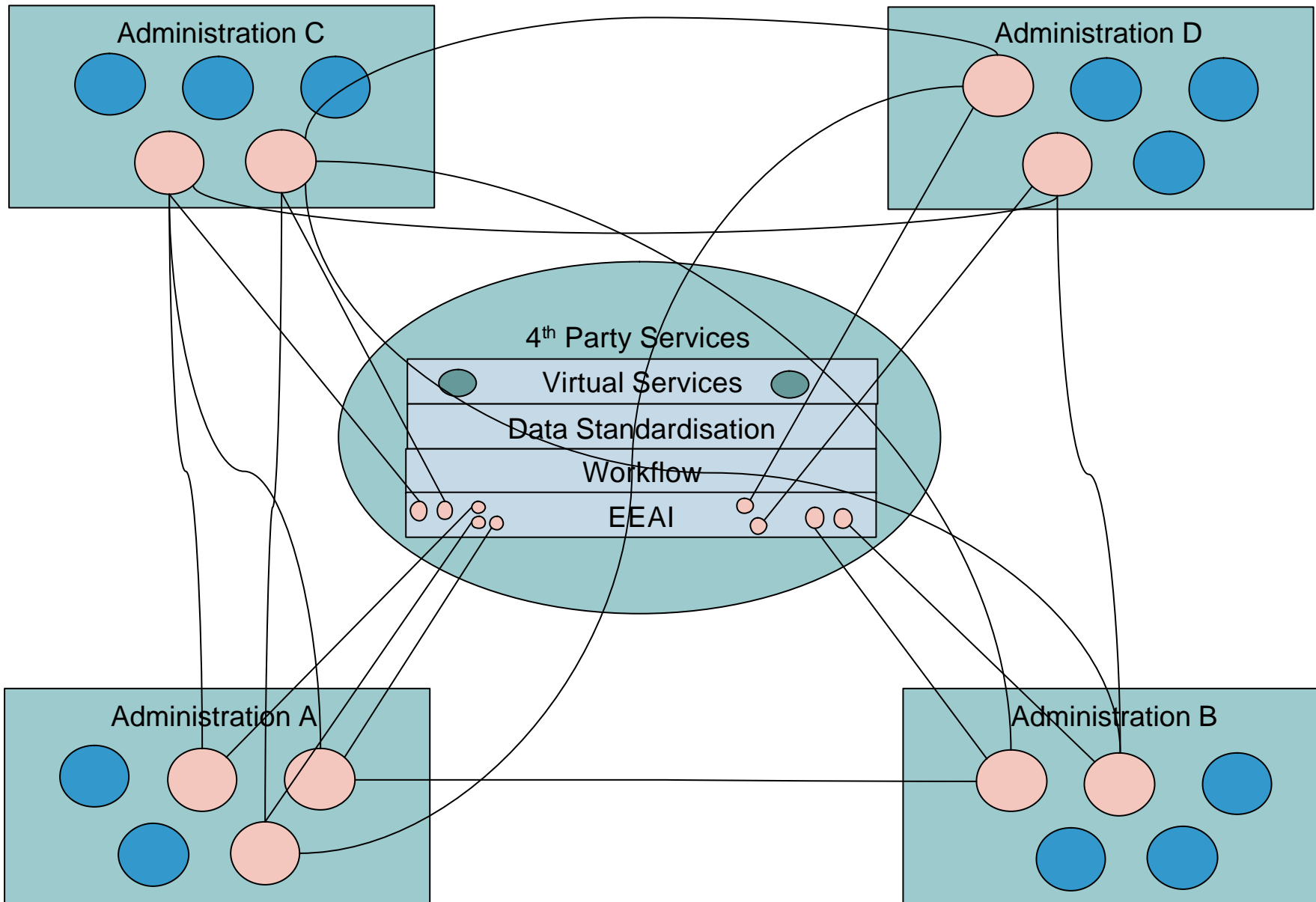
# The Architectural Problem



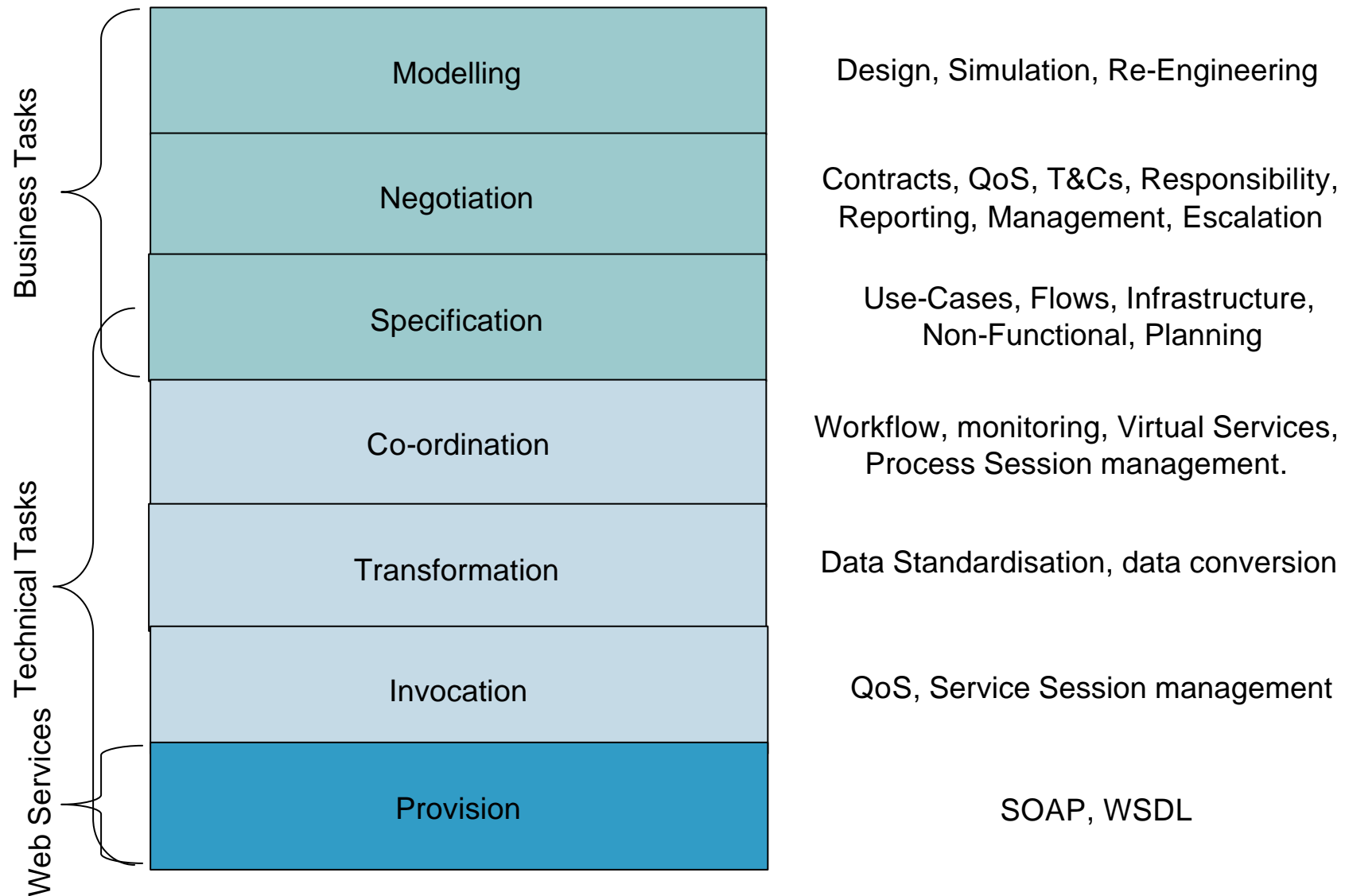
# Micro-scale interactions: eServices



# Macro-scale interactions: eServices



# Layers of 4<sup>th</sup> Party Services



# IT Discourse

- ✍ One objective is to develop a platform for IT supporting tools to the OSS operations
- ✍ An initial proposed configuration includes five major computational elements each of which comprises a small number of sub-elements

## **CATALOGUE ENVIRONMENT:**

catalogue of services and information within a Public Administration. Tools like Web sites, portals and distributed databases lie within this domain. SOAP, WDSL, UDDI provide the underlying standards. Metadata representation is central for data exchange and is realized through XML schema

## **TRANSACTION ENVIRONMENT:**

middle-ware concepts and tools such as workflow, distributed transaction services and security services populates this environment.

## **DECISION SUPPORT ENVIRONMENT and CASE MANAGEMENT ENVIRONMENT:**

ontologies based on the previous catalogue and transaction environments can supply a comprehensive overview and enable more efficient access to the range of services provided by different involved actors

## **COLLABORATION ENVIRONMENT:**

tools created in the CSCW community need to be adapted and adopted in the new eGovernment work practices

# Considerations for choice of macro-scale IT platform

- ✍ Strategic, long-term choice
- ✍ Vendor competition is essential
- ✍ Stability and maturity rather than innovation
- ✍ End to end tooling from requirements through to monitoring
  - Requirements capture
  - Service modelling
  - Implementation
  - Testing
  - Monitoring
- ✍ Standards-based middleware reduces risks from vendor lock-in
- ✍ Requires many parties to agree on the platform for EAI and EEAI
- ✍ Builds on pre-existing systems
- ✍ Has significant budget

# Considerations for choice of micro-scale IT platform

- ✍ Platform choice predetermined
  - Desktop predominantly Windows based
  - PDA split PalmOS or Windows (PocketPC)
  - Mobile predominantly J2ME
- ✍ Tactical choice
- ✍ Rapid application development tooling rather than model driven development
- ✍ Currently predominantly about service invocation rather than hosting, though likely to change in future



# IT Platform choice

- ✍ Platform choice is determined by commercial rather than technical factors
- ✍ J2EE and .NET share the eServices solution space
- ✍ J2EE dominates in the macro-interaction space
- ✍ .NET has a bright future in the desktop and PDA micro-interaction spaces
- ✍ J2ME appears to have the vendor support to make it the platform of choice in the smart-phone space
- ✍ Interoperability is key to the future of eService uptake

# Participatory Design Discourse

- ✍ since third generation applications are constructed in the context of significant changes at the organisational and policy levels, the full and effective participation of all stakeholders in these processes is critical for their success
- ✍ The following parts have been identified as key ingredients in the overall methodology:
  - **design workshops** between developers and users
  - the **usage of concrete representations** like rich pictures, mock-ups and prototypes as boundary objects between developers and users
  - an **iterative and evolutionary approach** to system development allowing for feed back and learning
  - the creation of effective **Communities of Practice and of Interest** to support knowledge creation and management as well as change management

# Conclusions

- ✍ European PAs are undergoing important innovation processes as a result of eGovernment projects such as provision of eServices to citizens
- ✍ This state of affairs will accompany the deployment of eGovernment programmes for over a decade and it will be pervasive: the transformation activity will create analogous problems to managers, personnel throughout the different level of the public organization, as well as citizens
- ✍ We believe that a service oriented approach together with a sound architectural discourse will support the development of a reliable IT platform in public service provision for enhanced co-operation, coordination and integration of services as well as the continued design in use of services and IT infrastructures.