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Introduction

EUScreen is a best-practice network that was founded in 2009. The network consists of a large, international group of broadcasters, television archives, technical developers and academic research groups that together aim to create an interoperable access point to Europe's television heritage. This access point, a portal that makes use of advanced search and exploration possibilities, was launched in October 2011. The EUScreen project has positioned itself as an international platform for audiovisual heritage that comes from the European television domain and is now one of the key players in the field of providing online access to audiovisual heritage. Several milestones of the project have been achieved: 1) the platform is online so users can browse, find and explore the growing amount of items that are currently published; 2) an e-journal for critical reflection, the first edition of the *Journal for European Television History and Culture*, has been published (Fickers & de Leeuw, 2012) and 3) the integration between the EUScreen portal and the Europeana platform has been set up.

This status report comes at a time where the project needs to reflect on its position in the field and on its future, to know what position it should take towards the final stages of the project and to foresee what further steps should be expected to need investigation in the future. In January 2011, EUScreen published its status report on *Online Access to Audiovisual Heritage* (van den Heuvel & Baltussen, 2011). This first status report gave an in-depth overview of the status quo and combined research that was undertaken in the EUScreen market study (van den Heuvel & Baltussen, 2010) with a wide range of related topics. It gave a high-level overview of general access to audiovisual heritage, specified according to the different user groups and laid out in terms of the digital content life cycle.¹ It gave an overview of trends in online access for European online audiences, taking use cases and web development into account. It then zoomed in on an in-depth exploration of the educational domain and detailed the extent to which audiovisual heritage online can support both classroom and independent education. It provided business models for how platforms where such services are offered can strengthen their sustainability to remain operational and accessible. Now, one year later, this follow-up report takes another look at the topics discussed in D7.6.1 with the intention that, in a field that faces constant renewal, overhaul and additional challenges, we should take stock of the current status of the online audiovisual heritage field and measure our own strategies and technological solutions for providing access.

This report is an intermediary status report: towards the end of the project a number of evaluation deliverables are scheduled to be delivered to the commission. Notably D1.5 *Final Report*,

¹ The digital content life cycle presents the archival steps of creating content, describing it (providing it with metadata) and managing the digital rights of the content as a continuous process.

D7.7 *Final exploitation report*, and D5.5 *Best practice applications* will zoom in on the effects of online audiovisual heritage content for the targeted user groups (leisure, reuse, academic and educational use) in the EUScreen best-practice network. This deliverable is structured as follows: the first chapter gives an overview of major developments, including access provision and use of content by the creative industries. In the second chapter we explore the topic of (sustainable) reuse of audiovisual sources as a cultural and explorative practice leading towards more open and participatory archives. The third chapter discusses the research topics in this area. Through this structure, we successively discuss the three main trends regarding access: [1] use and reuse today, [2] trends towards a *cultural commons* and [3] fundamental research in the area of audiovisual content.

Erwin Verbruggen

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July 2012

1. Major Trends in Online Access to Audiovisual Content

'Sharing is caring' is a battle cry often heard amongst digital natives and the online cultures that have come to involve our daily habitats. Over the past decade, the modes and means of production have changed at a rapid pace in just about every publishing industry, and as some would have it, the broadcast model has been replaced by an interactive, dynamic back-and-forth between professionals and user-content creators. The surge of the web domain has left nobody indifferent and business models, priorities and use cases have had to shed their covers to make room for an environment in which old beliefs aren't so certain anymore. For the archive, this has brought along a double bind of interest: whereas before the archive was considered a dusty place not worthy of investments nor care, archival documents have now become 'assets' that can be traded in for information, attention, advertising value. On the other hand, as each of our computers and hand-held devices contain the capacity to store full libraries, archival institutions have had to look inside and reconsider their worth in a culture of sharing. Different responses are imaginable and experiments are ongoing. Which of the decisions we make today is up to history to judge as to whether they were the right ones. For now, we must be on top of the curve of evolution and try to foresee what is coming, to both keep making the content we 'host' – to put it in digital and welcoming terms – relevant to the time we live and keep it accessible, retrievable, in short *alive* for future generations.

In this part we try to describe the online landscape moving images move about in, coming from different perspectives: we describe the currents of online access that influence how users are coming to and making use of the web. Then we narrow the focus a bit to online web platforms and video services, which is accompanied by appendix A, giving an overview of web resources for open video. Finally, we change views and focus on the perspective of audiovisual archives in a digital world, with an overview of the state they are in and the tactics they apply to make their contents accessible.

1.1. Changes in the Online Landscape

1.1.1. Growth & Mobile Access

Web video is positively booming: the dominant force in the online video landscape, YouTube, reported over one *trillion* playbacks in 2011 – about 140 views for every person on planet earth (Borcoci, Negru, & Timmerer, 2011). The amount of video uploaded has doubled to what it was in 2010 and continues rising, to a current, stunning, 72 hours of video per minute ("It's YouTube's 7th birthday... and you've outdone yourselves, again," 2012).

In the US, 42% of mobile subscribers owned a smartphone in December 2011 (Radwanick & Lipsman, 2012, p. 22). Also in the EU5 zone², nearly 42% of mobile phone users owned a smartphone in January 2012 – an increase of 13% to 2011 – and up to 6.6 of them also owned a tablet computer. The comScore analysis that reports on these findings uses the term "connected devices" for the category containing smartphones, tablets and gaming consoles. Desktop computers

² UK, Spain, France, Germany, Italy

do still account for the largest part of web access, with 95.1% of all browser-based page views, although in the UK already 7.7% comes from connected devices.

In October 2011, the amount of 'mobile media users' among smartphone owners had risen by 62% in one year to an amount of 76% - these are people that access the web, use applications or download content to their phones. In the same month, the amount of people watching a video on their smartphone had risen by 61%, to an amount of 14.3 million people in the EU5 zone alone (Abraham & Block, 2012). For mobile video, figures in the US predict that the adoption of 4G networks will likely mean another great increase in the future, as currently 4G users are 33% more likely to watch mobile video than average users (Radwanick & Aquino, 2012).

Mobile media use in 2011

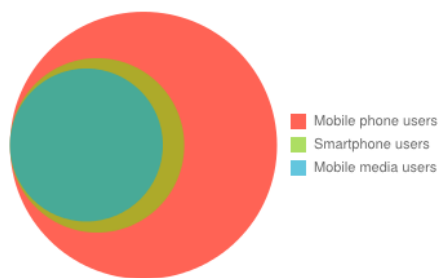


Figure 1 Mobile media use in 2011



Figure 2 YouTube's 7th birthday celebratory video

Meanwhile, the 'tension' between the different screen outlets available for video advertising is increasingly visible, for instance in reports that relate that 25% of all video viewing in US broadband homes now takes place on venues that are not television sets (Whitney, 2012). For many years, analysts have spoken about the turning point – that moment in time where the 'dominance' of television viewership will have to give way to online viewing habits. Although that shift is unlikely to happen soon in a sharply pivotal manner, 2011 was the first year in which thorough movements could be marked – especially in the habits of younger viewers. The Nielsen consumer report, which focuses on consumer habits in the US, tells that there is in fact an increase in the amount people over the age of 35 watching television (be it more often with 'time-shifting devices' such as video and hard drive recorders) and a decrease with the 12-35 year olds. They tended to spend 6 to 9 minutes less on television per day than in the same recorded period in 2010 (Stelter, 2012).

Notably, smartphone use also leads to increased use of social networking sites & tools – with a growth of 46% in the last year and a reach of 57.4 million users. This mimics the use of social networks on the desktop: in the UK, the largest social networks are Facebook, Twitter, LinkedIn and MySpace. Although more users access these networks through their desktop computers, mobile users spend more time keeping up to date with these networks – 33.3 minutes on average per month for every mobile visitor coming from the UK to Facebook, and 11.2 minutes for Twitter (Abraham & Block, 2012). Notably, investment has been increasing at a rapid pace for social television applications, leading MIT researcher Marie-Jose Montpetit to mark that "2012 is the year

that people will think [...] that they will make a lot of money out of social television, [...] I think people are creating a bubble around it" (Hanas, 2012).

1.1.2. Channelization and Platform Instability

The driving force for online video statistics and analysis is, of course, the advertising industry that is keeping a close watch on the places where money is expected to be made from branding and logo placements. In the larger advertising picture, video coming up on the web is still a rather small business compared to its social relevance, accounting for over \$3 billion in video ads worldwide, whereas television remains a \$70+ billion market (Karbasfrooshan, 2011), but has as a compelling advantage that audiences, their habits and their preferences can be measured and analysed to a granular level. Eric Spiegelman speaks of a 'conceptual overlap' that has risen between television and publishing, due to web video (Spiegelman, 2012). This type of 'media convergence' is equally noted by New York Times columnist David Carr, when he says that the radio business, blogs and newspapers "all sort of look[s] the same. I don't think we're in that different of a business" (Taintor, 2012).

It's therefore not a large surprise that online video platforms are gradually moving towards the language, production modes and front-ends of classic television. In April 2011, news broke that Google was planning a major overhaul of its video platform YouTube. In a grand redesign of the site that focuses on makers and playlists it would reshape it to lay more focus on 'channels' with their own original content. In the new version of the site, which was made public on December 1, these channels come to the foreground – very much in line with the 'traditional' television layout, albeit, of course, with a wide expansion of interactive possibilities and choice. Whereas it takes a broadcast channel years of planning and building infrastructure, on the web one can have as wide an arrangement of channels as one prefers, with as little content on it as necessary. Unlike 'proper' television channels, content can be added at varying rates – comedian Ray William Johnson, for example, adds a mere 12 weekly minutes of programming (Spiegelman, 2012). Apparently, the conversion has worked: after the channel based layout was rolled out, the platform rose from 3 to 4 billion views a day (Agarwal, 2012) and in the meantime, "more video is uploaded to YouTube in one month than the 3 major US networks created in 60 years" ("Statistics," 2012).

Figures were estimated to range from \$100 to \$500 million in how much Google was spending on buying up content (Carlson, 2011; Vascellaro & Efrati, 2011), but also "Yahoo, AOL, Netflix, and Hulu, among others, have either launched new initiatives that signal an increased amount of investment in original web video content, or continued their support of internal programs designed to keep web video programming progressing into the mainstream." Meanwhile, web platforms noted big peaks in online viewership during the traditional prime-time hours "indicating that audiences are looking at original Web series as a legitimate alternative to television entertainment." (Steve Woolf in Karbasfrooshan, 2011).

In a move to integrate its video service with the social media experiment Google+, YouTube is no longer an independent website, but an embedded play out site in a social domain, where Google's user accounts are linked across many different uses and interaction is the main stimulus. Not surprising if one considers that 82% of the worldwide population online had a profile on a social media site in October 2011 (de los Santos, 2012). The dominance of YouTube is of course backed by a strategy to corner the advertising market, in which the company effectively makes it hard for other video aggregators to earn money with online content and build a business. Tactics to do so are 'guaranteed money' – upfront payments to producers to lock up content - and a partnership with analytics firm comScore that measures audiences per channel (Karbasfrooshan,

2011). The companies that dominate worldwide internet viewership today are all looking to expand their reach to the home television set, thus expanding the reach of the internet one step further – which puts the ball in the camps of traditional media makers and television technologists to create their own version of the future of television.

2011 also saw the closing of more online web video facilities, the most important of which was Google Video, according to the MetaFilter weblog “one of the few major services to allow free hosting of long-form video” (“The best of Google Video on MetaFilter,” 2011) - a visible showcase of how video on the internet is a popular, but unstable medium. Popular web memes, that are beginning to constitute an alternative history of Internet culture, are threatened in their survival when they satirise popular culture, and can be taken down for alleged copyright infringement. In an attempt to prevent copyright infringement, Google will take down any video that content partners claim is theirs, making use of a “content ID system”. Certain companies use this system to lay claim on works that are in the public domain, threatening smaller uploaders with large-scale lawsuits to defend these practices (Doctorow, 2011).

Meanwhile, there is a contrary move that defends the basic openness – and successful long-term solutions to creating and sharing works in an open manner. The Creative Commons licenses have provided a widely recognisable system to attribute works in the way that their creators prefer. Examples of a new practice to put shareability first abound. In the US, in order to benefit the public interest, non-profit newsroom ProPublica shares its news stories with traditional media outlets under a creative commons license (Looney, 2011). The Al-Jazeera news channel has set up a broad CC-licensed infrastructure for news clips and footage, and the Australian broadcaster ABC recently made available a number of clips under CC licenses from its historical archive (Verbruggen, 2012). In the addendum we include an overview of sources for online open video that is being kept and updated on the EUscreen project blog.³

Technology-wise, this move towards more openness is supported by the further development (but currently still lack of standardisation) and implementation of HTML5 technology, which is a promising move for audiovisual archives, as with technologies such as *popcorn.js*, contextualisation reaches a whole new level. A recent example of this is the Europeana Remix project, which tells a World War I story through integrated timelines and visual sources. More examples and an in-depth exploration of these tools are given in chapter 2.4, “New tools for context”.

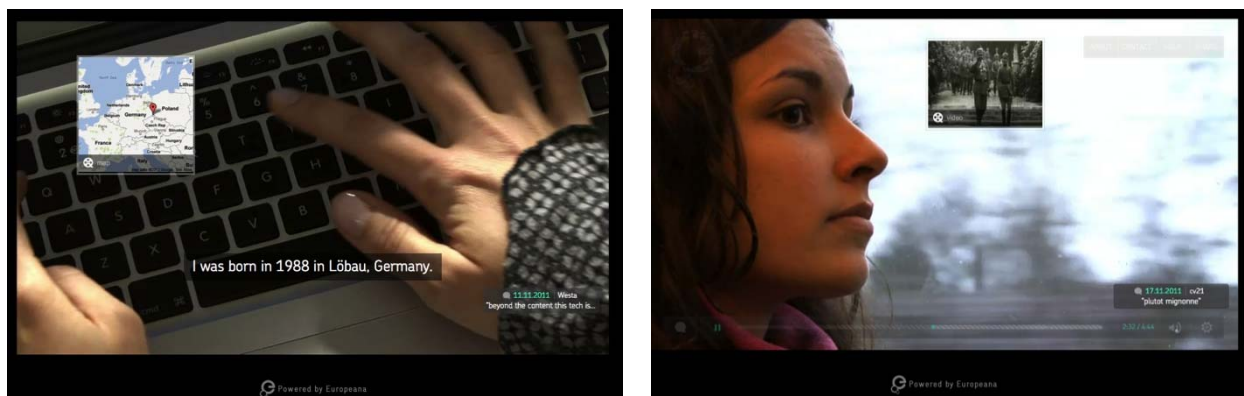


Figure 3 Screencasts from *Europeana Remix* (2011)

³ <http://blog.euscreen.eu> <accessed July 22, 2012>

1.2. Archives Online

1.2.1. *The Six Ages of Digital*

Between February and the end of March 2012, 2000 cultural institutions from 29 European countries participated in the ENUMERATE survey to give a detailed view on digitisation efforts in European archives, museums and libraries (Stroeker & Vogels, 2012). According to this survey, the future for digital access is looking bright: by 2014, institutions estimate to make twice as much of their collections accessible through Europeana than today. When one focuses on audiovisual or even specifically on broadcast archives, their digital status appears to be as widespread and varied as the European television market itself. Petros Iosifidis argues that public interest in television systems, for instance, is an elusive concept across Europe (Iosifidis, 2012a). He speaks of three ages of television, the current of which is defined by its mass audience being “increasingly interactive and disaggregated.”

The average viewer faces a bewildering choice of content, ranging from general areas of interest like sport, music, and entertainment, to personalized and niche video content to satisfy individual viewers' habits. Choice is not restricted by live television schedules: the constraints of time and place no longer apply. Add an increasing number of catch-up platforms and the entry of innovative Internet Protocol Television (IPTV) operators who offer greater interactivity (for example, Virgin Media TiVo), and the result is greater freedom and diversity for the consumer.

Digital television is the catalyst of converged communications. The European television market is defined by a great variation in interest in communications and media as a social, public good that needs interference of the state: Northern Europe enjoys great freedom and belief in the communal goal, whereas central and eastern Europe are marked by “politicization of the state; broadcasting dependence on economic and business interests (also evident in much of southern Europe); small underdeveloped and weak media markets; privatization of broadcasting outlets; floating laws and procedures; and a disoriented journalistic profession” (Zahariadis, Daras, & Laso-Ballesteros, 2008).

This fragmented characterisation of the European television market is – besides an underpinning for the necessity of the EUscreen archives to cooperate – comparable to the care and attention that is given to audiovisual archives and their importance for the public good. Digitisation numbers are uneven and the amount of public platforms is greater in the European North.

Claire Harvey offers a model to approach the levels in which audiovisual archives are ready for the digital age by subdividing the digital operation of companies across a grid of 6 digital stages (Harvey, 2012):

1. Pre-Digital: with legacy archives of analogue carriers, manual customer service, no online catalogue and only limited digital files;
2. Emergent Digital: with an online catalogue but offline delivery processes and partially digital assets;
3. Digitally Ready: with fully digitised assets that have rich metadata, server and rights readiness;
4. Digital Management and Distribution Systems: publishing digital content to online and mobile platforms;

5. Digital Intelligence: using algorithms to select and publish content;
6. Multi-platform: distributing archival content to multiple platforms;

These six levels of digital are visibly present in the EUScreen consortium, wherein the main effort of the project is to find a balance between these varied stages of preparedness for public, online access, which are a prerequisite for the development of models, innovative applications and services for creative re-use of cultural resources in the creative industry.

1.2.2. Commercial System Development

Audiovisual archives can often be found at the crux of opposing business models and value chains. Whereas audiovisual sources are a cultural reminiscence of our history and ancestor's lives, they are also – explicitly so in the digital era – to be considered an “asset”, a commodity that is highly valuable on the global market place. Explicitly so now that various media merge into being “content” that can attract valuable viewing time, or can simply be the source for new creative works to be spread on one of many new distribution channels.

Organisations such as the Federation of Commercial Audio Visual Industries (FOCAL) and the Association of Commercial Stock Image Licensors (ACSIL) bring together stock footage resources to bundle the industry's strengths and rely on each other's experiences. ACSIL has held two global studies into the nature and size of the industry, estimating that the worldwide footage industry is worth \$394 million dollars in 2012, an increase of \$112 million from their first study back in 2007 (Best, 2012; Pickerell, 2007). This is in line with the Screen Digest International 2010 report on the global trade in audiovisual archives, which found that the trade in content from TV archives was worth 364 million Euros in 2009, and had been growing at nearly 8% per year over the previous five years (Harvey, 2010).

A number of institutional archives have adapted some of their platforms to give better access to this kind of commercial reuse and the researchers that use it. BBC has installed a connection with stock footage provider Thought Equity to provide the platform for the BBC's Motion Gallery. As with the digitisation process, the manner in which archives are able to provide this kind of highly developed, easily browsable and high-volume libraries varies widely. INA Media Pro is a household name in the genre and the Netherlands Institute for Sound and Vision has developed its own stock footage platform, which it has begun to expand to individual public broadcasters' platforms (van den Breemer, 2012).

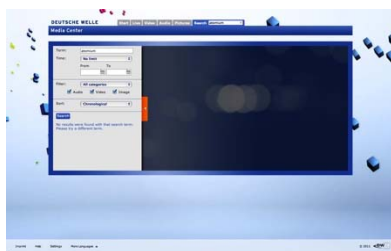


Figure 4 Deutsche Welle

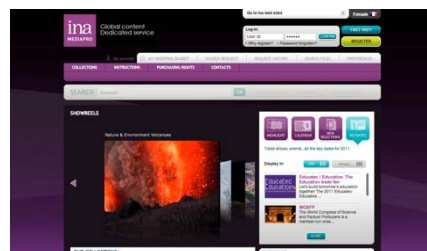


Figure 5 InaMédiaPro

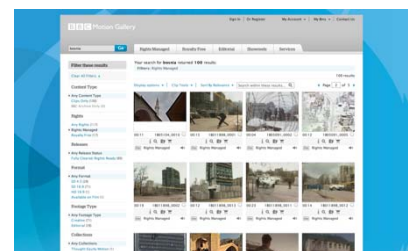


Figure 6 BBC Motion Gallery

It's notable that the development of these platforms rarely has a significant overlap with other web platforms and projects to make materials available for research, education or open cultural resources. Overall, audiovisual archives struggle with finding the balance between giving open, online access to sources that they seek to monetise. Some broadcaster's footage sales desks prefer therefore, to keep the research part of footage sales in-house, which saves on platform development, but gravely diminishes findability.

Table 1 European Institutional B2B Footage Libraries

Country	Form	URL
DE	DW FESAL	http://mediacenter.dw.de
FR	INA Media Pro	http://www.inamediaapro.com
NL	Dutch Footage	http://www.dutchfootage.com/
NL	Avro.tv	http://www.avro.tv
UK	BBC Motion Gallery	http://www.bbcmotiongallery.com/
UK	Imperial War Museum	http://www.iwm.org.uk/collections/search

On the consumer end, online players such as *iPlayer* (UK), *RTÉ player* (Ireland) and *Uitzending Gemist* (NL) try to offer an alternative for rapid consumption on unofficial channels. The BBC, after experimenting with the iPlayer and YouView, stated in March of this year that, with Project Barcelona, it aims to open up its archives even more. The project aims to offer full downloads of programmes for a relatively low fee or even for free, thus offering direct archival purchases for home users (BBC News, 2012). In a non-commercial sphere, it has partnered with the Arts Council of England to create a cloud-based digital art service, called 'the Space' (Thompson, 2012, p. 5). See annex II for a partial overview of European television consumer VoD platforms.

1.2.3. Opening up the Archive

Moving image archives are continuously looking for ways to bring their content online without foregoing the uniqueness of their materials, and to strengthen the reach of their collections. The dominating power in online video, YouTube, is rarely a perfect fit for that vision. Amongst other reasons for this is its limited support for extensive metadata models. By keeping control over their own platforms, archives can generate the know-how and develop open platforms on which outreach to end-users, interaction with communities and participatory archiving become a possibility.

In the course of 2011, different European platforms have sprung up to let users gain access to audiovisual heritage materials. The Swedish *Filmarkivet* launched in February 2011 with 300 short films, non-fiction films, newsreels and commercials: films that "reflect the transformation of Swedish society over the last century" (Swedish Film Institute, 2011). Another initiative that combines national historical documents with online video sources is the Dutch website *Film in Nederland* that was launched in 2011. The most closely related project outside of EUScreen is the European Film Gateway project. Rooted in the film archiving domain, EFG provides links to 100.000 cinema history related materials. References to moving images on the portal point to local websites where the materials can be watched in varying formats and qualities.

More closely related to the world of television, Danish broadcaster DR is currently cooperating with several cultural institutions to launch a national cultural platform in 2012 – the *Dansk Kulturarv*, which should become “a place where the Danes can exchange cultural heritage freely, based on the thesis that the more we use cultural heritage, the greater it becomes” (“Om dansk kulturarv.dk,” 2012)[our translation]. Under the umbrella of FIAT/IFTA, a range of international broadcasters is currently setting up the *Audiovisual Heritage Network*, an online platform for the internal exchange of footage about the partner countries.

Multiple archives are hosts to educational websites specifically tailored to the national educational requirements. Eight different museums, institutions and audiovisual archives in the Netherlands, for example, developed *Les 2.0*,⁴ which launched in September 2010 with extensive facilities such as video editing and presentation tools.

Film and audiovisual archives have been experimenting with using the web as a means to establish a communication between their collections and their users. By giving viewers access to archival content, they can subsequently add to that collection by adding both stories and content. *Wir Waren so Frei*⁵ was a project run in 2009 that amassed amateur footage from the fall of the Berlin wall. The website *Oorlog in Blik*⁶ gathered both professional and amateur film recordings to visualise World War II. The same could be imagined with EUScreen content, as home viewers will sometimes have film or videotape recordings of early television moments that the archive has no access to anymore.

A recent overseas example to put the power of collaboration in archiving to good use, was the *Understanding 9/11 project*. Launched in August, 2011, it is an online library of “news coverage of the events of 9/11/2001 and their aftermath as presented by U.S. and international broadcasters” (“Understanding 9/11: A Television News Archive,” 2011), with 3.000 hours of footage from a timespan of seven days from 20 different international TV news channels. Additionally, select academic analysis is brought online with the collection for further contextualisation. This participatory trend can be useful in the audiovisual domain as well as in the museum world. Take for example the Nitrate Film Interest Group Flickr group,⁷ which has been in existence since 2008 and the recent initiative 'Afilmarchive' that uses the power of the Arab- and Russian speaking crowd to translate / recognise a treasure of 850 recently discovered film cans.⁸

An attempt to preserve audiovisual history and actuality as it happened, was set into motion by the “Archive-It” team, who created the *Occupy Wall Street collection*,⁹ as an archival approach to independent media reporting. This online back-and-forth between users and institutions fits into a wider trend in museums to move catalogues and exhibitions online and to use open source cataloguing platforms for the creation of online exhibitions. Examples of this open technology are platforms like *CollectiveAccess*, that was used for the *Wir waren so Frei* initiative, *OpenCollections* and *Omeka*, which forms the basis for the Europeana virtual exhibitions. In the EUScreen project, an

⁴ <http://www.les20.nl> <accessed May 8, 2012>

⁵ <http://www.wir-waren-so-frei.de/> <accessed May 8, 2012>

⁶ <http://www.oorloginblik.nl> <accessed May 8, 2012>

⁷ <http://www.flickr.com/people/nfig/> <accessed May 8, 2012>

⁸ <http://afilmarchive.net/> <accessed May 8, 2012>

⁹ <http://archive.org/details/occupywallstreet> <accessed May 8, 2012>

advanced tool for contextualisation is being built and prepared for release in 2012: the various archive partners will release curated online exhibitions based on specific topics and cross-cultural connections. They highlight the backstories and links between the various loose items that connect the (hi)stories that can be found in archival moving collections.

Also mobile technology is being applied for the creation of heritage applications – in the wake of non-institutional websites such as Dear Photograph¹⁰ and the mobile application HistoryPin,¹¹ which let its users upload historic photographs of contemporary places to create a link to the past. Historypin does offer channels to history museums to add content. Likewise, mobile apps have been created by audiovisual heritage institutions: the Dutch Vistory application,¹² based on the Open Images API and the 'Manchester Time Machine'¹³ as well as the 'augmented landmarks' apps from Sound and Vision.¹⁴ See chapter 2.4.4 for more examples of contextual tools for audiovisual collections.

¹⁰ <http://dearphotograph.com/> <accessed May 8, 2012>

¹¹ <http://www.historypin.com/> <accessed May 8, 2012>

¹² <http://www.vistory.nl/> <accessed May 8, 2012>

¹³ <http://www.nwfa.mmu.ac.uk/mcrtimemachinev4.html> <accessed May 8, 2012>

¹⁴ <http://beeldengeluid.nl/onderzoek/projecten/augmented-landmarks> <accessed May 8, 2012>

2. Towards a Cultural Commons

As galleries, libraries, archives and museums (GLAMS) are redefining their role as nodes in a wider network of content creators and providers, open innovation becomes key. Two categories of 'open' cultural resources can be distinguished: open data and open content. Open data refers to information such as thesauri and descriptive metadata. Content is a work such as a video or photo. Combined, open data and open content are important pillars for establishing a Cultural Commons: a set of resources maintained in the public sphere for the use and benefit of everyone (Edson, 2011).

There are several motivations for an open way to make cultural resources such as metadata and objects available. Firstly, the usage of the collections increases by providing open access to them. This helps to drive users to online content and it enables new scholarship that can only be done with open data, which makes collections more meaningful and relevant for end-users. This usage also supports institutions in the fulfilment of their public mission to open up access to our collective heritage. Secondly, a Cultural Commons stimulates collaboration in the GLAMS world and beyond. This allows the creation of new services and supports creative reuse of material in new productions. Collaboration supports innovation. As Bill Joy notes in his 'Joys law': "No matter who you are, most of the smartest people work for someone else" (Lakhani & Panetta, 2007). In other words, encouraging external parties to develop services based on publicly available sources stimulates innovation in the GLAM sector. It is likely that these services are of higher quality and diversity.

2.1. The Importance of Being Open

Access to audiovisual materials means access to heritage, access to knowledge and access to a shared past. These are the founding principles that EUScreen is built on. For audiovisual archives, cultural institutions and the wider creative industry, times are both exciting and challenging: as during the past decade, due to the rise of the internet, entirely new business models, new economic powers, new technologies and new audiences with new demands have come into being, audiovisual archives are trying to find fitting answers to the questions that these times bring with them.

Jamie Boyle uses the term 'cultural environmental consequences' for the copyright laws that govern access to audiovisual materials – especially those that reference to or quote third sources from footage archives or third party sources – that result in "the accident of our cultural history [...] that we can always legally read, even if we cannot legally watch" (Lessig, 2010a). The rise of information technologies have made sure that copyright laws, designed for different media and distribution platforms, can be applied to the letter, to the second, of any cultural work.

In a world where connectivity is stronger than ever, and more and more world citizens gain access to an endless supply of information – be it through mobile, handheld, or 'classic' desktop devices – business interests and competition have risen critically. But what the rise of information technologies has proven to us most of all is that there is vast expansion in applying open access, in sharing knowledge and sharing tools to get to work with this knowledge. The power of 'free' is, in the copyright-ridden domain of broadcasting, a downright radical notion. Karl Knapskog describes the tension inherent in broadcasting archives in terms of a battleground between public and commercial interests:

[...] although access to archives may well be said to constitute a legitimate cultural right for citizens to explore and reflect on a common cultural memory, the idea of an accessible archive of free

material is bound to stand in opposition to the interests of right holders, revenue to the creators, and commercial exploitation of archive resources. (Knapskog, 2010, p. 21)

He goes on to describe the BBC's *Creative Archive* project, which was held in 2005-2006, as an experiment by the BBC to see how it could open up its archives. Paul Gerhardt, then managing the project, envisioned that within five to ten years, the archive would be made available according to these access modes – closed for the first years after broadcast, DRM protected and with a 'creative archive' license (Knapskog, 2010, p. 25). In the meantime, Europeana has come to be an influential force for the digitised cultural domain and other national access projects have sprung up, such as the Irish *Digital Humanities Observatory*, the Danish *Kulturarv*, or the British *Digital Public Domain*. With the opening up of television channels and the infrastructure of the web and classic channel television converging, the importance of open lies in supporting open standards and open information technology. The Comité des Sages report *The New Renaissance* says: "Our goal is to ensure that Europe experiences a digital Renaissance instead of entering into a digital Dark Age" (Niggemann, Decker, & Lévy, 2011). The Renaissance springs from global information and online content – but how does European content get online, and how does it get found? There are pre-requisites to this Renaissance, and for content they are: digitisation, digital preservation and documentation. A *chain of information* has to extend from the original object to the repository, the search engine and finally the access portal, and the chain has to be persistent. The repository must be digital, must contain descriptive information to support discovery and must conform to standards for web access. Digitisation provides the raw digital content; digital preservation technology provides the persistent repository and standards to meet the requirements for global access.

EU Commissioner Neelie Kroes has said that "Europe ... cannot afford to miss the opportunities offered by digitisation and hence face cultural decline" (Abbott & Cain, 2011). Whether or not the European investment in digitisation produces accessible content depends upon the completion of the information chain. Raw digital content (files on some institution's server) are not linked to the world. Digital preservation technology provides the beginning of the chain, but co-ordination with other technology is needed to complete the links. EUscreen as a network offers the opportunity to discuss and share these possibilities and experiences amongst ourselves, as broadcasting archives, on an international level and is one of the prime building blocks for creating a European Cultural Commons for the audiovisual domain.

As recent studies, such as *The Yellow Milkmaid* show, there is great power in opening up, in critically allowing the users in and letting them work with the heritage that is there to explore. The white paper makes a critical overview of the status of metadata in the archive and distinguishes 3 types of metadata business models: 1) metadata has no effect on the revenue stream 2) metadata has an indirect effect on the revenue stream 3) metadata as a core value proposition. Yet even for those institutions that rely heavily on the value creation that comes from these descriptive assets, the report identifies a threefold advantage to opening up metadata to the world:

1. An increase in relevance to the digital society;
2. The fulfilment of their public mission to open up access to our collective heritage;
3. The value of opening up access to new users, who "are prompted to engage with the object in its digital form and subsequently with its real-world source" (Verwayen, Arnoldus, & Kaufman, 2011, p. 4).

As the open data movement advances, demanding governments and law institutions to open up the cognitive data that their everyday decision-making rely on, so too is there a cultural move towards an “open cultural source code”, that sees culture artefacts as the bricks that knowledge is built out of, that connects us and can harbour a meaningful existence. Opening the archive, providing access to heritage materials, fits right into the 'access to knowledge' movement (A2K)(Kapczynski & Krikorian, 2010) has, in its broadest term, the following advantages:

1. engagement
2. word of mouth: build it and they will come – strongest tool to be seen , known, heard
3. purpose: teachers can teach, youngsters can learn, researchers can build

Opening up data and content has a wider political and economic context. For instance, it forms an important pillar of European policy on Public Service Innovation. In the Communication "Open data: an engine for innovation, growth and transparent governance," which was published in December 2011, the importance of open access to information that government agencies produce and support (i.e., through research grants) is emphasized. The types of information include geographic information, statistics, weather data, publically funded research, and cultural heritage that has been digitised with public funds. The report describes the social value of "open", such as accelerating innovation in science. There is also a great financial value, since "the overall economic benefits resulting from access to this resource in the EU could reach 40 billion euros a year." (European Commission, 2011)

Archives and libraries have a lot to offer in this context, given their incredibly rich and structured datasets accumulated over many years organised by domain; their experts' ability to reach out to audiences to enrich datasets and also carry out evaluations with end-users; their long-standing expertise in metadata management and (co-)curation and their authoritative knowledge on a wide range of subjects.

2.2. Remix Philosophy in the Age of Digital Sharing

Materials in archives are kept and survive for a reason: we store them, thus deem them to have importance for the lives we lead, for the culture we build and for the societies we live in. Archival materials in an analogue universe live in single copies – audiovisual archives are therefore well versed in mastering the skilful art of copying: reproducing the original in order to save it from perishing due to harmful projection materials, careless handling by non-professionals or climate influences. Digitisation and digital creation have had a tremendous impact on the way we (and increasingly so, younger generations, the so-called “digital natives”) perceive the status of the “original” and on the shareability of cultural objects. These have become building blocks that our culture is built out of, and therefor allow for the recombination of these blocks to create something wholly new.

Remixing is a practice that arose from hip-hop music culture that shaped new melodies with bits and pieces of popular records. The disc jockey found its *visual counterpart* in the *visual jockey*, a figure that throughout the nineties became a stock figure in the dance circuit, cutting and pasting and creating clips and images to heighten the effects of the music. Not until the breakthrough of streaming video platforms and cheap video editing tools has this been a practice that was widely spread into popular culture. Remix videos, parodies and paraphrases abound on YouTube in the form of *memes* and *viral videos*.

In a paper on Remix Culture and the web, two researchers from MIT conclude that the Internet is basically not quite ready yet for the sharing economy it is home to. They based their analysis of ten media sharing platforms by the lines of 1) licenses available in the website, 2) support for remixing and mechanisms of credit giving and conclude that, in order to truly support remix culture, web designers should think about:

- 1.1.4 *Letting content creators choose the license for their work and display this license in human and machine-readable form;*
- 1.1.5 *Allowing content uploaders to give credit to the sources of their work by providing hyperlinks and metadata of such sources;*
- 1.1.6 *Displaying provenance networks that display the tree of derivative work of some content as well as its antecedent work;*
- 1.1.7 *Giving people the tools to easily embed and remix content in a way that follows the license chosen by its creator.* (Seneviratne & Monroy-Hernández, 2010)

YouTube acknowledged the importance of the *mash up* culture in June 2011, when it launched the possibility to assign Creative Commons licenses to uploaded video's and made these easily searchable from within an online video editing tool (Roettgers, 2011), a technical feat that was followed by the Vimeo platform in 2012. The findings of these researchers are overall in line with the feedback that was received during the EUScreen License to Remix! Workshop in Helsinki Finland, where the workshop leaders heard that the greatest obstacles for remixers are that "it is not currently easy to find legal, relevant video and audio content for creative works. Licenses and terms of use are also experienced as confusing, and it is hard to determine which materials can be mixed together" (Hyypä, Marttila & van den Heuvel, 2011). The findings of this workshop highlight the need for easy access to archival videos and clearly expressed terms of use.

Lawrence Lessig, author of the book *Remix: making art and commerce thrive in the hybrid economy* explains about the importance of remixing video to contemporary culture that remixing videos can be seen as a form of creative writing – given the importance of audiovisual sources in contemporary society, it would be good if children would be taught the rules and norms of "writing" with video. And as when quoting someone in an essay, attribution should always be given when reusing a piece, but permission should not necessarily be required, as remixing can be seen as a form of 'fair use' (Lessig, 2010b). Film scholar Katherine Groo even goes so far as to propose remix tools as an addendum to traditional tools academics use to analyse and propose new visions on film history (Groo, 2012)

Meanwhile, the language of cut up videos has found its way into numerous music video clips, Hollywood film productions and the broadcast realm. Dutch popular evening show *De Wereld Draait Door* ("The world keeps on turning / is going mad") ends every programme with a piece of *Lucky TV*,¹⁵ a two-minute piece that twists news video's into a satirical parody. A recent blockbuster release set up a remix contest with its launch advertisement campaign, in which it offered film materials for the remix of new trailers for the film (Atkinson, 2012). The *remix* mentality also has its effect on the way channels programme the contents they bring to their audiences, who have become increasingly used to the possibility of choice and the possibility of serendipity in their media consumption. US public broadcaster PBS set up a radio channel specifically to this end in 2010, that has no fixed schedule and broadcasts a mish-mash of international radio pieces – in no particular order (Shapiro, 2010).

¹⁵ <http://www.luckymedia.nl/luckytv/> (accessed May 8, 2012)

2.3. Remix Challenges & Competitions Set Up by Archives

Audiovisual archives and cultural institutions are re-shaping their ways of thinking in response to the surge of instantaneous, on-demand, and sharing culture. Sharing culture is possible because a large amount of content becomes available to root through. Few archives, however, are willing to turn over their collections to existing commercial platforms, as the library world has tried in concordance with Google in the Google Books experiment. Archives, when stimulating reuse, like to keep control over the source and the end goal of the materials they make available – a characteristic that also influences the way the EUscreen project itself can go about and open up materials for reuse. Experiments with making available material for reuse have therefore up until now mostly been made in a controlled environment, urging creatives to participate in a temporary round of remixes, with a chosen theme and a pre-picked set of source materials to work with. In the following table, we've made an overview of some of these remix contests, that vary in scale and platform use, but run on an overarching identical premise. See Annex III for an overview of archival remix contests between 2005 – 2012.

There are other cultural forces than content holders that push remix forward as a sort of “campaigning” tool. In the US, politically inclined groups use remix contexts to create attention and acknowledgement of certain topics. A few examples that make use of these tactics are the group Political Remix Video (PVR),¹⁶ the Wired for Change remix¹⁷ and Remix America.¹⁸ A well-known politically charged video that made a turbulent round in US mainstream media, was “Right Wing Radio Duck”, a combination of Donald Duck prancing irritated and angrily around his room whilst the voice of political commentator and radio show host Glenn Beck soothes him with populist solutions to his rage. The video was placed on a website where the popcorn.js framework, built upon HTML5 technology, showed precisely which source material has been used at what moment in the video (McIntosh, 2011). Popcorn.js can contextualise videos on the go, and could therefore be a splendid tool for archive video to better find its way better into everyday culture (see the above mentioned example).

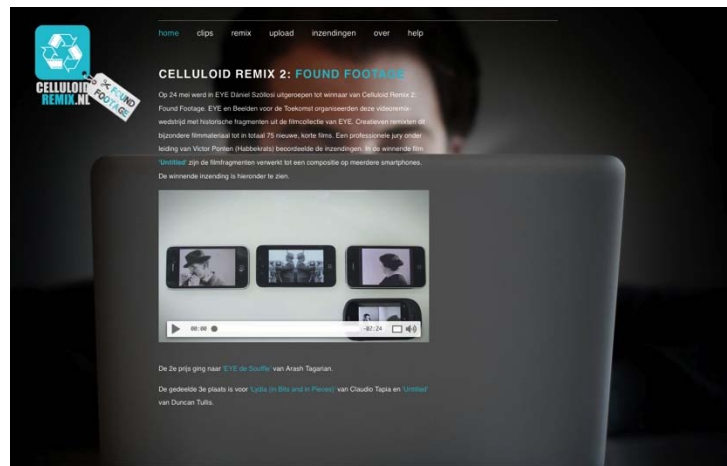


Figure 7 Celluloid Remix

¹⁶ <http://embed.at>

¹⁷ <http://wiredforchange.mirocommunity.org/about/>

¹⁸ <http://remixamerica.org>

2.4. New Tools for Context and Cut-Ups

2.4.1. Open Video

Objects of culture often need explanation to find their place in a society that's changed, moved on or found other principles and dependencies. Otherwise, it's these cultural objects that explain to us how the society we live in has come about and how the human experience of today is a continuation of that of our ancestors. In that sense, moving image materials are amongst the youngest of cultural expressions and television material in particular shows a unique look into the lives of ordinary people. As Tony Ageh explains about the BBC archives (Thompson, 2012, p. 7):

"I'd realised that the BBC was sitting on these huge repositories of British culture and history that were unique in the sense that the sort of things contained in the BBC archives were very different from the sort of things that are typically captured by large memory institutions like museums."

"We had ordinary people talking about ordinary stuff in ordinary settings, and I thought there was a growing expectation of us to unpack and redeliver that material back to the people that had not only funded it, but in many, many cases actually created it in the first place."

One of the primary places where audiovisual material can aid to explain and revitalise culture is the online encyclopaedia Wikipedia. The online encyclopaedia is among the top-10 web domains in the Alexa rankings and has a long-term vision (the organisation claims to want "to be around at least a hundred years from now, if it does not turn into something even more significant" (Wikipedia Contributors, 2012). Thanks to its vision on freedom of information, editing and not-for-profit status, it is currently "the freest as well as the largest and most popular media commons on the web" (Kaufman, 2010).

Wikipedia is primarily a text-based environment: its structure, links and editorial process are heavily based on text and hyperlinked words. In 2010, the non-profit organisation, backed-up by the Ford Foundation and Mozilla, improved its infrastructure to smoothen the process of uploading audiovisual content to enlighten or illustrate articles, and worked with the open source Kaltura foundation on a remixing video platform (Ali, 2010). The Wikimedia foundation, in its own right, attempts to bring audiovisual sources to the community-run encyclopaedia by organising photo safaris in the form of contests such as "Wiki loves monuments" and "Wiki loves art".

A philosophy of remix is by default tied to a range of technological offerings and proposals that are prerequisites to a dialogue between media makers and "prosumers". The digital sub layer that supports user participation and lowers the threshold for amateur media creation is compiled of lines of code, networks and services that are necessary to intertwine. The speedy succession and expansion of these provisions is what interrupts the flow of media as-we-knew-it. Mobile expansion, serious gaming, crowdsourcing are all technologies that can be useful tools for the audiovisual archive to reach out and draw in audiences.

Although advocates of remix culture underline the existence of remix practices and culture throughout all ages of mankind's cultural existence (Ferguson, 2012; Pagel, 2012) the remixing, sharing and "cultural literacy" practices of video culture are necessarily rooted in technological developments that allow for these types of practices – and moreover, that allow easy access to source materials.

2.4.2. HTML5

The open video movement is a culture rooted in open technologies to advance this type of practices and promote open standards and clear tools to let the reuse of video materials be an open practice that is within reach for the general audience. The open source video player Kaltura offers with its video services an online video remix tool and is one of the underlying tools for offering video content on Wikipedia (Babin, 2010). The open video systems especially investigate the use of HTML5 technology. HTML is the underlying language for all webpages to read. The fifth iteration of this widely supported web standard would be the first where video would be a 'native' element (instead of an "embedded" technology) which means that it becomes much more easy for other elements on the page to relate and interact with the video sequence. This is a great advantage over for instance flash technology, which isn't widely supported on all mobile platforms. The disadvantage of HTML5 is currently that a single widely accepted standard for how exactly to use the element, and with what video formats & codecs, is not well defined.

The technology offers a wide array of possibilities for contextualisation purposes and purposeful reuse of video content. A recently developed tool was the "HTML5 Gendered LEGO Advertising Remixer", which came about after a gender-directed advertising campaign from Lego stirred some commotion online (McIntosh, 2012). For a NYU class project on open video and the web, Greg Dorsainville created the HTML5-based Tubeyloops application, which takes video clips and arranges them along an rhythmic pattern, thus creating a musical sequence (Dorsainville, 2011).

HTML5 constitutes a movement away from remix as an *editing* functionality (intra-video) to a way of telling stories by combining different media (popularly called trans media - not to be confused with cross media, a term that is used for more advertorial purposes: getting one message across on different platforms), which as a storytelling device is a highly useful mode for bringing in, recontextualising and bringing to life stories, videos, media from ages past. An example is the "web-native social-justice video project" History in these Streets, a virtual walking tour about the Black Panther Legacy in West-Oakland (BAVC.org, 2011).

This cultural approach to technology is mirrored in Hackathons that are organised around European culture – various projects that fall under the Europeana umbrella have organised or are setting up events that bring together developers and programmers to offer new insights into technologies for accessing, searching and presenting open cultural digital content. Europeana has also tested HTML5 grounds by the publication of their interactive HTML5 video around World War I (*A First World War friendship*, 2011).

2.4.3. Linked Data

The way data are being published on the web is currently in transition. New applications and appropriations require data to be accessed in ways that support machines to understand and users to manipulate them. Just pointing to a database with records, for instance, no longer suffices. The semantic web, or Web 3.0 as some call it, allows for machine-readable relations between objects, entities, contexts and, eventually, machines. If metadata truly is the oil of the 21st century, linking data could be the way to get the engine running at full speed.

Different broadcasters experiment with linked data as a way to engage second screen applications with their broadcasted content. In 2010, the R&D department at BBC built a first prototype of an application that provided web content relevant to what was being talked about on

3. Topics in the (European) Research Arena

In May 2010, John M. Smart, in a TEDx conference presentation, exclaimed that “the television is waiting to be revolutionized” (Harvey, 2010). With the triangle of content channels gearing up on web video platforms (the latest YouTube re-design specifically emphasised the roll-out of this feature), tablet computers finding their ways into our homes and the quick overturn of television sales and set-top boxes, the media environment seems to be eager to march into the flow of data. Tablet devices were first launched in April 2010 and may well turn out to become the “ideal *internet video viewing platform* and *universal media interface* to manage video viewing activity on [...] media centres and internet televisions” (Smart, 2010a).

The coming of the Internet has had a tremendous impact on the way we process, look for and manage information. Interaction with media content has become much more dispersed, interaction with media more enabled to the global citizenry. While different businesses have been looking for ways to adopt this new connected world, others have sprung up and dominated global viewing habits we could have never foreseen.

Less than a year after Smart's battle cry, 2011 saw the emergence of the “smart television”: as consumer electronics gain the architectural base of desktop computers, the ability to install different applications and connect to the massive online network opens up the space for entertainment providers, technical developers and researchers to come up with new models for content creation and the modelling of the broadcast network.

In the past two years, further debates about a number of technological developments have pushed forward the technological domain in which audiovisual heritage finds itself – in the EUScreen case, on the intersection of public service broadcasting, web video and cultural heritage materials (the 'nostalgia industry'). The major impact that we expect to happen is the hybridization of 'classic' television, the surge of mobile access to the web on a worldwide scale.

Talk of television moving towards the computer is not a new sound, though technologically the two are light years apart: the broadcast industry is regulated by standards and norms that hold out for large territories, such as the MPEG-2 Transport Stream that has been in use for over a decade (Unickow, 2011) whereas the web video domain is in constant turmoil and technologies and devices whither, come and go at lightning speeds.

These topics are widely researched in the European research institutes – both from institutional perspectives as from profit-driven ventures. These research programmes give a glimpse of what the future holds for online audiovisual heritage and the environment it will exist in, the tools that can give it its context and the content that it will correlate with. For that purpose, in this chapter we give an overview of current research topics in Europe.

3.1. Future Internet

An infrastructural research development is focussed on the technological underpinnings of the way the Internet is currently structured. With ever-increasing bandwidth, IPTV and an increase of users, the European Commission as well as a wide variety of research institutions and technical providers is pondering the direction the internet as a whole is going to, and how this can be sustained by infrastructural improvements. Research is held on global, European and national

levels. A current list of European projects (Rodrigues, Réveillère, Bromberg, & Négru, 2011) working on the topic:

1. FIRE Future Internet Research and Experimentation
2. European Future Internet Portal
3. EU ICT FP7 Future Internet projects
4. France – ANR
5. France - Groupe de Reflexion Internet du Futur - GRIF
6. Super Janet funded by EPSRC (UK)
7. Internet del Futuro (Spain)
8. Ambient Sweden
9. United Kingdom FISG
10. Finland - Finnish ICT SHOK research programme [www.futureinternet.fi]
11. Spain - Internet del Futuro [www.internetdelfuturo.es]
12. Germany - G-Lab
13. Euro-NF / Anticipating the Network of the Future - From Theory to Design
<http://euronf.org>

One example of an architecture for a future version of the Internet is proposed in the FP7 project Alicante, which works towards the deployment of a single “media ecosystem”. It proposes to create a content-aware network solution “enabling every user to access the offered network-aware media services in various contexts and to produce and deliver his own media content dynamically, seamlessly and transparently to other users.” (Aroyo, Nixon, & Milller, 2011) The question that lies at the heart of these initiatives is how to connect the varying devices used in a home environment to the large amount of variation that comes into view once broadcast providers are complemented by a wide range of non-centric broadcasters that live on the internet (Smart, 2010b, p. 2).

3.2. Linking Television to the Web

With mobile screens abounding in the consumer space, access to online audiovisual content increasingly happens through mobile platforms. These can serve as a second screen, providing extra content background and entertainment during television broadcast. Second screens weave a web of communication around the existing broadcasts, upon which archives need to decide why and how they can store it for future research and for understanding the perception of certain programmes at the time they were broadcasted. But mobile also increasingly signifies having the web in your pocket and it's the connection between the social and semantic factors of the web that can make the TV set a truly personal medium, where programming relates to tastes and demand rather than a choice from a certain amount of pre-conceived channels.

The future of search relies on very specific information at the shot-level – the more complete this granular information is, the more easily editors, producers and creators can find the materials to use and engage in new settings. The exact same paradigm holds true for televisions linked to the Internet and applications for the second screen: it's no longer sufficient to capture descriptive information about the programme. Advertisers' metrics and applications rely on time code related temporary information, that can be made available through machine extraction, but relies on human interaction for the better result (Kastelein, 2011). The NoTube project thoroughly investigated this type of processes.

Some sources contend that at some point in the future, the broadcaster as the “middle man” in between content producers and consumers will disappear, but if “TV Everywhere” does come true at some point, the broadcasters will be the party that has access to the most important asset of all: the data to connect all the different devices (Frankel, 2011). Not only broadcasters and manufacturers are pushing forward the merging of web technology and television systems; W3C, the web standards organisation, set up a worldwide interest group charter in 2009 to discuss technical issues to ensure that the web functions well with television (Damjanovic, Güntner, Kurz, & Glachs, 2011) and holds on-going technical discussions about how to include semantic web technology and new web technologies such as HTML5 for a smarter inclusion of the two domains (Daoust, Evain, Pascale, & Steglich, 2011).

In the European Research domain, the NoTube project concluded in January 2012 and found that many of its research topics had increasingly been picked up by the television industry – albeit in proprietary forms. The project proposed linking to user social profile information to recommend programmes, whereby using linked open data technologies would serve as the interchange medium between the world of the web and the world of television media (“Web and TV Interest Group Charter,” 2010). The LinkedTV project envisions a ubiquitous online cloud of Networked Audio-Visual Content that is detached from any specific place, device or source. In their view, accessing any audio-visual programming can be seen as television – regardless of whether it is seen on a TV set, smartphone, tablet or personal computing device and regardless of whether it is coming from a traditional or new media broadcaster, a Web video portal or a user-sourced media platform. The French CELTIC UP-TO-US project²¹ makes use of IPTV to connect to user's settings and profiles, meanwhile in Germany and elsewhere, experiments with Hybrid Broadcast Broadband are on-going: this pan-European project aims to harmonise broadcast & broadband delivery of entertainment through set-top boxes and connected TV's. The Linked Media Framework, offered by the Salzburg Research Group, proposes a similar component to haul in advanced search functionalities, integrating information from different Social Media websites, making use of the PopCorn.js framework and the semantic integration of social media platforms and television content (Nielsen, 2011).

The thing that keeps development of web to television platforms from becoming ubiquitous, however, is the decidedly social nature of the technology: people want to watch programmes and they want to watch them together. According to a special in *The Economist*,

“People may have strong ideas about what they want to watch, but what they really want to do is watch together. So the great majority of them first see “what is on”—that is, what is being broadcast at that moment. Restricted choice makes it easier to agree on what to watch. If nothing appeals, they move on to the programmes stored in a DVR. On the very rare occasions when they find nothing there, they will look for an on-demand video (“The Lazy Medium,” 2010).

If television then truly wants to become “any audiovisual experience delivered from any source to any device” (Köhler & Nixon, 2012) it will first and foremost have to find a way to overcome this ‘hurdle’ of individual access and find a shared space amidst the increasing individualisation.

²¹ <https://up-to-us.rd.francetelecom.com> <accessed June 10, 2010>

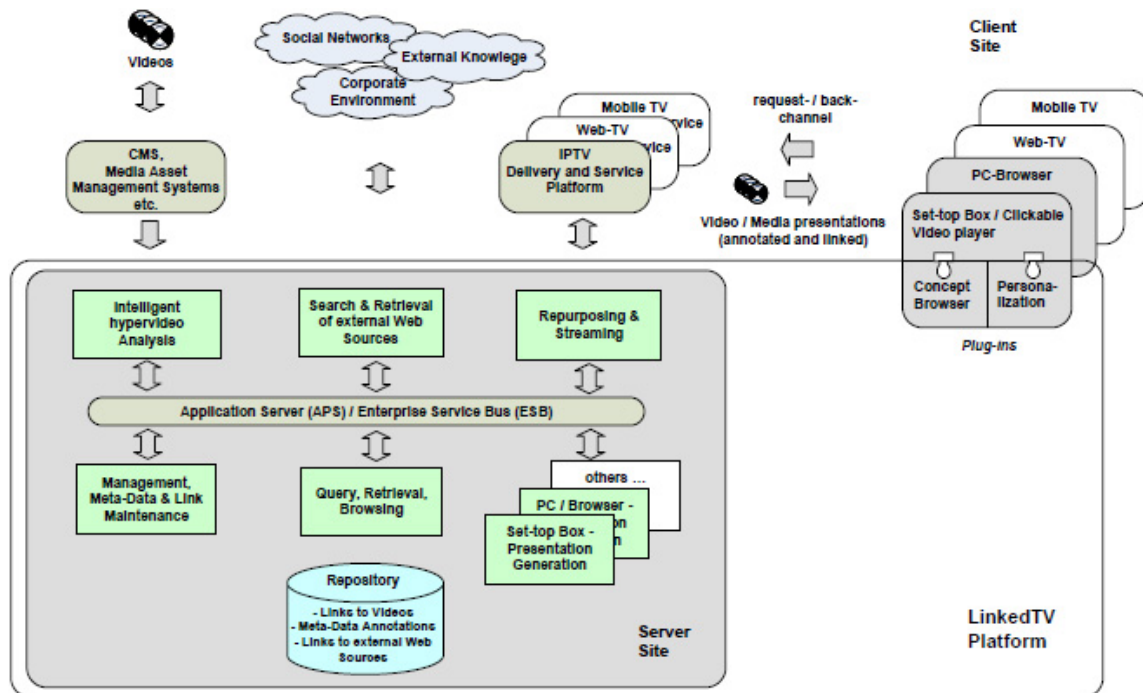


Figure 8 LinkedTV platform proposal

3.3. Mobile

Besides existing applications and tools tested at various institutions, second screen or even primary screen applications are being looked at with much interest from the broadcasting industry. As smartphone use and the implementation of the cellular network 3G -comparable in speeds to broadband technology - is increasing, devices are becoming an increasingly popular source for both audiovisual content itself, information about the audiovisual content and, possibly so, for engagement with that audiovisual content. This could be as a replacement for the traditional 'zapper' or as a second screen, on which everyone in the household can interact with a programme through extra quizzes, voting functionalities, live chat, etcetera. A much-quoted number in this respect comes from the 2011 Nielsen report ("After A Trillion-View Year, What's Next For YouTube?," n.d.), that says 86% of all people engage with their mobile devices while watching television – which led twitter user Michael Monello to comment "I think "80% tablet owners use them while watching TV" says more about what's on the 1st screen than our desire for 2nd screen experiences" (Monello, 2012) . Moreover, in early May 2012, calculations of StatCounter indicated that 10 per cent of all internet usage worldwide was accounted for by mobile phones, double the percentage of mobile internet use in 2010 (Russell, 2012) – a number much higher in developing countries in Africa (up to 15%) and Asia (up to 18%) than in Europe (just above 5%).

Distribution of A/V content to mobile phones can happen in distinct ways and technologies being developed for it are – in line with territorial development of broadcast standards – different on each continent. In Europe, content could reach a mobile over the cellular network (3G / 4G), by use of the DVB-H or, in case of satellite technology, the DVB-SH standard, or by use of existing Wi-Fi networks. The approach of the European research project FascinatE is to develop a 'format-

agnostic' recording technology that makes attempts possible to automatically resize the audiovisual content to the kind of device one is watching on. As a sort of broadcasting alternative to responsive web design, the technology would allow someone watching a live or recently recorded event to decide on the part of the image she or he would want to focus – by selecting a person, or angle, or zoom size suitable to her interests and screen size ("FascinatE: About the Project," 2010). A comparable initiative, that also focuses on live broadcasting for multi-platform purposes, is the *Free-viewpoint Immersive Networked Experience* (FINE) project ("FINE: Main page," 2010)

Mobile game platforms meanwhile have the same technological possibilities for one-way A/V content distribution – US users of the handheld Sony PlayStation device, for instance, have access to television content through services such as *TiVo Togo* or *LocationFreeTV* (Meadows, 2010). The same device was, after the BBC released an iPlayer application for iPads in December 2010, the prime location for the British broadcaster to roll out a full-blown linked television application for its Net TV Solution (Eaton, 2011). The research project GameArch is developing a roadmap and a set of technological, commercial, and political recommendations for mobile technology standards – primarily focused on mobile gaming, but it promises that its commercial recommendations and political initiatives will be applicable to other mobile applications as well ("MobileGameArch: General Information," 2011).

3.4. 3D and the Immersive Experience

3D technology is, according to some, already widely accepted, according to others an emerging technology in the home market. Fact is that research laboratories are fascinated by the possibilities this technology offers them. Some, such as the 3D VIVANT project, propose alternatives for the current 3D systems for improving its reality aspect – pushing the limit of holographic content for broadcast and cinema displays. Likewise, the Diomedes project proposes a set of standards and developments for bringing 3D to the home environment and the recently ended 2020 3D Media project developed a set of stereoscopic tools and technologies for 3D broadcasting and capturing live events. Others wish to expand the immersiveness of 3D technology for the entertainment factor (the Immersive Worlds IP created in the 3DLife project) or want to improve on distant business meeting technology by bringing in the real-world factor (BEAMING). The SkyMedia project wants to provide immersive experiences by putting 3D onto mobile devices.

While many of these projects focus on 3D as fundamentally a broadcasting technology (a change akin to the introduction of colour in film, or the introduction of new screen formats: the broadcast apparatus remains in place and is merely equipped with additional fascinations), the networked media task force has in the past referred to 3D content as being part of a possible scenario for the future of the internet (Iosifidis, 2012b) – a scenario that currently lays bare a number of technical challenges in the architecture of the web. The 3DTV5 project focuses on the possible impact of the technology for online audiovisual archiving. The convergence of topics is visible in the move where mobile applications are starting to be made ready for 3D content (Grau, Borel, Kauff, Smolic, & Tanger, 2011).

3.5. Search Technologies & Socially Aware Media

When television content indeed becomes the entire audiovisual experience of humankind, any kind of audience relies on search tools to get to some point of understanding. Various research projects are hard at work at finding the key to automated search processes and streamlined apps. Already, social apps such as VHX, Shelby.TV and Showyou draw in one's social networks to

recommend videos that your peers are watching. The NoTube prototype, from the recently ended project, used the same type of information to recommend new materials based upon your interests, and likewise a number of websites do the same for cinema and VOD viewing (Jinni, Rotten Tomatoes, Criticker in the US). The AXES project starts from the premise that different user groups have different ways of searching and focuses on search interfaces and technologies that satisfy the needs of these various searchers for audiovisual archival material. CUBRIK proposes a paradigm of human-enhanced time-aware multimedia search and builds open applications that are capable of assembling multiple components. At the heart of the system, crowdsourcing and human assistance should aid machine-based search algorithms.

A project that brings together various search technologies is Chorus+,²² which is building a platform that is a collaborative effort to provide an overview of resources in the field of audio-visual search. It coordinates international projects and initiatives, mostly within Europe, thereby building a public repository of search technologies and public datasets for video analysis. The topics include mobile image search, search computing, and scientific multimedia data. The goal is to provide the best possible overview of the efforts in the multimedia domain. 3DTVS offers a search engine specifically devised for searching 3d content. The I-Search takes a multi-modal approach: where services such as Shazam take in an audio signal, and a web search engine a text string to begin a search, the project proposes a model in which any kind of digital medium could be the starting point for a search command: a rhythm, a video, a 3D model or even an emotion.

In accessing audiovisual materials, the social web takes in an increasingly important place to find and view materials. On the search and retrieval end, this also gives back an increasing amount of information that can be linked to that content. The SMART project (Search engine for Multimedia environment generated content) provides a number of multi-media search technologies to be applied to multimedia directly stemming from the physical world, i.e. web and security cameras, sensors and the likes and therefor focuses on face detectors, person trackers, classifiers of acoustic events and components for crowd analysis, which can be connected to information coming from social networks. The SocialSensor project (Sensing User Generated Input for Improved Media Discovery and Experience) then, focus specifically on searching for multimedia on the social web and social networking sites themselves.

For audiovisual heritage institutions, these trends are of the utmost importance to follow up on and to devote time and research to: not only to be able to provide cultural context and materials but also to be able to select and store those elements of contemporary culture that archives have the goal of preserving.

²² <http://avmediasearch.eu> <accessed June 3d, 2012>

4. Concluding Remarks

The pace and progress of access to audiovisual heritage is dominated by worldwide, rapidly evolving changes in general web access and use of online possibilities. These are turbulent times for any creator, producer, distributor and safe keeper of any creative materials that fit under the umbrella of “content” – all that is manageable, marketable, sellable to audiences inside and outside of the digital realm. This deliverable has attempted to give an overview of these developments and the possibilities they comprise for audiovisual heritage. As we outlined in the previous chapters, a number of environmental and technological developments are pushing the envelope of re-appropriating audiovisual heritage. Open web technologies are expanding the possibilities of integrating archival sources into creative and commercial audiovisual narratives. The online spectatorship and need for content that is available on multiple platforms keep on expanding. More and more platforms – both in mobile and domestic spheres – are capable and demanding of content for streaming and making available audiovisual content for leisurely or educational purposes.

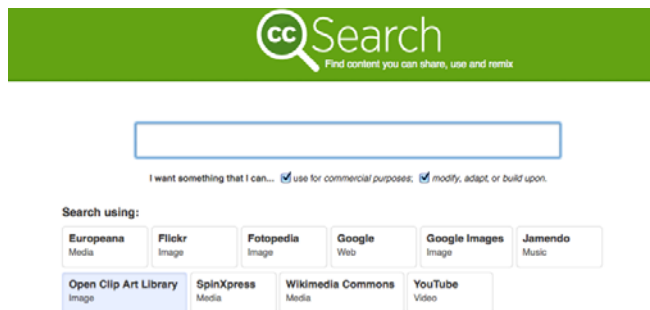
Audiovisual heritage, if it wants to be reused, needs to be able to be found. Although European audiovisual heritage represents a tremendous cultural resource for Europe as an imaginative resource for Europe’s history of the 20th Century, the visibility, findability, accessibility and usability of it across national borders is, if at all, very limited. So far, only few European archives and audiovisual heritage institutions use interoperable protocols for cataloguing and publishing audiovisual content. New ways of cloud-based implementation of metadata gathering and accessibility have not yet been tested and applied in this domain, but could lower the technical barrier for small- and medium sized archives and facilitate contribution to Europeana. Most accessible audiovisual heritage lacks meaningful contextualisation and interpretation and is thus only ready for use by a highly specialised elite of academics (i.e. the few film and television historians working in a comparative framework); dispersed digital audiovisual heritage - representing European history, societies and cultures - is not meaningfully linked to comparable content on Europeana or to heritage institutions in other European regions and countries. There is a lack of editorial mechanisms serving well-defined user-led activities. This restricts not only the findability of European audiovisual heritage but more importantly limits its potential usage in the European context. There is, as a consequence, a lack of user engagement services readily available for re-use for leisure, research, and for the creative industry. Services that engage users with new approaches to European audiovisual heritage and its creative re-use are still underdeveloped.

If we want to use the multitude of sources out there to connect with the lives we’re leading and become the source material for new creative endeavours, we need to further develop the technological structures and online availability of these materials. EUScreen as a project and living online environment has proven a breeding ground for creating networks between European broadcasting archives, but on-going attention will be necessary in the years to come to guarantee access to our living audiovisual heritage. Clear copyright legislation and the expansion of creative commons licenses are key to be able to quote, reinsert and comment upon our audiovisual history. Providing technology for linking metadata makes AV content more useful to illustrate worldwide historical events and currents. The question whether or not audiovisual archival content will hereby become a primary source for reuse, for the creative industries and for communities’ focus, will depend largely on how and when these become available.

Annex I: 90+ Sources for Open Video

As all listings of “free” content, we would like to open with a brief note about what “free” means, especially with regard to “openness”. Some makers decided their work should be as open as possible, and use open technologies such as open source production materials for viewing and editing for the creation of their works. Other works are becoming available in the public domain or have been made available under a free-to-share license. While every work on this list is yours to see, not everything is therefore automatically “open” – or yours to pick up.

Where to find CC video:



[CCsearch](#) is your diving board into the wondrous world of online CC sources, all of which can be searched separately on their own digital turf – such as SpinXpress [GetMedia](#) and the [Public Domain video's on Europeana](#), the European digital library, museum and archive. Creative Commons moreover regularly spotlights new CC events and users on their website and curate a full list of materials using Creative Commons licenses:

http://wiki.creativecommons.org/Content_Curators

Open video has taken a great flight with the advent of Creative Commons licenses, which has brought a judicial way of showing Internet videos and allowing you to tell people how they can or cannot use your material. [Flickr](#) was of course an early adopter, and offers zillions of user-generated photo and video materials with quick CC access. [Flickr Creative Commons videos](#) is an assortment of CC licensed videos and on [Flickr The Commons](#) you can find a variety of videos licensed freely by GLAM institutions (Galleries, Libraries, Archives and Museums, that is).

[YouTube](#) and [Vimeo](#) have recently followed in its footsteps. In the YouTube editor you can easily look for and edit on the spot reusable materials to blend in your video. Vimeo shows you the license of each video, and lets you [browse videos with Creative Commons licenses](#). The platform also offers a [music store](#), where editors can look for music to use in their video materials and a beautiful interface was installed to show users exactly what the license and usability is. In the field of music, openness has been in place for a longer time (due to fewer creators it's often easier to decide on a licensing model) and beautifully curated sites such as the [Free Music Archive](#) and [CCmixter](#) often dozens of free music sources. For a full list of CC music platforms, see:

1. <http://creativecommons.org/music-communities>
2. <http://wiki.creativecommons.org/Sound>.

Open Video Repositories		
Al Jazeera's Creative Commons Repository	stems from the broadcast realm, just like EUScreen, but this repository holds broadcast quality footage that Al Jazeera has released specifically under various Creative Commons licenses.	
Internet Archive's Community Video	Open Source Video's on the wide and wondrous world of the Internet Archive – where there's tons more of moving images to discover and explore, a good starting point of which is written about on their blog.	
Open Images	Open media platform that offers online access to audiovisual archive material to stimulate creative reuse. An initiative from the Netherlands Institute for Sound and Vision.	http://www.openimages.eu
Open Video Project The Open Video Project	shared digital video repository and test collection intended to meet the needs of researchers in a wide variety of areas related to digital video. The Open Video collection currently contains video or metadata for 1865 digitised video segments.	http://www.open-video.org/
The Media Burn Archive	video archive that holds a collection of over 6000 independent non-corporate tapes that reflect cultural political and social reality as seen by independent producers from 1969 to the present.	http://www.mediaburn.org /
Wikimedia Commons	repository originally intended for for media to use in Wikipedia articles, which is now a source that hosts 4400 video items under GNU or CC licenses or that are in the public domain.	https://commons.wikimedia.org/wiki/Category:Videos
World Digital Library	This digital library supported by UNESCO "makes available on the Internet free of charge and in multilingual format significant primary materials from countries and cultures around the world." Its video content however is minimal.	http://www.wdl.org/en/search/gallery/?item_type=motion-picture

Video Footage for Remix and Reuse		
Creative Commons list of CC-available films		http://wiki.creativecommons.org/Film
Open Footage	small repository of Creative Commons licensed 3d materials from an Austrian designer.	http://www.openfootage.net/
PixnMix Candy Jar	The Candy Jar is a collection of video clips produced mainly by VJs for VJs. The clips are licensed for non-commercial use – you'll have to read and agree to the licence when you download.	
Public Videos(alpha)	large collection of free stock footage. Video clips are released to the public domain using the CC0 waiver.	http://alpha.publicvideos.org/
StockFootageForFree	website dedicated to providing completely free stock footage from around the world that can be downloaded instantly and incorporated into any type of video editing project-personal or commercial. You have to create an account but it's worth the time.	http://www.stockfootageforfree.com/
Xiph Test Media	a collection of test sequences and clips for evaluating compression technology. Over at their Theora Videos list you can find an overview of videos encoded with Theora that are thus open source by nature (the content however isn't always necessarily).	
Xstockvideo	free HD Stock Video and Footage with a royalty free license granting full use in all types of projects.	http://www.xstockvideo.com/

Open-Source Films and Projects		
20 Open Source Movies You Can Edit and Redistribute for Free		https://soosck.wordpress.com/2010/11/04/20-open-source-movies-edit-redistribute-free/
An Island		http://anisland.cc/home/
Art of the Beatles in the Global Library	Large collection of free The Beatles films concerts video and audio under Creative Commons Attribution-sharealike 3.0 Unported (CC BY-SA 3.0) license.	http://wiki.creativecommons.org/ART_OF_THE_BEATLES_IN_THE_GLOBAL_LIBRARY
Bergensbanen	The NRK offers this very special recording in HD CC licensed.	http://nrkbeta.no/2009/12/18/bergensbanen-eng/
European Southern Observatory videos	Space and astronomy videos licensed under Creative Commons Attribution.	http://www.eso.org/gallery/v/Videos
RIP	A remix manifesto	http://ripremix.com/
Kremlin.ru	Official Website of President of the Russian Federation) – All materials (fotos texts videos audios etc.) Licensed under Creative Commons Attribution 3.0 Unported (CC-BY 3.0 Unported)	http://kremlin.ru/
MetaVid	Is the Open Video Archive of the US Congress, which holds as staggering 284 days 7 hours 21 minutes 54 seconds of footage and counting.	http://metavid.ucsc.edu/
NASA videos	HD NASA videos	
Nasty Old People	(Sweden 2009). 83 minutes. License CC-BY-NC-SA 2.5.	http://nastyoldpeople.org/
Open Source Cinema	(Currently offline)	http://en.wikipedia.org/wiki/Open_Source_Cinema
Sita Sings the Blues	(US 2008) 81 minutes. . License CC-BY-SA.	http://www.sitasingstheblues.com/
Steal This Film	(Cc-by)	http://footage.stealthisfilm.com/browse
Torno Subito	(Italy). 89 minutes. /. CC-BY-NC-SA 3.0.	http://ilmiofilm.wordpress.com/
Uncensored Interview cc-licensed clips	Video Interviews. Specifically look for clips with the CC-BY License.	http://www.uncensoredinterview.com/topics/cc
White House	(Youtube channel)	
WikiClips	A crowd-sourced database of real life video clips	http://wikiclips.tv/
Wikipedia list of Open Content Films		https://secure.wikimedia.org/wikipedia/en/wiki/Open_content_film

Public Domain and Free-to-Share Film Listings		
Public Domain Movies		
Filmannex Public Domain Movies		http://www.filmannex.com/movies/channel/public-domain/most-recent
OpenFlix	Directory of movies commonly thought to be in the public domain.	http://www.openflix.com/
Public Domain Comedy		http://www.pdcomedy.com/
Public Domain movie data base	A Searchable database of Public-Domain Movie Information, Episode Guides and More.	http://www.pdmdb.org
iMovie Free Public Domain Movies		http://imovies.blogspot.com/
Entertainment Magazine's list of Free Movies		http://emol.org/movies/freemovielist.html
The Public Domain Review	By the Open Knowledge Foundation	http://publicdomainreview.org/films/
Top 40 Films you can download right now		http://tech.blorge.com/Structure:/2010/08/11/top-40-best-free-legal-movies-you-can-download-right-now/
Legal Torrent Distribution sites		
ClearBits	Bit torrent distribution of open-licensed media	http://www.clearbits.net/
Vodo	Free-to-share films available through bit torrent	http://vodo.net/
Public Domain Torrents	Public domain movie torrents	http://www.publicdomaintorrents.net/
Vuze list of legal torrent sites		http://http://wiki.vuze.com/w/Legal_torrent_sites

Watch Excellent Films for Free		
Open Film	Revenue sharing site for filmmakers and is set up for discovering distributing and financing independent films online. Through its various third-party distribution platforms Openfilm offers independent filmmakers the opportunity to gain exposure and earn revenue for their work.	http://www.openfilm.com/
Open Culture	Marvelous list of 420 movies of you to see – don't forget to scroll down the list of titles to discover another big list of sources to watch films online.	http://www.openculture.com/free_moviesonline
NFB	Documentaries animations alternative dramas and interactive productions on the web. The site also holds trailers playlists and upcoming online releases. Free for personal use and on a subscription basis for schools and institutions.	http://www.nfb.ca/explore-all-films/
NZ On Screen	The online showcase of New Zealand television, film and music video	http://www.nzonscreen.com
Movies Found Online		http://www.moviesfoundonline.com/
Popcornflix	Independently owned film library available for free online viewing.	http://popcornflix.com/
SnagFilms	A distribution platform with 2500 independent films to watch for free.	http://www.snagfilms.com/
Documentaries Free (and Less Free) to Share		
Documentary 24		http://www.documentary24.com/
Documentary Heaven		http://documentaryheaven.com/
Folkstreams		http://www.folkstreams.net/
Freedocumentaries.org		http://freedocumentaries.org/
IDFA TV Free documentaries	IDFA's online film channel streaming documentaries, trailers, interviews, festival reports and more.	http://www.idfa.nl/industry/idfa-tv/films-and-trailers/Free-Documentaries-A-Z.aspx
Top Documentary Films		http://topdocumentaryfilms.com/
Watch Documentary		http://watchdocumentary.com/

Open Education Video Resources		
Open Courseware and OER Video Projects		
MIT OpenCourseWare		http://ocw.mit.edu/index.htm
New Media UFM		http://newmedia.ufm.edu/
Open Yale Courses		http://oyc.yale.edu/
Open.Michigan		http://open.umich.edu/
Stanford E-Corner		http://ecorner.stanford.edu/
Stanford Engineering Everywhere		http://see.stanford.edu/
Stanford Open Classroom		http://openclassroom.stanford.edu/
webcast.berkeley		http://webcast.berkeley.edu/
Online Educational Video Projects (or projects making prominent use of video)		
Academic Earth		http://academicearth.org/
Big Think		http://bigthink.com/
Creative Commons Education		http://creativecommons.org/education/
Folksemantic	Over 110.000 education resources	http://www.folksemantic.com/
Free Science and Video Lectures Online		http://freescienceonline.blogspot.com/
Open Culture's list of Intelligent Video		http://www.openculture.com/intelligentvideo
Open Culture's List of 400 free online courses		http://www.openculture.com/freeonlinecourses
iTunes U		http://www.apple.com/education/itunes-u/whats-on.html
JISC Media Hub		http://jiscmediahub.ac.uk/about/unrestricted
Khan Academy		http://www.khanacademy.org/
Learning Resource Exchange		http://lreforschools.eun.org/
Sookmyung Network for an Open World		http://www.snow.or.kr/

TED	the academic conference series has made 1100 video's (status January 2012) covering a wide range of topics related to Technology Entertainment and Design to available under Creative Commons Licences. In many cases they include subtitles. They can be batch-downloaded using applications such as TED Downloader.	
Udemy		http://www.udemy.com/
University of Westminster Multimedia Training Videos		http://www.multimediatrainingvideos.com/
VideoLectures	a free and open access educational video repository with 14000 academic video talks based in Europe Slovenia and a major player in the development of the Opencast Matterhorn platform for educational video management.	http://VideoLectures.NET
Wikiversity		http://www.wikiversity.org/
YouTube Education		http://www.youtube.com/education
Community projects		
Engage Media	Gathers CC-licensed social justice and environmental video's from the Asia Pacific	http://www.engagemedia.org/
Isuma TV	Was launched as an updated social networking platform in April 2009 with over a thousand films in thirty different Indigenous languages free for users.	http://www.isuma.tv/hi/en/video?keys=
Open Voice Project		http://www.projectopenvoice.com
OurMedia	Media resource for people to upload and share their works that is run by the Internet Archive. Ourmedia's community of over 150000 members is seeking to use social media to advocate for the causes that improve people's lives.	http://www.ourmedia.org
pad.ma	An online archive of densely text-annotated video material primarily footage and not finished films. The entire collection is searchable and viewable online and is free to download for non- commercial use.	http://pad.ma/

Annex II: European Broadcasting Catch-up Services

Country	Broadcaster	Platform	URL
BE	RTBF		http://www.rtb.be/tv/revoir/
CK	Česka Televize	Ivysílání	http://www.ceskatelevize.cz/ivysilani
DE	ARD	Mediathek	http://www.ardmediathek.de/ard/servlet/
DE	ZDF	Mediathek	http://www.zdf.de/ZDFmediathek/#/hau...ion/startseite
DE	RTL	RTL Now	http://rtl-now.rtl.de/
DE	SAT.1		http://www.sat1.de/video
DE	PRO 7		http://www.prosieben.de/video/
ES	RTVE	A la carta	http://www.rtve.es/alacarta/
ES			http://www.mitele.es/
ES	Antena3		http://www.antena3.com/videos/
FI	YLE		http://areena.yle.fi/
FI	MTV3		http://www.katsomo.fi/
FI	Nelonen		http://www.ruutu.fi/
FR	France Television		http://www.pluzz.fr/replay/
FR	[79 channels]	Orange	http://chaines-tv.orange.fr
IR	RTÉ	RTÉ Player	http://www.rte.ie/player/
IR	TV3	3 player	http://www.tv3.ie/3player
IT	RAI		http://www.rai.tv/dl/replaytv/replaytv.html
IT	[8 channels]	Mediaset	http://www.video.mediaset.it
NL	Nederland 1, 2, 3, Z@pp, Z@ppelin	Uitzending Gemist	http://www.uitzendinggemist.nl
NL	SBS	SBS Gemist	http://www.sbs6.nl/gemist

UK	BBC	iPlayer	http://www.bbc.co.uk/iplayer
UK	4oD	Channel 4	http://www.channel4.com/programmes/4od

Annex III: Archival Video Remix Contests (2005 - 2012)

Year	Duration	Initiative	Name	Source collection	Platform	Total Entries	Grand prize
2012	Jan - Apr	EYE Film & Knowledgegeland	Celluloid Remix 2	45 items	Open Images	79	€750 Hard- or Software
2012	Jan - Feb	Getty Images	Mishmash	6 collections	Getty Images	299	\$5,000
2011	Jun - Nov	Ina & ONF-NFB	Montréal Remix 2011	48 items (~80 yrs period)	Dailymotion	22	Free trip and training courses
2011	Feb - Apr	NlNa & Ina	Dock's Docs Gdańsk Remix 2011	45 items (1989-90)	Dailymotion	51	€3,000 Scholarship in Paris
2010	Oct	Getty Images	Mishmash	and 250,000 sound	Getty Images	110	Macbook Pro with software
2010	Mar - Jun	Film London, BFI & London's Screen	London Recut	> 3 hrs	YouTube (entries)	45	?
2009	Aug - Nov	Ina	Berlin Remix 2009	29 items (1989-90)	Dailymotion	81	Training in Paris
2009	Apr - Sep	EYE Film & Knowledgegeland	Celluloid Remix	21 items (1917-1932)	Blip.tv	54	€1000 Hard- or software
2007	?	Ina	Paris Remix 2008	?	Dailymotion	104	?
2005	Sep - Oct	BBC Creative Archive Project	Superstar VJs competition	100 items	BBC	400	£250 VJ software

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