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D2.4: Report on the User-centered evaluation and technical evaluation of the Digital Storytelling platform

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1 Scope and structure

D2.4 - "Report on the User-centred evaluation and technical evaluation of the Digital Story Telling platform" is the first evaluation in the Europeana Awareness project to test the first version of the Digital Story Telling platform, which was launched in March 2013. It reports on the multiple user tests, conducted in different countries in April 2013 by WP2 members Spild af Tid, Europeana and Sound & Vision and on the technical tests conducted by NTUA in April 2013 in Greece.

The user tests focus mainly on the different functionalities, the design and the general interaction with the Digital Story Telling platform. The technical evaluation focuses on a set of technical requirements that should be met by the system.

The scope of this report is to validate the design and development work that has taken place up to this date. The aim is to evaluate the ease of use, to identify problems that might arise during navigation on the site, playing and creating content as well as identify software problems in what has already been developed. D2.4 will provide valuable feedback to NTUA and SaT for corrections and amendments to the system before the platform starts being used for the UCG campaigns. It is also important that any corrections and optimizations are applied before development proceeds with additional features and functionalities towards the second and final version of the platform in Month 30.

Specifically D2.4 is structured into main six sections. Section 1, "Scope and Structure" includes background information for D2.4 and outlines the aims and scope for this deliverable and also includes a brief outline of its chapters. Section 2, "Summary" gives a brief overview on how the tests both user and technical were conducted. Section 3, "Methodology" includes two subchapters, 3.1 presenting the methodology for the evaluation and describing how the user tests have been performed and how the results have been submitted to SaT. 3.2 presents the methodology for the technical evaluation of the system conducted by NTUA. Section 4, presents the user test results grouped into discrete categories such as Interface/design/Presentation, Registration, Help/User Guidance, Search / Search results, Story creation, editing and playout, Navigation/Browsing, Content/ Content Management, as well as the "Main Findings", where the most important findings of the user test evaluations are summarized. In Section 5, the technical test results in terms of code quality, usability and functionality, accessibility and performance are presented as well as the "Main Findings" that summarize the evaluation results. Section 6, presents an overview of the evaluations results and the conclusions drawn on how to improve the Digital Story Telling Platform service and planning of future work towards that goal. Finally "Appendix", includes detailed information about the script used in the user testing of the platform.

2 Summary

Four user test sessions were conducted in April 2013, at different countries and with a variety in test participants, testing methods and operating systems and browsers.

- Test 1 was conducted at the offices of *Spild af Tid* in Copenhagen, with five participants, three youths and two adults.
- Test 2 was conducted at the offices of *Europeana* in Haag, with the participation of three Europeana employees.
- Test 3 was an online test organized by *Sound & Vision*, with ten participants from public libraries around Europe.
- Finally in Test 4 three participants were asked to provide their professional review of the DSP in general. This test took place at the *Europeana* offices in Haag.

All the collected test results were recorded by the producer of each test and posted at Basecamp, and are provided as supplementary material.

The technical evaluation was conducted in April 2013 in Athens. A number of popular validation tools, most of which are web based, have been used to perform the system tests. The results were collected and described by NTUA.

3 Methodology

3.1 Methodology for user testing

The focus and aim of the user testing procedure was the evaluation of the front-end in terms of design and functionality based on usability and satisfaction criteria. Different approaches have been followed regarding the conduction of user tests. To start with, they took place in different physical locations, using different mediums, and with different scripts.

Rationale for not using a unified test scenario lies on the fact that the DSP is currently developed as a separate client/server system. While this is a useful architecture for testing and possibly deployment, the Europeana Office is most interested in this platform only insofar as it can be ultimately integrated within both the Europeana server stack and also end-user services. It is fully expected that this could involve deploying the system in a slightly modified form. Accordingly, Europeana's test strategy was not based on the DSP being used only as a stand-alone application in a classroom scenario but as a planned integral part of the Europeana portal. On the other hand, SaT and Sound and Vision took a slightly different view of the platform for the user testing scenario, attempting to evaluate the DSP as a stand alone application.

Europeana also decided to employ further expert analyses because prior to the finalization of the first DSP-prototype an internal review by Europeana's User Experience Designer flagged issues with the story creation flow and with many of the interaction patterns used (such as the drag-drop and honeycomb pattern). In comparison with benchmarks on the web (like e.g. [Pinterest](#), [Anywhen](#), [Compendium](#), [Digital NZ sets](#) or the [Walters Art Museum community collections](#)) Europeana felt the interaction was much too complex, and feared that these patterns, as implemented in the DSP-prototype, would become usability problems rather than solutions.

The following description contains more details about how each test was performed:

Test Scenario "Spild af Tid" - The test took place at the office of Spild af Tid on Friday, April 5th, 2013. Five persons participated, one at a time. The persons were three youths (two girls, one boy) age around 15 (so typically interesting in a school context), and two adults (one woman, one man) in the forties, typically more interested in the personal usage context. The two different age groups (consisting of males and females) of the test participants serve to assess the DSP in terms of different user needs and interest.

Method: The test was conducted as a "speak aloud" test. Each test took around 30-45 minutes to conduct and present were the test person and the test manager, taking notes and guiding through the test. A video recording session could not be set, thus feedback relies only on notes. Each test session was guided through the test manuscript, but did deviate at times to keep the workflow of the test person fluent.

The script includes the objective of uploading an image to use in a test story, but due to unknown technical issues the upload function was tested up to a certain level, and couldn't be tested on iPad. The test was conducted on a 27" iMac, using Safari 6.x and Firefox 19.x. Each of the test stories has been provided with the tag "dummy" in order to make it easy to delete them again.

Test Script – The test script is provided in detail as Appendix at the end of this report.

Test Scenario “Sound and Vision” - Ten persons, all adults, participated in the test, individually, and they were all related to libraries, from nine cities around Europe. The test was conducted online at www.surveymonkey.com. The original script was adapted to suit better for online testing without a test manager present. Technical issues prevented testing of uploading pictures to the database. Since each test was conducted individually, there is no general data on what platform or equipment the test was conducted on. Some of the fields in the appendix have been anonymous for privacy reasons.

Test Scenario “Europeana Office” - Europeana chose to perform two types of tests:

1. A task oriented usability test using think-aloud and with the session video recorded and then notes created.
2. An informal peer review by practising User Experience-specialists.

Test script - To better test the widest variety of user scenarios, Europeana created a more task-oriented script than the one used by SaT. While the SaT scenario is premised on a teacher being available to facilitate a student’s use of the application, to better test the real-world application of the tool, the script was developed to test whether our participants could, easily and independently of a facilitator or demo, complete tasks in a less directed or facilitated fashion. Such a scenario is more representative of use in the Europeana portal.

Participant Selection - The current Europeana demographic skews towards ages 40+ and people with a higher education. Gender proportions are near 50/50 and so gender was disregarded entirely when choosing test participants.

Test participants- Three test participants were recruited from office colleagues not involved in the specification or production of the DSP system. Two participants were selected from the group of colleagues with administrative duties and without formal education in arts, museum science, library science or archival science. These participants also match typical Europeana age demographics. The third participant was younger than the average demographic and is an educated archivist with very strong insight into the Europeana collections and metadata.

Professional reviewers - The professional reviewers were recruited by our User Experience Designer from within his network of practitioners. We used Facebook and Google+ to communicate with them.

All scripts, detailed user feedback, accompanying videos, test session notes and reviews are provided as supplementary material to this report in a separate zip file.

3.2 Methodology for system validation

The methodology used for evaluating the first version of the Digital Story Telling Platform uses a criteria-based assessment, which provides a quantitative measurement of software quality in a number of areas. The criteria used for this assessment is grouped into the following categories:

- code quality
- usability and functionality
- accessibility
- performance

A number of popular validation tools, most of which are web based, have been used to perform the system tests. The platform is temporarily hosted at an NTUA server while

development is still on-going and the installation at the following URL address was used while conducting the technical evaluation in April 2013:

<http://panic.image.ntua.gr/awareness/html/index.html>

For consistency and validity reasons the tests were run outside the NTUA network where the platform is installed.

4 User test results

User contributed stories/narratives can be a starting point for exploring the interconnections between items discovered in Europeana based on intersecting time/space/topic components. Europeana Awareness focuses on providing a Digital Storytelling Platform that should encourage users to create and share stories that include content from Europeana and other open resources. There are two main factors that affect the overall impression and evaluation of the DSP: design/presentation/multilingual interface aspects and functionalities available. Design/presentation/multilingual interface aspects have to do with the appearance of the DSP and the first impression formed by a user when using the platform. Regarding functionalities, the Digital Storytelling platform offers a variety of services to satisfy the needs of different user group and categories. These functionalities can be categorised as user registration/login, help/guidance, miscellaneous search and browsing functionalities, story creation, editing and playout, content and content management. In the remaining of this section we present the feedback received by users while testing the DSP. In order to better comprehend and later process the user evaluation results, all received feedback is grouped according to the following categories:

- Interface/design/Presentation
- Registration
- Help/User Guidance
- Search / Search results
- Story creation, editing and playout
- Navigation/Browsing
- Content/ Content Management

It should be noted that some issues appear in more than one categories, since some functionality/design issues are closely related and cannot be separated in a crisp way.

4.1 Categorised results

4.1.1 Interface/Design/Presentation

As users are prone to judge their experience based upon their initial perceptions interface/design and appearance of the DSP are of significant importance. The user responses relevant to this category are listed in the following table:

Interface/Design/Presentation
Especially the teenagers (test case 1) were quite happy with the story interface containing blocks, as they hadn't seen that before. Also, amongst the online survey (test case 3), the block-base interface received positive feedback. However, the professional reviewers (test case 4) and the users in test case 2 pointed out that the block-based interface was confusing and not relevant to storytelling concept.
The interface design received also diverse feedback: some users found it easy to the eye while others found it both too strict and not appealing or ugly or not

inviting enough.
There is confusion regarding DSP and Europeana portal design: users are not sure whether the search field and other elements should look like the ones on the Europeana website.
It would be nice if story presentation could fill even more on bigger screens.
The photos in the background of a story can make the content of the story (the building blocks) hard to see.
Some test participants found the Europeana logo on the right side of the blocks redundant and think the logo hampers communication.
The idea of themes is confusing for some – a suggestion to an alternative is Collection.
The use of both a background image on the page and a background image on each story can create confusion.
It could be inspiring with a Show Random button on the front page.
The black frame in the story window collides too much with the dimmed background and is therefore confusing.
An “on the fly” translate button/link is suggested for auto-translation of story content.

4.1.2 Registration /Login

Registration and login are fundamental functionalities of the platform. A registered user obtains access to advanced platform functionalities such as creating stories. Feedback received on register and login functionalities is presented below.

Register/Login
The Join and the Log in button could be larger or more obvious.
In the comment box, where log in is required in order to comment direct link to log in can be added.
Most of the test participants found it easy to register themselves as users and log in. However, at least one person mentioned that a confirmation email would be preferable.

4.1.3 Help/User Guidance

The splash page of the DSP is set to be the help page and it plays an important role since it needs to clearly illustrate to the user what is the purpose of the DSP and what is on offer. The feedback received from users that participated on all test scenarios are summarized in the following table:

Help/User Guide
The guide to create a new story could be improved. For example, letting the user know that it would be wise to have the images for the story ready before starting a story.
The Help text in the beginning (and available later on) is clear for some but not for others, so it could probably be improved.

Regarding the Help text, there was also a request to include the purpose of the DSP and who the owner of the site is.
In the Help text window, there are arrows that are not functional (in the lower part of the window).
It would be helpful if more popup texts (contextual) appeared when hovering over items/buttons.
When errors occur (such as the upload errors), more informative feedback should be presented to the user.

4.1.4 Search/Search Results

Search functionality and search results are of outmost importance for DSP. Users can search among available stories and Europeana items in this first version of the platform. Returned results can be used to create new stories. The feedback received related to search functionality is listed below.

Search/Search Results
When a search operation is conducted, and the user changes theme, the search field should be automatically reset. (Right now the search text remains in the search field, mostly resulting to no stories if the user changes theme).
There is confusion regarding the two different search fields that sometimes are present, and that it is pointed out that the search field is small.
There is confusion whether the search field and other elements should look like the ones on the Europeana website.
It would be helpful if a search string is highlighted in the story so it is more obvious why the story was returned in the results.
It would be preferable if the search could be initiated just by pressing Enter, instead of having to click on the Go button, when the search string is filled out.
It would be useful if related items would appear.

4.1.5 Navigation/Browsing

Navigation and browsing are essential functionalities and when designed carefully can be of added value for the overall assessment of the portal. The user evaluation w.r.t DSP navigation/browsing is summarized as follows:

Navigation/Browsing
Clicking on the Europeana logo should go back to the theme homepage
In the overview window, it would be helpful if the cursor changed to a hand pointer when hovering over clickable items.
The Next/Previous links to navigate between objects in a story could be more visible and obvious. It would also be a good idea if the navigation between objects could be performed by using the back and forth arrows on the keyboard.
Some users suggested having a dropdown list with all contributed story titles,

for a more direct approach.

4.1.6 Story creation, editing, play out

Story creation, editing and play out is the basic concept of DSP. Therefore it is essential these functionalities to be easy to perform, straightforward and obvious. Feedback related to story functionalities is as follows:

Story Creation/ Editing/ Payout
The Comment icon should be more visible – it is easy to miss in the current form.
The Publish text on the button (when publishing a new story) should be bigger.
It would be nice if story play out could fill even more on bigger screens.
When viewing a story, it would be helpful to see if any of the story objects have been used in other stories as well.
The process of creating a story is ranked around 2.5 on a scale from 1(easy)-5(hard).
Some users were confused regarding the difference between Saving and Publishing a story.
The headline of a story should be bigger/bolder/more obvious.
There was a suggestion that for each story there should be a window containing title, image, creator and an icon for video, audio, image, text (one for each) appearing highlighted if there is that type of content or grayed-out otherwise .
It would be preferable to be able to click anywhere in the story window to go to the story, instead of just the play button or the headline.
It would be helpful if the blocks could be rearranged better when creating or editing a story.
When in a story, a click on the image should lead to the original item (and thus not only the “View item” link below the item.

4.1.7 Content/Content Management

Content/ Content Management
Some users are confused why the Europeana content is more promoted than other content (e.g. why is it mandatory to include Europeana content in a story).
The Add to My Library link on an object should be present also when in a story (and not just only in the overview window).
The Add Files link should be placed within the My Library and not as a separate menu item.
In addition to the current sharing options, it would be preferable if one could also select email and thus just send the link.
The My Library is confusing for some users who can't figure out the purpose of Files and Stories in the My Library section.

It would be helpful to be able to click on a username in order to see all the stories the user might have created.
Some users experienced difficulties uploading images.
Some users found it difficult to retrieve the Europeana content that is required for creating a story.
It was suggested to be able to find one's own stories by clicking on one's username, when logged in.
There was a general dissatisfaction with missing preview on most objects (due to copyright issues).
There was a general dissatisfaction with too many clicks to get to the original item (due to copyright issues).
When in a story, a clicking on an image should lead to the original item (and not having to use the "View item" link below the item).

4.1.8 Most appealing feature

Most appealing feature
Simple and user friendly. Module is included in the web site and not separated from it.
Using different blocks to create the story.
The ability to connect items. With some more work on the UI and a clearer concept on the use of the site it will be nice!
Structure and the story telling process is simple and clear.
Creation of the story is consecutive; it is easy to create the story step by step. All three windows - illustration search, upload to library and history text - are positioned next to each other.
Ability to know one's history and share your stories with others.
Nice design, easy navigation.
Overall lack of instruction within the UI, but it needs to show hints on hover.
Connectivity with Europeana.
View other stories, comment on them, and get inspiration.
The hexagon functionality to drag and drop (icons appear like a puzzle)
The hexagon and the ability to drag items to it.
Images in the overview window (nice with visual content, when a lot is otherwise created in words).
Hexagons – special, not seen before.

4.1.9 Least Appealing Feature

Least appealing feature
Whereas easy to create a story, problems in uploading objects. Some

feedback expected (help, hints) in cases of own material upload failure (instead of message "Could not upload file").
Not clear which element from My library is already added to the story. Missing instructions on how to add objects from Europeana.
Rather complicated process of adding pictures, videos and other files.
Placing the "my library" between the objects you need to import and the story, destroys the logical relation in your story building - you should be able to drag your blocks directly into the story and later review you "items".
Very hard to figure out how to connect items within the story, when to do it, how
Missing previews on items.
Can't click on background image of story, only on icons. Too many clicks required in order to get to original items. Not obvious who is behind the Europeana page you get redirected to.
Hexagon pattern is confusing
The two search fields are confusing.

4.2 Main findings

In this section a list of the main findings of the user tests results is presented. Main findings are listed according to the categorization presented in 4.1.

Interface/Design/Presentation

- Interface should be redesigned in order to make it more simplified to create and view stories.
- Cursor change wherever content is clickable/available.
- Some parts (like Comments) should appear more visible.

Registration/Login

- The Join/Login button should be enhanced.
- Direct link to Join/Login from comments area should be provided.
- A confirmation email should be send when the user have registred.

Help/User Guidance

- Help guide needs improvent and enrichment/
- The help should be more contextual based.

Search/Search Results

- The search field should be reset when the user is changing theme, so all content will be visible.
- Improve the search by combining the two search fields (which seem confusing).

Navigation/Browsing

- Clicking on the Europeana logo should be a link to the homepage.
- Cursor change when hovering over clickable items.
- The Previous/Next buttons in the story window should be more visible, helping the user to navigate.

Story Creation/ editing /play out

- The process of creating and editing a story should be simplified.
- The headline of the story should be bigger/bolder.

- It should be possible to click anywhere in the story window to go to a story.

Content/Content Management

- The Add to My Library link on an object should be present when in a story.
- By clicking on a username see all user' s published stories
- In the story window, clicking on an image should lead to the original item.

Most appealing feature

- The ability to connect items between stories.
- The ability to create, view and share stories with others.
- The drag and drop functionality.

Least appealing feature

- Complicated User Interface: should be easier and simpler.
- Missing previews on items.
- Too many clicks required to get to the original item.

5 Technical Evaluation results

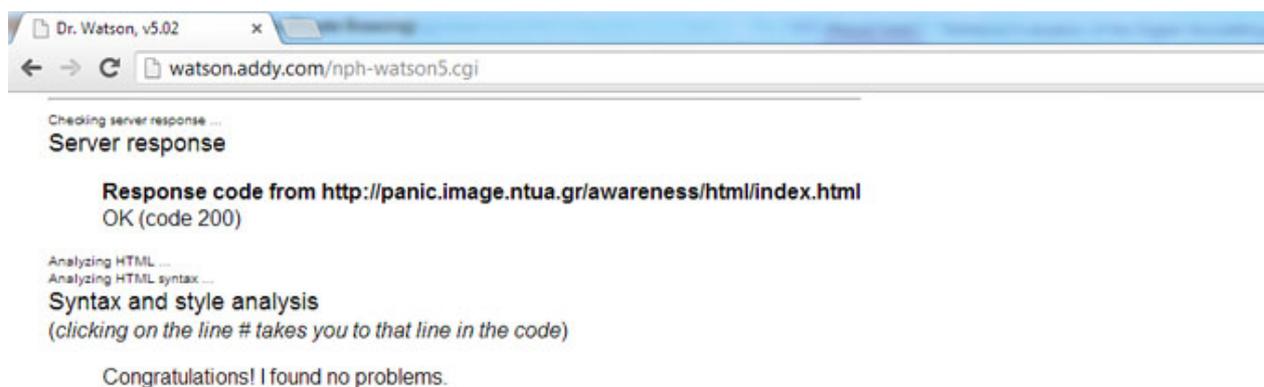
5.1 Criteria and Results

5.1.1 Code quality

The code of the Digital Story Telling platform comprises of a series of Java, Javascript, CSS and HTML files. A number of available online tools were used to assess the code quality of the DSP platform. More specifically the following code validators were used:

5.1.1.1 HTML validation

Since the Digital Storytelling platform is a web based platform the correctness and syntax of HTML markup was examined. [Dr Watson](#) online tool was used to check HTML syntax and style and reported no problems.

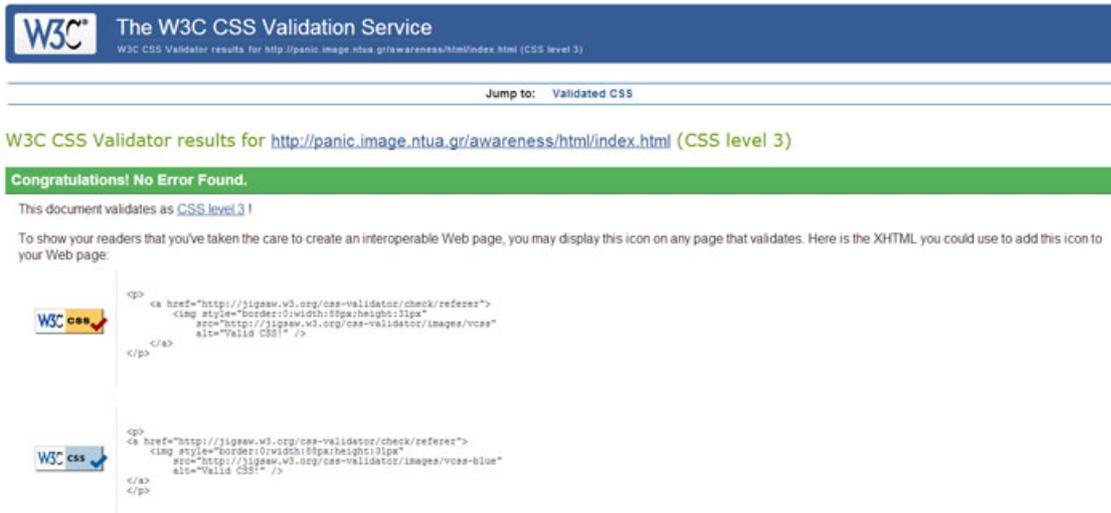


Screenshot 1 - Dr Watson HTML syntax analysis tool

Figure 5-1 Dr Watson HTML syntax analysis tool

5.1.1.2 CSS validation

The CSS code for the web platform was tested using the [W3C CSS validation service](#) and reported no errors.



W3C The W3C CSS Validation Service
W3C CSS Validator results for <http://panic.image.ntua.gr/awareness/html/index.html> (CSS level 3)

Jump to: Validated CSS

W3C CSS Validator results for <http://panic.image.ntua.gr/awareness/html/index.html> (CSS level 3)

Congratulations! No Error Found.

This document validates as [CSS level 3](#)!

To show your readers that you've taken the care to create an interoperable Web page, you may display this icon on any page that validates. Here is the XHTML you could use to add this icon to your Web page:

```
<p>
<a href="http://jigsaw.w3.org/css-validator/check/referer">
<img style="border:1px solid black;float:right;vertical-align:middle;" alt="Valid CSS!" />
</a>
</p>
```

```
<p>
<a href="http://jigsaw.w3.org/css-validator/check/referer">
<img style="border:1px solid black;float:right;vertical-align:middle;" alt="Valid CSS!" />
</a>
</p>
```

Figure 5-2 W3C CSS Validation service

5.1.1.3 Javascript Validation

The [Firebug](#) plugin for Firefox was used to test the Javascript code correctness while using the web platform. No errors or warnings were reported in the console and additionally the Javascript profiler was run to get a detailed report on the execution which indicated that no bottlenecks are present in the platform's Javascript code.

5.1.1.4 Java validation

The [Eclipse IDE](#) has been used for the Java development of the platform which includes a compiler performing more checks and analyses than are mandated by the Java Language Specification. This is done in order to ensure the quality of Java code therefore all errors and warnings generated by the IDE compiler were taken into account to perform code changes/fixes while the platform was being developed.

5.1.1.5 Internationalization

To test if the system supports text in any writing system, the level of internationalization-friendliness was tested using [W3C Internationalization checker](#) that performs various tests on web pages. The report generated indicates that the tool is "world ready".

W3C Internationalization Checker
Is your page world ready?

By URI **By File Upload**

Validate by URI

Enter the URI of a document you would like checked

Address:

Check

Results for http://panic.image.ntua.gr/awareness/html/index.html

No Issues to report !

Information HTML5 - text/html

Category	Value	Code
Character encoding		
HTTP Content-Type	No encoding information found	Content-Type: text/html
Byte order mark (BOM)	No	
Meta tag	utf-8	<meta charset="utf-8"/>
Language		
HTML tag	en	<html lang="en">
HTTP Content-Language	None found	
Text direction		
Default direction	LTR (by default)	
Class & id names		
Non-ascii class or id names	None	
Non-NFC class or id names	None	
Request headers		
Accept-Language	el-GR, el	Accept-Language: el-GR, el;q=0.8
Accept-Charset	ISO-8859-7, utf-8	Accept-Charset: ISO-8859-7, utf-8;q=0.7,*;q=0.3

Figure 5-3 W3C Internationalization checker

5.1.2 Usability and Functionality

5.1.2.1 Browser and Feature detection – HTML5 compatibility

In order for the platform web front end to render optimally in different browsers and versions it should be able to handle the differences among Web browsers. This is already achieved by using the [Modernizr JS](#) library. Modernizr detects HTML5 and CSS3 features in the user's browser and facilitates writing conditional JavaScript and CSS to handle each situation, whether a browser supports a feature or not.

5.1.2.2 Browser Compatibility and Functionality testing

The platform has been tested across the latest versions of the most widely used mobile and desktop browsers.

The functionalities under evaluation were as follows:

- Sign in
- Log in
- Create a story
- Upload image files
- Edit story
- Add comments
- Play story/story blocks
- Search (stories, Europeana, user uploaded files)
- Delete story/story block

- Delete comments
- Browse themes
- Change the UI language

Using spoon.net's browser sand box the above functionalities were tested on the following browsers:

Opera 12, Firefox 21, Chrome 26, Opera Mobile, Opera Mini 6, Safari 5.1.7 (Windows) and Safari 6 (Mac OS), Safari iOS 4.3, Internet Explorer 10.

The platform was fully functional on all the above. The error of uploading images reported on the user tests could not be reproduced and our first assumption is that firewall rules caused it. However the reasons behind it should be investigated further. However we must note that testing the mobile browsers was difficult due to lack of mobile responsiveness in the design. The web platform would not fit accurately on the screen so a lot of scrolling and pinching to enlarge the screen was required.

Firefox Mobile 5: Theme and Story search and play out operational. Login not working so not all features of the platform could be tested (story creation, file uploads, comments etc).

List of legacy browsers also supported: Internet Explorer 8+, Firefox 11+, Google Chrome 14+, Safari 5.0.1+.

5.1.2.3 Responsive design

To test if the design of the platform provides the optimal viewing experience across devices the online responsive.is tool was used.

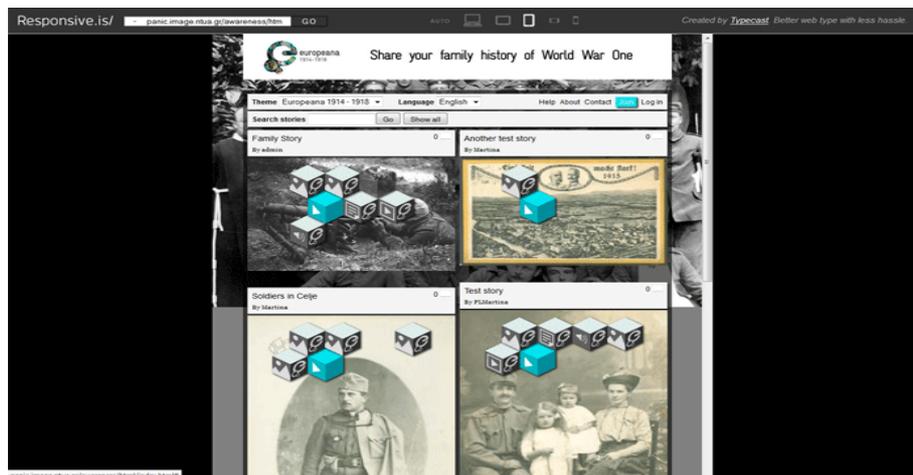


Figure 5-4 Testing responsive design for tablets

Results indicate that the platform design works well for desktop and tablet devices but not for mobile devices.

5.1.2.4 Mobile ready

W3C MobileOk checker tool was used to test the mobile-friendliness of the platform.

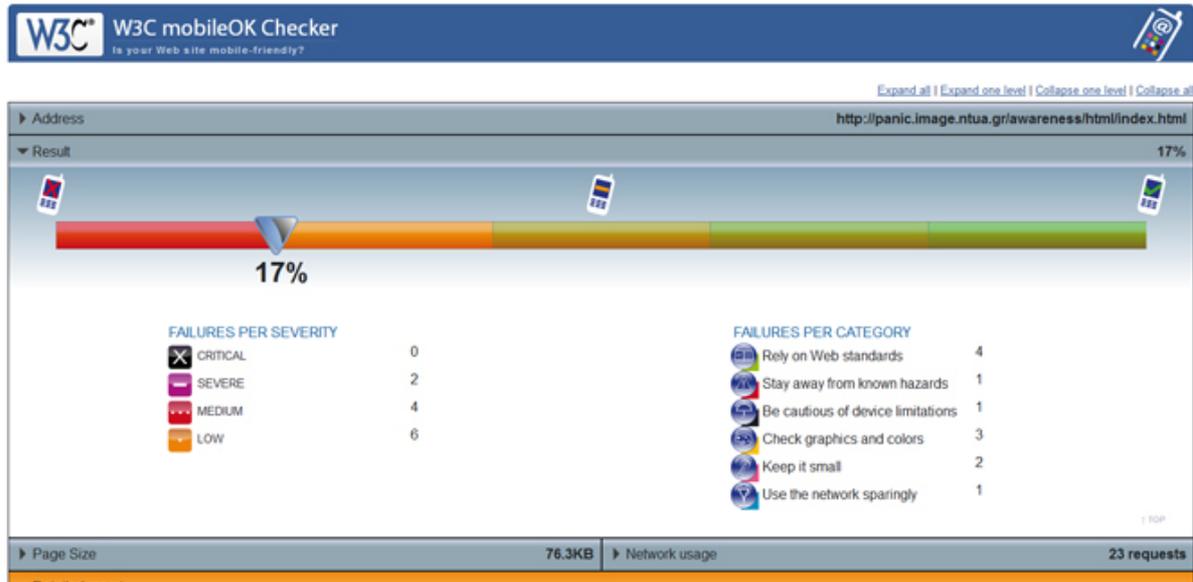


Figure 5-5 W3C mobileOK checker

The score (17%) indicates the platform was not developed with the mobile user in mind. However we must note that the Europeana website which is meant to be used in parallel with the Storytelling Platform also scores low (18%) on this tool. A decision on the level of mobile support the platform needs to provide could affect following releases of the software.

5.1.3 Accessibility

The accessibility of the web platform was tested using the [IDI Accessibility Checker](#) and reported several problems.

The reported known problems were:

- Alt text missing on images.
- Labels missing on form elements
- Missing text elements on images that indicate link purpose
- Color contrast not sufficient in some cases

5.1.4 Performance

To test the platform's performance we used two tools, [Google Page Speed](#) and [Yahoo YSlow](#).

Both these tools are designed to help developers optimize the performance of websites by analyzing and then suggesting best practices for improvement.

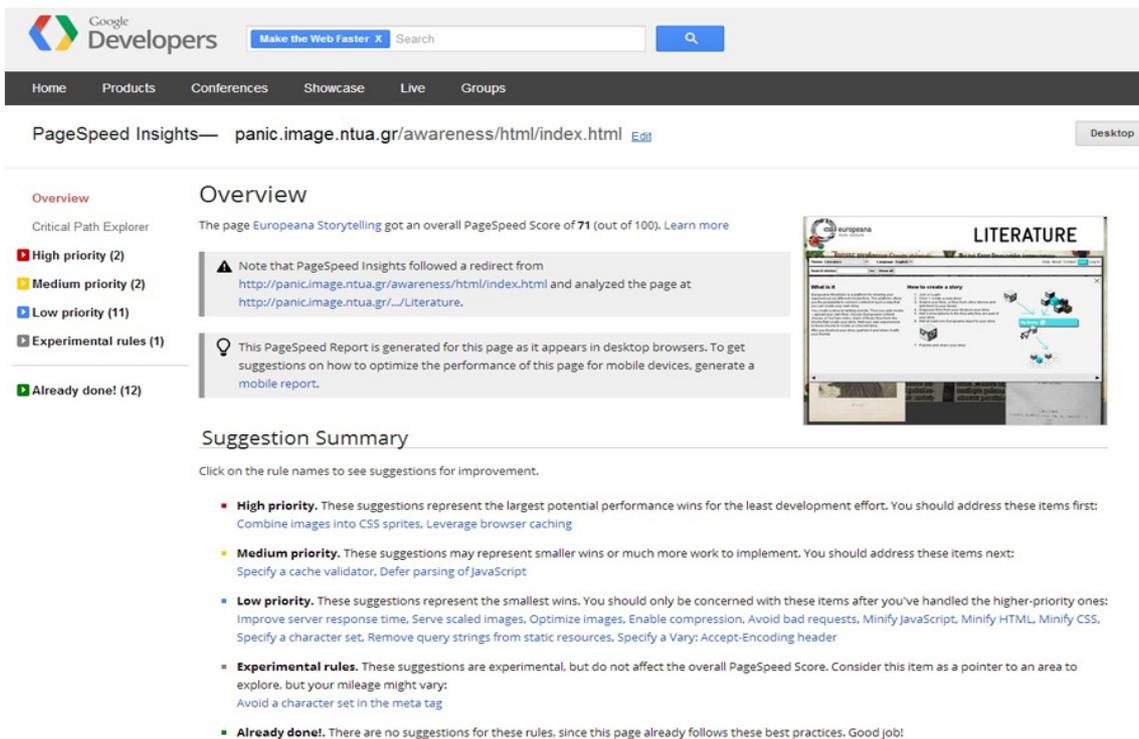


Figure 5-6 Google Page speed - Desktop test

The total score is 71%. Suggestions for improvement include:

- Combining UI images into sprites
- Leveraging browser cache by caching a list of server responses. However, the server responses included in the list that Page Speed suggests should be cached are the dynamically generated JSON responses to get Users, themes, stories per theme etc, which if cached would provide stale results.
- Specify a cache validator. Defer parsing of Javascript: Javascript files should be examined and updated, so as to defer parsing of unneeded Javascript until it needs to be executed.
- A few low priority pointers that include image optimizations, Javascript minification to all JS files, adding compression in responses, improve server response times for fetching UI images (adding them to sprites) etc.

When running the test for mobile browsers the score falls to 61% with the same suggestions for improvement.

Running the YSlow tool on the Story telling platform gives a score of 94%.

The report is attached below (grades in categories range from A to F):

Overall Grade: A (Ruleset applied: YSlow(V2))

D	Make fewer HTTP requests
----------	--------------------------

	<p>This page has 10 external Javascript scripts. Try combining them into one.</p> <p>This page has 9 external background images. Try combining them with CSS sprites.</p>
A	<p>Use a Content Delivery Network (CDN)</p> <p>Using these CDN hostnames from your preferences: yslow.org,translate.google.com,translate.googleapis.com,i.imgur.com,si0.twimg.com,pagead2.googlesyndication.com,panic.image.ntua.gr,ajax.googleapis.com,europeanastatic.eu</p>
A	Avoid empty src or href
D	<p>Add Expires headers</p> <p>There are 3 static components without a far-future expiration date.</p> <ul style="list-style-type: none"> <input type="checkbox"/> http://europeanastatic.eu/api/image?... <input type="checkbox"/> http://europeanastatic.eu/api/image?... <input type="checkbox"/> http://panic.image.ntua.gr/favicon.ico
A	Compress components with gzip
A	Put CSS at top
A	Put JavaScript at bottom
A	Avoid CSS expressions
A	<p>Reduce DNS lookups</p> <ul style="list-style-type: none"> <input type="checkbox"/> panic.image.ntua.gr: 24 components, 635.7K (50.8K GZip) <input type="checkbox"/> ajax.googleapis.com: 2 components, 331.1K (96.0K GZip) <input type="checkbox"/> europeanastatic.eu: 2 components, 22.4K
B	<p>Minify JavaScript and CSS</p> <p>There are 2 components that can be minified</p> <ul style="list-style-type: none"> <input type="checkbox"/> http://panic.image.ntua.gr/.../fileuploader.js <input type="checkbox"/> http://panic.image.ntua.gr/awareness/html/javascripts/app.js
A	Avoid URL redirects
A	Remove duplicate JavaScript and CSS
A	Configure entity tags (ETags)
A	Make AJAX cacheable
A	Use GET for AJAX requests
A	Reduce the number of DOM elements
A	Avoid HTTP 404 (Not Found) error

	<p>There is 1 request that is 404 Not Found</p> <ul style="list-style-type: none"> □ http://panic.image.ntua.gr/favicon.ico
A	Reduce cookie size
A	Use cookie-free domains
A	Avoid AlphaImageLoader filter
A	Do not scale images in HTML
A	<p>Make favicon small and cacheable</p> <p>Favicon was not found Favicon is not cacheable</p>

YSlow gives less but similar suggestions to Page speed (defer Javascript, combine many Javascript files into in one file, use CSS sprites) and a much higher score for the platform's performance.

5.2 Main Findings

Overall the technical evaluation of the Story Telling Platform gave satisfactory results:

- No errors were found during the code quality validation checks
- The browser compatibility and functionality testing was successful. The platform was fully functional in 8 out of 9 most popular desktop and mobile browsers.
- The design is responsive and supports tablet and desktop devices.
- The performance score of the system ranges from 71% (medium) to 94% (high) depending on the performance evaluation tool used.

The checklist of problems to be addressed in following releases is the following:

- Add design responsiveness for mobile devices, a feature that is currently missing
- Make the platform more mobile friendly by following the [Mobile Web Best Practices](#)
- Improve the accessibility of the platform by adding missing elements and working on the colour contrast of the web front end.
- Improve the platform's performance by using image sprites and performing image optimizations, defer Javascript parsing and minify it.
- Examine and implement caching mechanisms that could improve performance.

6 Conclusions and Future work

6.1 Script based tests - SaT and Sound and Vision user tests

Results and conclusion

User tests results make evident that a reiteration of the design and interface is needed in order to improve the user experience in general. This process will start up in early June.

Specifically, given the variety of age and professional background of the participants, the tests provided a very mixed, but altogether valuable feedback. It is evident that the process of creating a digital story must be revisited in order to be simplified and become more intuitive for the user. It is of vital importance that the DSP becomes more appealing to users, including an improved story payout that urges the user to get more involved in this experience and engages them in viewing, creating and sharing stories.

The immediate actions are that in early June, the SaT development team will provide a list of suggested changes. This list will be discussed and prioritized with all members involved in WP2. The main expectation is a more detailed plan, incorporating future work and the specification of changes to be implemented in the next release of the DSP. The goal is to produce an optimized version of the platform before the end of August that will start being used immediately for UCG campaigns.

Recommendation for future development

Amongst the items defined for the future work, the most important are:

- Reiteration of design in order to make it more intuitive and appealing.
- Simplification of creating and viewing stories.
- Enrichment of Help texts and more guidance for user navigation.
- Redesign of search functionality to become more intuitive.

6.2 Europeana Office conducted user test

Results and conclusion

In the test by users, task completion was very low and the test facilitator often had to intervene to keep the test on track. The professional reviews provided negative critique.

The conclusion of Europeana's User Experience Designer, Product Development Manager and Chief Product Officer is that the front-end (client tier) of the DSP in its current form is not a candidate for integration in the Europeana end-user portal tools and that the user test results supported initial fears concerning complexity and use of unintuitive, novel interaction patterns. However, the test results did support the underlying strength of the back-end (server-side) platform developed as a way to store and connect user-uploaded stories, media and contextual connective narrative. This server-side component performed reasonably well.

Details supporting this conclusion are found in the accompanying videos, test session notes and reviews, provided as supplementary material to this report.

Recommendation for future development

Europeana believes that the project team should return to first principles with regard to the interaction design of the story creation workflow in the client tier. Some individual patterns may be retained, but a comprehensive re-design is needed which should also include thorough benchmarking and paper prototyping prior to the development of a new client tier. As part of this process, Europeana believes that a re-designing of the interface it would be helpful to envision the stories in an atomic way that can be more directly integrated into the Europeana user-facing portal and services. The server tier of the DSP could be adapted much more readily than the client-tier and could be more readily integrated, perhaps with a redesigned (or multiple) client tier interfaces.

6.3 Technical test results

The set of technical tests the DSP went through, showed overall satisfying results of both the back-end and front-end programming. The problems that occurred during tests will be corrected immediately as there is no need for major changes:

- Optimizing the platform, including using image sprites, image optimizations and Javascript optimizations.
- Improving the performance by exploring possibilities within cached mechanisms.
- Improving the accessibility of the DSP by adding missing elements and, together with the reiteration of the design, working on color contrast.

It is also evident that we should work toward mobile version of the DSP taking into account the “Mobile Web Best Practices” and adding responsiveness for mobile devices. However, this development will take place after the release of an optimized version for desktop and tablets.