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Project acronym

AXES

Project full title

Access to Audiovisual Archives

Project No

269980

Large-scale integrating project (IP)

Deliverable D7.3

User interface and visualization specification for home users

November 2013

SEVENTH FRAMEWORK PROGRAMME

Objective ICT- 2009.4.1: Digital Libraries and
Digital Preservation



PROJECT DELIVERABLE REPORT

Project	
Grant Agreement number	269980
Project acronym:	AXES
Project title:	<i>Access to Audiovisual Archives</i>
Funding Scheme:	<i>Large-Scale Integrating project (IP)</i>
Date of latest version of Annex I against which the assessment will be made:	<i>24 September 2010</i>
Document	
Deliverable number:	D7.3
Deliverable title	User interface and visualization specification for home
Contractual Date of Delivery:	30/11/2013
Actual Date of Delivery:	29/11/2013
Author (s):	Kevin McGuinness, Yang Yang, David Scott
Reviewer (s):	Martijn Kleppe (EUR), Rolf Bardeli (FHG), Roeland Ordeman (NISV)
Work package no.:	WP7
Work package title:	Experiencing Digital Libraries
Work package leader:	Dublin City University
Version/Revision:	1
Draft/Final:	Final
Total number of pages (including cover):	28

CHANGE LOG

Reason for change	Issue	Revision	Date
Initial Revision	-	1	27/11
Updated text	-	2	28/11
Updated figures	-	3	28/11
Integrated feedback from Martijn Kleppe	-	4	28/11
Updated TOC	-	5	28/11
Integrated feedback from Roeland and Rolf	-	6	28/11

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AXES is a project partly funded by the European Union.

TABLE OF CONTENTS

Change Log.....	3
Disclaimer	4
Table of Contents	5
Summary	6
Introduction	7
Wireframe Design	8
UI elements	8
Homepage / Start Page	9
Homepage – Main Menu	11
Exploring the archive	13
Explore by Genre	13
Explore by Tag.....	14
Explore by Timeline.....	15
Explore by Location.....	16
Explore by Mood	17
Result Lists	18
Results – Full View	18
Results – Compact View.....	19
Video Result Page	20
Search History Page	22
Design Decisions and Rationale.....	23
User Interface Specification	25
Front page/initial screen	25
Result Page	26
Alternative Color Scheme	26
Summary	28

SUMMARY

This document specifies the AXES digital library user interface targeted at home users. It includes a discussion on the rationale for the design of the user interface and its various components and also a discussion on the design choices made.

INTRODUCTION

This document outlines the interface of the AXES home system, the third system in-line funded under the AXES FP7 project. It differs from previous iterations of AXES Pro (D7.1) and AXES Research (D7.2) by targeting users in a casual setting, providing a portal for users entertainment needs. The document is intended to serve two purposes. First, it proposes a design for the system as a whole intended to elicit feedback from the end users, on whether the system would satisfy most of their requirements. Second, the document is intended to serve as a design guide for the implementation of the AXES home user interface.

The design of user interface described in this document is based on several sources, including the AXES research interface and the corresponding mock-ups and specifications described in D7.1/2 and D7.4, and on the user requirements, personas, and scenarios gathered and developed in WP1 for the home user and described in D1.6. In contrast with the AXES professional/research user interface, and in line with the differences in user requirements, the AXES home user interface places a greater emphasis on leveraging HTML5/Javascript/CSS3 technologies to implement the client system, which focuses on content discovery through the use of handheld devices. In addition to a very different look and feel for the interface, the following features differentiate the home interface from the previous versions:

- Tablet only: Handheld devices have become synonymous with relaxation/leisure, given the nature of the AXES home system and its focus on entertaining the user, this move to handheld is most prudent. These devices offer the user an easy gateway into a world of content, both portable and easy-to-use, they will provide an excellent vehicle to give users access to the AXES home system.
- Content-Discovery: There is less importance placed on searching in this system, instead users discover information based on linkage between content and by utilizing profile information to recommend items.

Like the other AXES systems, the AXES home system will be web browser based. However, unlike the other systems, the home system places less emphasis on searching/filtering results. We intend for the home interface to be implemented using technologies that will allow it to be deployed on numerous commercial tablets and handheld devices, though within the scope of the project we may concentrate on certain targeted devices.

The remainder of this deliverable is organized as follows. Section 1 describes the wireframe design for the AXES home interface. This provides a high-level overview of the intended functionality of the system while omitting detailed design elements like the colour scheme and look and feel. Section 2 discusses the design decisions and gives some rationale for these choices, and also outlines proposals for alternative routes into the archive that we intend to investigate during implementation and user trails. Section 3 specifies the user interface in more detail and includes basic design elements and a colour scheme for the interface.

Further information on the user requirements, personas, use cases, and scenarios that this interface specification is based upon can be found in deliverables D1.2, D1.3 and D1.6.

WIREFRAME DESIGN

In this section we describe the basic layout of the user interface. This is done by means of a wireframe design, which is intended to sketch out the basic functionality and layout while omitting detailed design elements like colour schemes and shading. This section provides a high-level descriptive view of the interface and layout; design rationale, detailed information, and mock-ups are given in subsequent sections.

UI elements

The following subsections describe the various UI elements and show the respective wireframe designs for each element. The following elements will be described:

- The initial homepage or starting screen;
- The main menu interface;
- The explore by genre interface;
- The explore by tag interface;
- The explore by timeline interface;
- The explore by location interface;
- The explore by mood interface;
- The results view (including both the full view and the compact view);
- The individual result view; and
- The search history page;

Homepage / Start Page

The homepage, shown in Figure 1, provides the users initial view to the AXES home system.

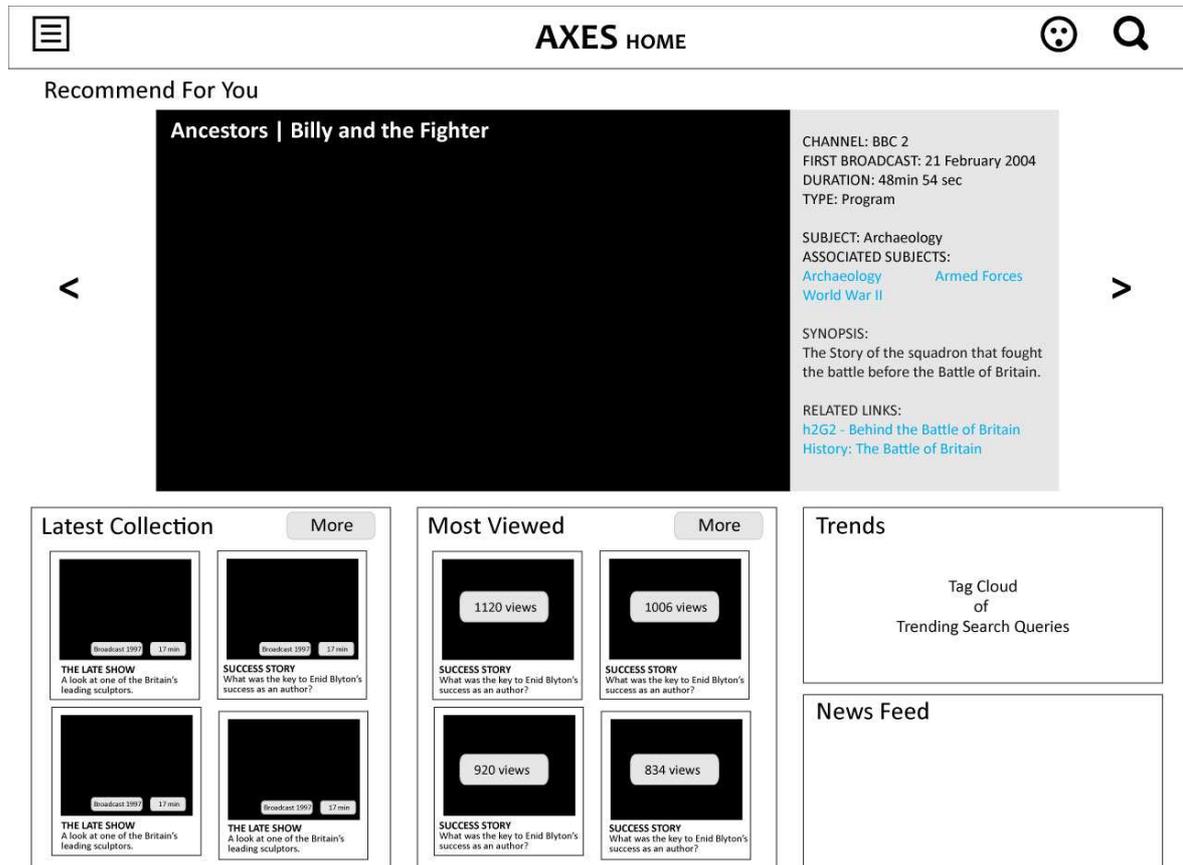


Fig 1: User Landing Page

The homepage consists of three main sections.

1. Menu Bar Section

- **Menu:** Clicking on the Menu icon will expand a drop down list, showing multiple system options, see Fig 2.
- **AXES Home icon:** The AXES home icon allows user to return to the landing page regardless of their current view in the system.
- **Surprise Me:** This allows the system to recommend a single video based on the user's latest profile and their viewing history. This feature provides content to the user without the need to generate an initial query.

- **Basic Search:** By clicking on the search icon, a text bar will appear where users can input queries. Users can issue these queries by tapping the search icon or hitting the return button.

2. Video Playback Section

In this section users are presented with a video representation for recommended content. These recommendations are based on user profile information, which has been formulated using feedback from the user's previously viewed content. When the system is used for the first time by a particular user, some random content, or content that is popular with other users, may be shown. Users can use swipe gesturing to browse the recommendations or by clicking on the video proceed to the video playback screen.

3. Content Discovery Section

- **Latest Collection:** Although currently the video archive is static, this is a nice feature to have in a more dynamic real exploitation scenario. Latest collection displays four of the newest video clips. This can be expanded further by clicking the "More" button.
- **Popular:** The system shows the four most viewed videos/clips of the entire archive. By clicking on the thumbnail of the video users will be brought directly to that videos page. Clicking on the "more" button will return a greater number of popular videos.
- **Trending:** shows keywords relating to popular searches within the collection, this allows user to perform simple searches without the direct need to formulate a text-based query.
- **News Feed:** This section displays the latest news feeds related to video archive collections. These feeds could be gathered from RSS feeds from relevant news sources. Clicking on a news item searches the archive for relevant or related content.

Homepage – Main Menu

The options menu (Figure 2.) provides a method for browsing the AXES home archive without the explicit need to formulate queries.

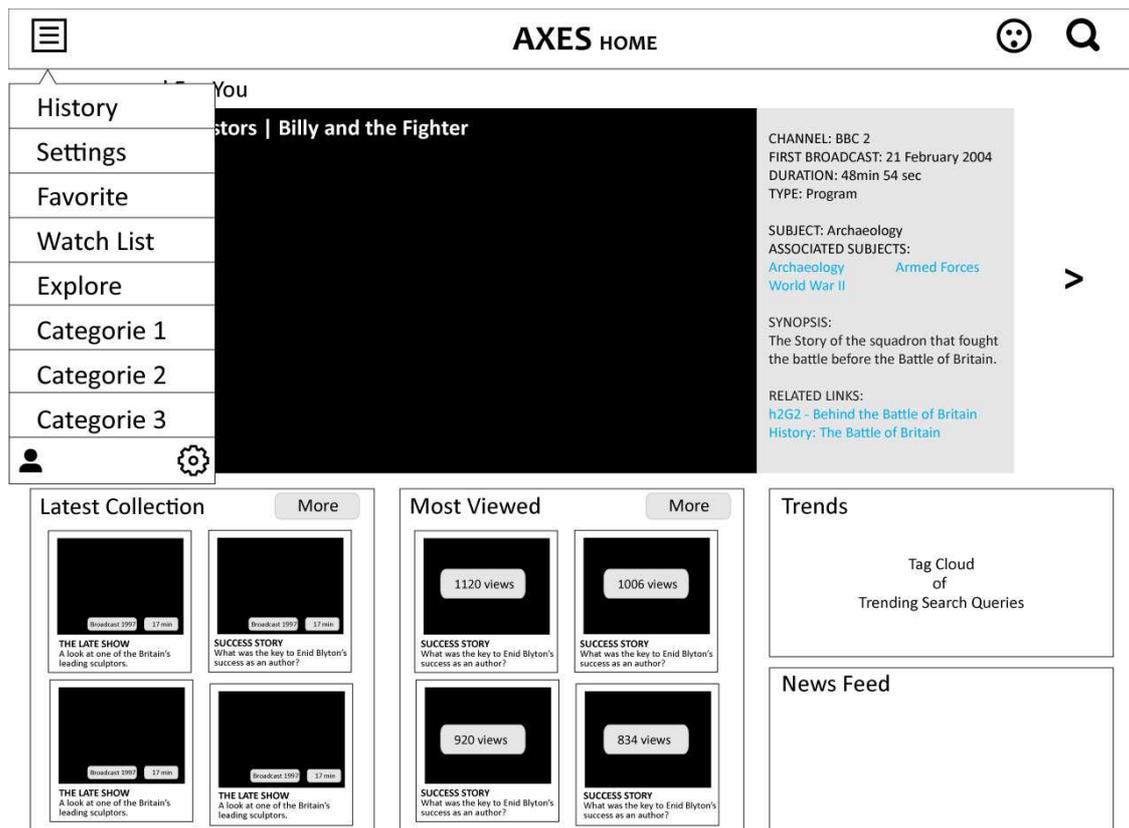


Fig 2: homepage with expanded dropdown menu

Each of the options provides a different view to the content contained in the archive.

- **History:** displays a historical overview of the current users interactions with the system. User can view and delete their browsing and searching history if needed. The history can also be used to revisit a video quickly by clicking on the hyperlinks.
- **Settings:** Personal user settings can be updated and saved in this section. It allows users to update their profile information, choose subscription to categories, set sharing options (i.e. social network account info)
- **Favorite:** Here users can find videos or video segments which they have saved through issuing a “Like” on certain content. This allows them to view these saved

video clips easily by clicking on the title/thumbnail of each record. User can also remove favorites if they no longer serve purpose.

- **Watch List:** A watch list is playlist containing one or more videos that the user has saved to watch at a later date. Once the user has watched the video it is automatically removed from the list.
- **Explore:** Predefined categories, such as genre, location, timeline, tag and mood, provide the user with a content discovery starting point. This section will provide content results for users who have no particular search topic/purpose. This can also be used to filter content based on some of the above-mentioned categories.
- **Categories:** Categories is a shortcut that leads users to their favorite video categories easily. After a user subscribes to a category via "Settings", the name of the new category is added to the menu list.

Exploring the archive

When the user clicks on the explore button in the main menu (Figure 2) they are brought to the explore interface. The interface allows the user to explore by genre, timeline, location, tags, and mood. The following describes each subsection of the explore interface in more detail.

Explore by Genre

Genre information is provided as metadata with videos in many of the datasets that AXES indexes. The explore by genre page allows the user to browse the archive using this genre information. The top videos shown in each genre box in Figure 3 are ordered by popularity.

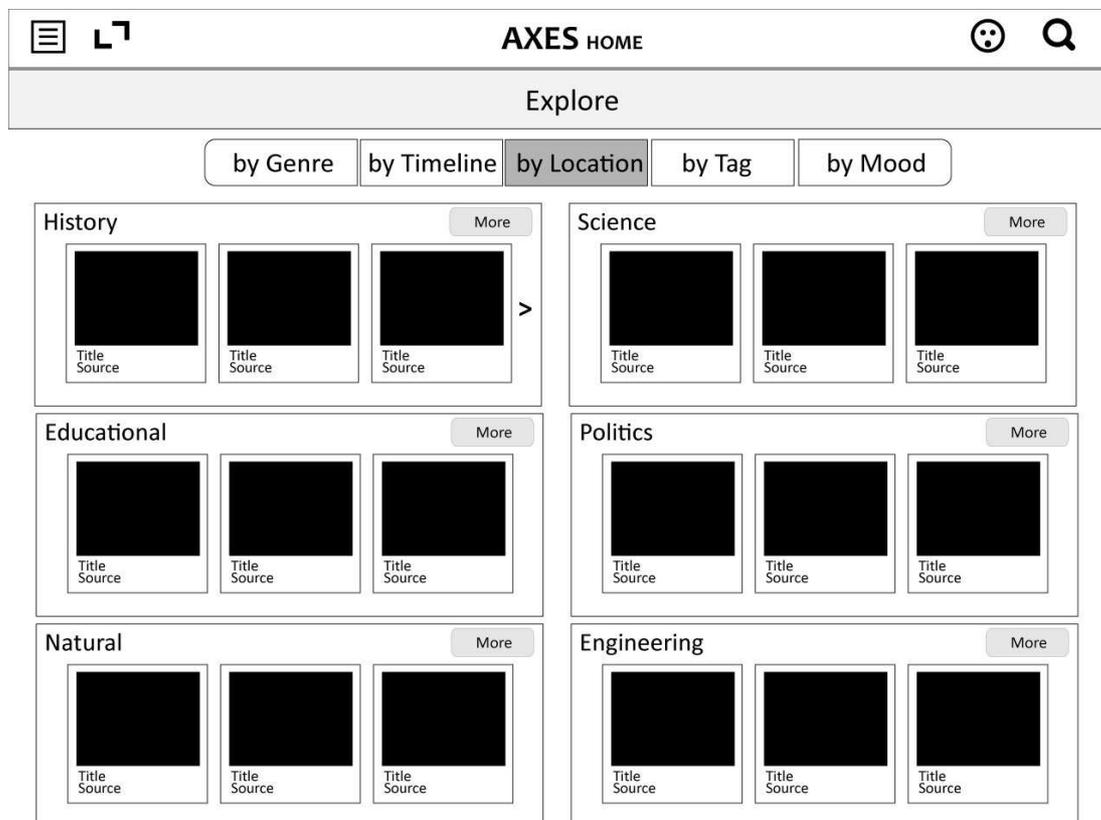


Fig 3: Users are able to search for videos from a particular genre (e.g. news, entertainment, comedy)

Explore by Tag

This page allows users to explore the videos in the archive using a list of associated tags. These tags can be provided either by associated metadata, user tags, or automatic annotations by concept classifiers. Figure 4 shows a wireframe mockup of the “explore by tag” page.

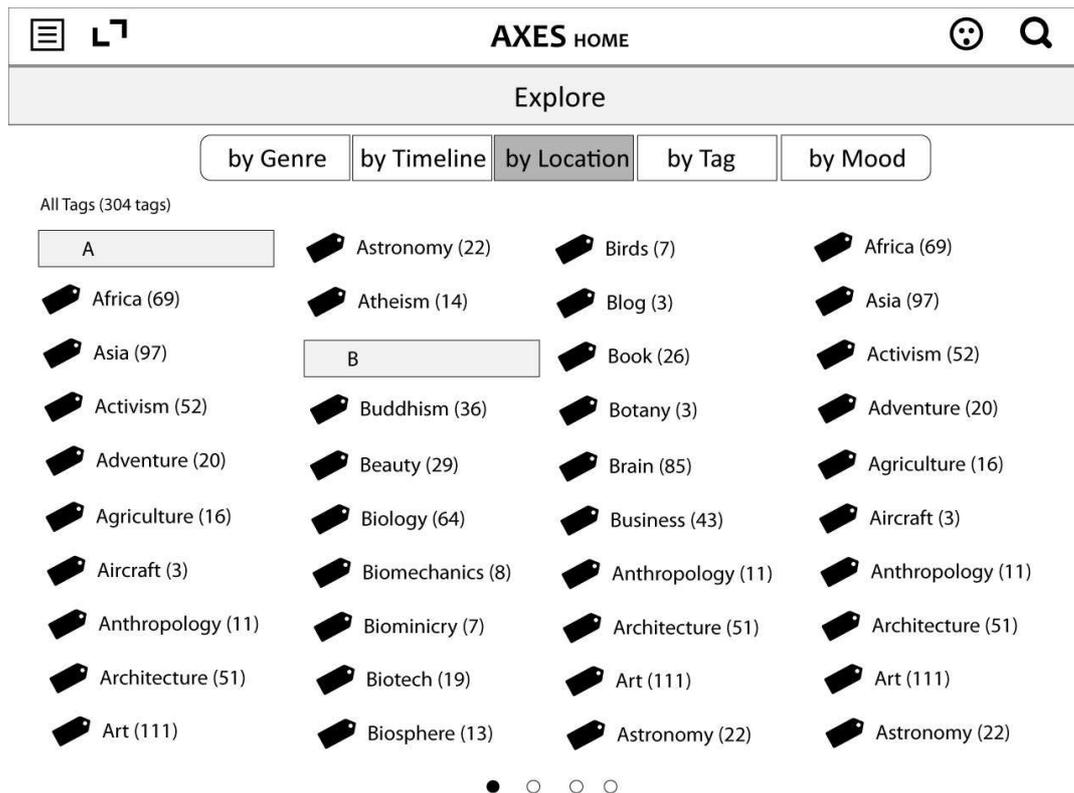


Fig 4: Videos are assumed to have associated tags, allowing users to explore the archive using these tags.

Explore by Timeline

Assuming that there is metadata available about the production date of each video in the archive, the “explore by timeline” page allows users to browse videos based on when they were produced.

AXES HOME

Explore

by Genre by Timeline by Location by Tag by Mood

1900 1910 1920 1930 1940 **1950** 1960 1970 1980 1990 2000 2010

1950

	Title Channel: BBC First Broadcast: 21 April 1997 Duration: 14min 34 sec Tags: 19 Centry BBC History Fashion	95% 23
	Title Channel: BBC First Broadcast: 21 April 1997 Duration: 14min 34 sec Tags: 19 Centry BBC History Fashion	92% 25
	Title Channel: BBC First Broadcast: 21 April 1997 Duration: 14min 34 sec Tags: 19 Centry BBC History Fashion	70% 18
	Title Channel: BBC First Broadcast: 21 April 1997 Duration: 14min 34 sec Tags: 19 Centry BBC History Fashion	57% 18
	Title Channel: BBC First Broadcast: 21 April 1997 Duration: 14min 34 sec Tags: 19 Centry BBC History Fashion	54% 10

Fig 5: Allow users to explore the whole video collection by timeline. Dragging the timeline bar at the top allows to quickly locate decades users are interested in. This functionality assumes that appropriate corresponding metadata information is available

Explore by Location

Contingent on their being location metadata available, or some other way to infer location from the content of the videos, the explore by location page provides a geographical map of the content in the dataset, allowing the user to view content shot or produced in different locations around the world (Figure 6). A scrollable timeline bar is also included here to allow the user to explore simultaneously by timeline and location, and helping to ensure that the number of displayed “pins” on the map is not overwhelming.

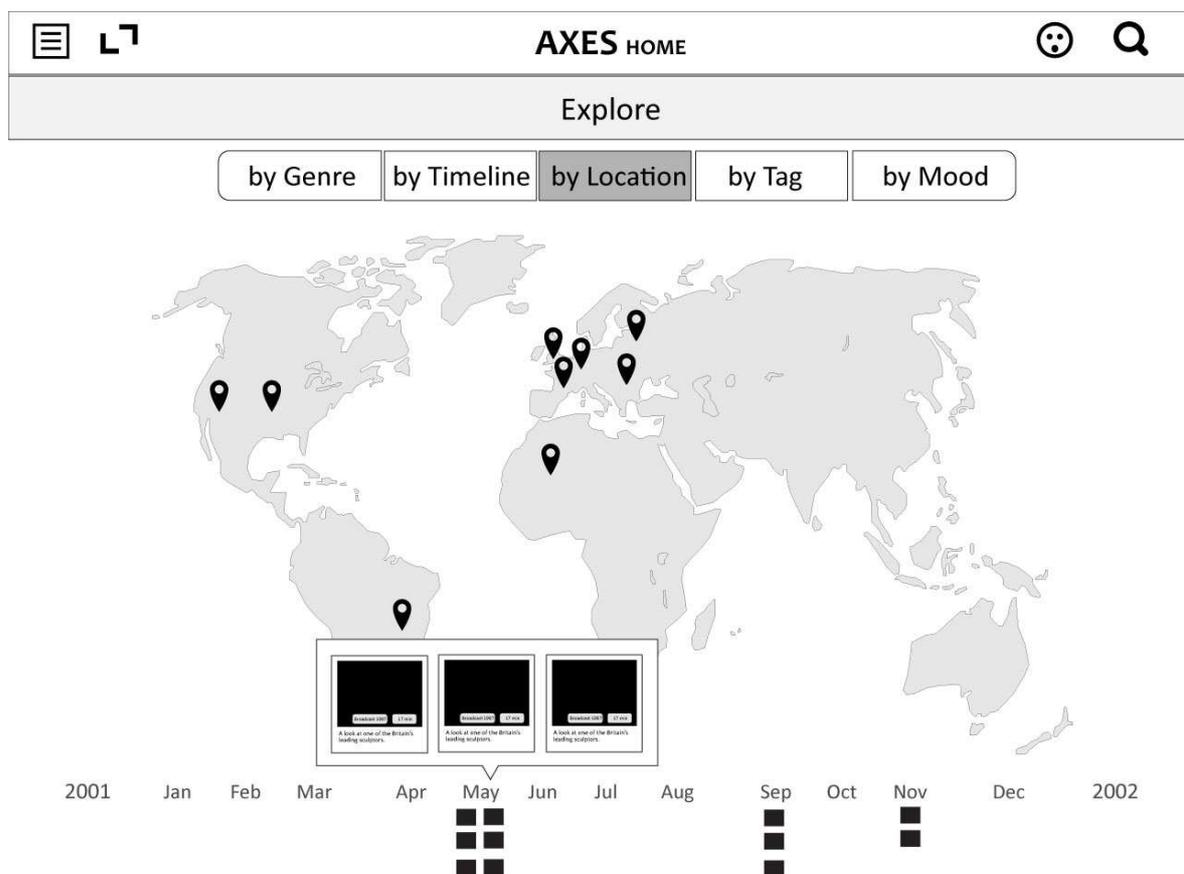


Fig 6: Allow users to explore video archives by its location metadata (assumes location metadata is available).

Explore by Mood

The “explore by mood” page allows the user to group videos by their mood (e.g. *dramatic, exciting, calm*). Mood information could potentially be provided either as metadata, or automatically determined by content analysis tools. Figure 7 shows an example of the interface.

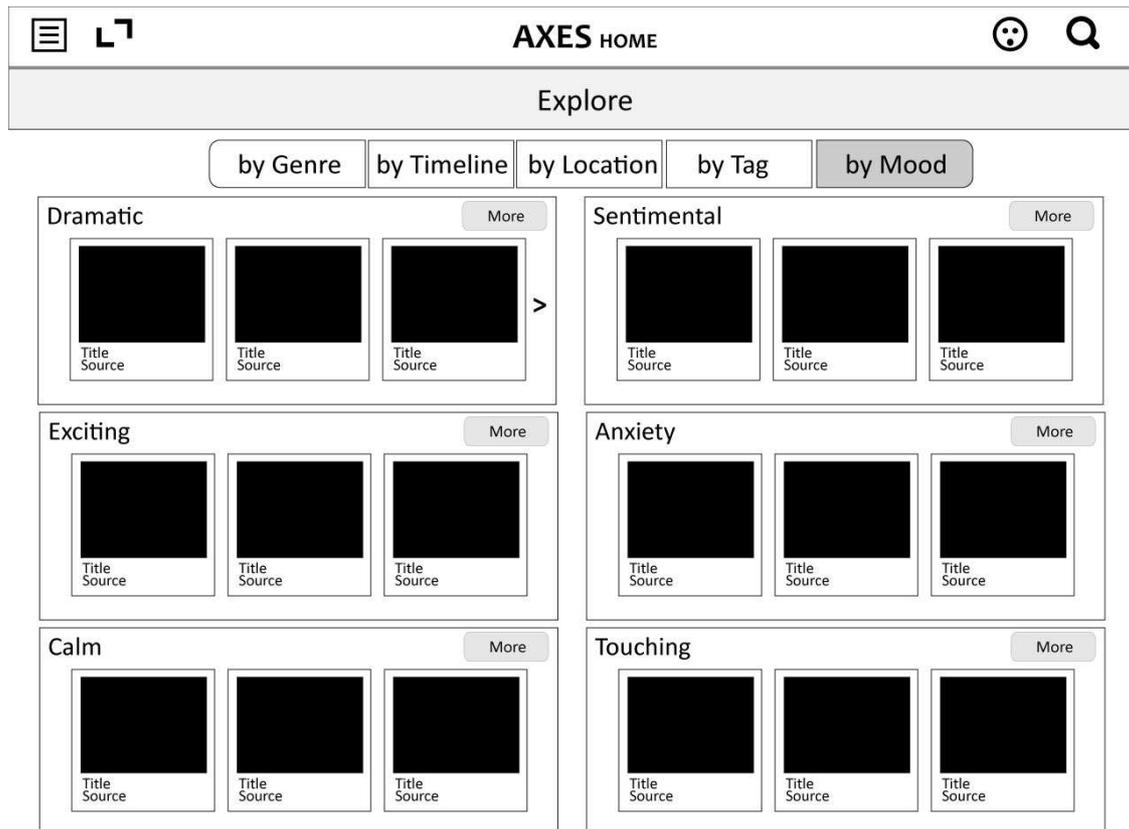


Fig 7: Users are able to search for videos that have a given mood (e.g. *dramatic, exciting, calm*). This feature is contingent on the video containing appropriate metadata (either automatically extracted by indexing tools or provided).

Result Lists

Although less emphasis is placed on search in the AXES home interface, users still have the ability to search the archive and result lists will still need to be displayed to support many features (including web clips, and searching by news feeds). Like AXES research, the system will support two types of results views: one view displaying detailed information on each result, and a second view displaying thumbnails only. The following describes these views in more detail.

Results – Full View

Figure 8 shows a wireframe mockup of the detailed (full) results view. The following features are included:

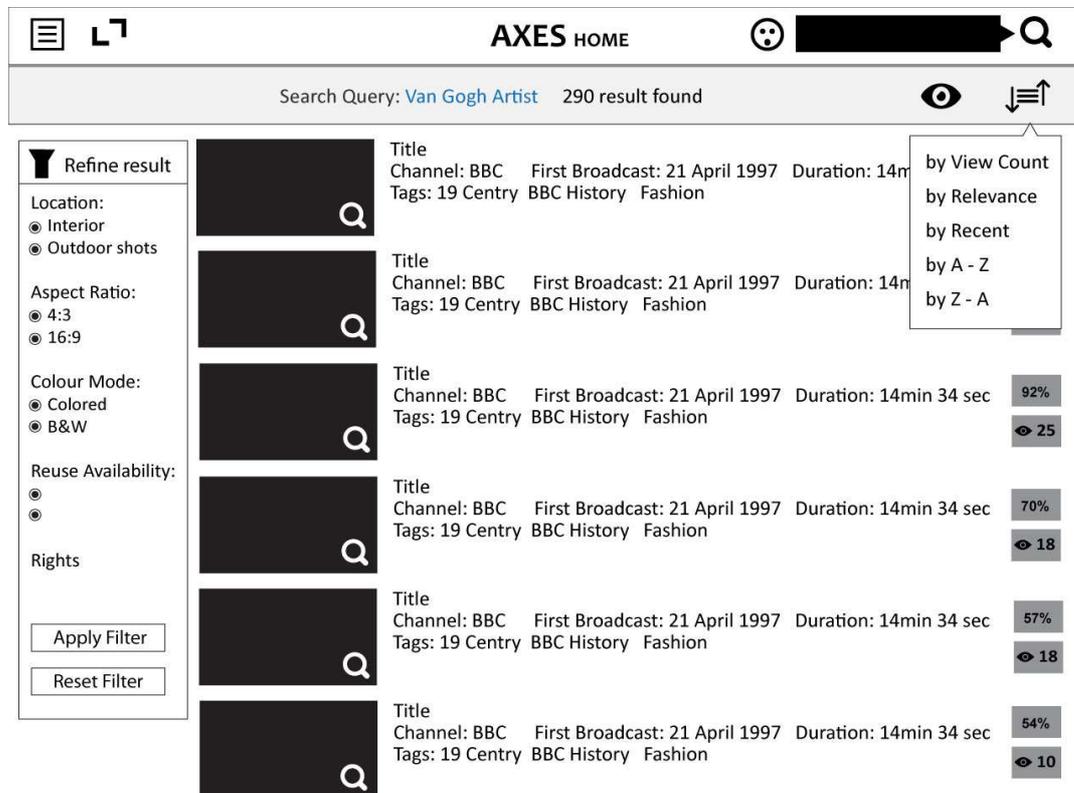


Fig 8: Result summary, displays the matched videos retrieved from the system.

1. Sorting

Clicking on the sort button allows the results to be reorganized by view count / relevance / recent / A-Z / Z-A

2. Refining Results

The refine results panel consists of several filters. Users can refine the result list by filtering out the options they are not interested in. The contents of this panel will depend on the

metadata available in the target datasets. A few important features will be chosen to allow the user to filter results to ensure the interface remains uncluttered and easy to use.

3. Result List

In the full view, each row contains one video result represented by a combination of thumbnail along with available metadata information. The metadata details include program title, production date, duration, and source. There is also additional information on video relevance, total view times, and video download times. Clicking on video thumbnail or by video title will lead users to each video’s main page. On each result's video thumbnail, there is an icon that allows users to perform visual similarity search using the keyframe representation.

In the compact view users get five thumbnail representations per line, each thumbnail represents a different video/video segment. The thumbnail features sparse data descriptions with only title and a few words describing the content. This view also allows user to issue similarity searches through clicking the magnifying icon.

Results – Compact View

Figure 9 shows the compact (thumbnail) results view. The view supports the same sorting and filtering options as the full view.

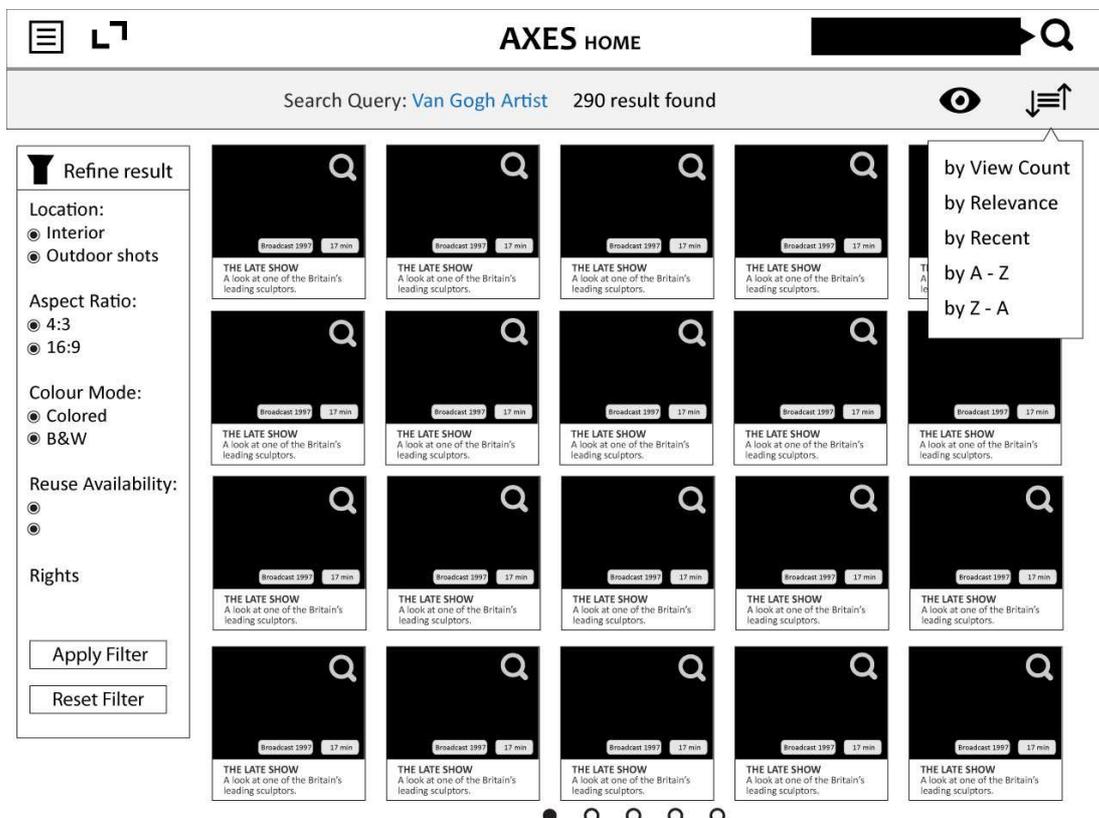


Fig 9: In the compact view, each result record is represented as a single video thumbnail. This view provides a global overview of a large number of retrieved videos on a single screen.

Video Result Page

When the user clicks/taps on a particular result, the individual result page for that item is displayed.

The screenshot shows the AXES HOME interface. At the top, there is a search bar with the query "Van Gogh Artist" and "290 result found". Below the search bar, the main content area is divided into two columns. The left column features a large video player with a dark background. Below the video player, there are details for the video: CHANNEL: BBC 2, DURATION: 48min 54 sec, FIRST BROADCAST: 21 February 2004, TYPE: Program. Below these details are the subject "Archaeology" and associated subjects "Archaeology", "Armed Forces", and "World War II". A synopsis follows: "The Story of the squadron that fought the battle before the Battle of Britain." At the bottom of the left column, there are related links: "h2G2 - Behind the Battle of Britain" and "History: The Battle of Britain". The right column is titled "Explore Similar Videos" and contains a grid of nine video thumbnails, each with the title "THE LATE SHOW" and a subtitle "A look at one of the Britain's leading sculptors." Below the grid, there are two tabs: "People Also Viewed" and "Comments". Under "People Also Viewed", there are three more video thumbnails, each with the same title and subtitle as the ones in the grid above.

The page features the following:

Video bar commands

Below the video playback area is a set of command buttons providing the following functionality:

- Add to watch list: add the video to the users "watch later" list
- Add comment: add a public comment to the video
- Similarity search: pause on the frame, and named entities (objects, faces, visual categories) will be highlighted, then users can perform visual similarity search by clicking on the highlighted areas.
- Sharing: share the video with others via email or social networks
- A virtual cutter to allow users to select relevant video segments and save to favorite

Metadata information

Contains all the metadata information available for the item, including production resource, date, video length, video type, subject, associated subjects, synopsis, and related links.

Explore similar videos

A list of videos similar to the current video is displayed. The user can swipe left or right to see more videos. Clicking on each grid/thumbnail will lead users to its particular video page, and begins playback.

People who watched this video also viewed

In this section, the user is presented with a list of videos based on other users' tastes that have also watched the current video. Profiles, which are similar to the current user, will more heavily influence this section.

Comments

By adding comments, users can leave their mark on the content, this will allow future patrons to gain other users' perspectives.

DESIGN DECISIONS AND RATIONALE

Design goals

The AXES home system is designed to support users in a casual environment. The user interfaces inherits some features from the previous AXES systems, and provides the core functionality including:

- Text-based query search
- Inline video editing
- Personal collections, search history,
- Video sharing
- Entertainment
- Personalization
- User experience
- Ease of use

Design rationale

The following design decisions are of high priority in providing expected functionality within the AXES home system:

- Focus on exploration rather than traditional search techniques to maximize the user experience.
- Adopt novel search methods (i.e. Web clips, Surprise Me) to augment the users input while using AXES HOME system, subtly capturing explicit feedback.
- Allow users to share a video easily with others via different communication tools to enhance collaborative search and improve recommendations based on peer profiles.
- Provide intuitive layout with clearly defined regions, which will enable simple user interaction with the system.
- Provide linkage between content in certain views, links could also be tailored based on profile information and relevance to currently viewed content.

Alternative routes into the archive

We have also discussed and may include a “web clips” feature. This would involve installing a bookmark (button) in the users normal desktop web browser that would allow them to clip interesting web pages and have these sent to the web service that would index the content of these pages (extracting, for example, textual features, or image features from images in the web page). These web clips would then become available in the tablet interface to be used as queries that allow the users to find related content in the archive. In the tablet interface, this would involve creating another view that shows a representation of the queries generated from these web clips, and allow the user to browse associated content by clicking/tapping on the web clips.

Aggregated news feeds which have been attained through analysis of the content and applied to the user based on profile information, provide a new and novel search metric. Videos, which are relevant to the particular news topic item/items, will be presented to the user based

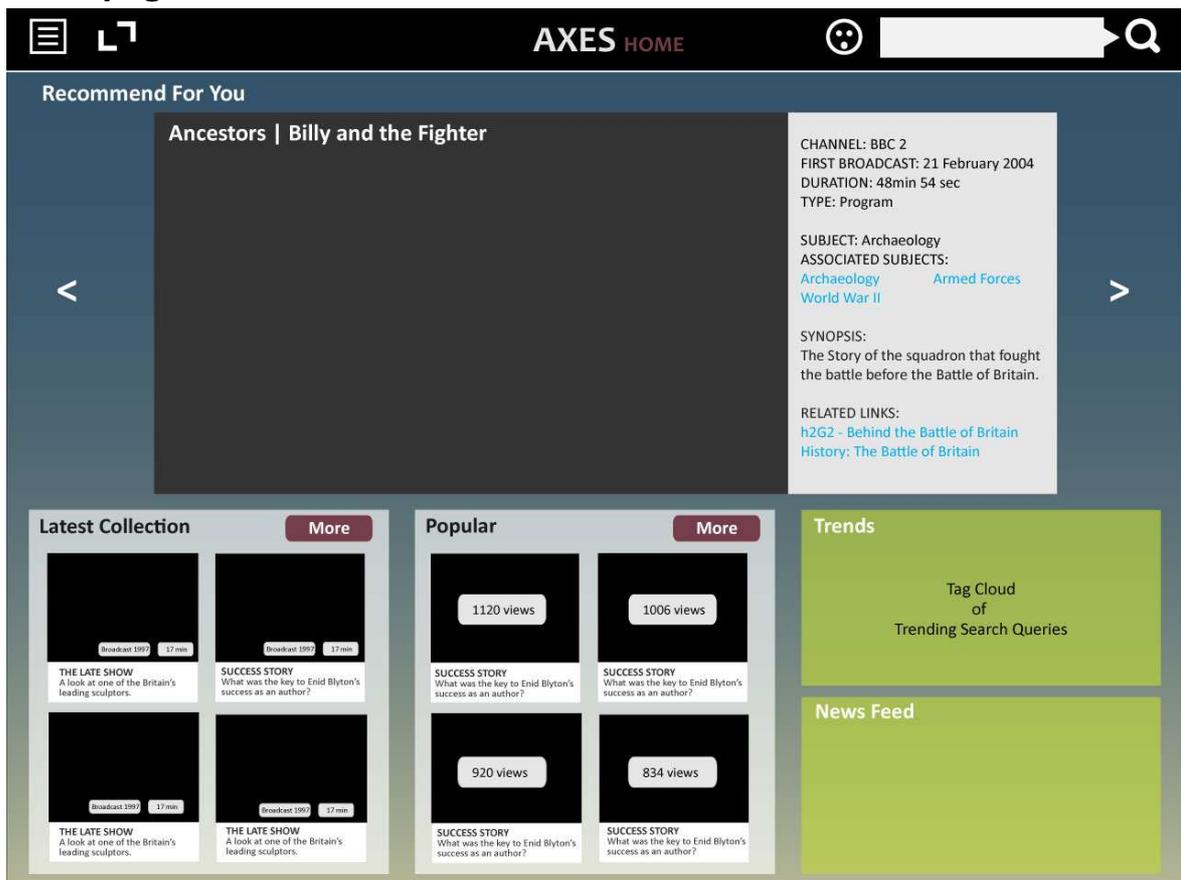
on their selection. Content matching is achieved in much the same manner as with the web clip framework.

Building a recommendation framework taking into account users search habits and other historical interaction with the system is of paramount importance, aiding in reducing the overhead associated with search. Using this framework we will provide metrics for most popular content (Most Watched, either of all time or based on user defined timeline), random content (based on content viewed by individuals with similar profiles), and personalized content (aligned to the users tastes).

USER INTERFACE SPECIFICATION

This section specifies the user interface in more detail. We also describe, using mock up images, the look and feel of the interface including a colour scheme for the various components. This section, in combination with the wireframes that were previously described, will serve as a guide for implementing the user interface during the next phase of the project.

Front page/initial screen



The initial screen consists of top search bar to support basic text search. In the main content area, users can view new videos that matches their query alert settings, with allowed to view these videos directly or delete them as needed. On the right they can view the most recent search activities.

Result Page

The screenshot shows the AXES HOME search result page. At the top, there is a navigation bar with a menu icon, a search icon, and the text 'AXES HOME'. Below this, a search bar contains the query 'Van Gogh Artist' and indicates '290 result found'. The main content area is divided into two columns. The left column features a large video player with a 'Title' label above it. Below the player are social media sharing buttons for Facebook and Email, and a set of icons for search, chat, share, and bookmark. Below these icons, the video's metadata is displayed: CHANNEL: BBC 2, DURATION: 48min 54 sec, FIRST BROADCAST: 21 February 2004, and TYPE: Program. Further down, the SUBJECT: Archaeology and ASSOCIATED SUBJECTS: Archaeology, Armed Forces, World War II are listed. A SYNOPSIS section follows, stating 'The Story of the squadron that fought the battle before the Battle of Britain.' Below the synopsis are RELATED LINKS: h2G2 - Behind the Battle of Britain and History: The Battle of Britain. The right column is titled 'Explore Similar Videos' and contains a grid of nine video thumbnails, each with the title 'THE LATE SHOW' and a subtitle 'A look at one of the Britain's leading sculptors.' Below the thumbnails are two sections: 'People Also Viewed' and 'Comments', each containing three more video thumbnails.

The basic search panel provides users a simplest start page. It aims to ensure the user have a familiar interface so that they can make search requests easily and quickly. Expert users can make use of the complete search functionality provided by clicking at the 'advanced' link, which reveals all of the advanced features when needed.

Besides the text search bar, a group of drop down list box allows users to perform text search against video title, name, subtitle, spoken words (using either available transcripts or ASR), metadata, and visual (e.g. visual on the fly categories using Google images to generate a model).

Alternative Color Scheme





#3B3E45



#68BA8A



#FABC01

SUMMARY

This deliverable has described and provided a high-level specification of a user interface design for the AXES home system. The interface design is based on the user requirements, personas, and scenarios gathered and developed in WP1 for the home user, and the previously designed professional and research interfaces. The mock up specifications presented in this document are preliminary and will be modified based on user feedback, available metadata, and the capabilities of the indexing and search tools developed in the project. As with the AXES research specification, the design will be updated and modified to incorporate new functionality as it becomes available.