

# Ricerche nel campo delle tecnologie per la Musica Multimediale e Crossmedia

**Paolo Nesi**

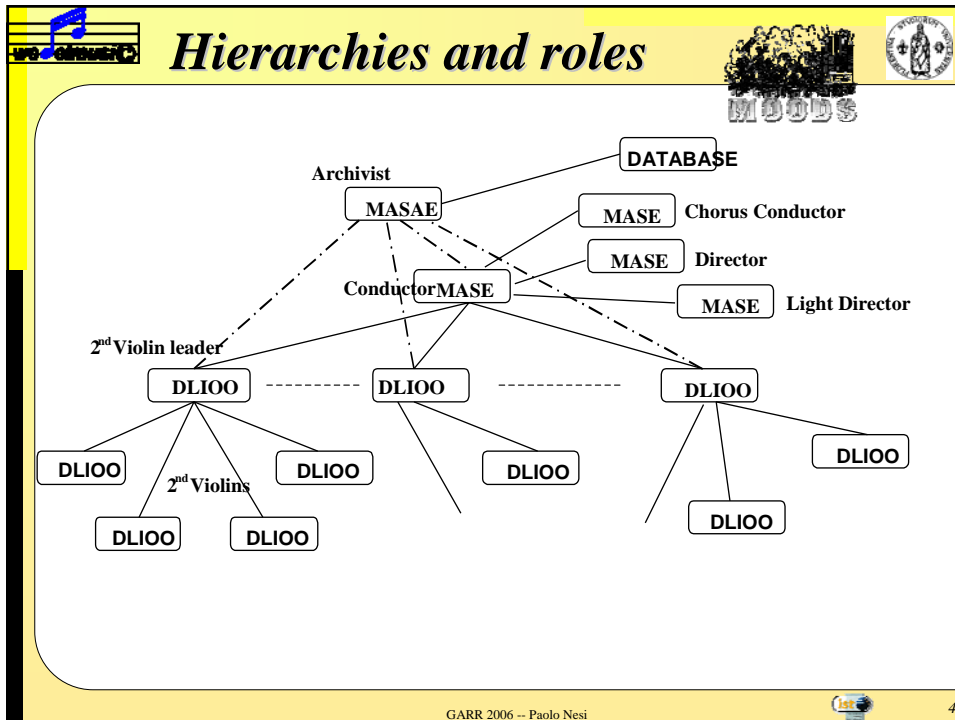
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## In these last years of work

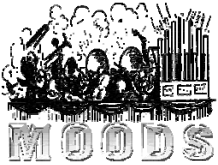
- MOODS, cooperative work on music notation for orchestras
- WEDELMUSIC platform, IST Fp5
  - ♣ Content management and sharing in archives
  - ♣ Selflearning and distance learning
- IMUTUS, music tuition, distance learning, IST Fp5
- MUSICNETWORK Environment, IST Fp5
  - ♣ Network of Excellence, European association
  - ♣ MPEG SMR Symbolic Music Representation
- IMAESTRO, music education, cooperative, IST Fp6
- MPEG M3W, Multimedia Middleware
- AXMEDIS, Automating cont. prod. and protection, IST Fp6
  - ♣ multichannel content distribution and sharing
- Other minor projects: archives, mobile distribution, etc.











- A Video on MOODS



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







## Web DELivering of MUSIC scores

<http://www.wedelmusic.org>


Dipartimento Sistemi e Informatica



SCUOLA DI MUSICA  
DI FIESOLE  
FONDAZIONE




Fraunhofer Institute  
for Computer  
Graphics




Institut  
Graphische  
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CASA RICORDI




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GROUP



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## WEDELMUSIC

- **WEB delivering of music and multimedia**
- **Results:**
  - XML models for cross media integrated with music, synchronisation of media, etc.
  - models and tools for content distribution and sharing among archives
  - secure transactions models, watermarking, DRM, digital rights management
- **Impact:**
  - The seed of MPEG-SMR
  - Effective installations
  - Thousands of clients distributed for free
  - A huge number of contacts in the area
  - One of the best 20 R&D projects of the IST multimedia

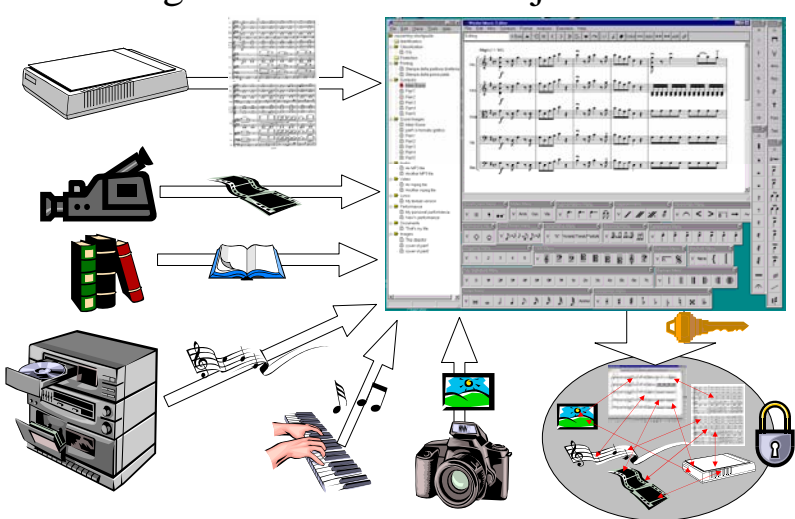
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## WEDELMUSIC Editor and Packager

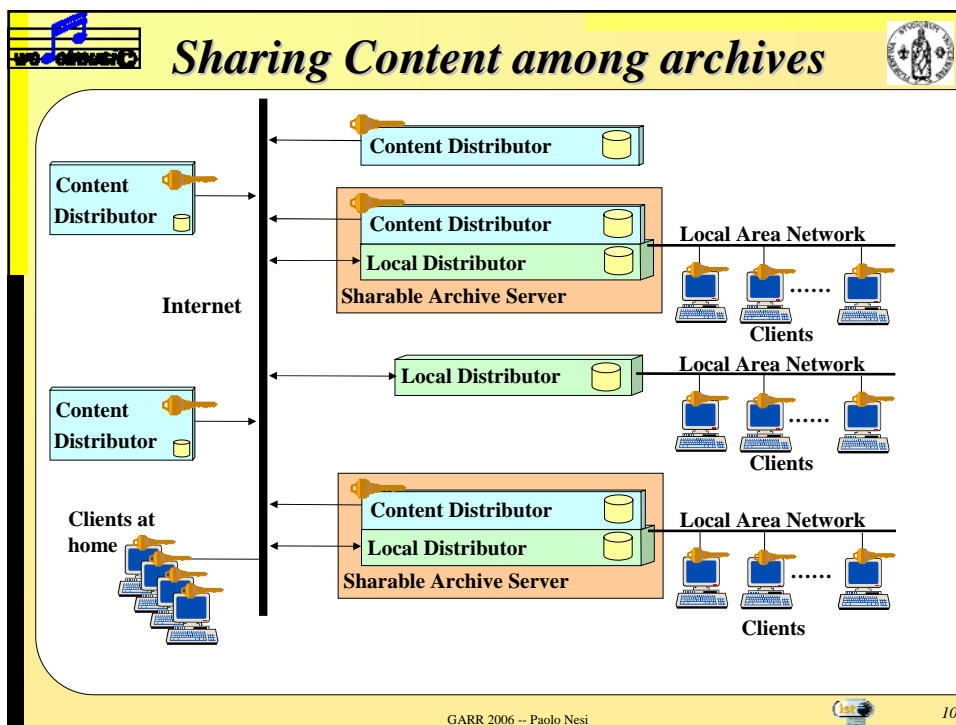
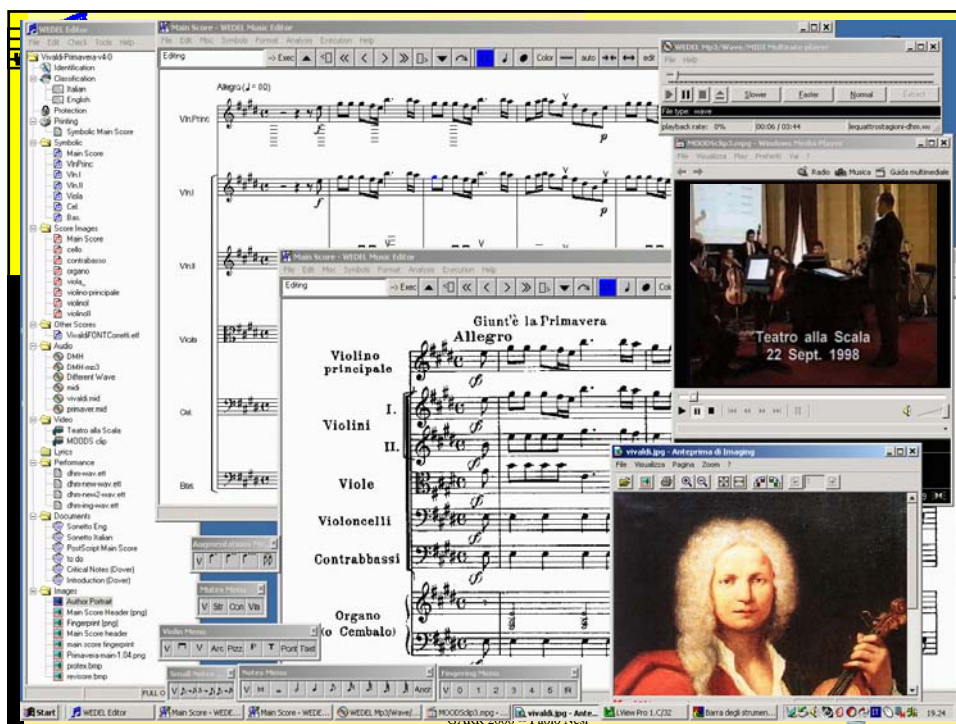
- **Building WEDELMUSIC objects**



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**Interactive MusicNetwork Multimedia** **MUSICNETWORK** **ist**

- **Thematic Network, Technology Transfer, to reduce the technological gap from content owners and distributors and technology providers**
- **Funded by EC 3 year, now it is an European Association**
- **>1000 participants, 10 working groups, >250 industries, etc.**
- **>440000 technical downloaded documents by participants**
- **All the value chains of digital content and music industry are represented.**

Music Industries  
Libraries & Archives  
Content Providers  
Music and IT Associations  
Educational Institutions  
Collecting Societies  
Content Distributors  
Legal Bodies  
End Users

Technologies  
Research Institutions  
Formats & Models  
Standardisation Bodies  
Tools & Products  
Technology Providers

**Interactive MusicNetwork Multimedia**

**New Solutions and Markets**


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**Interactive MusicNetwork Multimedia** **MUSICNETWORK** **ist**

- **Concertation/stimulation of research in Europe**
  - Construction of the research community
- **Integration of Music and Multimedia**
  - for archives
  - for education
  - for broadcasting
  - → edutainment, entertainment, infotainment
- **Modeling music → Standards**
  - Symbolic Music Representation, SMR
  - Descriptors of Music MPEG-7


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Interactive MusicNetwork Multimedia

## Music edutainment scenarios




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### TRAVIATA

### ACT 2— SCENE XIII

**Video**



**Context summary**

Violetta and Alfredo are at a party in the gallery of Flora's palace. Alfredo is jealous of Baron Douphol

**Interpreters**


Violetta Valery (Soprano)	.....	who is?
Alfredo Germont (Tenore)	.....	who is?
Flora Bervoix (Mezzosoprano)	.....	who is?
Annina (Soprano)	.....	who is?

**libretto**

**ALFREDO:**  
 È tra noi mortal quistione  
 S'ei cadrà per mano mia  
 Un sol colpo vi torria  
 Coll'amante il protettore  
 V'atterrisce tal sciagura?

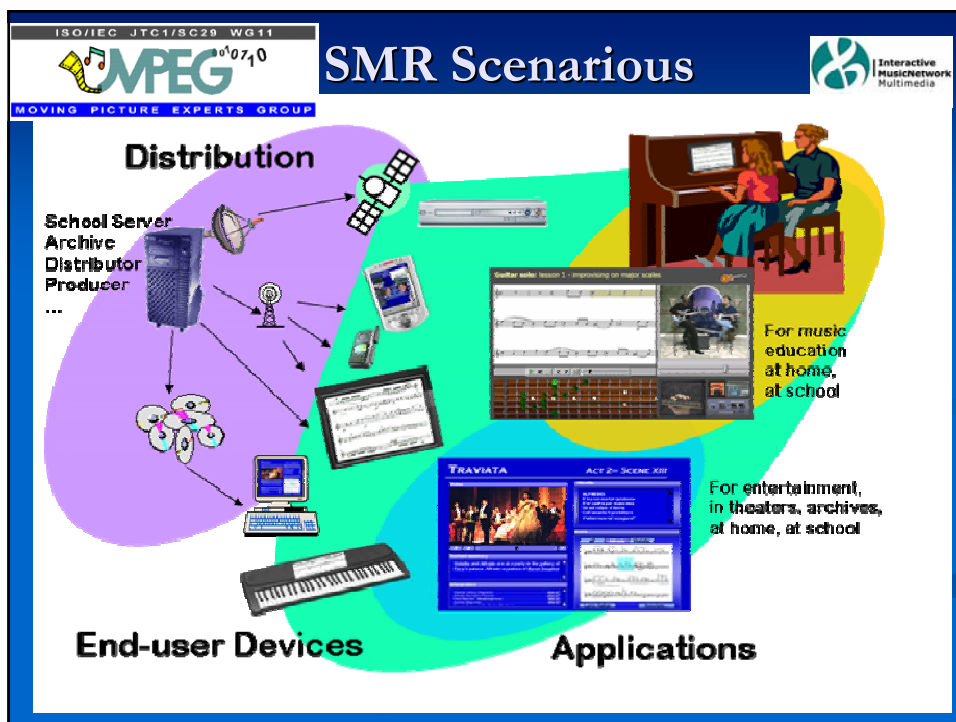
**Score**

all    Alfredo    Violetta



Lyric: Italian    Annotate...

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## I-MAESTRO: Interactive Multimedia Environment for Technology Enhanced Music Education and Creative Collaborative Composition and Performance

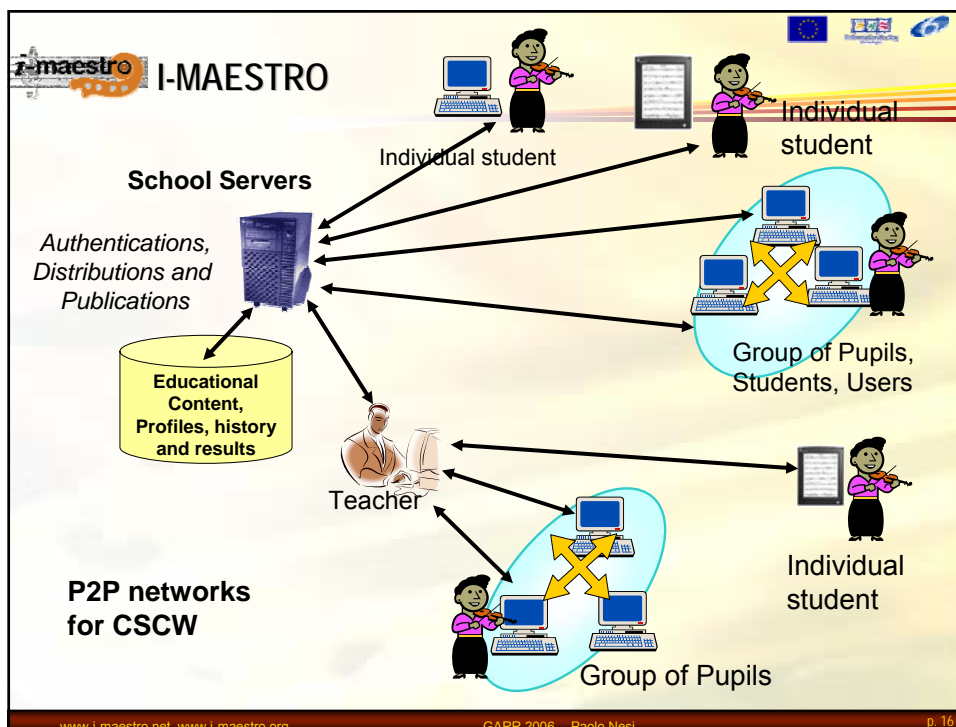



[www.i-maestro.net](http://www.i-maestro.net), [www.i-maestro.org](http://www.i-maestro.org)






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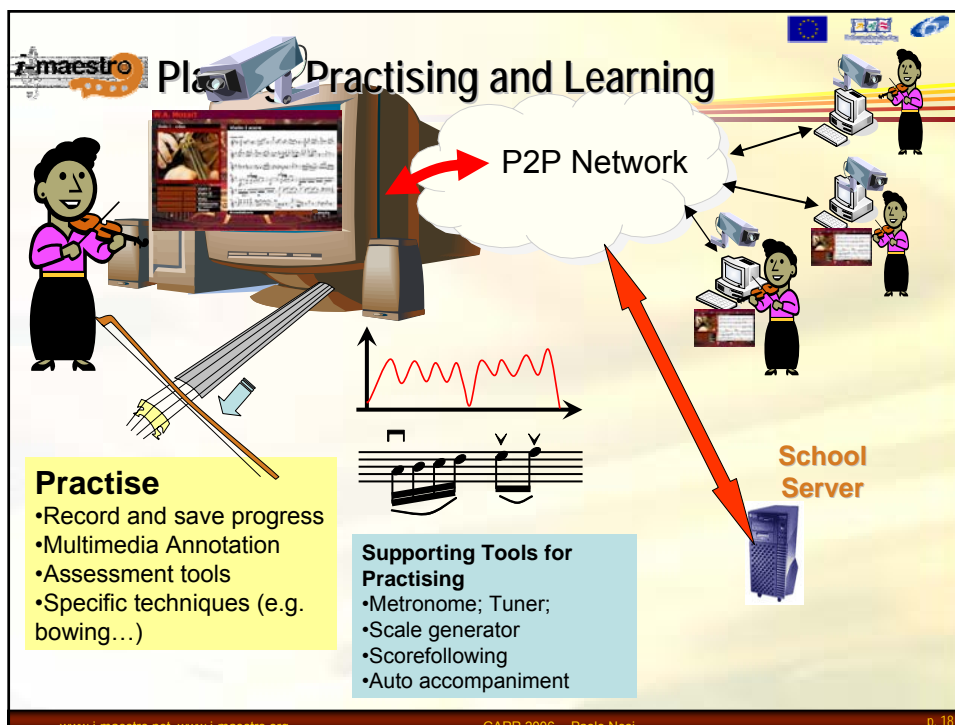





## Major challenges

- Research and development on innovative technology-enhanced environment for music learning & teaching
- Music Learning & Teaching
  - ✦ Cooperative Theory and Performance
    - Focus on string instruments
    - Expressions, gesture
    - inherently time consuming
    - one-to-one, particularly for instrumental performances
- Training – time and effort
  - ✦ optimise effectiveness
  - ✦ enhance attractiveness
  - ✦ widening participation and accessibilities

www.lmaestro.net www.lmaestro.org GARR 2006 - Paolo Nesi p. 17






**Automating Production of  
Cross Media Content  
for Multichannel Distribution**

**www.AXMEDIS.org**

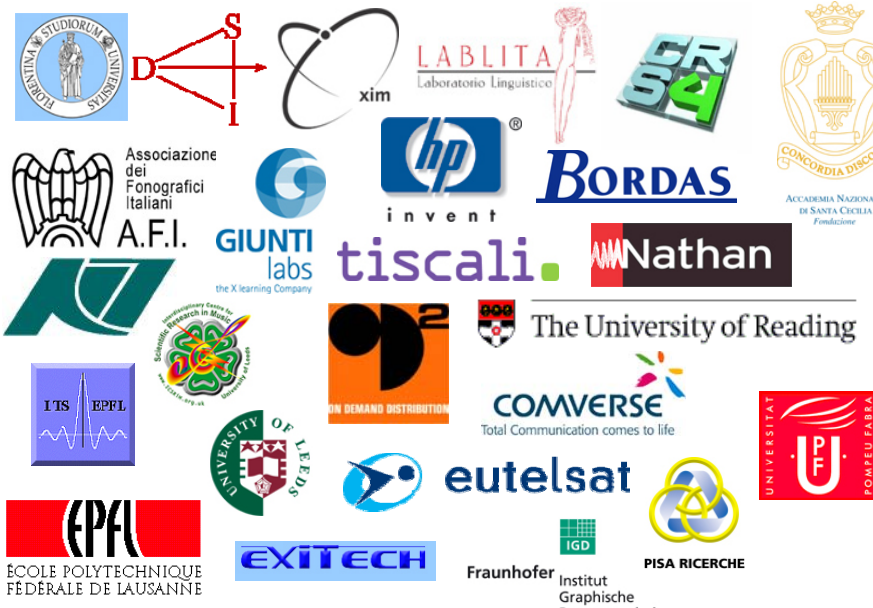
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**AXMEDIS Consortium**




**AXMEDIS**




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## What is AXMEDIS ?



AX  
MEDIS

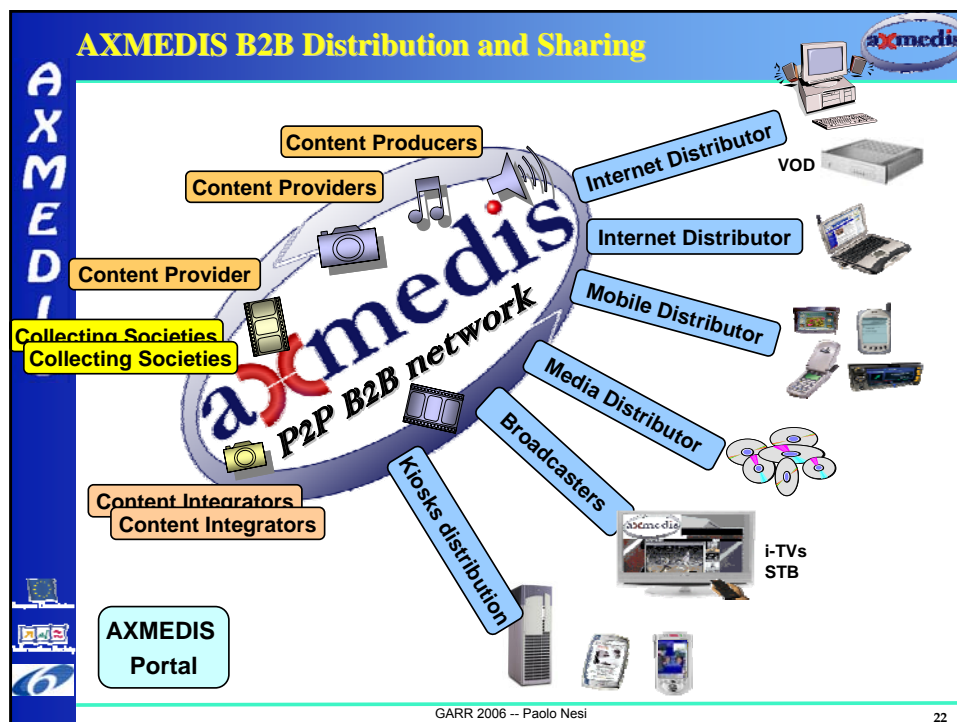
- **A project of the European Commission to solve problems in the area of e-commerce of digital content**
  - ✦ partially funded by the EC and partially from the Companies involved
- **The major aims are**
  - ✦ *reducing distribution and aggregation costs for content production and management*
  - ✦ *interoperability among distribution channels, DRM, etc.*
  - ✦ *create the AXMEDIS Platform/Framework on the basis of new technologies and make it accessible for SME, research centers, and any other partner interested in*
- **The affiliation allows to access at the knowledge and tools (source code).... produced**



- **Started: 1st September 2004**
- **Value: 14 Meuro**
- **About 120 people are working on AXMEDIS every day**



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## Main objectives

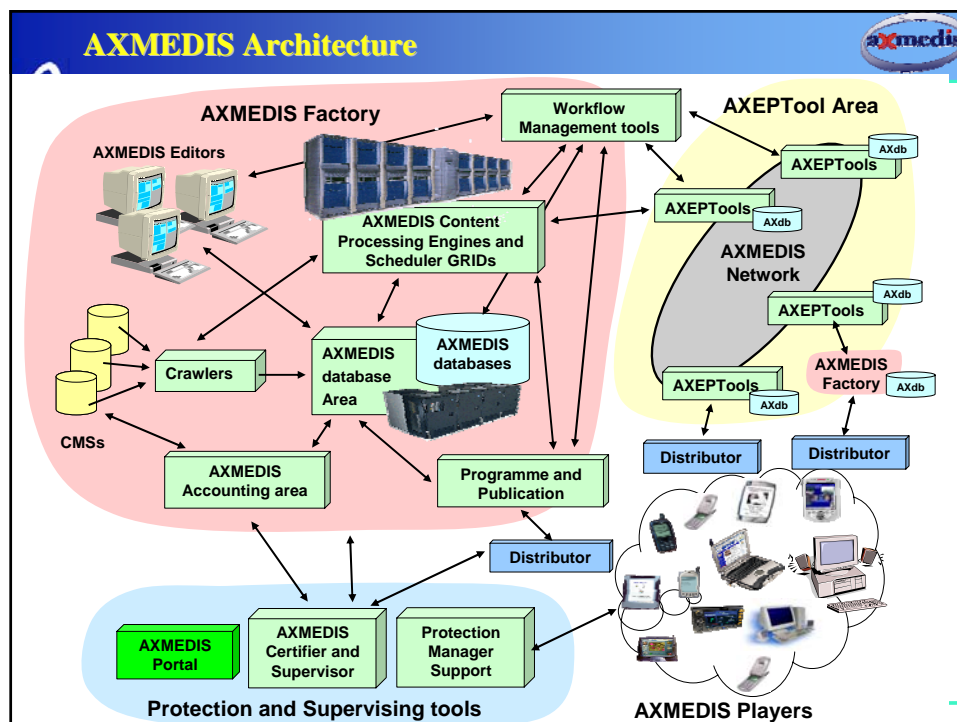
AXMEDIS

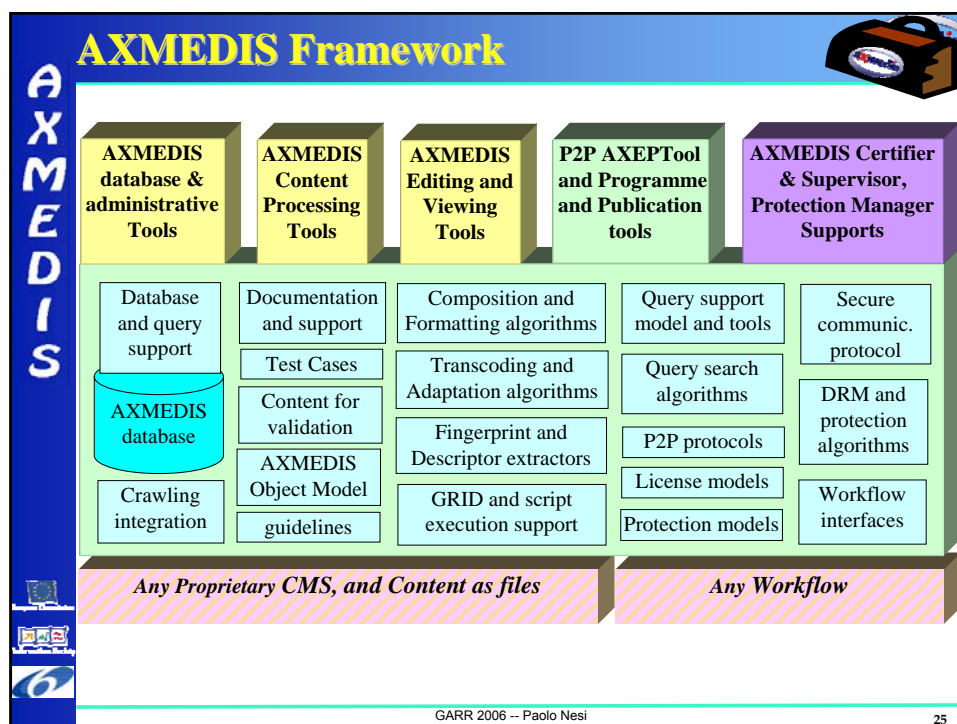



- **developing and providing new methods and tools for innovative and flexible content production, protection and distribution**
  - ♣ Content modeling for production and distribution
    - ➔ Modeling content composition and formatting
    - ➔ Exploiting MPEG-21 and overcoming its limitations
    - ➔ Allowing file sharing via secure/legal P2P for both B2B and B2C in the respect of IPR
      - Digital Rights Management (DRM)
      - Enabling Interoperability of MPEG-21 REL and ODRL of OMA
      - Supporting different business and transaction models
      - Allowing tracking and monitoring of content usage
  - ♣ massive content processing for adaptation, processing licenses, sharing content
    - ➔ AXMEDIS GRID technology
    - ➔ Integrating CMSs with AXMEDIS framework and tools

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**Thanks for your attention!**

**See you at ....**

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