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Statement of originality

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1 EXECUTIVE SUMMARY

This deliverable coordinated by Michael Culture association was produced following the open workshop on Digital Storytelling for mediation and valorisation of cultural heritage, held in Berlin on the 9th of October 2013. It aims at exploring concrete opportunities of Digital storytelling for the valorisation of digital cultural heritage content.

Digital storytelling offers great opportunities for Digital Cultural Heritage, enabling the valorisation of cultural heritage and the development of new approaches and mediation tools for the audience, favouring thus new forms of relationship with the audience, more interactive and participatory, before, during and after the visit. It has a great relevance in particular in the fields of education, cultural mediation and tourism, and gives the opportunity to ensure cultural content attractiveness through the creation of innovative digital cultural services, based on rich and edited contents.

Thus, this deliverable tackles the issues of how to exploit ICT narrative potential for cultural heritage mediation projects, how to make Digital storytelling tools efficient for a DCH valorisation and mediation project, how to create connected, multimedia and interactive narratives? It also highlights the Digital storytelling potential for the transmission of knowledge, experience and information sharing.

This D7.2 is divided in two parts: the first part gives an overview of the Berlin workshop, and presents the interventions of the invited speakers. The projects presented during this workshop were chosen for their innovative approaches, their relevance as examples of digital storytelling categories, based on the Deliverable D5.2 and as examples of good practices. Thus, in D7.2 are highlighted examples of relevant tools for implementing digital storytelling projects and examples of mobile and transmedia storytelling projects.

The second part of the deliverable provides recommendations for cultural institutions and museums who wish to engage a reflexion on digital storytelling for DCH and to implement an innovative storytelling device. The aim is to present the different steps and the main issues they will have to face for each step, so that they are aware of them when implementing the projects. These recommendations will be applied for the development of the pilot on Digital storytelling in Work Package 6.

2 INTRODUCTION

2.1 Background

In the past years, major plans for digitisation of cultural objects have been launched, aiming also at harmonising this content at European level. We have now largely entered into the post-digitisation area, in this context the issues of DCH projects have moved from digitisation issues to the questions of indexing, valorisation and editorialisation of cultural contents. How to exploit the huge amount of high quality digital cultural content? How to valorise it and make it accessible to a wide audience?

Key evolutions are at work and have to be taken into account by the DCH stakeholders: the evolution of the web, with the abundance of correlated content, the evolution of devices, mobile, locative and collaborative, and the evolution of users' habits, who want to be involved and generate knowledge and new content. In the same time, and to tackle these trends, cultural institutions are evolving, with new way of behaving with their visitors. In this context, collaboration between institutions is becoming fundamental.

The use of digital storytelling practices is an effective and appropriate response to these stakes. DCH actors need to continue a strong reflexion to make the best use of the available technologies and contents in order to lead original narrative projects. The main stake is to go from online access to a real putting into narrative.

A DCH valorisation project can take a variety of forms, we promote an advanced style of digital storytelling beyond a simple collection of digital items. It is only when the contents are carefully selected to illustrate a topic, and are tied together forming a narrative way, that they deliver a story and constitute a storytelling project.

In this context the role of the author is particularly important, his status and his choices will determinate the type of narration. The author is not a simple curator, he makes more than editorial choices. The author decides how the mediation is taking shape, the way to combine DCH contents and the level of interaction of users within the story.

In this regard, we have five different ways of telling stories:

- Classical and linear narrative: the public receive the story in a passive way, he is exclusively conducted by the author all along the narrative process.
- Customizable narrative: several stories are possible depending on the user profile.
- Interactive narrative: the author defines the frame of this interaction and gives to the user the rules that will allow him to act on narrative process.
- Generative narrative: the story is generated in an intelligent way and the narrative process is based on content combination thanks to the use of metadata. The author works on use scenarios and the story is automatically generated according to user behaviour.
- Co-created narrative: user can read and write the story as second author.

2.2 Role of this Deliverable in the Project

This deliverable is produced in the framework of the Work Package 7 Awareness and dissemination, which objectives are to raise awareness of European museums and other cultural institutions on the benefits of making available their digital contents through Europeana, identify new best practices, and disseminate the results achieved to a broad audience.

Digital Storytelling has opened new opportunities for European museums and cultural institutions to reuse and promote their digital cultural heritage content. The Deliverable 5.2 *Report on existing tools and devices related to narrative approaches and requirement functionalities* was produced in the Work Package 5 on Creative tools for the reuse of cultural resources, and aimed at providing an overview of existing tools and applications that may serve as examples for the development of the creative applications for the (re)use of digital cultural heritage content that will be developed in the AthenaPlus WP5.

The objective of this deliverable is also to provide recommendations and good practices to professionals from the Digital Cultural Heritage and more generally the GLAM sectors, and to those willing to design and implement a Digital Storytelling project.

The present Deliverable D7.2 is strongly interrelated with D5.2, and aims at going further and completing it. Indeed, it gives an overview of the Workshop on Digital storytelling organised in Berlin on the 9th of October 2013, and proposes recommendations.

The Berlin workshop objectives were to highlight particularly relevant projects identified in D5.2. By presenting them to cultural institutions and museums representatives who attended the workshop, it also contributed to raise their awareness on the possibilities offered by Digital storytelling. The second part of the deliverable, dedicated to recommendations, aims at supporting cultural institutions and museums for the implementation of Digital storytelling projects.

These recommendations will be applied for the development of the pilot Digital storytelling in Athena Plus Work Package 6.

3 DIGITAL STORYTELLING WORKSHOP PROCEEDINGS

New technologies have opened new perspectives, ways and practices of telling stories. Digital storytelling exploits the potential offered by digital tools for editing and disseminating contents, to create an enriched narrative process thanks to multimedia cultural resources. This is a major opportunity for cultural heritage to pass from digitization and aggregation of content to the editorialisation of this content, and thus for cultural institutions to make their content more attractive for the public, providing new experiences and ways for engaging with new audiences. It offers great outlooks in the fields of education, tourism, cultural mediation.

This workshop is the occasion to present the study on the state of the art of digital storytelling for mediation and valorisation of cultural heritage, and to present relevant tools, projects and services for users.

It was held in Berlin, at the KulturForum on the 9th of October 2013.

3.1 Programme

Presentation of Michael Culture Association and Athena Plus project

9:30 – 9:40

Monika Hagedorn-Saupe, Institute for Museum Research SMB-PK - Partner Athena +, Vice-President of MCA

Marie-Véronique Leroi, French Ministry of Culture and Communication

Presentation of report on existing tools and devices related to narrative approaches

9:40 – 9:55

Julien Brouillard, Dédale

Presentation of projects and tools

9:55 – 10:20: **Homm** | Margherita Russo | Department of Economy Marco Biagi | Università degli Studi di Modena e Reggio Emilia, Italy

10:20 – 10:45: **Djehouti** | Benjamin Hoguet | Djehouti, France

10h45 – 11:05: *coffee break*

11:05 – 11:30: **The Builders' challenge** | Benjamin Cölle | Producer, INDI Film GmbH, Germany

11:30 – 11:55: **7 scenes** | Ronald Lenz | CEO, 7 scenes, Netherlands

11:55 – 12:20: **Movio** | Sam Habibi Minelli | Gruppo Meta, Italy

12:20 – 12:45: **Jewish Museum Berlin** | Mirjam Wenzel, Germany

Conclusion 12:45 – 13:00

3.2 Abstracts of the presentations

The following section gives a short abstract of the presentation made by the speakers during the workshop. Their slides as well as the videos they showed to the participants are available on Michael Culture website: <http://www.michael-culture.eu/blog/workshop-digital-storytelling-for-mediation-and-valorisation-of-cultural-heritage-berlin-9-10-2013.html>

3.2.1 Presentation of Michael Culture Association and Athena Plus project, Monika Hagedorne-Saupe, Institute for Museum Research SMB-PK – Partner Athena+, Vice President of MCA ; Marie-Véronique Leroi, French Ministry of Culture and Communication



Michael Culture Association (MCA) was established 10 years ago with the Minerva network. It is a non-profit organisation, gathering professionals working on Digital Cultural Heritage (DCH): ministries, experts, cultural institutions, private organisations.

It was funded by the EC as a cultural network in 2010. The main actions of MCA are:

- To promote and valorise European Cultural heritage
- Networking
- Technology watch and dissemination of best practices
- Training, publications

- Management and development of services such as the Michael portal

MCA participates in European projects, and is a Partner in Athena Plus. It gathers 150 institutions from Europe and beyond – a lively community.

The following 4 thematic working groups are established: multilingualism; innovative services for the general public; interoperability, reuse and linked data; new services for the research field.

Marie-Véronique Leroi, from the French Ministry of Culture presented the Michael portal, born 10 years ago. Michael stands for Multilingual Inventory of Cultural Heritage in Europe.

There is one European portal and different national instances. The interoperability between national instances and European portal is made thanks to the OAI-PMH protocol. It offers a cross domain, multilingual access.

In the Michael cloud, different repositories communicate automatically. Interoperability is also at national level: it is possible to communicate with other national portals.

The description of the national collections is available, with all the details on the institutions that are hosting them. There is also information on the services: digital exhibitions, websites... , and it is possible to provide information on the digitisation plans.

The browsing can be by content (subject, coverage, period), institutions, services.

The portal was born 10 years ago, and since, technologies have changed: the Michael software is evolving for modernisation and migration.

A Demo of the new portal was presented to illustrate this intervention.

Monika Hagedorne-Saupe made also a presentation of Athena Plus: the workshop is organised in the framework of Athena+.

It is a best practice network, gathering a large community: 40 partners from 21 member states.

The main objectives of the project are:

- To contribute to metadata of Europeana
- To improve research and retrieval of data, to have a wider accessibility to all the material we have in Europe
- To experiment with enrich metadata and test tools

<http://www.athenaplus.eu/getFile.php?id=263>

3.2.2 Presentation of report on existing tools and devices related to narrative approaches, Julien Brouillard, Dédale



Julien Brouillard presented the deliverable D5.2, a study on existing tools and devices related to narrative approaches, produced for Athena Plus Work Package 5 on Creative applications for the reuse of cultural resources.

The objectives of this study are as follows:

- To explore how Europeana content may be employed creatively for the development of stories and narratives in many domains
- To provide examples for the development of creative applications for the (re)use of digital cultural heritage content that

will be developed in the AthenaPlus WP5

- To serve the pilot actions of WP6 that will be run in relation to digital storytelling, virtual exhibitions, educational use and GIS applications.

Digital storytelling is the use of digital tools, services, technics, to tell stories and produce narrative

processes. The study reminds the context of digital storytelling for cultural heritage: from digitisation to cultural content editorialisation, and highlight the implications: digital storytelling enables to create a synthesis, between a digital and a physical space, giving body to an enriched space, changing the relationship with the heritage object and the audience, redesigning heritage mediation. Tools and services for digital storytelling provide the opportunity to redesign mediation of heritage and favour:

- Attractivity / to Make more attractive cultural heritage content
- Access and continuity for users: to establish a link with the future visitor and strengthen relationships with continuous exchanges;
- New experience: to enable the visitor to experiment cultural objects with a rich user experience, to immerse himself/herself in contents, a place, a work;
- User involvement : to personalise the visit making it participatory and playful; improve the mediation process by collect opinions and feedback on the experiences;
- Improve the visitor experience : to create a visit context facilitating interaction with content offer, with other visitors and with professionals;
- create a narrative realm to support the emergence of users communities, to keep contact, to enrich and extend the visit.

A state of the art and a benchmark were achieved, focusing on data, tools and services, providing an overview of existing tools and applications that may serve as examples for the development of the creative applications for the (re)use of digital cultural heritage content that will be developed in the AthenaPlus WP5. A specific typology for digital storytelling services was elaborated: interactive, collaborative, mobile / locative, transmedia, immersive and generative storytelling. Some of the tools and projects identified in this deliverable were presented during the workshop, as particularly relevant examples of digital storytelling.

<http://www.athenaplus.eu/getFile.php?id=266>

3.2.3 Homm / Margherita Russo, Department of Economy Marco Biagi, Università degli Studi di Modena e Reggio Emilia, Italy

Homm is a software application. It stand for Hands on Multimedia, and the objective is to use ICT to enhance tangible and intangible heritage for society.

Homm supports multimedia narratives. The starting point was education. Margherita Russo' approach of Digital Storytelling is from a specific perspective, enhancing the local knowledge for a global perspective, with a main focus on local development.

The Crafts museum in New Delhi is partner in the project, which is a Think do Thank, a research action project.

This objective is to provide a tool for the education system to support students and teachers to become owners of tangible and intangible heritage. For students to become part of the collective memory, which is crucial for becoming citizens

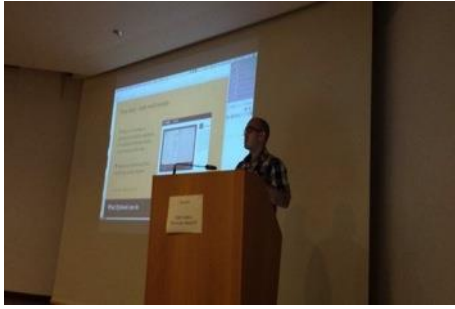
The tools are available for every non-profit organisation, they are free. There is only one condition: whoever uses this software will develop one functionality and share it with all the other users.

Margherita Russo made a demonstration on the use of the tool. It is a prototype that is now available in Italian and English, more languages can be added.

Workshop presentation: <http://www.athenaplus.eu/getFile.php?id=261>

Website: <http://www.homm-museums-software.org>

3.2.4 Djehouti / Benjamin Hoguet, Djehouti, France



Djehouti is a web documentary editor. The society worked with different kinds of partners, and now with cultural institutions. The tool enables to make the content more attractive, more interactive for final users.

Interactivity:

The 20th century was dominated by non interactive entertainment (cinema...) but before that it was interactive: theatre, sports... Audience impacts the content.

Internet reinvented interactivity, opening new doors for interactive storytelling and creation: new forms of entertainment

can be created: storytelling documentaries, serious games, AR Games, mobile apps, participative experiences: reality and fiction merge. Different content, devices are merged, to create coherent and coordinated experience for the user.

It gives rise to new skills, tools, new ways of creating content:

- by re-using innovative content, the user is becoming its own media.

- Interactivity builds stronger and long lasting relationship with the audience, in a long term effect. It's what amazon is doing but it can also be applied to cultural institutions: giving access to more content can be profitable to them, and be an opportunity to involve the community.

They are competing with everyone: an audience has a limited time: cultural institutions have to be attractive for people.

2 projects examples:

- TypoGraphic video game – history of typography, social game on facebook, interactive installation with which people can play.
- The Spiral: Broadcasted in 9 European countries simultaneously. Linked with an online game and collaborative ARG. Find out 6 stolen pieces in 6 European museums: building a whole experience around that. Last episode: all the pieces were recovered by the museum. Huge project – value cultural pieces, move people into museums

Case Study: Arab World Institute, Paris, France – Arabic heritage

Development of Qantara: online library on Mediterranean heritage

10 thousands cultural pieces were unexploited for general audience, only for researchers, because of poor ergonomics and categorisation instead of editorialisation.

Djehouti was used to create editorialised interactive experiences for users, to be accessed within the museum, on the Internet, mobile apps... Required an editorial team and a storytelling software (Djehouti).

Workshop presentation: <http://www.athenaplus.eu/getFile.php?id=265>

Video: <http://vimeo.com/77675930>

Website: <http://www.djehouti.com/>

3.2.5 **The Builders' challenge** / Benjamin Cölle, Producer, INDI Film GmbH, Germany



It is a transmedia project, produced by Seppia, Indi Film, ZDF and Arte.

The starting point was a film about Strasbourg cathedral for Arte. It then became a transmedia project.

The question was: how did they build the cathedral? It was done thanks to the work of a lot of people.

The idea was to connect the networks of today (people who go to this cathedral, tourists) with the networks of before, to connect these people in a meaningful way.

The main themes are fascination, spirituality, common effort, and

the aim is to make visible what is invisible.

The 3D Documentary fiction was broadcasted on Arte in December 2012. Its starting point was to get people involved into the project. The budget was 1 million €.

A Docu-game was also produced, in which the player is supposed to build the second tower of the cathedral, by making researches on the building.

People can build their own second tower for the cathedral, and share it on Facebook.

An international architecture contest was organised: people submitted their tower: more than 1 000 participants.

The application on mobile phone serves as a tool for social interaction. There are mini-games to engage younger audiences, and it also serves as a museum guide, with a lot of background information on the cathedral. The application is part of the whole experience.

Cross media puts different platforms next to each others, while transmedia tries to intertwine all the platforms.

Here it is a transmedia project, where the 3 platforms are brought together in a meaningful way, and the user gets the full experience of the travel between the different platforms.

The issues faced by this kind of project is the difficulty to get people stay on the website, and to follow all the possibilities offered.

Workshop presentation: <http://www.athenaplus.eu/getFile.php?id=264>

Video: <http://vimeo.com/77674587>

Website: <http://cathedrale.arte.tv/>

3.2.6 *Jewish Museum Berlin* / Mirjam Wenzel, Germany



Mirjam Wenzel presented some of the multimedia devices of the Jewish Museum in Berlin, proposing interactive storytelling. They are on site installations and on-line content.

- Things: highlight of the museum collections, providing digital stories about 27 objects of the museum, with images, film and audio passages, animation, interactive elements.

- Faces is a film installation on “What does kosher mean to you?”, and proposes non-linear audio visual insights into contemporary Jewish life, based on 12 interviews and additional footage

- The on-line showcase proposes digital exhibitions, launched in 2009. Presentation of the object, game, presentation of the donator, interviews. Development of different aspects relating to the object.

These are concrete examples on how cultural institutions can engage with audience thanks to interactive storytelling.

Website: <http://www.jmberlin.de/>

3.2.7 *7 scenes* / Ronald Lenz, CEO, 7 scenes, Netherlands



Since several years, 7 scenes is developing location based storytelling projects. It is a social enterprise, combining research with incubation to develop and grow projects, to have a larger impact on social innovation.

7 scenes is a mobile storytelling platform, which can be used by education, cultural heritage, tourism fields... Here are some project examples developed thanks to the 7 Scenes platform:

- 2002: *Amsterdam real time*, with Amsterdam City Archives: creation of a new map integrating people' daily lives: putting a GPS in their bag pack, to draw a map of Amsterdam in real time.

From a storytelling perspective it was interesting to see what was the unexpected. If tools are opened up and really accessible, people can become really creative.

- *Frequency 1550*: learning about Amsterdam history in a role-playing game

Huge knowledge transfer – combination with game play, location: active participation increased the knowledge transfer

Possibility to connect with other cities (ex: New York)

- Crossover with education for many years: Need to create a platform for universities, educational academy: creation of the *Mobile learning academy* – can be integrated in curriculum without technological work, taking away the technology side.

- Culture is not just in cities, but also in landscapes: *Beester dutch golden age* – large potential for location based application

- *Zaanse schans*: mobile storytelling at Holland's largest heritage site museum.

AthenaPlus D7.2 Analysis, scenarios use cases, opportunities of innovative services for DCH, and future development

- *My tours.be*: Flamish cities share a platform collaboration for cultural tourism: interesting from a knowledge sharing perspective
- Museums extending their collections out into the streets, publishing them on a mobile phone
- AR tours, Stedelijk museum (Contemporary art museum) : how AR can be adapted to their collection? Very specific about the user experience
- *Annodrenthe*: Location-based cultural platform for entire Dutch province: Cultural heritage platform for all cultural institutions – need to have one leader: archive

7 Scenes is an example of a complete platform, integrating content management, online publishing, Apps and administration tools. Background of 7scenes: technologist, hackers, activists

10 years of research & development: without market pressure

Building of a platform to make all these projects possible: they built blocks which are configured to help organisations and institutions

Ethos: no programming:

- Development of different methods and templates: gps; multiplayer interactive tours... Maps, outside/indoor
- Linking all kind of media on to locations: video; audio, interactive
- Real time engine: makes it possible to have multi-player interaction
- UGC & social media: integrate application where it is easy for cultural enthusiasts to upload their own stories – interaction with the community, making it part of the storytelling strategy
- Work with multiple organisations together
- Analytics are becoming much more important: impact,
- External resources: integrating with open cultural data in the Netherlands

Take all these building blocks and configure these projects together – make it easy to develop things in a short timeframe.

Another project example is Museum App: it is a platform for Dutch museums and archives – subscription service for museum to create interactive projects. Interesting to see what it means for museums to be in a collaborative platform.

App on the platform and on the web: No need to download 1 app for each museum – easy and accessible to all museums, favouring a lot of interaction: 25 museums participating, 60 tours developed.

Amsterdam is the perfect living lab: many museums with different types and sizes.

Lessons learnt:

- let's tell everything we have: worst storytelling strategy: work to develop blueprints
- communication strategy important: often a new product – expect a return on the investment: more visitors => need to communicate
- pricing models: which works for the service and the museum

What's next?

- Open cultural data
- data analytics
- indoor navigation has always been terrible – wifi too expensive: use of little sensors
- more serendipity: get stories served to us

Workshop presentation: <http://www.athenaplus.eu/getFile.php?id=269>

Website: <http://7scenes.com/>

3.2.8 **Movio** / Sam Habibi Minelli, Gruppo Meta, Italy

Movio is a tool for interactive digital storytelling, which will be developed and experimented in the framework of the Athena + project.

Promoting cultural heritage and getting the users into this knowledge are main goals for GLAMs. They organise real exhibitions, which can also be entirely online.

Virtual exhibition was a new way to make digital content – new in respect to make storytelling, to document. There is a need for best practices.

The 1st guideline was published in Italy: state of the art, best practices, procedures for new ways to access culture – Written by MIBAC, on how virtual exhibition should be built up.

The definition of virtual exhibition is a hypermedia collection accessible via the web made of digital items which are linked together, displayed in 2D or 3D, occasionally memorised in distributed networks, made accessible through the potential provided by modern technology, thanks to a system architecture designed to provide user-centred, absorbing experiences. They are dynamic products that can offer services and be updated periodically, and can be generated by a real event or born digital. Digital exhibitions have to provide alternative experiences to the real event, involving user in a process of discovery, knowledge acquisition and learning.

The creator is someone who takes the responsibility of how is made the exhibition, how the user accesses the content: freely, guided..., and makes the lines between the content.

Users want to be connected, be creative: the way of learning is changing. Groups generate knowledge because they interact with each others.

In the future: internet of things: everything will interact with the users

Key trends:

- evolution of the web: abundance of correlated content: need help to find what we need: too much results in Google
- evolution of devices: must be useful, enable to communicate
- evolution of users' habit: want to generate knowledge, new content
- evolution of institutions' processes: innovation: way of behaving with the users
- growing of collaboration between institutions is becoming fundamental

Succeeds factors:

- Create Experience
- Transform intangible to interactive and thus 'tangible'
- Create new culture and knowledge
- Personalization
- Territorial engagement
- Use newmedia, technologies processes
- Social networks: crowds creations, involvement, narrations
- Promotion and dissemination of knowledge

Presentation of Movio:

Movio is a kit to build online a mobile digital exhibition, to enable GLAMs to highlight masterpieces of their collections. It is a project led by ICCU, Italy, cofounded by Fondazione telecom italia, developed by Meta. It is a public-private partnership. The tool is an open source CMS, with an equivalent version for mobile. A lot of institutions are participating in Italy: foundations, archives... Movio is not only a webpage – kit, you are the creator of the exhibition, in a few steps.

The available tools are:

- Timeline, Map, slideshow
- Connection of APIs – Open source: MIT licence: not to be sold – entirely made for on purpose
- Ontology builder: building of your own vision – each ontology is a personal planning of activities

Different users (experts and non-experts) provide something very simple for all the public to access, but there will be communities who want more details, to navigate in the content is a specific way. A storyteller provides a specific path to give access to the knowledge.

Workshop presentation: <http://www.athenaplus.eu/getFile.php?id=199>

Website: <http://www.movio.beniculturali.it/>

4 RECOMMENDATIONS

Based on the workshop interventions and the projects identified in D5.2, this section presents recommendations for cultural institutions and museums wishing to engage a reflexion on digital storytelling for DCH and to implement an innovative storytelling device.

User experience is core when designing advanced storytelling projects. 4 key trends can be highlighted:

4 KEY TRENDS ABOUT USER EXPERIENCE

DESIGN ADVANCED STORYTELLING PROJECTS

➤ Make users active for a new vision of cultural heritage

In the age of digital storytelling, many services (videos and photos sharing platforms, social networks) are based on the personalization of the user experience, engagement and participation by “User-Generated Content”. In this context the main stake is to create tools for structuration and reuse of this important volume of data and metadata from users, sensitive and collaborative, giving a new vision of museum collection, digital heritage objects, art works...

➤ Design immersive and responsive devices for a complete user experience

Immersive audio and video guides (for tourism or museums), interactive maps (getting historic information out of a given place), transmedia web documentary (with a story adapted and declined on several medias) accompany users all along their visit experience with a lot of documents, resources and information. With digital storytelling the challenge is the contextualization and personalization of these data in order to present to the user digital content which makes sense for him/her in a given context.

➤ Create mobile and generative storytelling devices for a real enriched visit space

The user does not have to click on his device to receive content – the device just “listens” to his behaviour and translates in real time this pattern in a story stream. Being engaged and immersed with the geolocated content, the user can interact with the content of the story by changing and adjusting his/her trajectory and / or behaviour. As users of mobile devices, we are familiar with getting content just by touching an interface (touchscreens). We begin to play with natural speech interfacing (Siri), but now we can also take the whole human body as input command for data retrieval, on the scale of the human body (meters, not pixels), within this natural context (the city, the visit space... not the track pad or the mouse).

➤ Propose new user experience based on serious games

The convergence of DCH and gaming enable the development of edutainment services as new mediation forms. Serious gaming allows to increase the attractiveness of cultural content and gives the opportunity to tell original stories with interactivity based on playful logic.

In the next parts, recommendations are made on the following key issues:

- Cultural heritage mediation | New mediation forms based on digital storytelling potential
- Strategic issues and positioning | Strategic watch on innovation, emerging technologies and key trends
- Data and metadata | Creation and management of data and metadata dedicated to storytelling
- Tool kit | Efficient tools to manage advanced storytelling
- Project methodology | Think like a laboratory to design your storytelling services
- IPR management | Ask the good questions at the right time
- Communication and dissemination | Create public interest and keep your project alive

4.1 Cultural heritage mediation – New mediation forms based on digital storytelling potential

Digital storytelling enables new mediation forms for cultural heritage:

➤ **Promote cultural heritage on every day life**

With mobile technologies every day life and the real world become two powerful elements to tell stories. We have to build storytelling projects from this observation, design innovative devices which accompany the visitor in his daily life. Project promoters have to be able to reach and to interest the general public beyond the museum space, out of the cultural place.

Example: 7 scenes apps

7scenes is a mobile storytelling platform, providing tools to create location based tours and games for smartphones ("Scenes"). It offers the possibility to share personal experience (of the city, of heritage, of museum through game creation and personal visit tour); to connect area and medias to create stories; to make mobile upload of contents and sharing on social networks. The "scenes" become an every day life part of users.



For WCIT 2010 (the World Conference on Information and Technology) in Amsterdam, Waag Society, 7scenes, Microsoft and Sparked developed three GPS-tours. During WCIT this project was called Local XS. The city tours are still available though the project was later renamed AMS 3.0. The tours are a combination of tours on 7scenes and tags on posters in the city that should be scanned. With the tours, Amsterdam history can be explored in a entirely new way (hence the name AMS 3.0).¹

➤ **Create an enriched visit space as a new learning environment**

¹ <http://7scenes.com/projects/localxs/>

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Create location-based stories: public space is a privileged environment for learning and cultural heritage mediation. Using the city as a new learning environment enables to ensure the promotion and valorisation of knowledge and culture.

Example: Streetmuseum-Londinium app

This is an immersive storytelling about Roman London based on mobile application. It offers to the users several possibilities: a guided walk to roman London thanks to a map, it directs users to locations across the capital where they can immerse themselves in the sights and sounds of Roman London, possibility to digitally excavate Roman artefacts, to see scenes of Roman London through augmented reality video. With Streetmuseum the public area represents a true visit space delivering location-based stories.



Streetmuseum-Londinium, iPhone app screen shots²

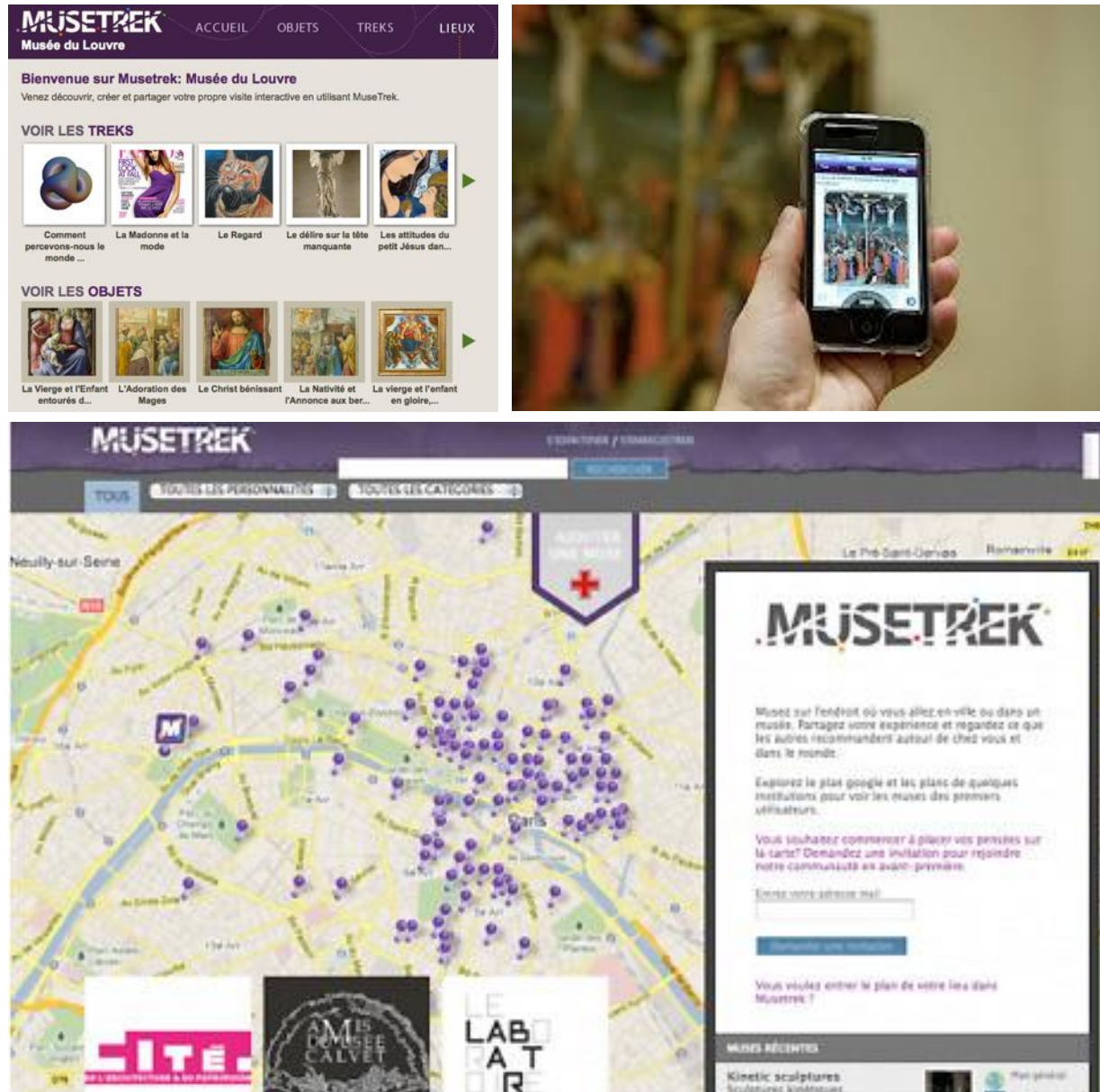
➤ **Support the visitor before, during and after the visit**

Enrich the visitor's experience cycle by offering him new action and participation capacities at every time of his visit.

² <http://www.museumoflondon.org.uk/Resources/app/Streetmuseum-Londinium/home.html>

Example: Musetrek

MuseTrek is a mobile application and a website that allows to create, share and access “muses”: text, picture and audio track referring to the places users visit. Muses can be registered all over the world. Anyone can create his own path (“trek”) to propose personalized visits of museums, cities or places. People invite their friends and the Musetrek community to share their thoughts, trips and explorations, creating an interactive visit experience. The degree of personalization given by Musetrek makes possible this link with users before, during and after the visit.



Musetrek, web site screen shots and iPhone app³

➤ Make stories interactive and allow to users to interact to the story content

Interactive digital storytelling allows to create a new type of story in which the reader-user can influence the narrative and its evolution in real time. The story must be nonlinear and re-combined permanently

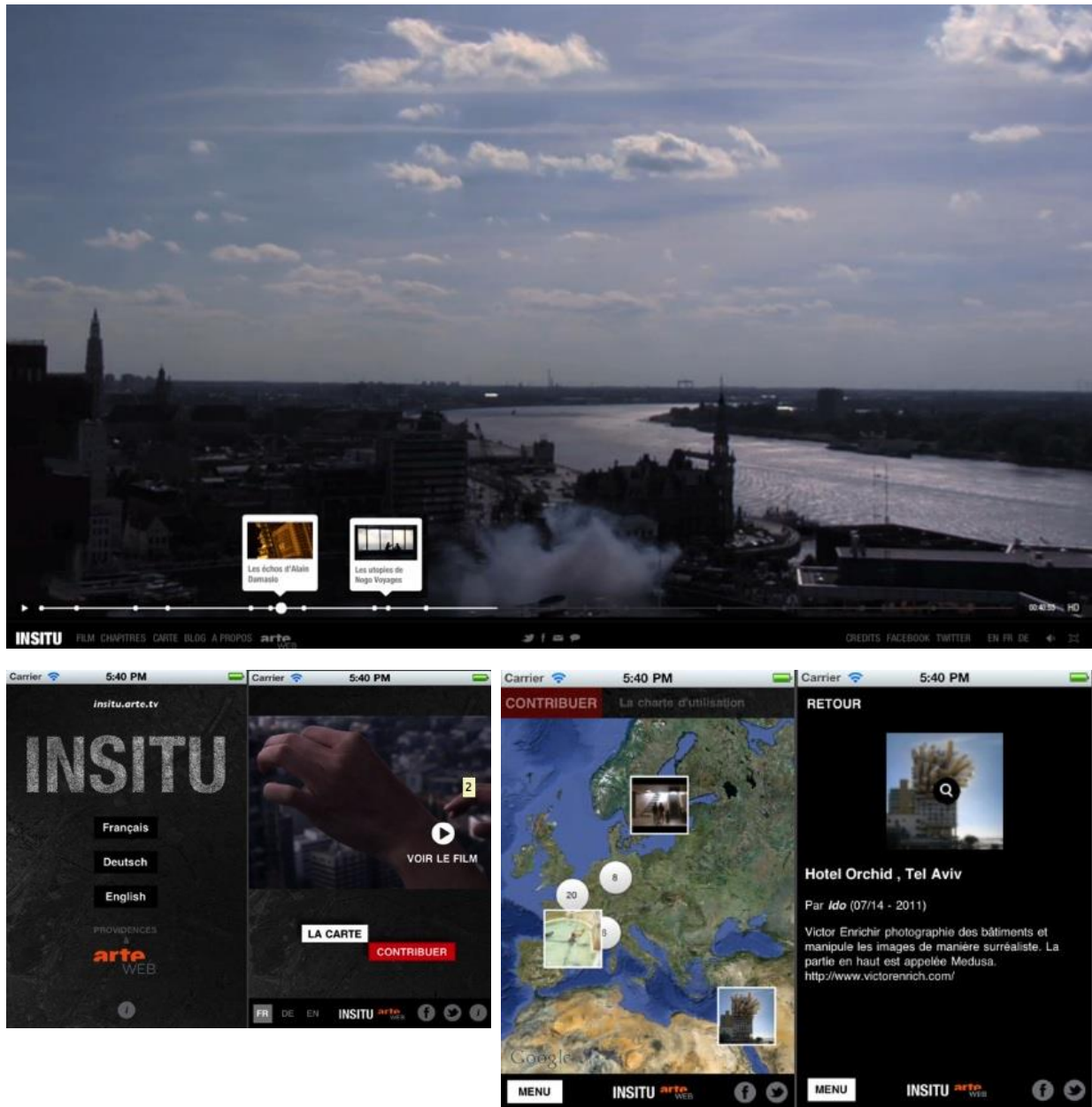
³ <http://www.musetrek.com>

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according to the user's actions and preferences.

Example: Insitu

Insitu is a poetic essay and interactive documentary about the urban space in Europe seen through very diverse artistic experiences and interventions. The project proposes a non-linear experience depending to user's action.



INSITU, web site and iPhone app screen shots⁴

➤ **Combine several devices to develop a transmedia narrative universe**

It means developing projects based on several medias, presenting complementary uses specificities and

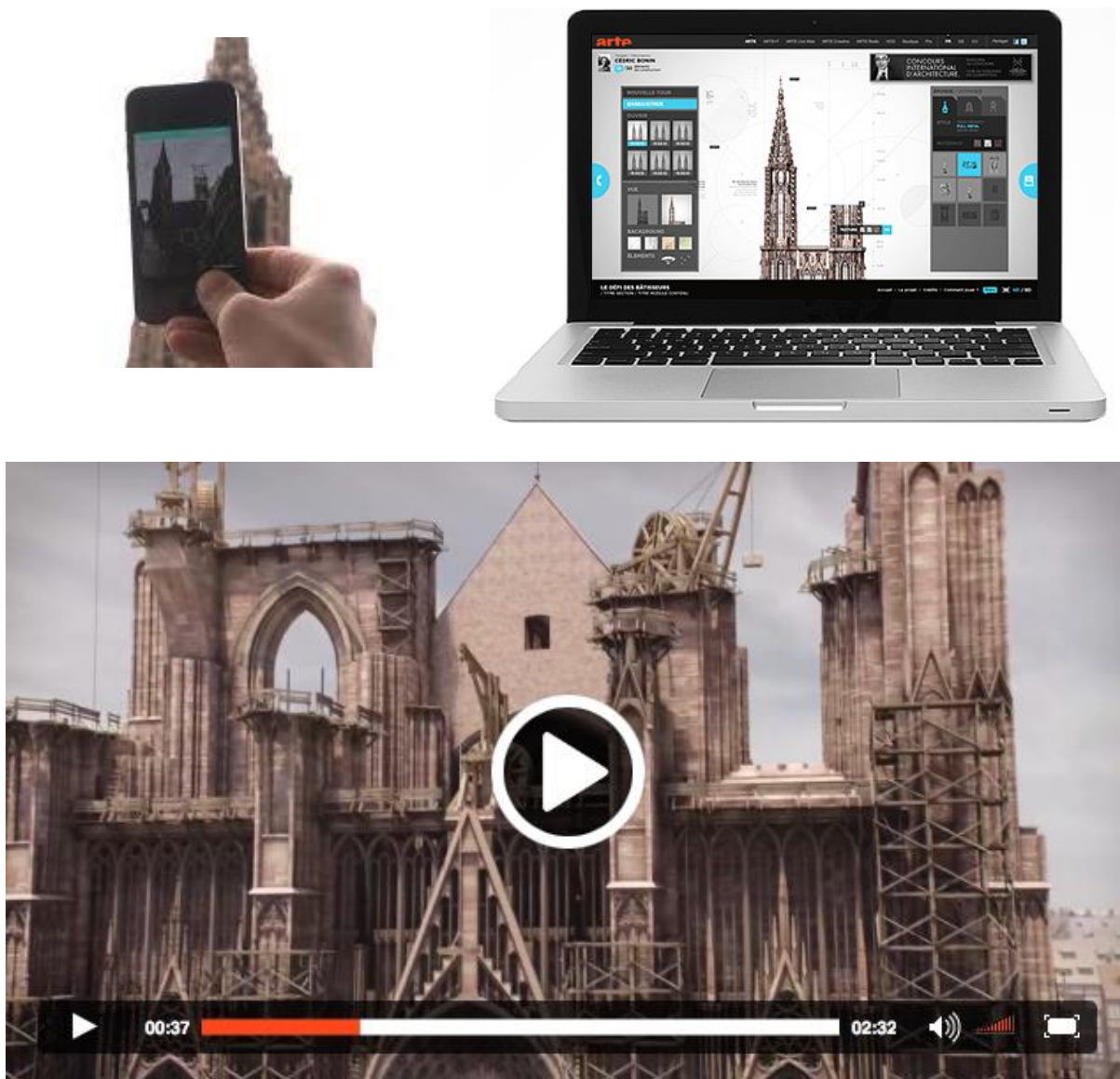
⁴ <http://insitu.arte.tv>

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technological capacities: PC, laptop, tablet, smartphone, TV, interactive scenography, multitouch screen, etc. The transmedia approach will enable to create a continuity of uses around content with adapted design, and to immerse the user in an original narrative universe.

Example: The builder's challenge

The builders' challenge is a transmedia project, in the heart of gothic cathedral of Strasbourg. It consists in 4 media platforms which are all linked up: a 3D film, about the craftsmanship of gothic master builders, telling the story of the building; a doc-game, in which the user builds a second tower to the Strasbourg cathedral, accessing to 3D documents, archives and design tool; a mobile app: providing an interactive tour guide.



The builder's challenge, web site, iPhone app and 3D movie screen shots⁵

➤ **Strengthen the story by creating an immersive experience**

⁵ <http://cathedrale.arte.tv>

Set up a narrative process based on a blurring of borders between fiction and reality in order to create an immersive experience. In this new type of mediation, storytelling is operated continuously and puts the user in a particular situation, in which the difference between the story told and the experienced reality becomes more and more tenuous.

Example: CultureClic

CultureClic is an iOS application giving access to pieces of art - via catalogue of the French museums – geolocation based on Paris, Bordeaux, Lyon, Marseille and Avignon. It allows the user to have access to visual elements of the places where he is via the increased reality and to enrich it as he walks in the city. In this case, the use of augmented reality allows immersing the user within the given stories.



Culture Clic, iPhone app screen shot and pictures in use context (indoor and outdoor)⁶

⁶ <http://www.cultureclic.fr/en>

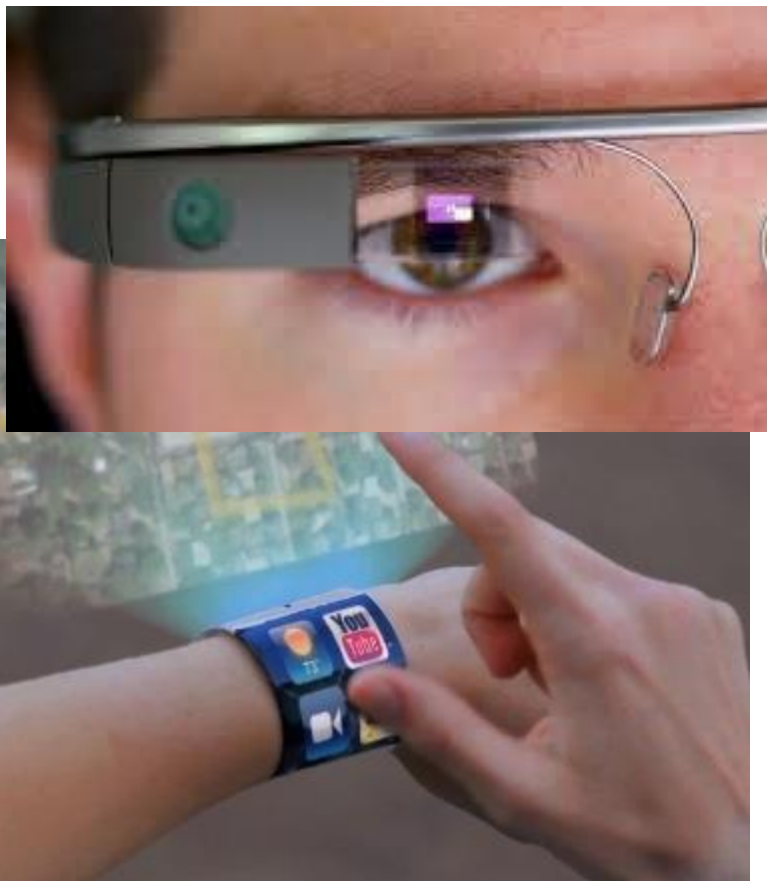
4.2 Strategic issues and positioning – Strategic watch on innovation, emerging technologies and key trends

Digital storytelling projects are based on ICT devices, evolving very quickly. When designing a digital storytelling project, it is key to make a strategic and prospective watch on emerging technologies and future trends to make sure it is innovative and relevant.

➤ Stimulate cultural heritage mediation with augmented reality devices

Today with mobile devices and tomorrow with a user equipped with glass or contact lens.

Example: Google Glass, smart watches and other connected objects



*Google Glass and Apple iWatch demo
(Google Images)⁷*

⁷ <http://www.google.com/glass/start/> <http://pix-geeks.com/geeks/publicite-iwatch/>

➤ Make stories more contextual

Image geolocation-based services inside buildings: indoor GPS, inside geolocated guide...

Example: Audioguide Nintendo 3DS Louvre Museum

This application available on Nintendo 3DS allows the access to audio content inside the museum. The application guides the visitor and sends him content geolocated content.



Louvre Museum audioguide based on Nintendo 3DS XL application ⁸

⁸ <http://www.louvre.fr/l-audioguide-du-musee>

➤ Give opportunity to users to create their own stories

Users can combine existing content or create new one (images, video...) to tell stories. Users can write stories based on personal experience of heritage or personal testimony in link with historical event or specific topic.

Example: 1001 stories of Denmark

This is a web site about 1001 fantastic cultural heritage sights in Denmark. It offers the possibility to explore the sights, upload your own story or experience from a place, listen to stories from all over Denmark. Users can also make their own travel routes and be inspired by others.

The screenshot shows the '1001 stories of Denmark' website. The header features a yellow banner with the site's name and a navigation bar with links like 'FRONT PAGE', 'MAP', 'TIMELINE', 'PROFILES', 'PLACES', 'ROUTES', 'THEMES', and 'NEWSFEED'. A search bar is also present. The main content area is titled 'INDUSTRY' with a sub-header 'FROM MILLS TO COMPUTERS'. Below this, there's a section for 'ARTICLE WRITTEN BY CASPAR JØRGENSEN' with 7 recommendations. The article text discusses Denmark's industrial history, mentioning the welfare state, factory development, and the shift from agriculture to industry. A 'SHOW ENTIRE ARTICLE' button is visible. To the right, there's a 'LISTEN TO THE THEME' section with a play button and a 'STORIES ABOUT INDUSTRY' section listing related stories like 'SHORT WEEKENDS WHEN THE WHISTLE BLEW AT NEW TAP' and 'CAST IRON IS ALL THE RAGE'. A 'NEWS FLOW' section at the bottom right shows a user profile for 'JOAN KELLY' and a post about visiting St. Olav's Church. At the bottom, a 'TIMELINE FOR INDUSTRY'S STORIES' is displayed with a horizontal timeline from 1500 to 2300.

1001 stories of Denmark, web site screen shot⁹

⁹ http://www.kulturarv.dk/1001fortaellinger/en_GB

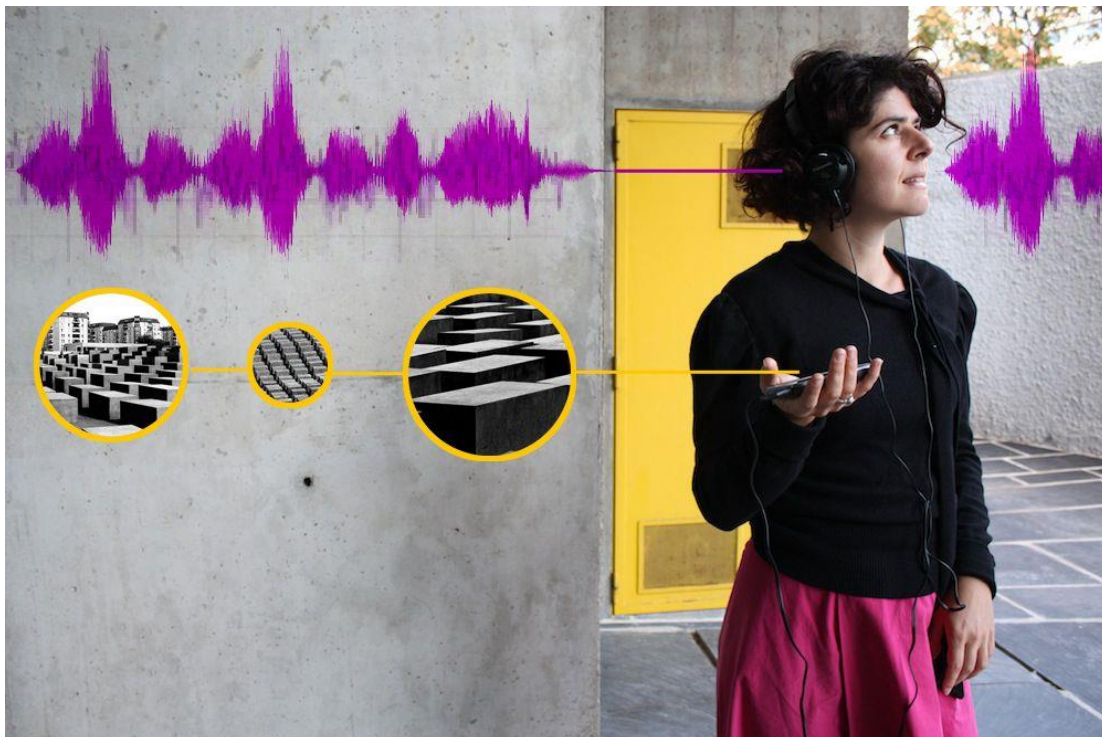
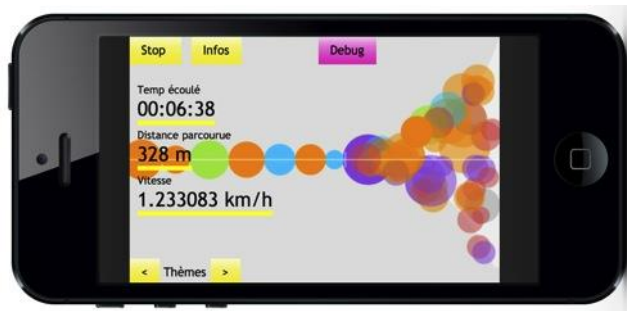
📌 Development of innovative Human-Machine Interfaces (HMI)

Offer to users new types of interaction to read and write stories with all human body. These interfaces are now tangible, multimodal using sensor (with contactless technologies), nanotechnologies, or intelligent textiles.

Example: Heritage Experience

Heritage Experience is a digital cultural service dedicated to the promotion of the territory and heritage. Based on an innovative iPhone application, it allows users to explore the territory and to access in mobility to a set of audiovisual content LBS (archive footage, interviews with land users, views of experts, stories of people ...).

Along the path, the iPhone app compiles these contents according to the movements and behaviour of the user. A film is generated in real time, thanks to a dedicated editing engine, allowing a narration of the territory.

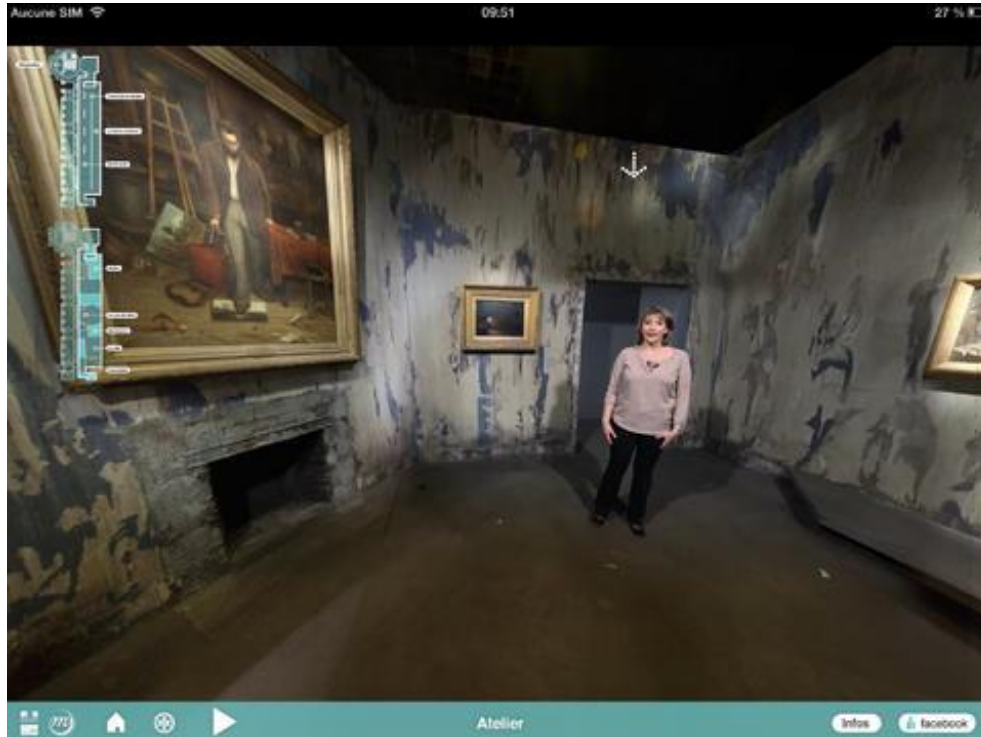


➤ Encourage immersion into the past

Create digital environments based on cultural heritage contents: immersive devices and 3D movies allow telling stories giving life to historical site or figure.

Example: Guided tour 360° of exhibition “Bohèmes”

This is an iPad app which allows to the user to make a visit in chapters commented by a speaker of the RMN-Grand Palais filmed in the panoramic 360°.



¹⁰ <http://heritage-experience.fr/fr/>



Guided tour 360° of exhibition "Bohèmes", iPad app screen shots¹¹

➤ Be in line with social web and semantic web convergence

The so-called Web 3.0 fosters the convergence between reference metadata bases (main institutional actors: Europeana, BNF, INA...) and folksonomy (integrating social networks and collaborative tagging). This is the opportunity to create specific metadata to driven storytelling and original apps based on users' work of tagging.

Example: Brooklyn Museum

Brooklyn Museum has a permanent collections ranging from ancient Egyptian masterpieces to contemporary art. It believes in community and in the importance of the visitor experience. They go further than the simple space of on-line contact, by the creation of a « posse » allowing to create a community of debate within the audience on online collection. « pos·se: n. a large group, often with a common interest ». People have to Register or log in to the Brooklyn Museum Posse and work with the online collection. Their favourites, comments and tags will display on their Posse profile. Posse members can play collection-based tagging games.

¹¹ <http://www.grandpalais.fr/fr/article/bohemes-votre-visite-guidee-privee>

Brooklyn Museum

Libraries and Archives: Lantern Slide Collection: Abu Simbel

Views, Objects: Egypt. Abu Simbel. View 02: Egypt. Abu Simbel. Colossus No. 4. 19 Dyn?. Lantern slide, 3.25 x 4 in (8.25 x 10 cm). Brooklyn Museum, lantern slides. (S10_08_Egypt_AbuSimbel02.jpg)

Download Favorite Posse Icon Send Print

Views, Objects: Egypt. Abu Simbel. View 02: Egypt. Abu Simbel. Colossus No. 4. 19 Dyn?

Image: "Views, Objects: Egypt. Abu Simbel. View 02: Egypt. Abu Simbel. Colossus No. 4. 19 Dyn?". Lantern slide, 3.25 x 4 in (8.25 x 10 cm). Brooklyn Museum, lantern slides. (S10_08_Egypt_AbuSimbel02.jpg)

Notes: B.J.

Rights Statement: **No known copyright restrictions**

Citation: Brooklyn Museum Archives. Lantern Slide Collection

Collection: **Lantern Slide Collection**

Folder: **Abu Simbel**

Tags: face [x], dei [x], Amun Re [x], Egypte [x], king [x], egito [x], Temples [x], Africa [x], arqueologia [x], Sun Gods [x], Afrique [x], sabbia [x], farao [x], egypt [x], lantern [x], Aswan [x], re [x], valle [x], Buildings [x], pharoh [x], escultura [x], Egitto [x], Ramesses II [x], Ramses The Great [x], Egyptian [x], statua [x], hand tinted [x], Archeology [x], male [x], Abu Simbel [x], RamsesII [x], bricks [x], man [x], pharonic [x]

Brooklyn Museum, web site screen shot¹²

➤ Open up to new opportunities of diffusion, partnership and funding

New channels of production, edition and diffusion (new digital writing forms, new editorialisation forms, web doc, transmedia, connected TV...) change and expand the development of storytelling projects.

Example: Partnership between museum and web documentary producer

4.3 Data and metadata – Creation and management of data and metadata dedicated to storytelling

Data and metadata are at the core of digital storytelling projects: a particular attention has to be paid to their creation and management.

➤ Exploit the narrative potential of cultural data

¹² https://www.brooklynmuseum.org/opencollection/tag_game/start.php

Cultural data are by their nature narrative foundations. They represent an important vector of storytelling because they bear historical values, sociological representations, which could be used in narrative process to touch user. These contents shall be as a positive resonance between his own knowledge, the common culture and the story which is told.

➤ **Promote the reuse, editorialisation and enrichment of existing contents by using aggregation process**

- Set up an elaborated digital data indexing process and the use of an API (Application Programming Interface) to allow the setting up of an intelligent digital content aggregation. Enriched digital cultural data can be aggregated and re-arranged in order to propose a new original piece of content, combining heterogeneous sources.
- Interconnect institutional data, user-generated content or other types of open data.
- Use API to make it possible the harvesting, via metadata, of a set of content to edit it in an editorialised form and to propose a panel of functionalities (sharing, personalisation, data co-creation).

➤ **Create indexing process dedicated to narratives combinations of digital resources.**

Set up of specific descriptors, adapted to narrative applications. Integrating digital (meta)data into a (meaningful) narrative is possible thanks to the setup of innovative indexing processes proposing a sensitive dimension, thematic descriptors and an affiliation to a specific use scenario.

➤ **Create storytelling services based on a participatory model**

It means developing services in which the user has the necessary tools to create and put into narrative his/her own contents. This kind of User-generated content should allow to increase attractiveness of the cultural content through social networking, content sharing...

➤ **Base your storytelling project on collaborative data indexing**

It means to exploit the important potential of the “folksonomy” (collaborative system of informal data structuration) to create services through the valorisation of the overabundance of information and content on the web.

➤ **Experiment the possibilities of artificial intelligence to edit content and to tell stories**

The building of analysis model of a given situation is a very interesting way to generate original and interactive stories. It implies to pre-define rules of editing and to set up a database with organised and indexed digital content. It especially means to have an important computer programming work through the creation of algorithms to enable the gathering of digital data in real time, according to these predefined rules.

4.4 Tool kit – Efficient tools to manage advanced storytelling

Numerous tools are available to manage storytelling projects. They have to be chosen according to the type of project developed, the needs and its technical requirements.

➤ **Choose adapted solutions of digital resources management**

Choose adapted tools in link to the aimed storytelling project, from the simple web pages organisation to the management content stream or the monitoring of content combining rules, including creation of virtual exhibition.

Choose tools able to answer to current requirements for creating a digital storytelling project (Web documentary, content linked to a place / geolocation, augmented reality, virtual and digital exhibitions):

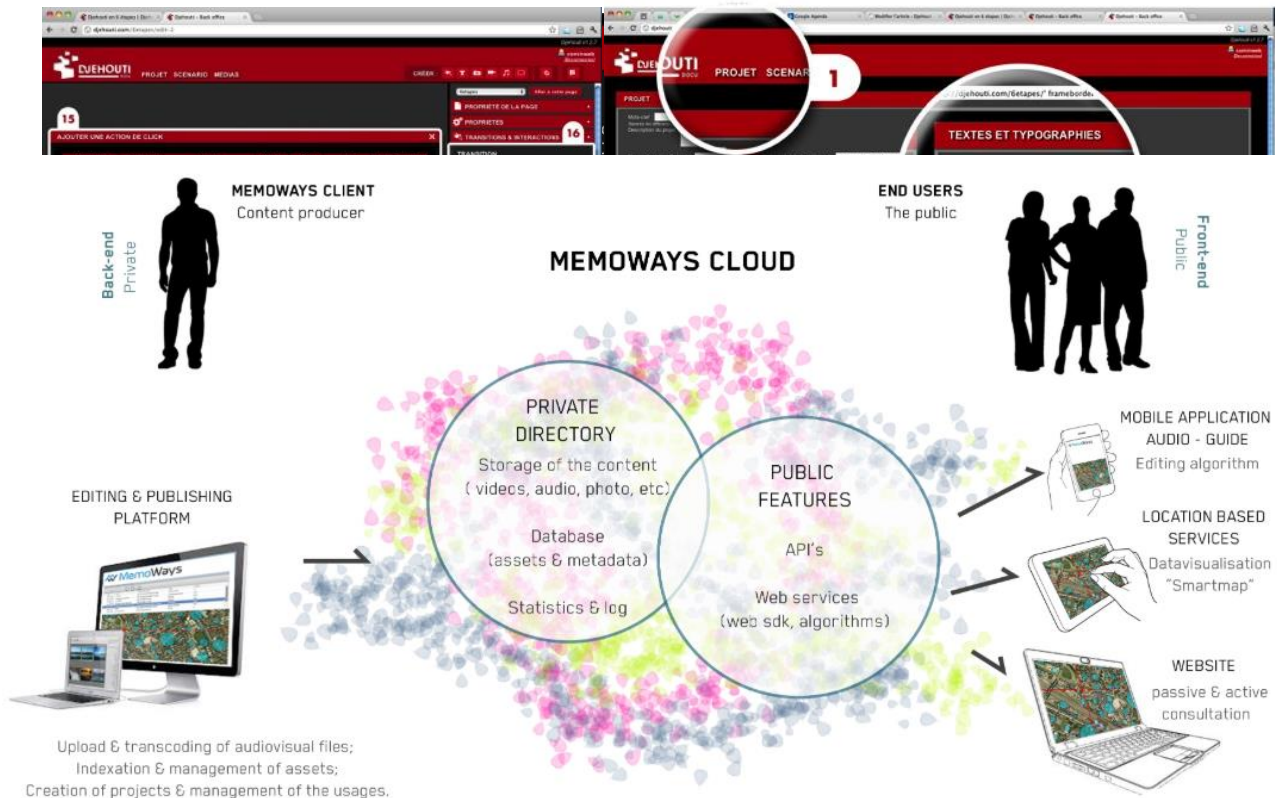
- Easy creation of interactive and enriched documents;
- Digital asset management;
- Use of API ;
- Distribution of content on several applications;

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- Possibilities to link data with space through interactive cartography;
- Creation of digital exhibitions with specific needs.

Example: Djehouti

Djehouti is a tool to create and manage interactive storytelling apps. It allows to generate project without coding operation from creation to publication with drag and drop medias wherever and set user interactions. Djehouti enables interactive scenarios by creating links between pages with simple process and visualise the project as a narrative tree in real time. The tool offers several advanced functionalities related to storytelling: video embed, cloud storage, social networks integration, responsive design.



Djehouti, web app screen shots ¹³

➤ Use all the potential of mobile technologies to create locative storytelling

The use of mobile digital devices (tablets, smartphones), of their components (GPS, compass, accelerometer, data connection, camera) and functionalities (mobile applications) allows to produce a narrative type essentially based on territorial anchorage (with multimedia content geolocation) and social networks enabling individual or collective exchanges linked to a real place.

Example: Memoways

Memoways is a web application, allowing to upload, manage, deliver and dynamically distribute audio-visual content for mobile computing uses. It provides the following features: spaceline editing: territory augmented by the data for narrative uses in mobility; magic metadata: indexing data adding thematic descriptors, affiliation to uses scenario or editing rules; editing engine: from a uses logic, generate narrative combinations between documents; mobile creation: using smartphones to create content (text, pictures, videos) and decide how this content can be combined, aggregated and broadcasted.

Memoways, cloud ecosystem overview ¹⁴

¹³ <http://www.djehouti.com>

¹⁴ <http://memoways.com>

➤ Use existing services and technologies when possible

Current web services propose exportable players, embed codes or other free CSS style which could be edited and customized to create mashups. Connect your storytelling project to content sharing platform or data visualization interface in order to experiment use scenario before a real implementation and heavy developments.

Ex: Time Line JS

Timeline JS is an open source tool enabling to build visually rich interactive timelines. It can pull in media from different sources (Twitter, Flickr, Google maps, Youtube, Vimeo...) and more media types are regularly added. It is available in 40 languages. Time line JS is a powerful application (ergonomic and graphic) which can be easily integrated into your web page, you don't have to develop any elements.

1

Create your spreadsheet

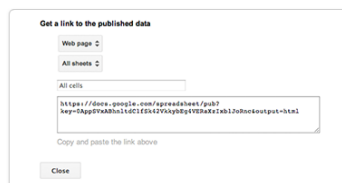
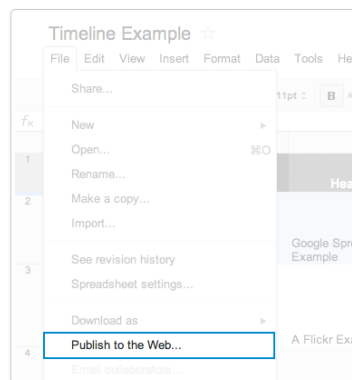
Build a new Google Spreadsheet using our [template](#). Drop dates, text and links to media into the appropriate columns.

Note: Don't change the column headers, don't remove any columns, and don't leave any blank rows in your spreadsheet.

Google Spreadsheet Template

2

Publish to the web



Under the File menu, select “Publish to the Web.”

In the next window, check “Automatically republish when changes are made.” Uncheck all other boxes. Click “start publishing.” This will give you the URL to embed in your HTML file.

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3 Copy/paste spreadsheet URL into the generator box below

Google Make sure you've published it.

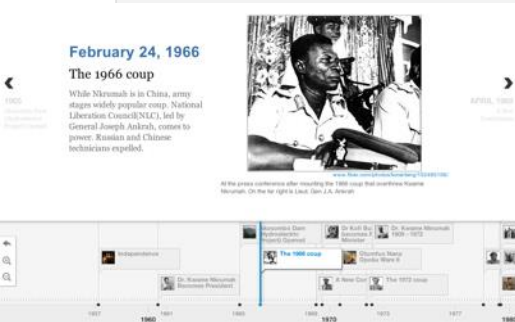
Spreadsheet URL

Size

4 Embed the code into your website

Grab the embed code and paste it on your site where you want your TimelineJS to appear (just like a YouTube video).

```
<iframe src='http://cdn.knightlab.com/libs/timeline/latest/embed/index.html?source=@AgI_Dv6iEbDadHdKcHhCtB5bzhvbF9iTWyMmJHdK&font=Bevan-PotanoSans&motype=TERRAIN&Lang=en&height=650' width='100%' height='650' frameborder='0'></iframe>
```



Timeline JS, web site screen shots “how make a time line” and time line example¹⁵

4.5 Project methodology – Think like a laboratory to design your storytelling services

The Living Lab approach is a relevant methodology for digital storytelling project.

➤ Develop an integrated methodology for site-specific intervention

As we said your project must take part in real world, in every day life, and this is a key factor of success. Thus it is very important to take into account local issues, resources and populations to lead your action.

You need to develop a site-specific approach and a specific methodology:

- Needs definition and site exploration: watch, analysis, shared diagnosis for compiling knowledge database on a specific site.
- Stimulating creativity by transdisciplinarity and users' involvement: co-creation between users and producers.
- Involvement in research projects.
- Site specific experimentations with community of users (workshops, creative residencies, participatory actions)
- Evaluation with users and producers

➤ Encourage the users involvement

More interactivity and participation within your storytelling project means more involvement of all the stakeholders and particularly users. Projects and services which are designed answer to users' needs and requests. You need to produce a collaborative work with creatives, experts, designers, researchers, professionals, and specific partners in connection with users.

This process is made possible through the definition of target users' communities (young and professional artists, students, cultural tourists, professionals of urban planning, experts, local authorities, inhabitants,

¹⁵ <http://timeline.knightlab.com>

employees of cultural institution...), and to a strong work of mobilisation to involve stakeholders and users, permanently carried out on the ground.

It is important to propose a combination of tools to encourage users' involvement: blogs and social networks, collaborative map, video and photo sharing platforms, barcamps, calls for ideas and for participation. All activities (services design, workshops, demonstration in public space, public experimentations) involve users in the innovation chain, not only for testing phase, although there is a range of different modalities of engagement in different projects.

4.6 IPR management – Ask the good questions at the right time

➤ Develop an IPR policy openness oriented and supported by a specific reflection on IPR management, accessibility and reuse of the data

If your digital storytelling project integrates existing contents you have to be careful on the terms of reuse and diffusion. This implies documentation on Creative Commons licences and other free licences. You have to lead an on-going reflection on IPR questions and new legal forms, particularly in the framework of innovative digital projects (technologic mashup, composite services, collaborative work).

➤ Bring together specific skills to answer to new right issues

Think about the implementation of expert committees, gathering lawyers, representatives from cultural institutions, new media specialists, professionals of media and audiovisual archives.

4.7 Communication / Dissemination – Create public interest and keep your project alive

➤ Find the best way to present your storytelling project

The term “digital storytelling” means several type of project, different forms of mediation, it uses various technologies and requires to clarify all of this to be very communicating. From virtual exposition to mobile application, storytelling refers to a large range of projects and manner to tell digital stories: stories are open-ended, branching, hyper-linked, cross-media, participatory, exploratory... This is the reason why we have to use a basic common vocabulary and typology to label our projects:

Digital storytelling <i>Keywords: digital content</i>	Ways of putting into narrative, using digital tools (online and offline) editing and dissemination capacities, to create an enriched narrative process thanks to multimedia resources (pictures, texts, videos, 3D...)
Interactive digital storytelling (IDS) <i>Keywords: hypertextual narration, nonlinear narrative, interactive stories, rich media, new forms of editorialization, virtual exhibitions</i>	Type of digital story in which the reader-user can influence the narrative and its evolution in real time. The user is able to interact with the story content. The interactive story is non-linear, and re-combined permanently, according to the user's actions and preferences. Interactive digital storytelling enables to navigate, through a dedicated user interface, in a rich set of editorialised digital content.
Collaborative storytelling <i>Keywords: web 2.0, user-generated content, content sharing, social network</i>	Digital storytelling type, based on a participatory model, in which user has the necessary tools to create and put into narrative his own contents.
Mobile / Locative storytelling <i>Keywords: mobile devices, locative medias, GPS, real places, urban space, mobile social network, interactive mapping</i>	Digital storytelling type, based on the use of mobile digital devices (tablets, smartphones), of their components (GPS, compass, accelerometer, data connection, camera) and functionalities (mobile applications). This type of narrative is essentially based on territorial

	anchorage (with multimedia content geolocation) and social networks enabling individual or collective exchanges linked to a real place.
Transmedia storytelling <i>Keywords: responsive design, user experience, UX design</i>	Digital storytelling type aiming at developing the narrative on several devices, presenting complementary uses specificities and technological capacities: PC, laptop, tablet, smartphone, TV, interactive scenography, multitouch screen, etc. The transmedia approach enables to create a continuity of uses around content with adapted design, and to immerse the user in an original narrative universe.
Immersive storytelling <i>Keywords: augmented reality, mixed reality, video games, Alternate Reality Games (ARG)</i>	Digital storytelling type based on a blurring of borders between fiction and reality. The putting into narrative is operated continuously and puts the user in a particular situation, in which the difference between the story told and the experienced reality becomes more and more tenuous. The narrative universe defines the experience in which the user is immersed.
Generative storytelling <i>Keywords: artificial intelligence, data base, meta data, data</i>	Generative storytelling relies on the analysis of a given situation to generate a story from pre-established rules and digital data organised and indexed inside a database. Computer programming and the creation of algorithm enable the gathering of digital data in real time, according to pre-defined rules. The form of the story is not determined in advance and is generated autonomously. It is based on a computer treatment using artificial intelligence notion, able to interpret the user behaviour or a set of raw data information. The rendering can be through text (generative novel), fixed pictures (digital design, data visualisation) or video (generative movies).

➤ Create and animate user community around narratives process

The aim is to improve the attractiveness of cultural heritage contents and to delegate a part of this work to users. It means to create digital environments in which users could re-appropriate contents, and even more cultural places, museums, collections, exhibitions, events... In the same way, stories based on cultural heritage contents should also be supported by users that should be ambassadors of a narrative project through simple actions of sharing, commentaries writing...

5 CONCLUSION

The workshop organised in Berlin gave the opportunity to illustrate the key trends identified in the study on digital storytelling for DCH (D5.2) and to discuss about it with professionals which have a strong expertise in innovative projects leading.

It was found that a digital storytelling project needs to respect some prescriptions to be efficient, innovative and to propose an original type DCH mediation. A concept requires all our attention: User experience.

Within an advanced storytelling project, users must be active in order to promote a new vision of cultural heritage. Thus, user experience is an important concept that must be supported by a special design work to produce immersive and responsive devices. User experience is also guaranteed by the exploration of new visit spaces such as cities, which could become a real enriched visit area, so we have to investigate this application field by implementing mobile and generative storytelling device. Finally, we have watched that game mechanics are very good process to improve and redesign mediation.

RECOMMENDATIONS OVERVIEW

NEW MEDIATION FORMS BASED ON DIGITAL STORYTELLING POTENTIAL

- Promote cultural heritage on every day life
- Create an enriched visit space as a new learning environment
- Support the visitor before, during and after the visit
- Make stories interactive and allow to users to interact to the story content
- Combine several devices to develop a transmedia narrative universe
- Strengthen the story by creating an immersive experience

STRATEGIC WATCH ON INNOVATION, EMERGING TECHNOLOGIES AND KEY TRENDS

- Stimulate cultural heritage mediation with augmented reality devices
- Make stories more contextual
- Give opportunity to users to create their own stories
- Development of innovative Human-Machine Interfaces (HMI)
- Encourage immersion into the past
- Be in line with social web and semantic web convergence
- Open up to new opportunities of diffusion, partnership and funding

CREATION AND MANAGEMENT OF DATA AND METADATA DEDICATED TO STORYTELLING

- Exploit the narrative potential of cultural data
- Promote the reuse, editorialisation and enrichment of existing contents by using aggregation process
- Create indexing process dedicated to narratives combinations of digital resources.
- Base your storytelling project on collaborative data indexing
- Experiment the possibilities of artificial intelligence to edit content and to tell stories

EFFICIENT TOOLS TO MANAGE ADVANCED STORYTELLING

- Choose adapted solutions of digital resources management
- Use all the potential of mobile technologies to create locative storytelling
- Use existing services and technologies when possible

THINK LIKE A LABORATORY TO DESIGN YOUR STORYTELLING SERVICES

- Develop an integrated methodology for site-specific intervention
- Encourage the users involvement

ASK THE GOOD QUESTIONS AT THE RIGHT TIME

- Develop an IPR policy openness oriented and supported by a specific reflection on IPR management, accessibility and reuse of the data
- Bring together specific skills to answer to news right issues

CREATE PUBLIC INTEREST AND KEEP YOUR PROJECT ALIVE

- Find the best way to present your storytelling project
- Create and animate user community around narratives process

6 APPENDIX 1: WEB REFERENCES

7scenes

<http://7scenes.com/projects/localxs/>

Streetmuseum-Londinium app

<http://www.museumoflondon.org.uk/Resources/app/Streetmuseum-Londinium/home.html>

Musetrek

<http://www.musetrek.com>

INSITU

<http://insitu.arte.tv>

The builders' challenge

<http://cathedrale.arte.tv>

Culture Clic

<http://www.cultureclic.fr/en>

Louvre Museum audioguide

<http://www.louvre.fr/l-audioguide-du-musee>

Heritage Experience

<http://heritage-experience.fr/fr/>

Brooklyn Museum

https://www.brooklynmuseum.org/opencollection/tag_game/start.php

Djehouti

<http://www.djehouti.com>

Memoways

<http://memoways.com>

Timeline JS

<http://timeline.knightlab.com>