AXMEDIS

Automating Production of Cross Media Content for Multi-channel Distribution

http://www.AXMEDIS.org

Project Description for Press Release

(Long Version)

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Motivations and Aims

Currently, the digital-content market is urging better pricing and value-for-money for industry products and services. This is clearly evident in the recent price reductions by major companies in the sector. The containment of sale prices is a vital key when setting up a viable and sustainable business venture in the e-content domain. Production costs must be drastically reduced without affecting product quality. Content providers, aggregators and distributors constantly need to adopt innovative means of increasing efficiency in order to reduce cost. Possible solutions to this challenge could be found by automating, accelerating and restructuring production processes. Such solutions will enable the production processes to be faster and cheaper, while at the same time providing new capabilities to support safer distribution.

The AXMEDIS Project aims to develop technologies to reduce the costs of digital content production and distribution, including also complex protection models. AXMEDIS is an environment where digital content producers, aggregators and distributors can gain access to a wide range of digital contents (AXEPTool P2P B2B) and innovative technologies (AXMEDIS Framework) to create new market and distribution openings.

AXMEDIS aims to offer innovation solutions and tools:
- to manage and distribute digital content, such as video/film, images, documents, audio files, games, and others, in a protected and verified manner, via many different distribution channels including Internet, mobiles, PDA, PC, iterative-TV (i-TV), satellite and others;
- to increase the visibility and accessibility of content with the AXMEDIS P2P tools for B2B content sharing. This will allow the content to reach distant markets and access to larger markets. This will also make it easier to distribute content at a reasonable cost for the end-user, via multi-channel distribution with additional sales channels. Multi channel distribution methods which permit the development of additional sales channels that will simplify content distribution at a reasonable cost for end-users;
- to increase both the safety and reliability of protection models, by delivering them to

content producers and distributors at a high confidence level;

- to increase the accessibility of European audio visual content via newly developed instruments, while giving SMEs new international business opportunities in the areas of cross media content production, aggregation and distribution. Adoption of the AXMEDIS model and tools will enable greater content accessibility. European SMEs will have the possibility to promote, manage and distribute their content on a global scale with less effort. As a result, the business model provided will support the growth of the European content industry. European SMEs will have access to a considerable quantity of multimedia content on a worldwide rather than local level.
- to allow end-users to gain access to content at low costs. This will be realised by exploiting the AXMEDIS infrastructure which will open paths for new services for industrial content exploitation and for both public and corporate clients (archives, schools, libraries, etc):
  - This will also create low cost distribution chains of digital material for entertainment, for educational purposes, for e-commerce, etc.
  - This will accelerate the process of digitisation of contents for archives with reduced production costs.
  - This will increase the value of cultural heritage by facilitating the exploitation of the archives in digital form.

Challenges, Objectives and Goals

AXMEDIS aims to meet the challenges of market demand by (i) reducing costs for content production and management by applying Artificial Intelligence techniques to content creation, representation (format) and workflow; (ii) reducing distribution and aggregation costs in order to increase accessibility with a Peer-to-Peer (P2P) platform at Business-to-Business (B2B) level, which can integrate content management systems and workflows; (iii) developing and providing new methods and tools for innovative and flexible Digital Rights Management (DRM), including the exploitation of MPEG-21 and overcoming its limitations, and supporting different business and transaction models.

The AXMEDIS consortium (consisting of leading European digital content producers, integrators, distributors and researchers) is to create the AXMEDIS framework to provide innovative methods and tools to speed up and optimise content production and distribution, for production-on-demand, for leisure, entertainment and digital content valorisation and exploitation in general. The AXMEDIS format can include any other formats and it can exploit and expand MPEG-4, MPEG-7, MPEG-21, as well as other de facto standards.

AXMEDIS is to organise and realise several *demonstrators,* which are managed by the project partners, to bring different types of digital contents (such as music, video/film, educational materials, documents, images, programmes, etc) via different distribution channels (such as the Internet, mobiles, PDA, PC, i-TV, satellite, etc). These demonstrations will further highlight the innovative results from the AXMEDIS platform in a variety of activities including content production, automated formatting and distribution (protected or unprotected), via i-TV, mobiles, kiosks, Internet for PC through mechanisms of Business-to-Consumer (B2C, Client Server) and Peer-to-Peer (P2P). Furthermore, the AXMEDIS platform, AXEPTool, will be developed to distribute P2P protected contents at B2B level. At a later stage, the AXMEDIS consortium will grant the sum of 1 million Euro to companies and research institutions interested in developing real solutions by exploiting AXMEDIS technologies (this is referred to as *take up actions*).

It is easy and beneficial for all to gain access to the AXMEDIS technologies. Some didactic events will be organised to provide better understanding of the AXMEDIS technologies with further information about the potentialities of AXMEDIS. Business delegates could attend these events so as to take part in the project and bring AXMEDIS technologies to their company. Special trainning sessions and courses will be held for managers, content managers, content producers and integrators, and digital content distributors. Workshops and courses will be organised in several venues in Europe. To provide better understanding of the new solutions, AXMEDIS is providing a forum for discussion, with technologiests and experts who are ready to assist with any AXMEDIS related problems and concerns. Futhermore, with the AXMEDIS portal, access is provided to a substaintial pool of information and examples of technical solutions, digital contents, software components and systems, which are provided by the project partners from the very beginning of the project (mainly in Open Source, but also including some proprietary formats). For further information on how to join AXMEDIS, please visit the website at www.axmedis.org.

AXMEDIS Consortium

The consortium consists of a number of relevant and recognised project partners, representing the most important actors within the value chain related to the production and distribution of cross media content. The consortium has important resources and complementary skills which will have an effective impact upon the industry. It will also demonstrate the value of the project outcomes and the reliability and effectiveness of the project results to a wide range of potential users:

- Archives, institutions, schools and content producers (ANSC),
- Associations of content producers (AFI),
- Publishers and digital content providers (ILABS, AFI, ANSC, BORDAS and NATHAN of SEJER),
- Content integration and design, audio and video (XIM, ILABS, SEJER),
- Content distributors (OD2, SEJER) with content distributed on behalf of UNIVERSAL, SONY, EMI, WEA, The Orchad, Loudeye, AFI, etc.
- Networks, broadcaster and their technology providers for i-TV-PC (EUTELSAT)
- Mobile distributor (COMVERSE) for GSM cells or UMTS, etc.
- Content distributor operators and technicians towards PC on internet (TISCALI, OD2),

The results of the AXMEDIS project will be based upon the skills and expertises of each and every project partner including:

- Leading European research institutions in:
  - cross-media content production (DSI, DIPITA, EPFL, CRS4, UNIVLEEDS, IRC).
  - distribution and transaction models (DSI, EXITECH, FUPF)
  - DRM and protection (FUPF, FHGIGD, DSI)
  - simple and complex queries (FHGIGD, CRS4, EXITECH)
  - usability aspect (ACIT, IRC)
- Technology providers and integrators (HP, EUTELSAT, COMVERSE),
- Content Associations and legal experts on IPR (AFI, ILABS, SEJER, OD2)

Collectively, the AXMEDIS consortium has the necessary critical mass, mobilisation of resources, skills and experience to achieve the project objectives. The consortium has relevant resources and complementary skills for maximum industrial impact, to:

- Address and solve the challenges (as discussed above) with Scientific and Technological Excellence in solutions, in order to reduce the cost of production and distribution while realising reliable protection models;
- Meet and solve the real needs of multimedia content publishers, integrators/aggregators and their distributors and producers, to distribute their content on PCs, i-TV, mobile (PDA and cellular phones) and kiosks, with enhancements to the value chain;
- Start sustainable activities with in-the-field demonstrators, AXMEDIS framework services, and derived tools for the European cross media industry;
- Gain a common acceptance of the resulting model as an European standard, with the strong possibility of becoming a worldwide standard for the field, through the presence of international companies such as HP, OD2, COMVERSE, EUTELSAT, TISCALI, etc.
- Manage the project successfully. The project coordination is performed by partners who have experiences of successfully managing multi-million Euro projects with a large number of project partners. Consolidated project management models and procedures will be used. The management of the take up actions (action launch, management and monitor, etc) will be carried out by project partners who have experiences in Technology Transfer activities, involving the European Commission.

Herewith a list of the AXMEDIS partners:

AXMEDIS Partner/Contractor	ACRONYM	COUNTRY
Distributed Systems and Internet Technology Lab, Department of Systems and Informatics, University of Florence, DISIT Lab. (co-ordinator)	**DSI-DISIT**	Italy
Dipartimento di Italianistica, University of Florence	**DIPITA**	Italy
Associazione dei Fonografici Italiani	**AFI**	Italy
Fondazione Accademia Nazionale di Santa Cecilia	**ANSC**	Italy
Comverse Ltd	**COMVERSE**	Israel
Ecole Polytechnique Federale de Lausanne	**EPFL**	Switzerland
Eutelsat S.A.	**EUTELSAT**	France
Fraunhofer Gesellschaft zur Foerderung der Angewandten Forschung E.V.	**FHGIGD**	Germany
Giunti Interactive Labs S.r.L.	**ILABS**	Italy
Hewlett Packard Italiana S.r.l.	**HP**	Italy
On Demand Distribution PLC	**OD2**	UK
Tiscali S.p.A.	**TISCALI**	Italy
Fundacio Universitat Pompeu Fabra	**FUPF**	Spain
Xim Limited	**XIM**	UK
Societa Consortile a Responsabilita Limitata Centro di Ricerca, Sviluppo e Studi Superiori in Sardegna	**CRS4**	Italy
ACit - Advance Concepts for Interactive Technology GmbH	**ACIT**	Germany
Bordas and Nathan of Sejer	**SEJER**	France
University of Leeds	**UNIVLEEDS**	UK
University of Reading	**IRC**	UK
Consorzio Pisa Ricerche	**CPR**	Italy
Exitech S.r.L.	**EXITECH**	Italy

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Technical Objectives and Further Details

The *main* objectives of the AXMEDIS project are:

- **To reduce the costs of cross media** (Multi-media) **production** by accelerating the production process with Artificial Intelligence techniques for:
  - identifying possible solutions to increase efficiency in content production, together with the validation of such solutions;
  - composing, integrating, synchronising, indexing, aggregating and formatting digital contents, according to simple rules or complex styles;
  - defining and activating automatic rules or customised ones, in order to compose, integrate, synchronise, index, aggregate and format digital contents;
  - integrating computer systems for content management (Content Management System, CMS) with the distribution system and the workflow management by automating the communication of content and information between the two systems;
  - Managing the workflow, both internally and externally, for the production of digital contents;
  - By automating this process, the realisation of on demand content production will become possible, in real time and upon request;
  - Protecting and controlling the use of digital contents, in a scheduled and automated manner;
  - Supporting the standardisation process and contributing to the development of MPEG21.

With the "automatic content" and on-demand production approaches, it is estimated that the reduction of production costs will be around 30%. It is expected that the AXMEDIS solutions will be adopted by producers, aggregators and distributors with recognised, well known expertise and background.

- To reduce the costs of cross media **distribution** at the Business-to-Business (B2B) level (e.g. among editors, content producers, aggregators and digital content distributors, small and independent market actors, professional organisation, companies for Digital Right Management, etc.), as well as, at the Business-to-Consumer (B2C) level (e.g. between distributor and end-user). This is to be achieved through:
  - an infrastructure for distribution at B2B level. The distribution platform is based on a more complex model of P2P (Peer to Peer) (being supported by a set of software instruments and a front-end called AXEPTool). The platform could grant the distribution and exchange of digital contents in a verified form. AXMEDIS with its AXEPTool is the ideal environment for activities like research, integration and production of complex digital contents.
  - content distribution for the general public (B2C) through a multi channel system such as i-TV, Internet, mobiles, PDA, kiosks, P2P, etc.
  - quick and easy access to cross media collections and related technical information for the commercial exploitation of contents, including format information, legal information, Digital Rights Management (DRM), costs, accessibility, integrative, capability (integrability) etc.
  - access to trial versions of digital contents for demonstration and/or promotional purposes and for testing their usage with other digital products.
  - defining models for the production and the automatic re-distribution of contents.
  - managing and monitoring of workflow using the AXMEDIS Workflow Management tool, related to the contents within the AXMEDIS environment.

Each and every actor in the production and distribution chain (value chain) of digital contents can benefit from taking part in the management and sharing of contents through the AXMEDIS AXEPTool.

- **To search for and integrate objects and components** through a query support system using technical parameters such as costs, licence type, file type, duration, format, watermark, fingerprint, language, the level of protection provided, content information, classical metadata, etc. Research can be integrated within the following areas:
  - o client content management systems (CMS);
  - o AXMEDIS complex objects;
  - o client archives made of AXMEDIS objects;
  - o archives of AXMEDIS objects belonging to project partners and being connected to one another via the AXEPTool;
  - o a part of the client AXMEDIS objects' archive, being made available to end-users for content on demand.
- **To manage and monitor distribution** through
  - o Formal models of contracts in terms of Digital Rights Management (DRM), using MPEG-21 or some other possible AXMEDIS evolution; content exploitation reporting in an integrated way, always consistent with the client models;
  - o Digital material protection through DRM models and their integrative capability (for instance: MPEG-21, ODRL, Windows Media, etc.), using techniques such as watermarking, encryption, fingerprinting, etc.;
  - o Continuous tracing of any operation performed on contents (for example: printing, copies, play, etc.), regardless of the distribution model used, and yet integrated within it, based on markers and control engines, to understand better how such AXMEDIS contents are being used by others;
  - o Registration and certification of distribution and fruition tools, monitoring the access to the contents, watermarking models and encryption systems, integrated within all distribution models.

The AXMEDIS objectives are to be achieved by producing and integrating research results, algorithms and tools for content production and distribution, thus supporting the adoption of the new AXMEDIS technologies by major companies and SMEs. The AXMEDIS platform will be available from the very beginning of the project, for industrial groups and research institutions. These new technologies will be easy to access and will offer a higher level of integrative capability with other standards in the market to allow exploitation in different production and distribution chains.

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