SCIENCE AND TECHNOLOGY
S&T DIGITAL LIBRARY

The S&TDL infrastructure and e-publishing. Integration: possible.

Open Access Publishing per la diffusione del sapere scientifico
Roma, 9 dicembre 2015
CNR – Biblioteca Centrale

Maurizio Lancia

Consiglio Nazionale delle Ricerche
Agenzia per l'Italia Digitale
Presidenza del Consiglio dei Ministri

Introduction

E-publishing

It means different **processes**, with respect both of the *content and use* of the created documents, and also of the *aims* of the publication (web content, print documents, multimedia web contents, dynamic web pages, e-books, journals, etc.).

In order to manage properly these processes, strong **organisational** (such as guidelines and policies, rules and bodies to verify/supervise contents) and **technical-technological tools** (document production, content management, workflow management, etc.) are essential.

CNR Press:
the way to develop an integrated system for publishing initiatives

A project hypothesis and a starting point supporting this idea:
the S&TDL infrastructure

Science & Technology
Digital Library (S&TDL)

The scenario

The **S&TDL project** is:

- one of the initiatives of the **Italian digital agenda** for the exploitation of the potential of ICTs in order to favour growth, innovation and competitiveness
- coherent with the Digital Agenda for Europe and inserts itself in the wider framework of the **EU 2020 Strategy**
- in line with the still ongoing European and National programming (**Horizon 2020**)

S&TDL Project

- **July 2012**: Agreement between CNR and the Department for the digitisation of the Public Administration and for innovation technology of the Presidency of the Council of Ministers, later AgID (MIUR-CNR Memorandum of Understanding)
- **Purpose**: to develop and experiment an integrated system to give access to information on R&S and Cultural Heritage, ensuring at the same time their efficient and transparent management and use

S&TDL Project

A wide range of project domains and achievements:

- catalogues and MetaOPAC
- digitised historical contents
- multifunctional systems for the management of repositories, that are different both in their variety and in their technical and technological structure
- a Semantic Portal
- test and experimentation of methods and tools for the Digital Preservation
- training and development of new professionals in the emerging information and knowledge areas…

S&TDL Project

- **The main result**: an infrastructure *(e-infrastructure)* which is
  - flexible
  - coherent with federate models
  - based on open technological and application components in order to supply and manage cooperative services
  - with the purpose to stress the collaborative dimension, the communities and the partnership

- **Approach**: integrated, focused on multi-level interoperability and on a wide range of open and flexible technical and technological solutions

- **For whom**: first of all, for the National scientific and academic community, secondly for a wider audience (institutions, companies, and the society as a whole)

Partnership

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S&TDL: the main realisations

The architectural model

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Infrastructural services

AAA
SSO
LDAP
Authorization
Logging and bookkeeping

Certificazione e securizzazione
Firma Digitale Remota
Timbro digitale

Content processing
Transcoding
OCR

Dedup e arricchimento

Workflow Engine

Persistent Identifiers

External services connectors

Presentation Layer
Portale LOD | Altri Client | Portale STDL | Altri portali

End user Metaservice layer / Federation Layer
MetaOPAC | MetaCRIS | MetaRBV

End user Service Layer
OPAC | CRIS | RBV | FAD

Access layer
Service Programming Interface
Ingestion | Crawling and aggregation | Browsing | Search and retrieval

Information Object Management Layer
Repository Digital Library | Piattaforma LTPD

Content Provider Esterni
Provider A
Provider B
Provider C

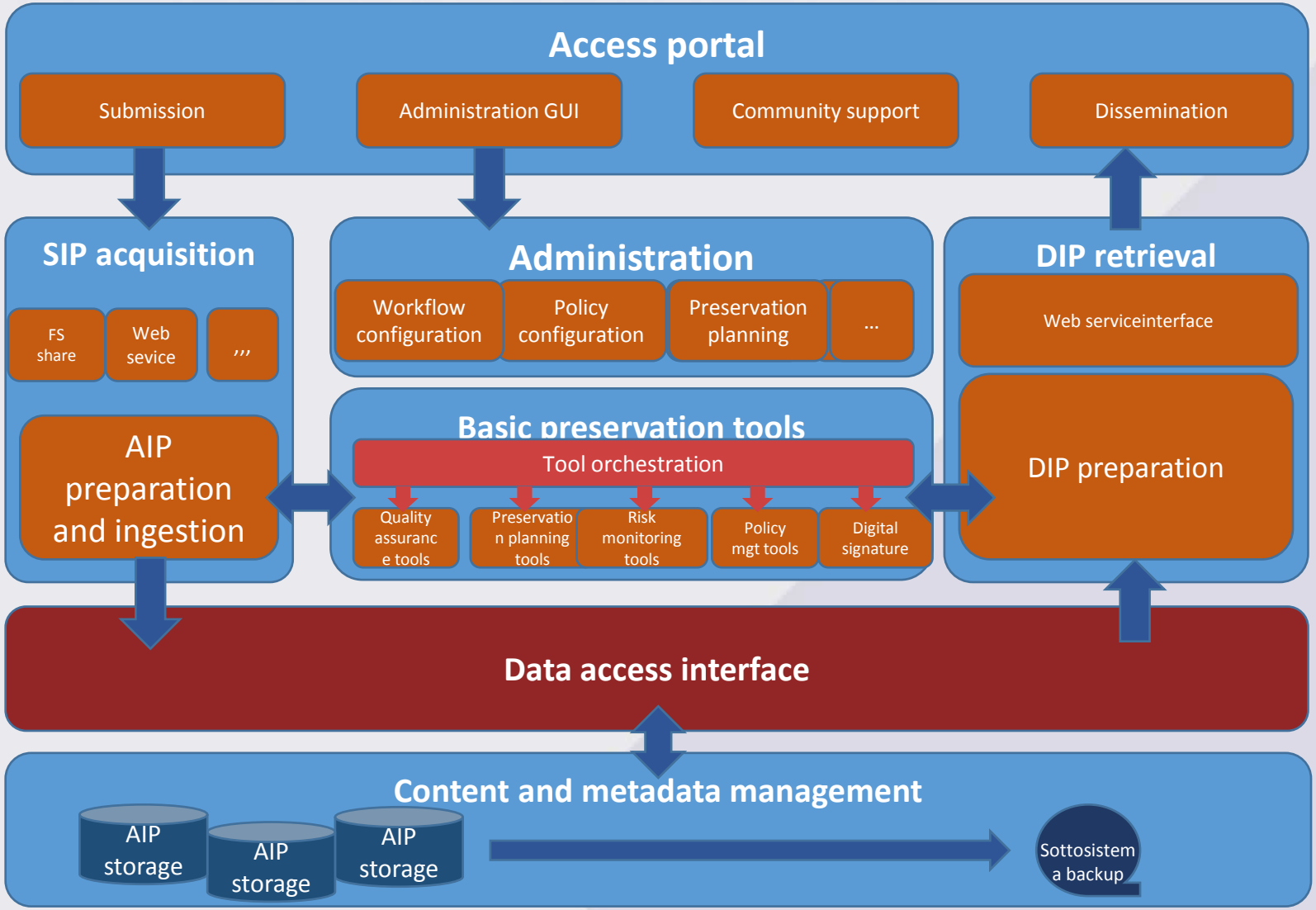
Piattaforma Gestionale
Repository Prodotti
Archivi Istituzionali
Cataloghi

Content types
DATA | IMAGE | VIDEO | DOC | AUDIO

Standards
MODS | MARC21 | UNIMARC | MARC21 | EAD

Formats
CSV | XML | UNIMARC | MARC21 | EAD

Digital preservation



Technical architecture

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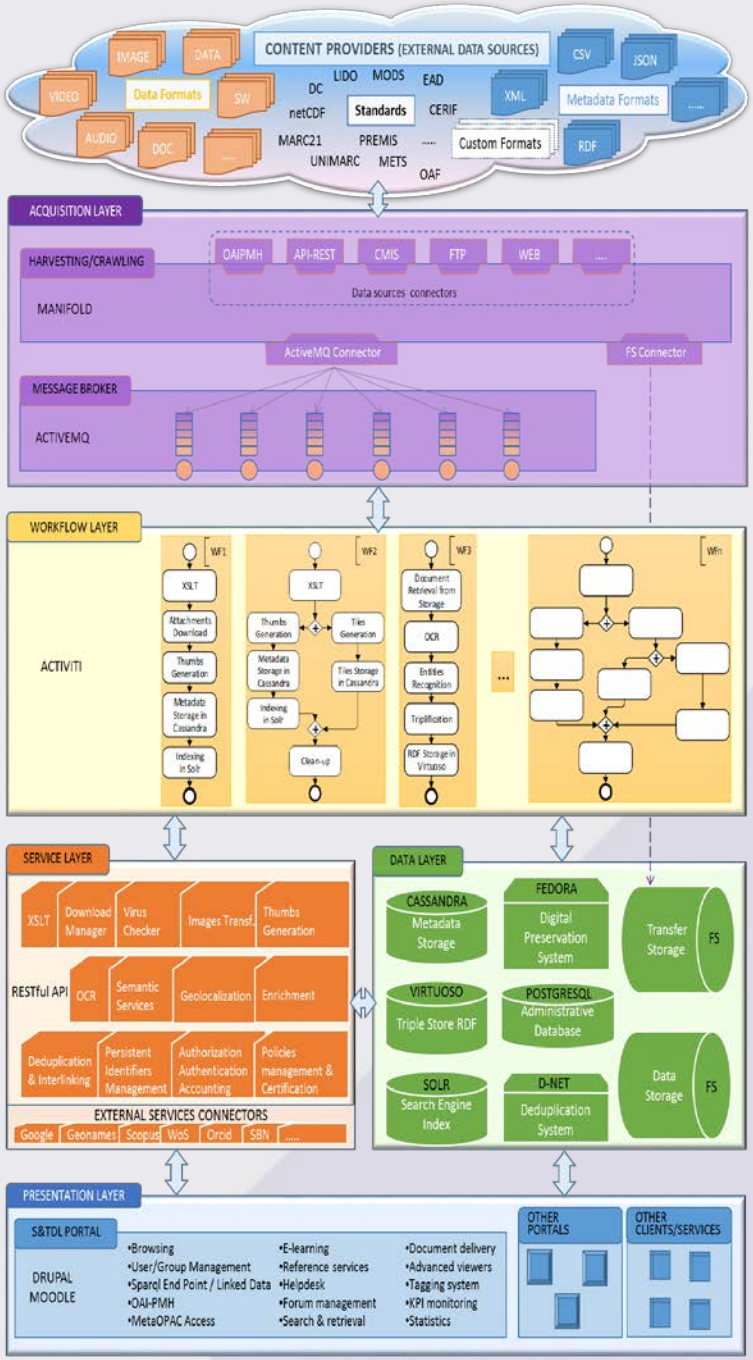
CONTENT PROVIDERS (EXTERNAL DATA SOURCES)
IMAGE
DATA
VIDEO
Data Formats
SW
AUDIO
DOC
.....
DC
LIDO
MODS
EAD
netCDF
Standards
CERIF
MARC21
PREMIS
....
UNIMARC
METS
OAF
Custom Formats
CSV
JSON
XML
Metadata Formats
RDF
ACQUISITION LAYER
HARVESTING/CRAWLING
OAIPMH
API-REST
CMIS
FTP
WEB
....
Data sources connectors
MANIFOLD
ActiveMQ Connector
FS Connector
MESSAGE BROKER
ACTIVEMQ
WORKFLOW LAYER
ACTIVITI
WF1
XSLT
Attachments Download
Thumbs Generation
Metadata Storage in Cassandra
Indexing in Solr
WF2
XSLT
Thumbs Generation
Tiles Generation
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Tiles Storage in Cassandra
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WF3
Document Retrieval from Storage
OCR
Entities Recognition
Triplification
RDF Storage in Virtuoso
...
WFn
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XSLT
Download Manager
Virus Checker
Images Transf.
Thumbs Generation
RESTful API
OCR
Semantic Services
Geolocalization
Enrichment
Deduplication & Interlinking
Persistent Identifiers Management
Authorization Authentication Accounting
Policies management & Certification
EXTERNAL SERVICES CONNECTORS
Google
Geonames
Scopus
WoS
Orcid
SBN
.....
DATA LAYER
CASSANDRA
Metadata Storage
FEDORA
Digital Preservation System
Transfer Storage
FS
VIRTUOSO
Triple Store RDF
POSTGRESQL
Administrative Database
SOLR
Search Engine Index
D-NET
Deduplication System
Data Storage
FS
PRESENTATION LAYER
S&TDL PORTAL
DRUPAL
MOODLE
•Browsing
•User/Group Management
•Sparql End Point / Linked Data
•OAI-PMH
•MetaOPAC Access
•E-learning
•Reference services
•Helpdesk
•Forum management
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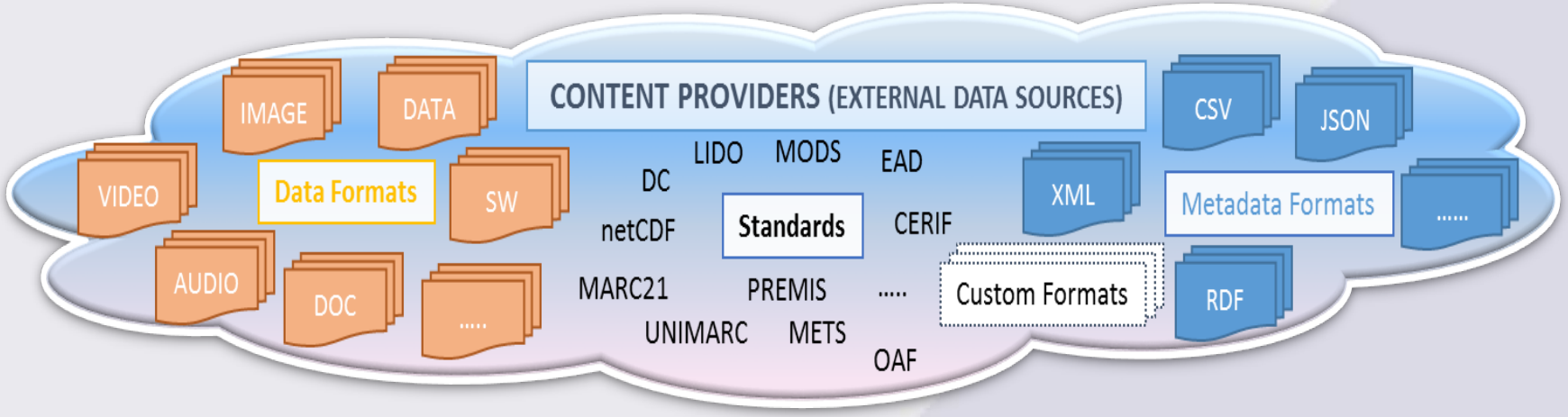
•Document delivery
•Advanced viewers
•Tagging system
•KPI monitoring
•Statistics
OTHER PORTALS
OTHER CLIENTS/SERVICES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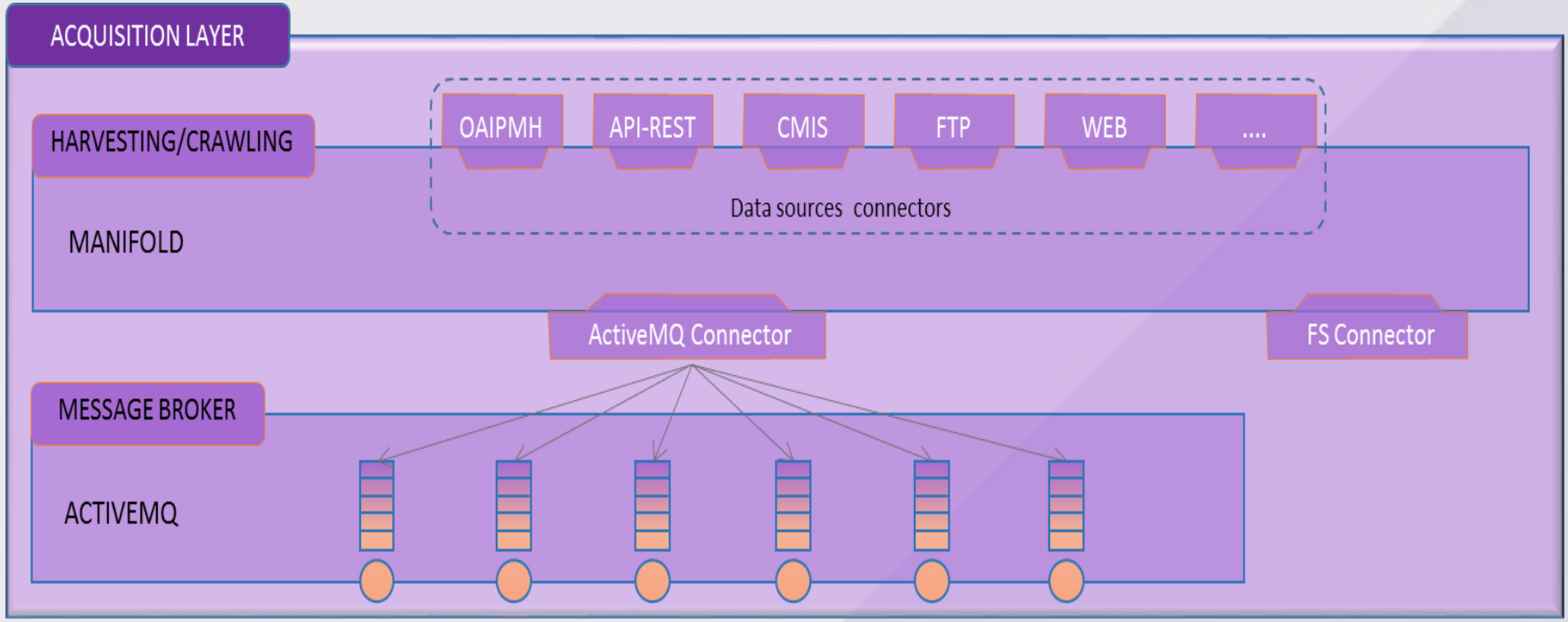
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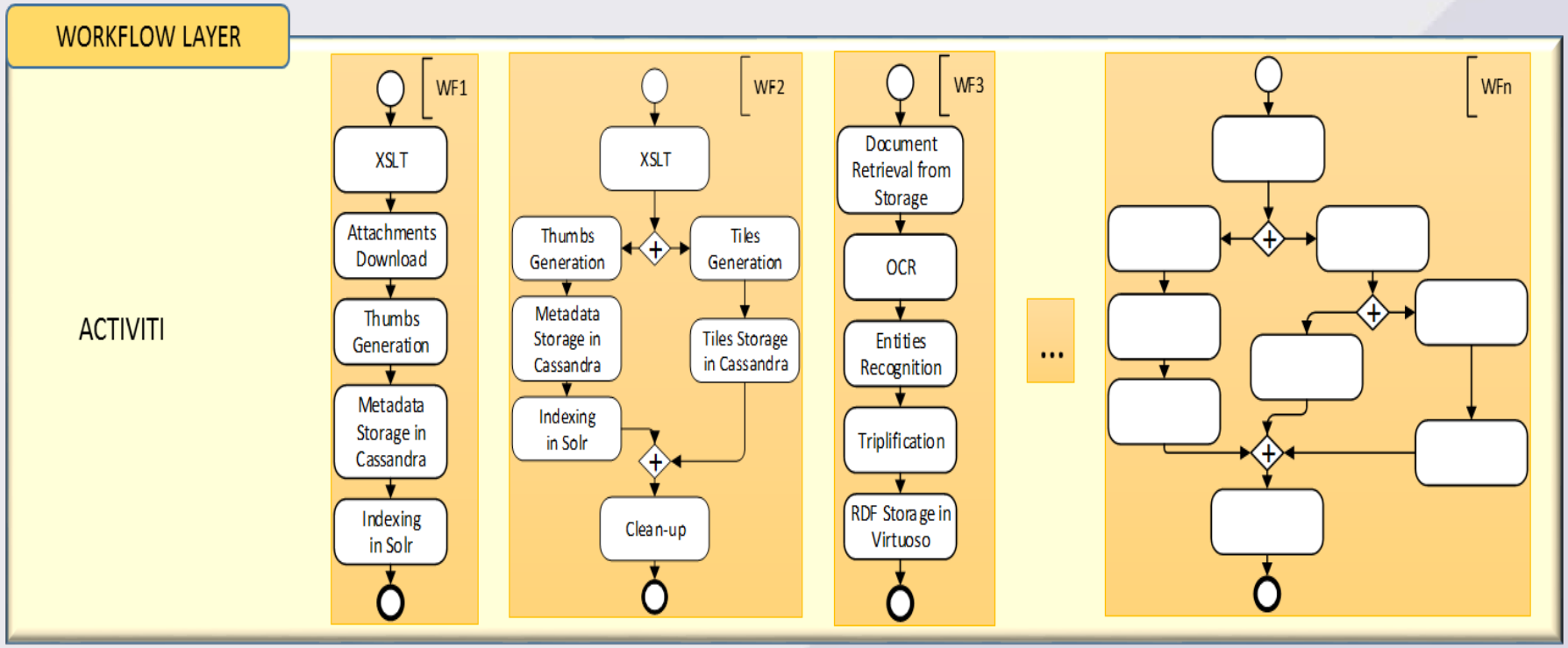
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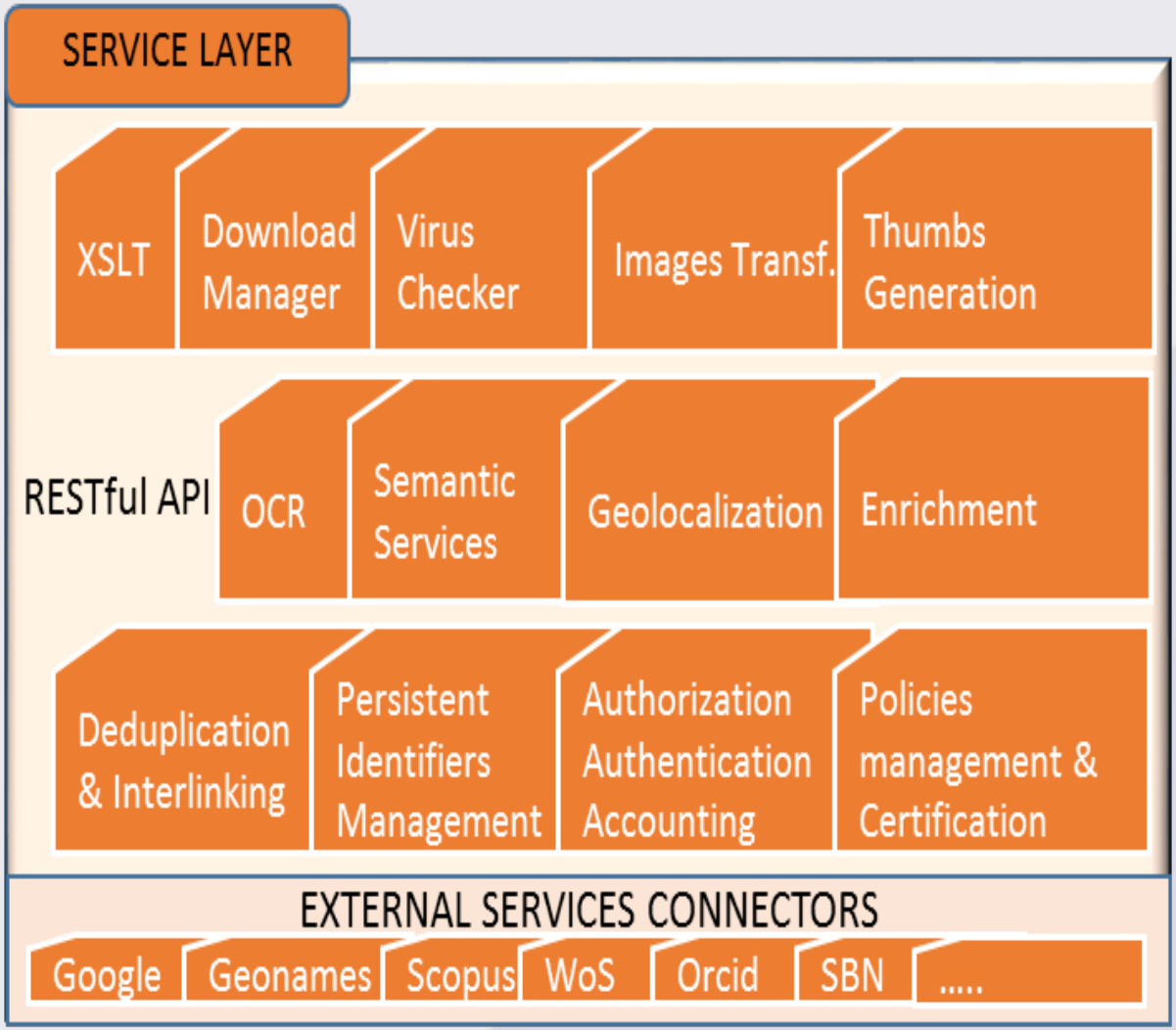
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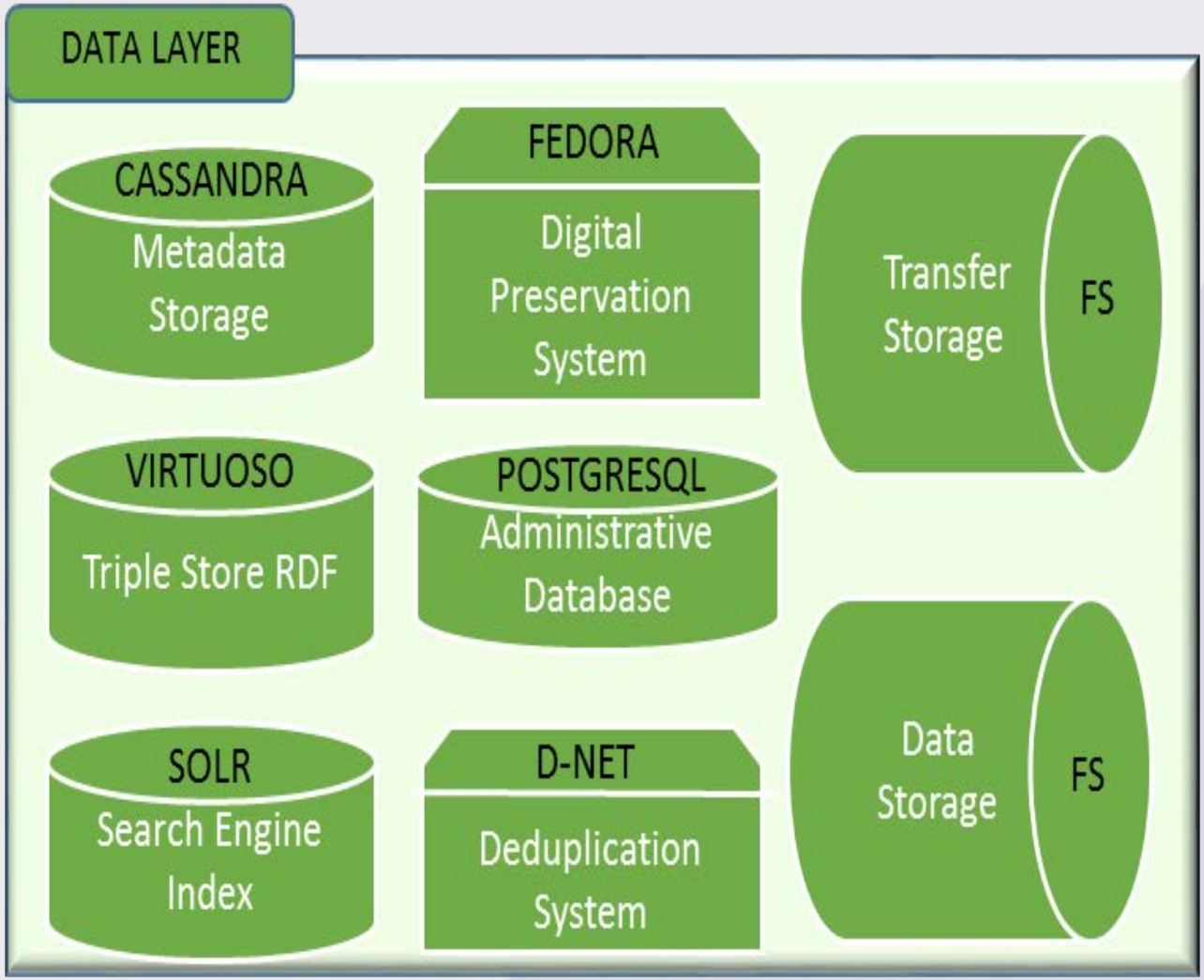
Geonames
Scopus
WoS
Orcid
SBN
.....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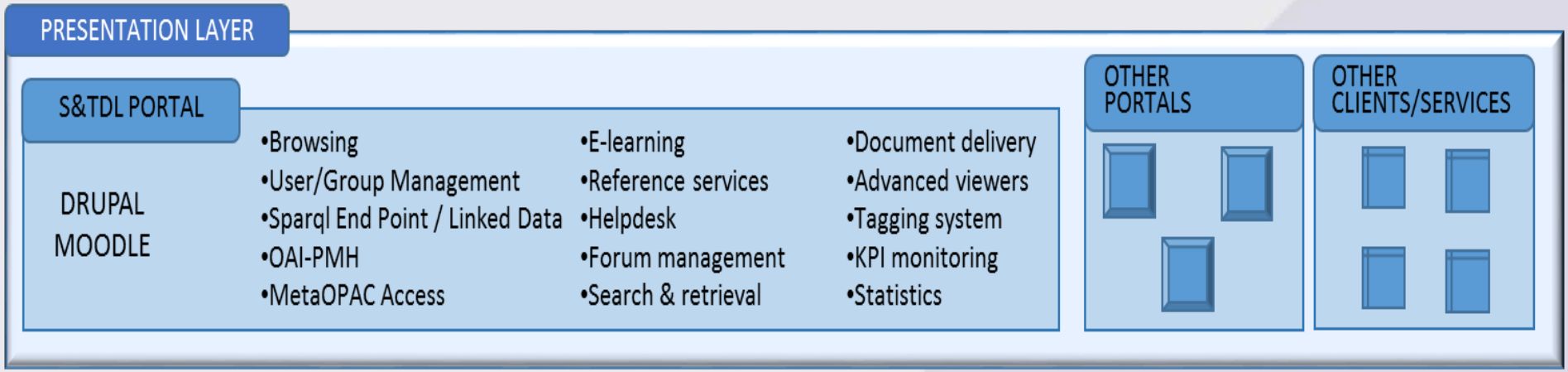
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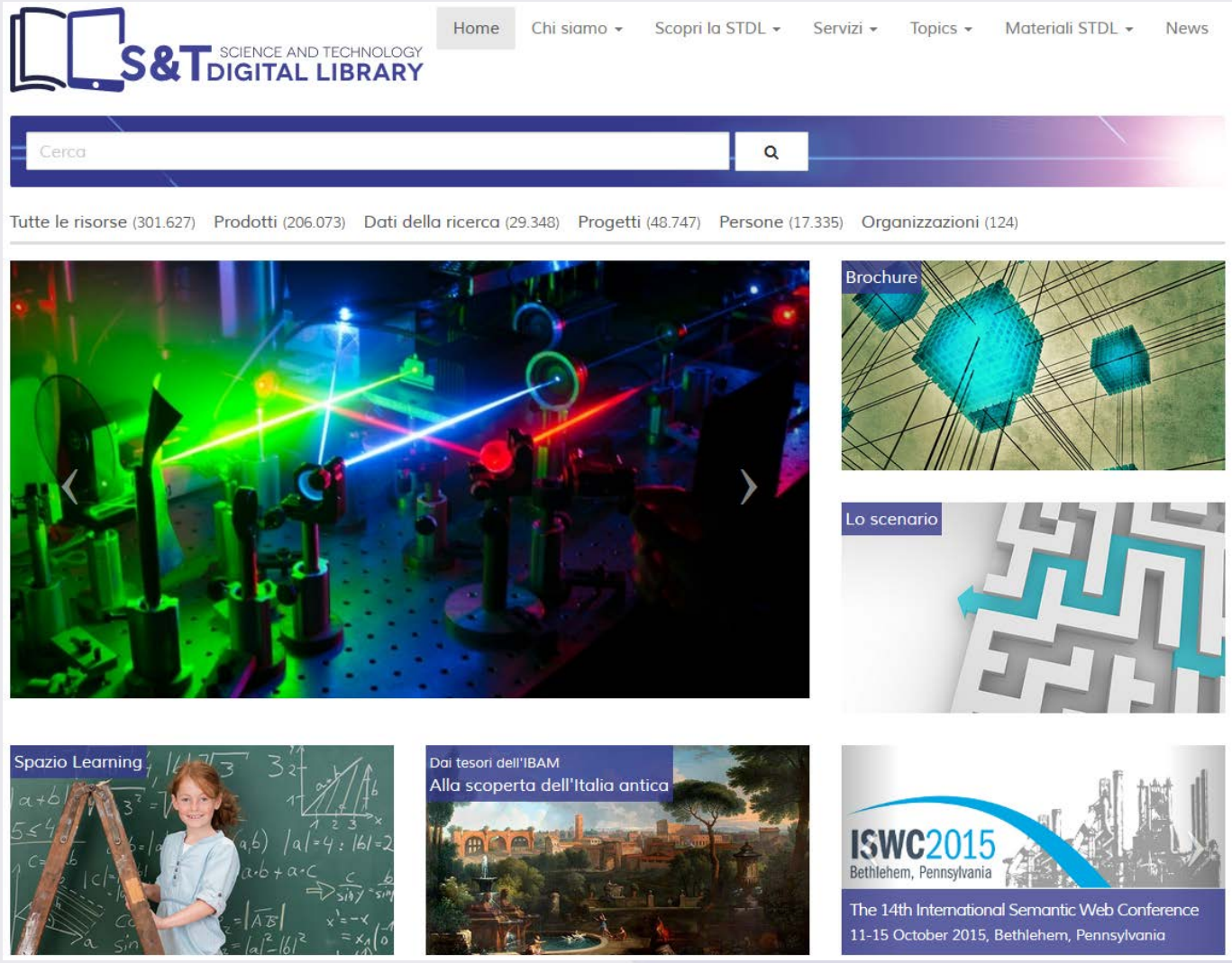
The S&TDL Portal

Home page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ISWC2015
Bethlehem, Pennsylvania
The 14th International Semantic Web Conference
11-15 October 2015, Bethlehem, Pennsylvania

Linked Open Data

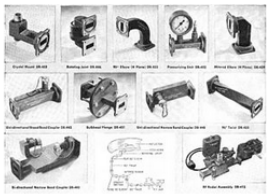
Analysis of axisymmetric waveguide components by a multi-domain spectral method

Ritorna

Scaricato da IEEE

Titolo: Analysis of axisymmetric waveguide components by a multi-domain spectral method
Tipo: Articolo in rivista
Autori:
Tibaldi A.; Addamo G.; Peve R.
Affiliazioni:
Department of Electronics c di Torino, Torino, 10129, Italy; Consiglio Nazionale Delle Ricerche (C gneria dell'Informazione e Delle Telecomunicazioni (IEIIT), Tu
Autori riconosciuti: RENA R ANTONIO PEVERINI, GIUSEPPE VIRONE, GIUSEPPE ADDAMO, RICCA

Waveguide (electromagnetism)



In electromagnetics and communications engineering, the term waveguide may refer to any linear structure that conveys electromagnetic waves between its endpoints. However, the original and most common meaning is a hollow metal pipe used to carry radio waves.

Attendibilità: 0.50727

Rivista

Titolo: IEEE transacti iques
Attiva dal: 1963
Editore: Professional ory and Techniques, Institute of Electrical and Electronics Engineers, - Nev
Paese di pubblicazio
Lingua: inglese (eng)
ISSN: 0018-9480
Titolo chiave: IEEE tr d techniques
Titolo proprio: IEEE t nd techniques.
Titolo abbreviato: IE

Numero volume: 63
N. volume della rivista: 1
Fascicolo: 1
Pagina da: 115
Pagina a: 124
Referee: Referee Internazionale
Anno di pubblicazione: 2015
DOI: 10.1109/TMTT.2014.2376561
Indicizzato da: Scopus (Codice: 2-s2.0-84920723947)
Lingua di pubblicazione: inglese

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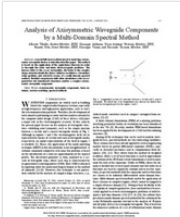
Ritorna



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Telecomunicazioni (IEIIT), Turin, 10129, Italy
Autori riconosciuti: RENATO ORTA, ALBERTO TIBALDI, OSCAR ANTONIO PE
GIUSEPPE ADDAMO, RICCARDO TASCONE

Spectral method
Spectral methods are a class of techniques used in applied mathematics and scientific computing to numerically solve certain differential equations, often involving the use of the Fast Fourier Transform.
Attendibilità: 0.63804

Rivista

Titolo: IEEE transactions on microwave theory and techniques
Attiva dal: 1963
Editore: Professional Technical Group on Microwave Theory and Techniques, Institute of Electrical and Electronics Engineers, - New York, N.Y.
Paese di pubblicazione: Stati Uniti d'America (USA)
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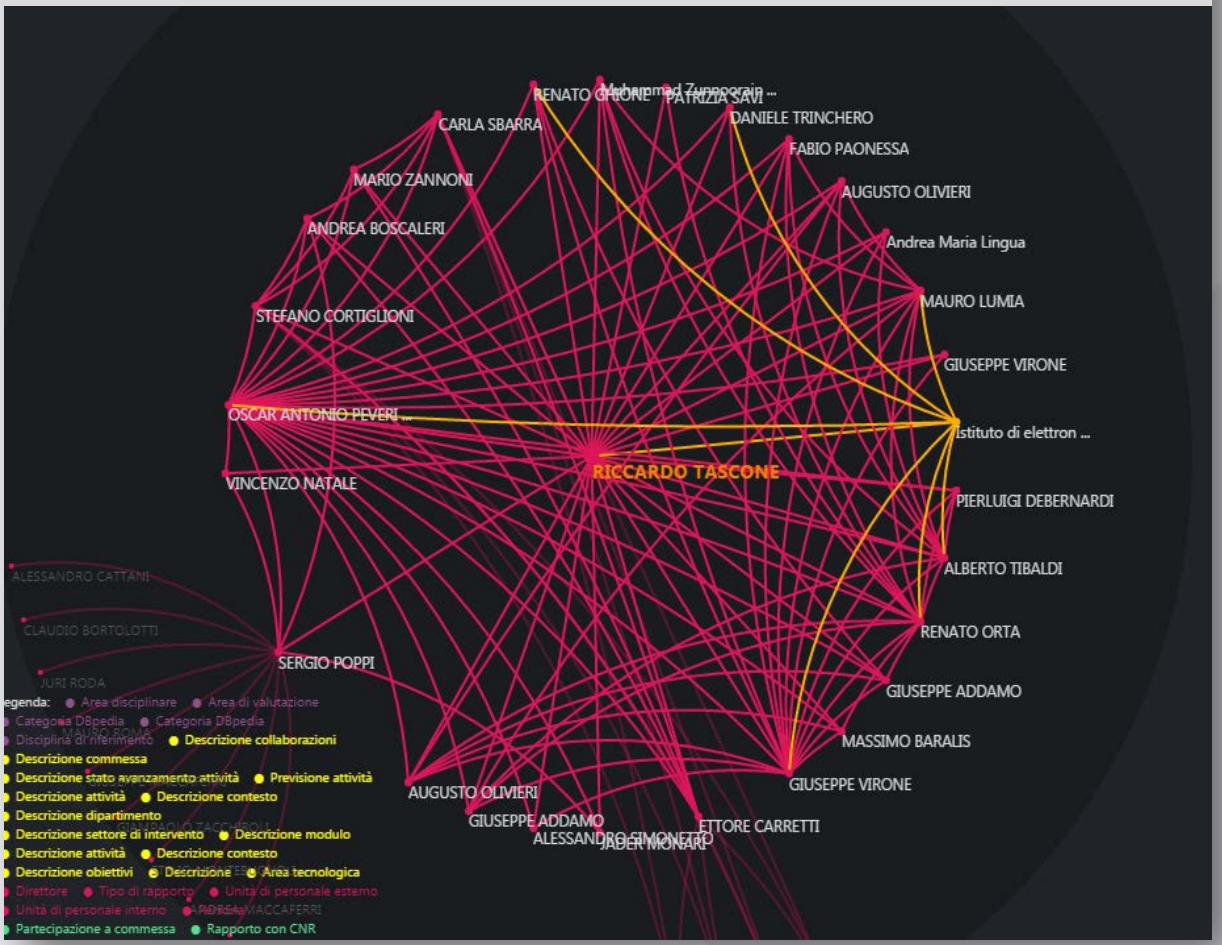
An example of semantic representantion

Collaboration/activities network



Possible integrations

E-publishing: open issues

It would be necessary to act on different levels:

- **Policy and organisation** measures (a priority) in order to define: purposes, action and development areas, guidelines, policies, development and sustainability plans, …
- **Technical** actions so that to specify management and operation procedures: publishing, technical-technological, design… standards; juridical and legal aspects, etc.
- **Technological** operations in order to build application, tools and services

Organisational measures

It would be useful to foresee an effective «connection» for all the ongoing e-publishing initiatives at CNR. This process could cover the following actions:

- Analysis and monitoring of the publishing initiatives at CNR (data collection and feedback analysis for each user profile)
- Systematic benchmarking in order to guide decisions, based on the comparison among the best National and International initiatives
- Proposal of a coordinated and joint initiative (CNR-Press) inclusive of policies, management and sustainability plans, etc.
- Decision by CNR government
- Optional opinion of the advisory board (eg. General Scientific Council)
- Definition of management procedures
- Organisational actions for each division (institutes and administration services)

Technical-technological measures

On the basis of what has been decided regarding the organisational measures, the following actions are needed:

- Analysis and definition of technical and technological requirements
- Planning and creation of the application software, also starting from available OSS (e.g. OJS …)
- Test and releases
- Integration with CNR infrastructures (e.g. S&TDL ….)
- Management

Comments

- High-level institutional commitment
- Complexity of organisational actions
- Strong engagement in order to increase the effectiveness and the synergism of the initiative organisational model (management of cross multi-actor/structure processes)
- Need for a coordination operative task-force
- Less complexity on the technical-technological level: the e-publishing component creation would only involve some expert people committed to the specific service

Initiative relevance

This initiative would allow CNR to:

- Adapt to the standards adopted by the main academic and research institutions, both at National and International level
- Answer effectively to the CNR mission to disseminate scientific and technical culture
- Optimise efforts starting from an existing technological infrastructure able to integrate this initiative with other systems and services
- Give value both to the publishing initiative and the S&TDL infrastructure
- Support effectively Open Access growth
- Contribute to the continuous improvement of the publishing initiative through the S&TDL infrastructure development (visibility and redundancy, semantic tools usage, services optimisation, …)

Thank you
for your attention!

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