

The New Emerging Sector of Audiovisual Banks on the World Wide Web

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- *Audiovisual information in all its dimensions, i.e., cinema, music, photography, multimedia, etc., is acquiring increasing importance on the web. The appearance of a new generation of image and audiovisual banks brings a new dimension to the protection and dissemination of scientific and cultural heritage. It is important to recognise and understand the significance of this type of new information system for the immense implications it could have on nations in the future knowledge society that is bound to have a markedly multimedia and interactive nature.*

1. The manifest future of the web

Audiovisual information is the new Internet frontier. In fact, the most attractive websites today, and the ones that are the most “genuinely” digital, actually pertain to a number of television networks, including the BBC (www.bbc.co.uk), PBS (www.pbs.org) and the Discovery Channel (dsc.discovery.com).

A quick look at this sort of website shows a spectacular deployment of multimedia and interactive resources. We shouldn't forget that the two most significant properties of the digital world are the ability to provide interactive experiences and to combine information from diverse morphologies (text, sound and image) onto a single information support.

All the indications are that the importance and weight of

audiovisual content on the web has only just begun. Over the next few years, we are likely to see unprecedented growth in activities in this area, at least in the more advanced countries that are aware that audiovisual elements are the future of the web and that the web is therefore the future of the audiovisual industry.

As always, audiovisual companies and organisations in each country can join the new trend either sooner (when there is still enough space and opportunity to easily take advantage of) or later (when they will have to fight for every virtual centimetre of space and multiply their investments to make any type of economic or social impact).

It is for that reason that audiovisual companies and organisations in our country should begin to study the amounts of their budgets they earmark to the web if they have not already done so. They can no longer simply have a website for announcing programming schedules, etc. (as had been the norm until now) but instead should consider creating a new type of website that contains elements that can provide more competitive advantages to the audiovisual sector, i.e., multimedia and interactive content.

The leading players in the future of audiovisual websites are bound to include film and television production companies, which have an exclusive asset that gives them an enormous competitive edge: their audiovisual archives.

On the other hand, the audiovisual heritage that public and private television stations, film and TV producers and some communications companies (e.g., press agencies or radio stations) have generated, have an enormous scientific and cultural value that extends beyond their strictly monetary or business value. Digitalisation and its distribution through a new generation of online audiovisual information systems is a challenge, but it also an opportunity, one that companies in the audiovisual sector must know how to use to their ends.

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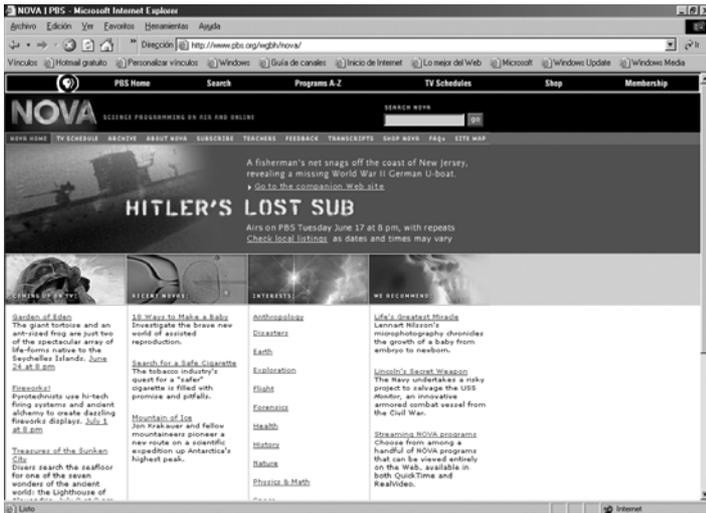


Figure 1: The Nova programme website, dedicated to scientific programming and pertaining to the US public television network PBS. It includes a section with interactive multimedia content for each series the station broadcasts (www.pbs.org)



Figure 2: Catalan television stations, particularly TVC, are beginning to develop their websites. TVC (www.tvc.es) now has a significant number of websites dedicated to its programming. The figure above shows the exl.net website (www.3xl.net)



Figure 3: 3,500 hours of (digitalised) video history from the Pathe production company, which can be consulted at its website (www.britishpathe.com). In the figure, the result of a search using the word 'Barcelona'.

A nation's cultural and historical heritage is not complete without the audiovisual archives of television, films, sound and photography. However, the only way this heritage can be put to the service of its public (audiovisual students and researchers, historians, political scientists, creators in the audiovisual sector and the general public), is by distributing them through a new generation of databases, i.e., image or sound banks, or in other words, audiovisual banks.

Throughout this article, I will be studying a particular type of audiovisual website where I believe we have fallen considerably behind, i.e., image and sound banks, the indexing engines of audiovisual content.

2. Concepts

I would now like to discuss a number of concepts arising from the world of databases and information systems to be able to then present proposals about types of databases and audiovisual banks.

I would firstly like to present a brief terminology glossary, shown in Tables 1 and 2, to facilitate inquiries and make it possible to present a proposal on a type of database.

The above-mentioned definitions are used to determine a second set of definitions (Table 2), which makes it possible to show the difference between the concepts of database and databank.

Finally, if we list the different technologies and market strategies we can currently find online, we can see the (extremely important) difference between image banks and

Table 1: Terminology-I: databases

<i>Term</i>	<i>Description/ Examples</i>
Primary document	An original document, e.g., a photo, video, voice entry or magazine article
Secondary document	A document that describes a primary document, generally in a text form, with the object of facilitating its identification and recovery. Synonyms: metainformation, metadata
Database	A set of entries and possibly other objects associated to entries, e.g., images, sounds (or textual documents)
Entry	Representation of an entity and the working unit of a database. An entry is a set of data grouped into a unit, for example, the set of data (author, title, etc.) that describes a film or a photograph. An entry is therefore a form of secondary document and is a type of metadata.
Entity	The object (or concept) represented in an entry. For example, in a traditional bibliographic database, the entities represented are books or magazine articles. In an image bank, the entities represented are photographs or other iconic material.
Metadata	Data about data or information about information. For example, the description of a particular day or week's TV programming published in the pages of a newspaper or magazine is a type of metainformation. Metainformation (or metadata) are necessary to represent information efficiently. We can use metainformation when we need a great deal of efficiency in searching for information. It is more efficient to consult a TV programming schedule in a magazine (or on a webpage) than to watch all the TV programmes on all the channels one after another to see if the programme you are interested in is on - when you find it, it may be finishing. There are different types of metadata.

Table 2: Terminology-II: databases and data banks

<i>Type of database</i>	<i>Subtype</i>	<i>Examples</i>
<p>Reference Only contains secondary documents. Can also be said to only contain metadata.</p>	<p>Bibliographic Contains entries with bibliographic descriptions but not access to the documents themselves</p>	<p><i>Eric Database</i> www.askeric.org/eric/</p>
	<p>Audiovisual Contains entries with image descriptions but not the audiovisual documents themselves</p>	<p><i>BBC Footage</i> www.bbcfootage.com <i>NBC News Archivist</i> www.nbcnewsarchives.com</p>
	<p>Directory Contains entries with information on entities or people</p>	<p><i>Barcelona Plató</i> www.barcelonaplato.bcn.es</p>
<p>Sources or Banks A source database contains primary and secondary documents, i.e., both information and metainformation. Source databases can also be called banks, e.g., a source-type audiovisual database can be called an image bank.</p>	<p>Textual Contains original documents as well as their descriptions (metadata)</p>	<p>Simple digital text (Contains the complete text of books or magazine articles, but not figures, illustrations or typographic elements) <i>Find Articles</i> www.findarticles.com</p> <p>Facsimile (Contains a graphic reproduction of a document) <i>Prensa Històrica</i> prensahistorica.com/ca/</p> <p>Rich digital text (Contains or provides direct access to complete texts in original digital format, with illustrations, tables, typography, etc.) <i>ACM Digital Library</i> www.acm.org/dl/</p>
	<p>Audiovisual Contains audiovisual documents as well as their descriptions. Synonym: image bank or audiovisual bank</p>	<p>For further information, see Table 3: image bank</p>

Source: adaptation of L. Codina; Maria del Valle Palma, 2001

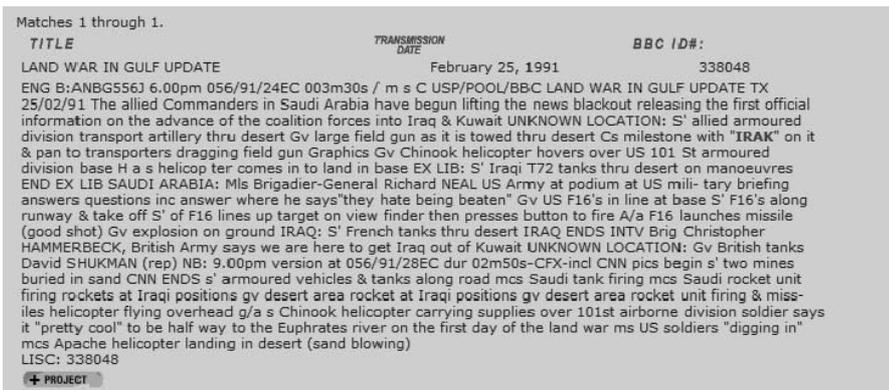


Figure 4: example of an entry in the audiovisual database BBC Footage (www.footage.com). It contains entries that describe images but does not contain the images themselves (although the customer can request them, through the database website)

Table 3. Terminology-III: image banks v. search engines

<i>Term</i>	<i>Description</i>	<i>Examples</i>
Image and audiovisual bank	<p>A type of database that contains both entries (secondary documents or metainformation) and primary documents (images, video, sound, etc.)</p> <p>In these cases, the image bank is the basis of a broader system that covers the management and sale or temporary hire of the operating rights for iconic documents</p>	<p><i>GettyImages</i> www.gettyimages.com</p> <p><i>AGE Fotostock</i> www.agefotostock.com</p> <p><i>Cartoon Bank</i> www.cartoonbank.com</p> <p><i>Corbis Motion</i> www.corbismotion.com</p>
Multi-search engines for images	<p>An information system that can send the same search request to different image banks and show the results altogether.</p>	<p><i>OneStopSearch</i> www.1ss.com</p> <p><i>Footage.Net</i> www.footage.net</p>
Search engine	<p>An IT program that generates indices based on the content of documents published on the web.</p> <p>Search engines facilitate information in a way that is apparently similar to image banks, but don't contain secondary documents (entries) or, therefore, metadata.</p> <p>Search engines do not own the rights to image collections nor have them on deposit. They do not manage purchase, reproduction or use rights for images.</p>	<p><i>Multimedia Lycos</i> multimedia.lycos.com</p> <p><i>Alta Vista Image</i> www.altavista.com/image/</p> <p><i>Google Images</i> images.google.com</p>

Source: Adaptation of L. Codina; Maria del Valle Palma, 2001

Title	Barcelona Demonstrators Call For Local Autonomy
Media_Id	0600845
Hit_Time	N/A
Synopsis	Students, workers and professional people from the region around Barcelona, known as Catalonia , stage a demonstration to make know their desire for local autonomy. CS - As the crowd of demonstrators begins to grow, John Dancy, NBC News, reports that this is the second week in a row that a demonstration has taken place. Crowd members, some of whom are carrying flags, begin chanting. Shortly thereafter the protestors start marching toward the Catalonia Parliament building, thus causing a huge traffic jam. Police charge the demonstrators in the hope of dispersing them. Other police try to contain the uprising by firing rubber bullets into the middle of the crowd. One demonstrator, who tried to argue with police, is clubbed. The reporter notes that the Spanish government has offered the residents of the region a form of democracy within 18 months. OUTS - Demonstrators march through the streets of Barcelona toward the Catalonia Parliament building, thus halting traffic. Police begin to a mass a safe distance from the protestors as a helicopter hovers overhead. Mounted police ride by. Finally, the police rush the demonstrators firing tear gas canisters. A demonstrator is clubbed after trying to resist the police. CARTRIDGE: 007 PAGE: 1981 Film: 16mm, color, rev. Footage: 400 ft: CS - 100 ft & mix, effx, narr trk; OUTS - 300 ft
Places	Spain;Barcelona
Personalities	N/A
Subjects	DEMONSTRATIONS & DEMONSTRATORS;SUMMONS & SUMMONSES;MOUNTED POLICE;Police;BILLYCLUBS & NIGHTSTICKS;Police Vehicles;Assault;VIOLENCE;Tear Gas;HELICOPTERS;CIVIL WARS & CIVIL UNREST
Dates	1976-02-08
Reporters	Dancy, John
Assignments	Net
Length	N/A
Media_Type	Film

Figure 5: Example of an entry in the NBC News Archives database about a demonstration in Barcelona in February 1976. Although in this example we can see a detailed description of the image, there are cases where treatment is even more complete. In any case, each word or combination of word groups in any of the entry's fields provides access to the image.

image search engines (Table 3).

As we have already seen, the essential difference between image banks and search engines lies in the fact that in a bank (or database) there is always some type of metainformation (in the form of a secondary document or entry) and therefore value-added information, the importance of which is critical for system profitability. These metadata can include the following:

- Data that identify the circumstances surrounding the creation of a document, e.g., author, title or date the document was made
- Data that identify the conceptual and iconic content of a document, generally in the form of descriptive or key words
- Summaries, synopses and/or textual descriptions of iconic documents, e.g., a photo, film or video

For example, if we look at a complete entry in the NBC News Archives database from the NBC TV network (figure 3), we can see there are up to 12 fields or descriptive zones with metadata, including title, synopsis, descriptive or key words for geographic places or issues, etc.

With a search engine, on the other hand, there is no such type of metainformation as there is no previous documental analysis process. When we search for an image through a search engine such as Google, we are taken directly to a list of images, without having to previously go through the filtering process included in databases with descriptive entries, such as the one we have seen (figure 3). This is what generates the large amount of noise and loss of information that are so commonplace with these types of technologies.

This explains why a search engine does not provide the level of information representation that enables us to make a decision without having to go through all the original documents and examine them. If we are only interested in consulting documents with particular formal or genre-based characteristics, we have no choice but to examine each document obtained, regardless of whether the list is short or very long.

One reason for the difficulties in using search engines is that the index that facilitates access to images is generated from an original document that forms part of the context of the image (in a way we will look at further on). On the other hand, on a database, the index that facilitates access to information is generated with the terms that proceed not just



Figure 6: An image search in Google of the term "paris" produces hundreds of thousands of results (nearly 600,000), with a complete mix of genres, formats and meanings for the term



Figure 7: Result of an image search on Corbis Newsroom (newsroom.corbis.com). You can see the metainformation of each image next to the corresponding small image. You can click on the icon photo info. to obtain a list of key words with which it has been indexed (see the following figure, no. 8)

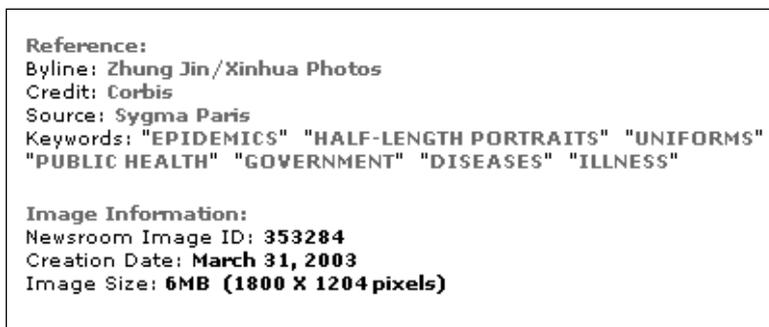


Figure 8: Key words of the image in the previous figure, as well as other additional information, e.g., source, date, format.

the original document (where applicable) but also from the fields that form the set of metadata, as we have seen (synopsis, key words, format, etc.).

That is why we can make much more accurate inquiries with image banks and databases and why the response sometimes does not consist of the original document but its representation. In other words, what may at first seem to be a drawback can provide an enormous advantage: it makes it possible to take decisions without wasting time going through documents that do not meet our information requirements.

Finally, there is a fundamental difference of a very different type. Search engines do not select collections or own the images indexed. This means there is no filter or selection as to the quality of the information processed.

It also means that search engines are not valid interlocutors with regard to using the images or multimedia objects they provide access to. If we found an image through a search engine and for some reason were interested in using it (e.g., in an advertising campaign, a TV report, etc.), we would have to determine the proprietor or interlocutor of its rights and try to contact them. A further problem is that it is possible that the author of the image in question had never expected these types of requests, and so we would be faced with an interlocutor who was dumb in the face of our requests.

Finally, search engines cannot access or index the best image collections, i.e., the very ones indexed in image banks, the content of which is closed to search engines for technical and commercial reasons. Let's look at a summary of these issues, broken down into the following sections.

2.1. Summary

Image or audiovisual banks on the Web have a number of characteristics:

- a) They contain (or provide access to) original iconic document collections, not just descriptions of them
- b) Documents are iconic in nature, i.e., photos, films and videos. In some cases, the banks are multimedia in nature and contain music, sound, transcripts of radio and TV programmes and sound effects
- c) The organisation or company behind the image or audiovisual bank is the owner or trustee of the image collections and/or acts by agreement or under contract with

the owners of the images

Search engines have the following characteristics:

- a) They index documents on the WWW that contain image archives
- b) They do not generate secondary documents, or metainformation such as synopses, key words, author, etc.
- c) They are not related to the owners of the images.

3. Audiovisual information systems

Having looked at the above-mentioned aspects, I would now like to look at types of audiovisual information systems, to show their current richness and future web potential. I have put the emphasis on image banks and databases but have also included some types of search engines.

The above classification requires a number of comments. Let's start with the seven subtypes. Clearly this is a discretionary classification and we could easily obtain a list of eight, nine or 10 subtypes. For example, the **image** subtype could be divided into photographic image, artistic reproduction, infographics, etc. Alternatively, we could start with five or six subtypes but merge **sound** and **music** into one and **film** and **video** into another, etc. I opted for seven subtypes only because it seemed to be the most appropriate classification for the purposes of this work.

The expression 'subtype yet to be developed' is indicated in subtypes three (**music**), six (**multimedia**) and seven (**multiple**). In other words, as a sector it has yet to be used on the web, at least it hadn't when this study was done (first quarter of 2003).

However, there are databases and databanks within particular institutions that match subtypes three and six, e.g., museums, media libraries, television broadcasters, etc., where access is either restricted to one place and/or particular conditions of belonging to the institution.

My hypothesis is it is just a matter of time before cases appear in the subtypes currently to be developed, once a number of technological problems are solved and the treatment and management of intellectual property rights in the digital world determined.

Table 4: Audiovisual Information Systems

<i>Subtype</i>	<i>Description</i>	<i>Examples</i>
<p>1. Image</p>	<p>Banks of photographs, illustrations, comics, artistic reproductions, maps, diagrams, etc.</p>	<p>Banks: <i>Corbis</i> www.corbisimages.com <i>AGE Fotostock</i> www.agefotostock.com <i>BBC Wild</i> www.bbcwild.com <i>ImageBase</i> www.thinker.org <i>Cartoon Bank</i> www.cartoonbank.com <i>Geoplaneta</i> www.geoplaneta.com <i>Mapquest</i> www.mapquest.com</p>
<p>2. Sound</p>	<p>Banks of sound effects, transcripts of radio programmes, conferences, etc.</p>	<p>Banks: <i>Electric Library TV & Radio Transcripts</i> www.elibrary.com Engines: <i>FindSounds</i> www.findsounds.com <i>SpeechBot</i> www.speechbot.com</p>
<p>3. Music</p>	<p>Music databases and banks and databases for song lyrics</p>	<p>Bank: Subtype yet to be developed on the Internet Databases (cinema): <i>All Music</i> www.allmusic.com Databases (song lyrics): www.sontext.net www.songfile.com Engines (music): <i>Scour</i> www.scour.com Multimedia <i>Lycos</i> multimedia.lycos.com</p>

Table 4: Audiovisual Information Systems

<i>Subtype</i>	<i>Description</i>	<i>Examples</i>
<p>4. Video</p>	<p>Databases and banks of videos, advertisements, video art, etc.</p>	<p>Banks: <i>Library of Congress</i> memory.loc.gov/ammem/ccmphtml/colahome.html <i>Corbis Motion</i> www.corbismotion.com <i>Getty Images</i> creative.gettyimages.com</p> <p>Bases: <i>BBC Footage</i> www.bbcfootage.com <i>NBC News Archive</i> www.nbcnewsarchives.com</p> <p>Engines: <i>Alta Vista Video</i> www.altavista.com/video/</p>
<p>5. Film</p>	<p>Image banks from film shoots (i.e., footage), short films, films, digital films, etc. Film and TV script banks</p> <p>Film databases (film descriptions, filmmaker biographies, etc.)</p>	<p>Banks: <i>British Pathe</i> www.britishpathe.com</p> <p>Script databases: <i>Scripts on the Net</i> www.rosebud.com.br/scripts.htm</p> <p>Footage databases: <i>Footage</i> www.footage.net</p> <p>Film databases (films, filmmakers): <i>AllMovie</i> allmovie.com <i>IMDB</i> www.imdb.com</p>
<p>6. Interactive Multimedia</p>	<p>Banks of interactive multimedia applications that can be executed on the computer, either locally (CD-ROM) or remotely (Internet)</p>	<p>Banks: Subtype yet to be developed on the Internet</p>
<p>7. Multiple</p>	<p>Banks of different categories of audiovisual and multimedia objects: images, sound, video, etc.</p>	<p>Banks: Subtype yet to be developed on the Internet Similar: multimedia.lycos.com</p>

NB: websites reviewed April 2003

Figure 9:

Example of results from the SpeechBot search engine (www.speechboot.com) which indexes the sound (voice) of radio and TV programmes with an automatic voice-recognition system. You can request reproduction of the voice (PLAY button) or read the text transcript (Show me more)

The screenshot shows the SpeechBot search engine interface. At the top, there are navigation links for 'Simple Search', 'Power Search', and 'Help', along with links to 'FAQ', 'About SpeechBot', and 'Feedback'. A search bar contains the text 'immigration' and a 'Search' button. Below the search bar, there are dropdown menus for 'Topics' (set to 'All Topics') and 'Dates' (set to 'All dates'). A tip box below the search bar reads: 'Tip: To improve the relevance of your results, enter more than one word in the "Search for" box.' The search results section shows 'Search Result: 200 matches for your query' and 'Sort results by: Relevance'. The results are presented in a table with columns for 'Website', 'Date', and 'Extract from Transcript'. Two results are visible: one from 'The Diane Rehm Show' dated 'Aug 9, 2000' and another from 'Public Interest' dated 'Aug 18, 2000'. Each result includes a 'PLAY extract' button and a 'Show me more' link.

Figure 10:

The Corbis Motion (www.corbismotion.com) homepage. An important image bank with a clear commercial orientation that is both B2B and B2C at the same time

The screenshot shows the Corbis Motion homepage. At the top, there is the 'corbismotion' logo and a call toll free number '866.473.5264' with a 'Contact Us' link. Below the logo is the tagline 'THE RIGHT FOOTAGE FOR ANY CREATIVE PROJECT'. The main content area is divided into two sections: 'RIGHTS MANAGED MOTION' and 'ROYALTY FREE MOTION'. The 'RIGHTS MANAGED MOTION' section features a search bar with a 'Go' button and a 'View Latest Demos' link. The 'ROYALTY FREE MOTION' section features a 'Browse NEW Titles' link and a 'View RF Demo' link. A central image shows a person running on a track. At the bottom, there is a footer with copyright information: '©Copyright 2003 Corbis Motion LLC. All rights reserved. Legal'.

Figure 11:

The result of a search on Corbis Motion: information about the length and format of the video, key words and part of a storyboard displayed in the form of a mosaic of images

The screenshot shows a search result page for a video clip. The clip ID is '14605FBH-103'. The description reads: 'Traffic on the Champs-Elysees with the Arc D' Triomphe in the distance, cars making turns in the foreground.' The duration is '00:16'. Below the description, there are buttons for 'VIEW CLIP', 'CLIP DETAILS', 'ADD TO REQUEST', and 'ADD TO CLIPBIN'. The 'Related Keywords' section lists: '1990s, Geography and Travel, Transportation, Cities of the World, Land Transport, Traffic and Accidents, Dawn / Dusk, Europe, France, Paris, ...more'. The 'TC In: 01:56:20:24', 'TC Out: 01:56:37:19', 'Camera Speed: Real Time', 'Era: Contemporary', 'Audio: No', and 'Clip Type: Shot' are also displayed. At the bottom, there is a 'Clip Storyboard' section showing a mosaic of 10 small video frames.

4. Conclusions

1. I have tried to show the current and future possibilities of audiovisual information on the web. There is an important group of players, including television and radio stations, film libraries and museums, that have an audiovisual heritage whose value literally cannot be calculated, either in economic, cultural, scientific or social terms. Now it is time for these players to begin to study, research and very seriously consider the way in which this asset can be made a reality, by making it available to a national and international public over the web.

2. It is not easy to digitalise audiovisual goods, turn them into documents and distribute them online, but it is an activity which, difficult or not, is being done quite intensively by many institutions in our international environment, many of them with a clear business orientation that is not incompatible with the protection and promotion of heritage but instead can complement it.

3. Many of these players began to build their databases and image banks some time ago. This is particularly true of television stations and is also the case of other organisations, such as libraries, media libraries, museums and archives. The time has come to study the viability of distributing these databases and image banks over the web.

4. Promoting the production and distribution of audiovisual information systems such as the ones presented here is in the interest of the defence and promotion of a country's cultural and scientific heritage. It should not be left up to private initiative alone to consider these types of activities - public authorities should also be involved.

5. The new territory that is being configured thanks to the union of the Internet and audiovisual information is opening up new opportunities both for businesspeople and people who work as audiovisual researchers and students in universities and other research centres.

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