

**Technical Note**  
n. 6601  
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**Technical description**

B2C distribution of contents via mobile technologies

**Description of content**

The overall mobile application scenario covers two levels. The first one, called the factory, deals with multimedia content production and management. The second level offers valuable features from content delivery and display by means of an advanced distribution infrastructure.

**Business model**

The AXMEDIS Mobile Solution has been conceived and developed in order to cover the complete value chain from the automated production of multimedia contents suitable for display on mobile devices up to the multichannel delivery on a wide set of personal mobile devices through existing distribution networks. Several different access and use models are supported (e.g. acquisition, rental, pay per use), as well as robust DRM. The Mobile Solution is intended for adoption in many application sectors such as tourism, professional, educational, cultural.

**AXMEDIS Mobile Distribution**

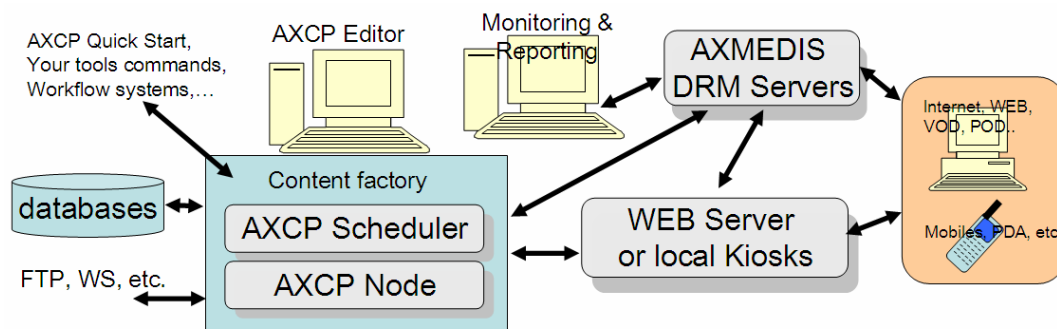
Within AXMEDIS mobile distribution show case the benefits coming from the combination of several technologies in a mobile environment are shown.

Thanks to a basic subset of the overall AXMEDIS tools mobile interactive cross media contents can be designed and tailored to offer a fully-fledged set of services in parallel to heterogeneous groups of moving users, thus exploiting all tools made available by the project to this end as a real and new distribution channel.

The mobile distribution is divided into two components: the “factory”, where contents are produced and the “client application”, which allow users to have a unique access to available services and contents.

**AXMEDIS Mobile Architecture**

The distribution infrastructure includes a Content Factory (where the necessary back office components include the AXMEDIS AXCP tools for the automated production of content), the WEB server or local kiosks for content distribution towards a set of mobile terminals endowed of AXMEDIS player.



The overall mobile scenario covers two interrelated sub-scenarios, the first one dealing with content production, categorization, storage and management (the Content Factory), and the other one related to the distribution of those contents on mobile devices, including browsing, selection and fruition.

In the Content Factory, content authors and distributors select contents to be presented, assign those to proper categories, and define access/retrieval rights and costs for any of them. The Digital Rights Management, DRM, of AXMEDIS is used.

For accessing contents through the mobile client application, the user shall register prior to being granted access to the application itself. During the registration phase, some demographic data and some preferences are collected for subsequent usage (even if only very little data is mandatory). Once registered, the user can finally access the core application, which displays the available contents divided by categories for enhanced browsing, searching and retrieval. When needed, depending on the mobile device features, the AXMEDIS mobile player can be downloaded from [http://www.axmedis.org/com/index.php?option=com\\_content&task=view&id=172&Itemid=91](http://www.axmedis.org/com/index.php?option=com_content&task=view&id=172&Itemid=91)

For additional details on the AXMEDIS

- **AXMEDIS Editor and players, tools for MPEG-21 and AXMEDIS authoring** (SMIL, HTML, MPEG-4, and of any kind of digital resource), DRM, licensing, protection, packaging, workflow, playing, etc. AXMEDIS authoring on Windows. AXMEDIS players for: MS Windows, Apple OS X, Linux, Windows Mobile 5, and java mobiles, for PC, STB/PVR/HDR, Media Centers, PDA, and mobiles. They can be customized as GUI and functionalities. Examples of customizations are available.

[http://www.axmedis.org/documenti/view\\_documenti.php?doc\\_id=3634](http://www.axmedis.org/documenti/view_documenti.php?doc_id=3634)

- **AXMEDIS AXCP** to automate your content production, protection and distribution as stated above and in more details into the technical note:

[http://www.axmedis.org/documenti/view\\_documenti.php?doc\\_id=3624](http://www.axmedis.org/documenti/view_documenti.php?doc_id=3624)

- **AXMEDIS DRM** adopts MPEG-21 DRM, including servers and licensing tools and allowing DRM, detection of attacks, black list management, collection of actions logs containing traces about the rights exploitation, tools for administrative management, etc.

## The Content Factory

When a publisher wants to prepare and distribute contents on a mobile distribution channel, the AXMEDIS Query support can be used to search for the desired objects and select those to be made available and accessible to users. Contents produced according to this process are then categorized and, in case of need, adapted to specific target devices.

The publisher issues a query for searching suitable contents and objects

...

..then the contents that are assessed as most relevant are selected from the query result ...

... selected contents are then grouped into suitable categories...



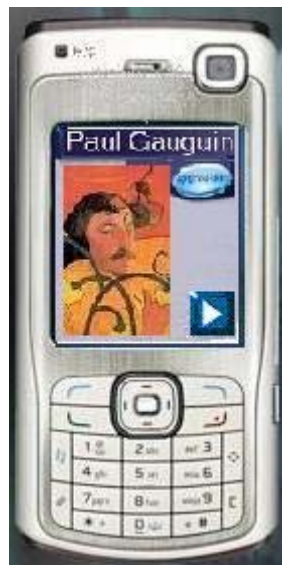
... and the target device(s) are identified.

### For the users

By means of a mobile phone or a PDA and after registration/log in, the mobile user can browse the available content categories and select for delivery and display the most relevant items. When trying to access a content, the user is also informed about the distribution model (acquisition, rental, pay per use...) for that content, thus experimenting also how an AXMEDIS DRM empowered system, specifically designed to cover the whole value-chain from production to display, looks like.



Selection of the artist



Selection of the piece of art



Location of the selected piece of art in the museum

### AXMEDIS Mobile content Model for entertainment

The AXMEDIS content model is based on MPEG-21 and support the DRM. The AXMEDIS player for mobile is one of the few mobile players that allow managing content with DRM. The AXMEDIS DRM is based on MPEG-21 REL standard. The AXMEDIS model allows delivering interactive content based on SMIL with images, buttons and text. From one AXMEDIS content you can activate other AXMEDIS objects.

The example shown on the right presents in the first picture a phone reproducing an AXMEDIS content with a menu. That AXMEDIS object is realized as an MPEG-21 content including one ore more linked SMIL, images, logos, some text and buttons. The user may navigate on the buttons with up-left-right-bottom arrows of the phone. At each navigation step a button is activated and the user may perform the choice by pressing the central button. For example, in this case, if the user select the video, a new AXMEDIS object (the second visualized on the right) is loaded and displayed reproducing a 3GPP video encapsulated into and AXMEDIS object and protected with AXMEDIS DRM. This allows the distributor to make business on mobile distribution. In alternative the navigation may continue on other internal SMILs.

According to the business mode selected the user may save the AXMEDIS object on the memory of the phone to be played without or with extra payment.



The AXMEDIS player for mobile keeps trace of the history of choices performed so that the back buttons is provided. The next example is showing the application of the same AXMEDIS mobile player for the visualization of cultural content in the MUSA museum of instrument in Rome. In this case, the mobile content is used for showing sequences of images and reproducing audio reporting the voices of the instruments.



Lateral view of the mandolino napoletano. By clicking the navigation buttons, a back view of the mandolino napoletano is displayed



Then, by clicking the navigation buttons, detail of the mandolino napoletano.



## Key features of the AXMEDIS Mobile Solution

The key features of the AXMEDIS Mobile Solution are:

- on the Factory side:
  - content production and/or aggregation and/or protection and/or licensing via the AXMEDIS Content Production Tools
  - content collection via the database services
  - selection and structuring of contents through the catalogue categorization
- on the Mobile side:
  - content distribution addressing multi-context applications (artistic, entertainment, tourism, educational, professional, etc...)
  - usage of AXMEDIS objects with any kind of content: video, images, document, audio, animation, etc.  
[http://www.axmedis.org/documenti/view\\_documenti.php?doc\\_id=3634](http://www.axmedis.org/documenti/view_documenti.php?doc_id=3634)
  - display and navigation of objects through AXMEDIS Mobile Player
  - query and delivery on demand.



## Unique AXMEDIS benefits

The AXMEDIS benefits are the following ones:

- on the Factory side:
  - automated production of contents via the AXMEDIS AXCP tools allowing to manage programmatically large collections of data with minimal human intervention
  - collection and retrieval of statistical data about content usage
- on the Mobile side:
  - exploiting the AXMEDIS players capability of playing a wide variety of resource formats with and without DRM.

## AXMEDIS Tools

In the following, the links to download the most important AXMEDIS player are reported. It is also possible from the AXMEDIS portal to download additional AXMEDIS tools and content:

- Available PC players are:
  - AXMEDIS stand alone PC player;  
[http://www.axmedis.org/documenti/view\\_documenti.php?doc\\_id=3767](http://www.axmedis.org/documenti/view_documenti.php?doc_id=3767)
  - AXMEDIS Skin based PC player;  
[http://www.axmedis.org/documenti/view\\_documenti.php?doc\\_id=3716](http://www.axmedis.org/documenti/view_documenti.php?doc_id=3716)
  - AXMEDIS Active X, for usage into HTML pages and simple VB and/or .NET applications and PC players. .NET Player; [http://www.axmedis.org/documenti/view\\_documenti.php?doc\\_id=3717](http://www.axmedis.org/documenti/view_documenti.php?doc_id=3717)
- AXMEDIS PDA Windows Mobile 5 and 6 player, supporting: SMIL, HTML, MPEG-4, video, audio, documents, images, etc.; [http://www.axmedis.org/documenti/view\\_documenti.php?doc\\_id=3842](http://www.axmedis.org/documenti/view_documenti.php?doc_id=3842)
- AXMEDIS mobile player  
[http://www.axmedis.org/com/index.php?option=com\\_content&task=view&id=172&Itemid=91](http://www.axmedis.org/com/index.php?option=com_content&task=view&id=172&Itemid=91)
- Many other tool from:  
[http://www.axmedis.org/com/index.php?option=com\\_content&task=view&id=83&Itemid=55](http://www.axmedis.org/com/index.php?option=com_content&task=view&id=83&Itemid=55)

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