europeana creative

White Paper: Business Models for History Education and Natural History Education

Identifying business models for the educational re-use of cultural objects.

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1. Introduction

This White Paper attempts to document the efforts to identify, implement and evaluate business models that are developed within the Europeana Creative project[1] for the re-use of cultural objects for Natural History Education and History Education by specifying the approach *how* the business models were developed as well as the business models *themselves*.

Europeana Creative is a European project which aims to enable and promote greater re-use of cultural heritage resources, aggregated by the online portal Europeana[2], by Europe's creative industries. Within the project, a number of Pilot applications focused on History Education, Natural History Education, Tourism, Social Networks and Design are developed. Building on these Pilots, a series of open innovation Challenges are launched with entrepreneurs from the creative industries to identify, incubate and spin off more viable projects into the commercial sector. The project goals will be supported by an open laboratory network, an on- and offline environment for experimentation with content, tools and business services, and a licencing framework where content holders can specify the re-use conditions for their material.

We reflect on the development of the business models for the re-use of cultural objects for the first two themes of the project: History Education and Natural History Education. This White Paper is the first in a series of four[3] and must be seen as work in progress, inspiring and supporting the further development of the Pilots, the open innovation Challenges and development of the Europeana Labs Network. We aim to create collaboration in our efforts to develop new business models for the creative re-use of digital objects. We invite professionals from the creative industries as well as the cultural heritage domain to contribute to the evolving discussion and sharing of knowledge and best practices.

[1] See http://www.europeanacreative.eu; accessed February 19, 2014.
[2] See http://europeana.eu; accessed February 19, 2014.
[3] The other White Papers will focus on the themes Tourism, Social Networks and Design.

2. Business Models for Digital Public Content

Public institutions set out to ensure that cultural heritage "can remain a living asset over time and that it is as widely shared as possible"[4]. Cultural institutions are non-profit-making organisations that develop their work to safeguard the public good and not to obtain profit.[5] Over the past decade considerable public investments have been made in the digitisation of cultural heritage objects in the not-for-profit sector. New digital collections have emerged and enable innovative ways to explore its contents, from research projects to resources valued by the community.

However – and especially in the light of the economic uncertainties in Europe and decreasing governmental budgets – digital resource projects struggle in the transition from grant funding to a longer-term plan for ongoing growth.[6] In such a framework, sustainability is a prime concern and challenge. As a result, the development of new business models for the creative re-use of digital content from the cultural heritage sector seems to be "double-edged"[7]. On the one hand, they *must allow wider access to cultural content* (while guaranteeing the copyrights and related intellectual property rights of third parties), on the other hand, they also need to *create revenues to guarantee the long-term sustainability* of projects and services exploiting the content.

Business models – meaning the way that value is created, delivered and captured within an organisation point of view[8] – need to be seen in a wider sense as the way public organisations deliver content and the models they are implementing to create revenues. As producers and distributors of content, cultural institutions develop new (non-commercial) initiatives that guarantee the sustainability of projects and services and also serve as content providers for the commercial sector.

Recent research shows that the current most common business frame underlying these new projects is a contractual frame, where cultural heritage institutions contract creative industries parties (e.g., brand or web agencies, game developers) to develop services, backed by ad hoc

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[4] "The New Renaissance: Report of the 'Comité des Sages'. Reflection Group on Bringing Europe's Cultural Heritage Online", available online at: http://ec.europa.eu/information_society/activities/digital_libraries/doc/refgroup/final_report_cds.pdf, p. 1; accessed February 19, 2014.

[5] See Directorate-General for Internal Policies, written by Claudio Feijoo, Sven Lindmark, Juan Pablo Villar, Carlota Tarín, Javier Gelabert, Beatriz Matía, "Public and Commercial Models of Access in the Digital Era", April 2013, requested by the European Parliament's Committee on Culture and Education; available online at: http://www.europarl.europa.eu/RegData/etudes/etudes/join/2013/495858/IPOL-CULT_ET(2013)495858_EN.pdf, p. 119; accessed February 19, 2014.

[6] See Nancy L. Maron and Matthew Loy, "Funding for Sustainability: How Funders' Practices Influence the Future of Digital Resources", JISC Strategic Content Alliance, Ithaka, New York, June 2011; available online at: http://www.jisc.ac.uk/media/documents/publications/programme/2011/sandrfundingforsustainability.pdf; accessed February 19, 2014.

[7] Directorate-General for Internal Policies 2013, p. 119.

[8] See http://www.businessmodelgeneration.com; accessed February 19, 2014. See also Directorate-General for Internal Policies 2013.

public funding.[9] It was suggested that both businesses and cultural heritage institutions want to exit the "contractual" frame and explore innovative funding models together. Especially cultural institutions expressed that they want new business models of profit sharing and gaining more benefits of the cooperation.[10]

However, there does not seem to be one single approach to achieve this. No study seems to be able to lay out a one-size-fits-all plan that any organisation can follow to reach the point of financial sustainability.[11] An important aspect of a strategy to achieve sustainability seems to be a shift in management on the side of cultural heritage institutions. Clear goals, accountability, measurable targets, reviewing processes and assessing the performance are proven elements in the business sector for creating successful companies, but are considered a weak spot in the way cultural heritage institutions operate.[12]

The educational re-use of cultural heritage objects has been subject to many new initiatives that have been initiated over the past years by both the cultural heritage sector as well as the creative industries (e.g., educational publishers). Access to and re-use of cultural sources for educational purposes can be seen as an important extension of the public mission of cultural institutions. Within Europeana Creative this has therefore been one of the major themes to experiment further with. The Pilot partners of both the History Education and Natural History Education Pilot confirm the challenge ahead as described above.

EUROCLIO[13], the publicly funded European Association of History Educators, is leading the History Education Pilot in Europeana Creative and commits a strong interest in developing educational resources around key moments and developments in history. The Pilot seeks to stimulate the re-use of cultural heritage resources for history education through the development, testing and implementation of easy-to-find and free-to-use educational resources (sources, learning activities and tools) that are designed to stimulate historical thinking, multiperspectivity and active learning. The Pilot focuses on the First World War, a key moment in history, that is relevant in Europe and beyond and will contribute to the further development of Historiana[14], an online educational multimedia platform that offers students multiperspective, cross-border and comparative historical sources to supplement their national history textbooks.

The History Pilot is developed by EUROCLIO in close collaboration with an international community of contributors (history education specialists from the EUROCLIO network), web developers (Webtic) and Europeana Network members. EUROCLIO seeks to continue to work

[9] See Aubéry Escande, Hans de Haan and Louise Edwards, "Europeana Creative White Paper No. 1. Creativity, Technology and Management: Establishing Best Practices between Cultural Heritage Institutions and the Creative Industries", June 2013, available online at: http://pro.europeana.eu/documents/1538974/1594727/eCreative_WP3_ST3.2.1_CreativityTechnologyManagement_v1.0; accessed February 19, 2014.
[10] See Escande, de Haan and Edwards 2013, p. 16.
[11] See Kevin Guthrie, Rebecca Griffiths and Nancy Maron, "Sustainability and Revenue Models for Online Academic Resources: An Ithaka Report", Ithaka, New York, May 2008.
[12] See Escande, de Haan and Edwards 2013.
[13] http://www.euroclio.eu; accessed February 19, 2014.
[14] http://historiana.eu; accessed February 19, 2014.

on the applications that will be developed within Europeana Creative, and one of their main questions is how this can be done in a sustainable way after the (financial) support of the European Union ends, and what this means for the cooperation of EUROCLIO with the partners in the Pilot.

The Natural History Education Pilot follows the same principle of demonstrating the creative re-use of Europeana resources by developing viable applications and tools, with a clear focus on the field of natural history. The leader of this Pilot is the Natural Museum in Prague[15], the largest museum in the Czech Republic and a leading institution in sciences, PR, and database technologies. The core team of the Pilot also consists of other representatives of natural history museums (Museum für Naturkunde, Berlin), natural history scientists, education specialists, application and serious game developers (Exozet Games, Semantika).

Within this Pilot, two products are being developed, both making use of the gaming aspect for variable audiences and with different implementations. The main aim of these products is to present natural history resources to users in an attractive and interactive way, by allowing the usage of the products in private (family) and public (museums, schools) environments.

The first product is developed by Exozet Games (XZT) in collaboration with the Museum für Naturkunde, Berlin (MfN) and the National Museum, Prague (NMP) and is an adventure game situated in a museum environment; it is designed as a mix of a point-and-click and a hidden-object game. The second product is developed by Semantika in collaboration with the National Museum in Prague and follows the principle of a memory game. Both products face the question of how to be continued and further developed after the end of the project. How can their sustainability, especially in form of financial support, be ensured?

In the next section we will (1) discuss the approach that was chosen to develop business models for educational re-use in Europeana Creative, and we will reflect on the design of the process and formulate some guidelines that we developed for the development and incubation of the models. Furthermore, (2) we will elaborate on the specific business models that were identified for educational re-use and dive deeper into the strengths and weaknesses of the models and application for the Pilots in Europeana Creative.

[15] http://www.nm.cz; accessed February 19, 2014.

3. Business Model Development Approach

The starting point for the development of the business models in Europeana Creative was to get a shared understanding of what a business model is and how it could be used in the context of the project. Therefore, a concept that everyone could easily understand and apply was needed. Within the Europeana Creative context, several stakeholders, especially those dealing with education issues, are not particularly familiar with business modelling. A simple but robust concept and methodology was needed. Since the business model canvas developed by Alexander Osterwalder and Yves Pigneurhad proven to be a successful methodology, [16] allowing an individual or group of individuals to discuss and develop business models by using a simple but effective canvas as a working tool, the decision was made to use this methodology.

Osterwalder and Pigneur explain "how value is created, delivered and captured within an organisation point of view". Value takes several forms such as cultural, economic, social, environmental, thus not being limited to a common perspective that refers to business per se for profit. A business model can also be developed not only around organisations but also around specific projects, products or services. Putting it in another way: It's about which pieces are necessary and how to put them together so that your organisation, product, service or project is built in a sustainable way.

The business model canvas can be used in teams as a shared language, for better strategic conversations and as a tool to structure thinking. Inspiration for the design of the business development was also taken from the BMICE Step-by-Step Plan, a seven-step plan that was designed and implemented by heritage institutions to embed new or existing digital service concepts in their business model, and was shared to be repeated on a long-term or occasional basis by heritage institutions.[17]

The conversation about business models was started at two business model workshops that were organised: a Natural History Education Business Model Workshop on May 8, 2013 in Prague (see Annex I for a full report) and a History Education Business Model Workshop on May 15, 2013 in The Hague (see Annex II for a full report) with representatives from cultural institutions, educational organisations (school teachers, students), web agencies and representatives from the business sector. Prior to the business model workshops, a co-creation workshop was held for each theme. This workshop made use of co-creation tools to facilitate the concept development of the Pilots through the co-creation of possible software applications. At the end of each co-creation workshop, the three application ideas with the best potential were chosen to be further explored in the business model workshop to assess their business potential. The co-creation workshop thus provided the basis for the business model workshop.

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[16] See http://www.businessmodelgeneration.com; accessed February 19, 2014. See Alexander Osterwalder and Yves Pigneur, *Business Model Generation*, Wiley, Hoboken, NJ, 2010. See also Stichting Nederland Kennisland, Stichting DEN, TNO, Stichting E30, "BMICE Step-by-Step Plan", 2011, available online at: http://www.den.nl/art/uploads/files/BMICE-Step-by-step_EN.pdf; accessed February 19, 2014.

[17] See "BMICE Step-by-Step Plan" 2011.

Based on the results of the co-creation workshop, the goal of the business model workshop was to trigger a discussion on how a business model can be developed for each of the results. After the workshop the discussion was continued via online conference calls and supported by an online tool.[18]

The following steps were taken to develop the business models. Together the steps sketch out the services that facilitated the business model development.

Identifying Business Models

Following Osterwalder and Pigneur, "[b]usiness models are designed and executed in specific environments. Developing a good understanding of [the] environment helps you conceive stronger, more competitive business models."[19] This was the reason why an analysis of the existing environment was seen as an important first step for the business model workshop. Only by understanding the complex economic landscape, the technological innovations and the market needs, one can effectively work on business models. To better analyse the existing business models environment, the four main areas suggested by Osterwalder and Pigneur – market forces, industry forces, key trends and macroeconomic forces – were discussed, visualised and mapped out.

Osterwalder and Pigneur consider that a business model can best be explained and used through nine basic building blocks that cover the four main areas of business: customers, offer, infrastructure and financial viability. With their Business Model Canvas we sketched out and visualised new business ideas for the three selected ideas.

[18] See https://bmfiddle.com; accessed February 20, 2014.
[19] Osterwalder and Pigneur 2010, p. 220.

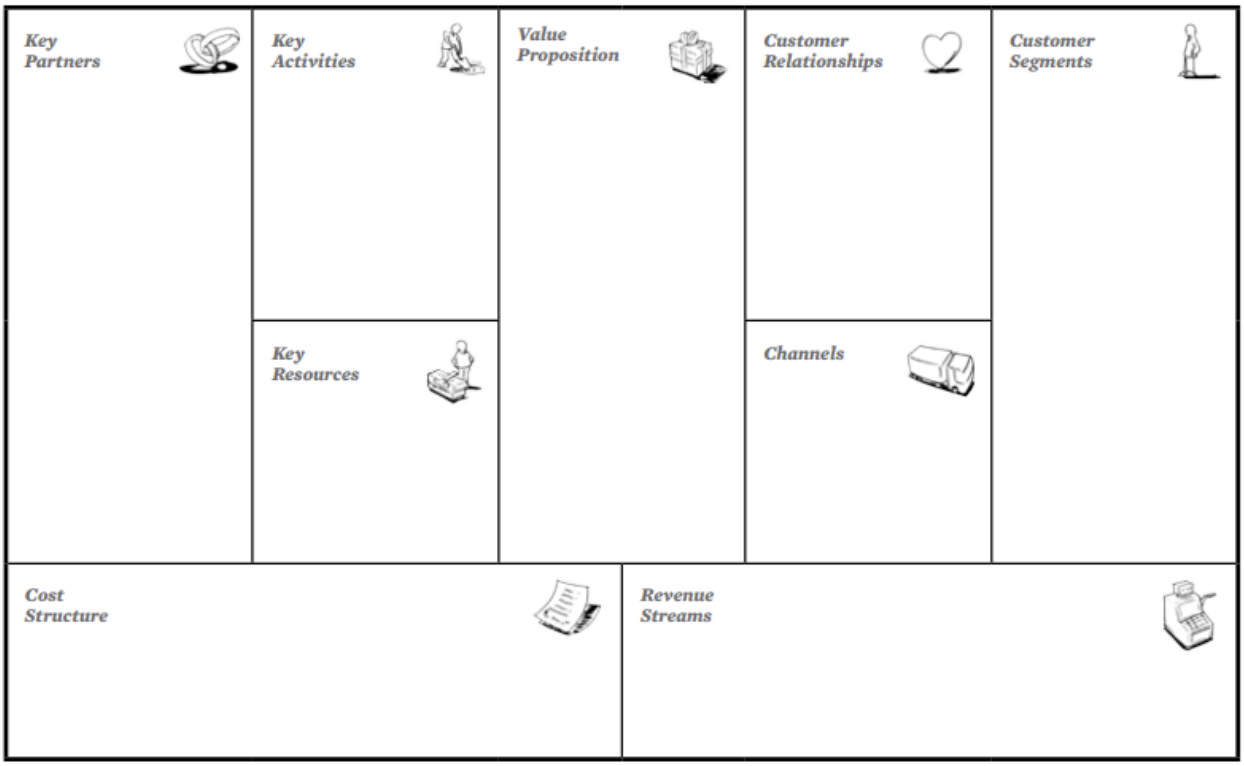

Fig. 1: Business Model Canvas by Osterwalder and Pigneur

The nine building blocks:

1. Customer Segments: The different groups of people or organisations a business aims to reach and serve. The target audience for the products and services of a business.

2. Value Proposition: A business seeks to solve customer problems and satisfy customer needs with value propositions. The products and services a business offers.

3. Channels: Value propositions are delivered to customers through communication, distribution and sales channels. The means by which a company delivers products and services to customers.

4. Customer Relationships: Customer relationships are established and maintained with each customer segment. The link a company establishes between itself and its different customer segments.

5. Revenue Streams: Revenue streams result from value propositions successfully offered to customers. The way a company makes money through a variety of revenue flows.

6. Key Resources: Key Resources are the assets required to offer and deliver the value proposition to the customer segments.

7. Key Activities: The activities a business needs to perform in order to bring value propositions to its customer segments.

8. Key Partners: Some activities are outsourced and some resources are acquired outside the enterprise.

9. Cost Structure: The business model elements result in the cost structure. The monetary consequences of the means employed in the business model.

At the end of the business model workshops, the developed business models for the three application ideas were presented, discussed and published via the online tool.

Natural History Education:

- Night at the Museum: https://bmfiddle.com/f/#/C2Wd7
- Fossil Hunter: https://bmfiddle.com/f/#/vnW82
- Card Game: https://bmfiddle.com/f/#/hP5v6

History Education:

- My Newsreel: https://bmfiddle.com/f/#/rpjq4
- Newspaper as a Tool for Multiperspectivity: https://bmfiddle.com/f/#/Z5h64
- A Tool for Critical Analysis of Sources: https://bmfiddle.com/f/#/V9qG7

After the workshop, the best Pilot applications were selected to be developed. Not only business aspects, but also technical feasibility played a role in making this decision.

Implementing Business Models

The next step was to further develop the product concept, specifically the underlying value proposition(s) of the chosen application idea. Value proposition is a term commonly used in business economics that refers to the argument over which an organisation or company tries to communicate and convince the client of the value of the product or service as far as his or her needs and desires are concerned. Why would people be interested in the product or service? What needs does it meet or what problems does it resolve for the customer? How can revenue be generated to be able to cover the costs of running such a service after the Pilot development period?

As a consequence, further advice on the access of content (and related IPR issues) and guidelines for the re-use of this content in educational resources was given, and options for generating revenue to be able to deliver the value propositions were researched. The strengths

and weaknesses of each revenue option were identified. Based on the developed value propositions, a final decision on whether or not to continue to work with a specific business model for the product or service concept was made.

Evaluating Business Models

The development is also supported by a continuous evaluation of the implementation of the business models throughout the duration of the project. The business model itself is an incremental part of the product concept. This concept and the working prototype will be discussed and evaluated in online focus groups consisting of relevant representatives from creative industries and memory institutions.[20] A discussion about success indicators was started that can be assessed on a regular basis. Another important aspect for a successful business model is the acceptance by end users. Usability tests carried out by Europeana Creative will help to get feedback from potential end users.

[20] See http://pro.europeana.eu:9580/documents/1538974/1601973/eCreative_D6.1_MFG_v1.0; accessed November 7, 2013.

4. Capturing Value

4.1 Critical Analysis Tool

The goal that was set out for the History Education Pilot is to stimulate the re-use of cultural heritage resources for history education through the development, testing and implementation of easy-to-find and free-to-use educational resources (sources, learning activities and tools) that are designed to stimulate historical thinking, multiperspectivity and active learning. This fits well with the mission of Pilot leader and product owner EUROCLIO, who has a long-term commitment concerning the further development of the tool and wants to act as a central hub for an international community of history educators.

In the History Education Co-Creation Workshop and Business Model Workshop three concepts were developed. The concept of a “Tool for Critical Analysis of Sources” was selected as the concept with the highest potential of all three, although some elements of the other concepts were also selected to integrate them in the chosen concept. More information about the other two concepts, “Pupils Research – Newspaper as a Tool for Multiperspectivity” and “My Newsreel”, can be found in Annex I. The Tool for Critical Analysis of Sources is meant to give students a critical tool to analyse key moments in Europe (World War I was chosen as a first key moment to be further developed). The Historiana platform gives access to content that is aggregated by Europeana within specific themes and gives access to a suite of tools (e.g., a tool to create a simple page, to do image analysis, to compare and contrast sources, to create a newsreel and to zoom in on sources). Educators can create lessons as well as new tools with these tools, and they can publish and share these lessons on the Historiana platform where students (and other educators) can access them.

Fig. 2: Sketch of the Tool for Critical Analysis of Sources

The following business model canvas was developed and fine-tuned for the Tool for Critical Analysis of Sources:

1. Customer Segments

- History educators
- Students
- Memory institutions
- Educational publishers
- Ministries of Education / governmental organisations

2. Value Proposition

- Improve analytical skills and get high-quality online and visually attractive education (which is better than a traditional book).
- Access to preselected, curated and trusted source material of various content providers.
- Access to free learning tools and resources that engage students and are tailored for use in history education.
- Access to training services that can support educators in their professional development.
- Increase of the use of collections by an international community of schools (history educators and students).
- Gain visibility and recognition to safeguard/increase public funding opportunities that contribute to an organisation's public mission.
- Participate in an effort to deliver IT services for an international educational community of history educators.
- Offer schools and educational organisations state-of-the-art online learning resources for history education.

3. Channels

- The Historiana web portal
- Training services
- Professional partner networks for history education (e.g., HEIRNET, Anna Lindh Foundation, EUROCLIO Foundation)
- Social media (Twitter, LinkedIn, Facebook)

4. Customer Relationships

- Community-driven
- “Open” sharing of knowledge and resources
- Trusted and credible (e.g., approved by UNESCO, Council of Europe)

5. Revenue Streams

- Partner fees/contributions
- Training services
- Public funding / projects: European Commission, Ministries of Education
- Philanthropic funding
- Crowdfunding donations
- Corporate sponsoring
- (Online) advertising
- Selling audiences

6. Key Resources

- EUROCLIO organisation and international trainee pool
- Network of pilot schools
- Community of contributors
- Content providers and heritage content/collections (e.g., Imperial War Museum, International Institute of Social History)

7. Key Activities

- Preselect and curate collections from memory institutions.
- Create learning resources for history students.
- Train educators to work with the learning tools and resources.
- Disseminate learning resources to schools.
- Promote the tool and resources in the professional history education and digital heritage field (e.g., Europeana Network Annual General Meeting, DISH conference, Museums and the Web conference).

8. Key Partners

- EUROCLIO
- EUROCLIO member organisations
- Memory Institutions: Europeana, Imperial War Museum, International Institute of Social History
- Web developers: Webtic, UseMedia
- Educational publishers

9. Cost Structure

The development of new tools and learning activities and the selection of adequate sources is mainly dependent on the work done by the community of contributors, supported by EUROCLIO staff and trainees. In order for this work to be continued, some costs for human resources and travel cannot be avoided. In the minimum scenario, the work would be continued with the core team and supported by a part-time staff member and a full-time trainee. This would result in the development of one new online tool and two modules (consisting of ten to twenty learning activities each). With more financial resources, it would be possible to scale up the development: to develop more tools, select more content and develop more modules.

Annual Costs (Minimum Scenario)

- Hosting: € 1,000
- Human resources: € 15,000 euro (2 fte staff + 1.0 fte trainee)
- Editing meetings: € 9,000 euro (2 × 6-person editing meeting)
- Web development: € 5,000 euro (1 new tool; estimated)
- Total costs = € 30,000 euro per year

At the core of the canvas is the question of the value proposition. What kind of customer problems can be solved and how can the customer needs be satisfied with value propositions? The Critical Analysis Tool is considered to be valuable for a lot of different stakeholders in the educational field.

For EUROCLIO the tool is valuable because of their long-term commitment to develop engaging online learning activities for and with an international community of history educators. The tool gives EUROCLIO the opportunity to increase access to quality (enriched) content, to increase their services for the members by creating learning activities (tools and resources) and to increase their visibility on a non-commercial basis. The following value propositions for educational re-use were specified for each of the stakeholders that were identified as important in delivering the central value proposition:

1. For **students**, the Critical Analysis Tool is a tool to improve their analytical skills and to get high-quality online and visually attractive education. Students can contribute to the development of the tool by giving feedback to improve the service. For **history educators** who are not so confident in the use of IT, who are limited in their time and find it challenging to engage students, the Critical Analysis Tool offers free access to preselected, curated and trusted source material, free learning activities that engage students and are tailored for use in history education and paid (offline) training services that can support them in their professional development. History educators can contribute to the development of the tool by giving feedback to improve the service and by giving voluntary donations. For **history educators that are highly IT-skilled** and are willing to contribute actively to the development of the tool (e.g., the international community of educators that has been involved with EUROCLIO for years), the Critical Analysis Tool offers the possibility to join an exclusive community of contributors and to help with the selection of sources and the development and testing of learning activities; in return, they benefit from contact with and recognition by peers, access to professional development and equipment and travel opportunities. They can contribute to the development of the tool by donating their time and professional expertise.

2. **Memory institutions** (archives, libraries and museums) want to see return on investment on their efforts in digitising their collections and justify themselves to the public. The Critical Analysis Tool offers them an opportunity to increase the use of their collections by an international community of schools (history educators and students), to get access to curated collections of various content providers and free learning resources (tools and resources) and to increase their visibility and recognition to safeguard/increase public funding opportunities that contribute to their public mission. The Critical Analysis Tool attributes the content providers for their contribution of sources whenever the sources are searched, selected or re-used in one of the tools by end users, leading to an increase of their visibility.

Memory institutions can in return contribute to the development of the tool by providing their content (public domain and openly licenced content) for ingestion in Europeana. They can also

contribute by co-developing online tools and commit resources from their educational departments to creating learning activities on the platform.

As central aggregator of cultural heritage resources in Europe, **Europeana** plays an important role. The History Education Pilot offers Europeana an opportunity to cooperate with history educators, stimulate re-use of content and demonstrate added value via real-life use cases. In return, Europeana can help campaigning for developing open access policies at memory institutions within their network, recommend Europeana Network partners to partner up with and get recognition to safeguard/increase public funding opportunities with the European Commission.

3. More and more educators, students and educators in Europe and beyond have access to information technologies and the Internet. There is a consensus that IT will play an increasingly important role in education. However, most online learning activities are based on testing knowledge, not on stimulating historical or transversal competences. Experiments with IT schools have not led to promising results. IT is one of the top-ranking and most profitable businesses globally.

For **technology providers** the Critical Analysis Tool offers an opportunity to participate in an effort to deliver IT services that have a good chance to be adopted by an international educational community of history educators, which will lead to recognition, a growing reputation in the history education sector and more business and sales of their products and service contracting. The Critical Analysis Tool attributes the technology providers for their contribution to developed tools (e.g., the TimeMaps) whenever the tools are used, leading to an increase of their visibility. IT providers and software developers can in return contribute with in-kind software, hardware and hosting, prototyping and mock-ups. They can also contribute by co-developing new online tools.

Within the Europeana Creative project all partners have committed themselves to publish the software developed with public money by the European Commission under an open GNU/GPL licence. This means that within the scope of the project the commercial exploitation of software (tools) cannot be permitted as a legitimate business model.

4. Another creative industries stakeholder group that is an important for the Critical Analysis Tool are **educational publishers**. They mostly have experience in the development of printed educational material and struggle with achieving profits, especially in smaller countries in Europe. The Critical Analysis Tool allows educational publishers to offer their clients (schools) state-of-the-art online learning resources for history education by inviting them to become a partner in the network. In return for offering this professional service, as “professional users” they pay a partner fee to be able to re-use the learning resources commercially, they can contribute to the co-development of new tools and commit resources from their educational departments to creating learning activities on the platform.

5. Lastly, the Critical Analysis Tool creates value for (public) organisations with the mission to provide high-quality and accessible education for all citizens, e.g., national **ministries of education**, local educational authorities, universities and foundations. Large investments have been made in online databases for learning activities which vary in their success, and with budget cuts education, both on a European and national level, there is hardly space for more of such large-scale projects.

The Critical Analysis Tool offers public educational organisations an opportunity to become a partner in an international public–private partnership where costs and risks are shared, and teachers and students get free access to high-quality learning resources, in return for financial support (subsidies) for the platform and/or the development of more online tools. The partnership will be explicitly mentioned on the website of the Critical Analysis Tool to support the visibility of the partner organisations.

4.2 Museum Adventure Game

The goal of the Natural History Education Pilot is to demonstrate the creative re-use of Europeana resources by developing viable applications, in the form of (serious) games, with a clear focus on the field of natural history education.

The first application that is being developed within this Pilot theme is a Museum Adventure Game called “The Secret Legacy”. In and after the Natural History Education Co-Creation Workshop and Business Model Workshop, the game concept was slightly modified several times (see Annex II for more information). The game takes place at the Museum für Naturkunde (MfN) and various other locations in Berlin, at the National Museum in Prague (NMP) and a secret island close to the Antarctic.

The game tells the story of the secret legacy of the historical figure Alexander von Humboldt, including a mystery which needs to be discovered by his great-great-great-granddaughter Sara. Sara is a PhD student in natural history science. One day she finds a package including some notes and documents from her ancestor Alexander von Humboldt and a piece of a mysterious map. This is the beginning of her adventure. Sara wants to discover the secret legacy of Alexander. The adventure game consists of two chapters, the first taking place in Berlin and the second one in Prague.

During her adventure Sara needs to solve educational puzzles and tasks to get all the hints where to find the map and collect all of the pieces of the map to discover the great secret at the end. For this application, the Pilot leader and product owner is the National Museum in Prague – the largest publicly funded museum in the Czech Republic and a leading institution in sciences, PR and database technologies with collections and exhibitions in more than fifteen public museums. The “Museum Adventure Game” is a valuable learning tool for museum visitors and users to virtually explore MfN’s and NMP’s collections, and is therefore an important step to increase the visibility and audience of the museums.

The game is developed by Exozet Games, a company that specialises in delivering pioneering online and mobile applications, having realised more than two hundred gaming projects. For

Exozet Games, as a representative of the creative industries, the game is a valuable exercise on how to collaborate with cultural institutions and to make innovative use of cultural heritage content. In other words, it is an opportunity to explore a new market.

The following business model canvas was developed and fine-tuned for the “Museum Adventure Game”.

1. Customer Segments

- Museum visitors (children, families)
- Teachers and students
- Museums
- Educational institutions
- Game developers
- Technology providers

2. Value Proposition

- Offers museum visitors, children and parents (informal education) and teachers (formal education) an application that is both fun and entertaining, socially engaging, as well as educational in a way that they can learn something about natural history.
- Offers museums an attractive game application via which visitors can experience their collections and exhibitions in a new way (digitally) and stimulate them to visit the museum.
- Offers public educational institutions an attractive game application that educates in natural history themes.
- Offers game developers the opportunity to participate in an effort to deliver successful gaming applications for the museum sector that have a chance of being adopted by museum visitors (reaching new markets).
- Offers technology providers a chance to promote their software and hardware solutions to relevant customer segments.

3. Channels

- App Store (also for dissemination)
- Europeana and museum (online) PR
- Museum space for direct offline engagement
- Social media
- Business sector networking

4. Customer Relationships

- Direct and personal
- Fun and entertaining
- Educational

5. Revenue Streams

- There is a basic version of the game that can be downloaded for free; additional items, the full version of the game and extra levels can be purchased (freemium model).
- Adaptation for other museums/institutions (consulting and projects)
- Museum ticket sales
- Public–private partnerships with tech companies
- Governmental/public funding
- Philanthropic funding
- Corporate sponsorships (e.g., via sponsoring hardware)
- Crowdfunding
- Advertising
- Selling audiences to businesses

6. Key Resources

- Museum experts/professionals (co-developing the stories) and network of museums
- Game developers/programmers
- Project management / organisation
- Tech infrastructure
- Content delivered by content providers (museums, galleries etc.)

7. Key Activities

- Operation / project management
- Exploitation
- Expansion/scalability
- Maintain contact with museum experts
- Marketing and promotion
- Technical development

8. Key Partners

- Europeana
- Europeana Creative consortium
- Libraries, natural history museums, archives
- Technical library and tool providers
- Web developers
- Apple (App Store)
- Music and sound studio

9. Cost Structure

- Tech infrastructure maintenance
- Taxes/fees
- Overheads
- Sound and music production
- Software/licences

- Human resources
- Promotion

As already stated for the History Education Pilot, the focus of the business model for the Museum Adventure Game lies on the value proposition, as this is the reason why customers decide to have one product over the other. It solves the customer's problems or satisfies his or her needs. Some value propositions may be innovative and can therefore represent a new offer. Others may be similar to existing offers on the market but need to have added features and/or attributes[21] to be able to establish themselves on the market.

There are several examples for applications and services for natural history education, like the Evolution app of the Natural History Museum in London,[22] which offers the possibility to explore more than 650 million years of Earth history. However, this is rather an exploration tool with no game aspect. The same museum offers different games for children, accessible on their website, like the "Mission: Explore" game, where users can collect specimens and preserve them at the museum.[23] In comparison with these examples, the Museum Adventure Game application combines both the exploration tool and the gaming aspect by using Europeana content.

Furthermore, the Museum Adventure Game will be available as a download on the App Store. The app is fun and entertaining, having at the same time an educational aspect; therefore, it can be considered to be valuable for a lot of different customer segments, as well as for the project partners involved in this Pilot.

The following value propositions for educational re-use were specified for each of the stakeholders identified as important in delivering the central value proposition:

1. **Museum Visitors:** The Museum Adventure Game offers a new way of experiencing the museum and its collection for **all types of visitors**, even the ones that have not heard of the museum yet. A frequent or first-time visitor can use to game to deepen his or her knowledge of the collection and therefore feel the urge to revisit. For someone who is not visiting the museum anymore, it can re-awaken the interest in the collection after playing the game and convince him or her to visit the museum again. The same situation applies also to the "not-yet visitor", as this is a way of attracting new audiences who might be liking this kind of theme and content, but are not feeling the urge to visit a museum yet.

Last but not least there is the non-visitor, who is the most difficult user to reach. By combining fun and entertainment with ICT and education, this type of user might be interested in the

[21] See Osterwalder and Pigneur 2010, p. 22.
[22] See http://www.nhm.ac.uk/business-centre/publishing/books/evolution/evolution-app/evolution-app.html; accessed February 20, 2014.
[23] See http://www.nhm.ac.uk/kids-only/fun-games; accessed February 20, 2014.

theme and may be convinced to visit the museum and its collection, in order to see the places he or she experienced in a virtual way. The Museum Adventure Game offers an interesting experience specifically for (young) museum visitors that have an interest in new media and gaming (e.g., iPad users, adventure gamers, etc.). The game can support teachers in teaching natural history themes to children, and families in their informal education of their children.

2. For **content providers** (museums, archives and libraries) the Museum Adventure Game can contribute to an extension of their public mission by giving access to and providing possibilities of re-using cultural sources/content for educational purposes. They can use this game to justify the need to digitise their collections, as this gives the public wider access to their cultural heritage content.

Furthermore the tool increases the use and awareness of the collections of the institutions by addressing a bigger community (students, teachers, families, gamers, etc.) through the combination of fun and education, and this gives a greater visibility to the institutions, supporting the justification for public funding to keep these kinds of services/tools ongoing. The tool can also contribute to an increase of museum visits and ticket sales.

3. The Museum Adventure Game creates value for **public educational institutions**, like ministries, schools, foundations and universities. The mission of these institutions is to provide and improve educational services for people or institutions and to make education accessible. This is what the Museum Adventure Game accomplishes and therefore this kind of application would be suitable to get public funding.

4. The role of ICT in education is becoming more and more important. Also the use of ICT in museums and cultural institutions in general is growing. However, the development of gaming concepts for (museum) education is still at an early stage. The Museum Adventure Game offers **technology providers** and especially **game developers** the opportunity to participate in this growing market, which will finally lead to a greater acceptance of the embedding of ICT in the education sector and finally to more business and sales opportunities based on these kinds of products and services.

Software developed within the Europeana Creative project will be licenced under an open GNU/GPL licence. Technology providers can get inspiration to create their own applications and versions of apps and games; they can re-use the content-rich software for their own purposes; besides participating via the re-use of content-rich software, they can also participate with hardware solutions (e.g., tablets).

4.3 Memory Card Game

The concept of the second application was refined several times, starting from the project proposal, through the Natural History Education Co-Creation Workshop and Business Model Workshop and subsequent Pilot team Scrum calls. Four different concepts were considered until the final concept was agreed upon. The final chosen concept is an educational Memory Card Game in which the user plays against another user to find matched pairs on the board.

The game includes predefined sets of cards according to several attractive themes, and those sets will be unlocked according to the user's achievements and game progress. The sets will be built from preselected content on Europeana and content from the content providers MfN and NMP. The game is a regular memory card game as it is already well represented on the market, with several unique options that improve the added value.

The first additional option is to allow users to build their own sets from Europeana content (user-generated content). Users will search Europeana via the Europeana API and tag content for their own sets. Via a predefined template, users can create a quiz for each specimen or tagged content to extend the memory game also to a knowledge game. This option allows parents, teachers, students but also museum lecturers to use and modify this game as an educational tool.

The other extension is that museums can use this app for their exhibitions, creating sets according to their exhibition collections and displaying the game on touch panels directly in the exhibition room. The additional information on the cards can include, for example, information about where the object is located in the room, exhibition or museum building.

NMP is Pilot leader and product owner of this application. The Memory Card Game is developed by Semantika, a software development company based in Slovenia, with more than ten years of experience in software development, web solutions, mobile and multi-touch applications. The company is specialising in natural user interfaces and human–computer interaction. Given the vast experience of Semantika in software development, museums, heritage and new technologies, they have a great interest in continuing their work in the field of cultural heritage.

The following business model canvas was developed and fine-tuned for the Memory Card Game:

1. Customer Segments

- Pre-school and elementary-aged children
- Teachers and students
- Parents/families
- Museums / content providers
- Game developers
- Technology providers

2. Value Proposition

- Collect your favourite species from a curated and preselected set of quality content about species.
- Access to a fun and educational game application with which children, teachers and parents can build their own quiz; museum educators can build quizzes for their exhibitions.
- Increase of the use of natural history collections by children, teachers and parents and additional marketing intelligence about these target groups.
- Increase of the chance that children, teachers and parents who play the game will also visit the museum in which the object is exhibited (via the inclusion of location information about the exhibited objects).
- Offers game developers the opportunity to participate in an effort to deliver successful gaming applications for the museum sector that have a chance of being adopted by museum visitors (reaching new markets).

3. Channels

- Game environment
- Classroom
- Museum exhibition
- Social media channels

4. Customer Relationships

- Socially engaging
- Addictive brain training
- Viral
- Trusted (content for learning)

5. Revenue Streams

- Merchandising
- Freemium
  (The basic version is for free. For additional features, editions, more possibilities for users to interact [more players], choose content, etc. you have to pay.)
- Selling the app to museums
- Governmental funding
- Philanthropic funding
- Corporate sponsorships
- Advertising

6. Key Resources

- Metadata in Europeana
- Content providers
- Europeana Network
- Game developers

7. Key Activities

- Marketing
- Legal clearance
- Manage/build partnerships/relationships with museums
- Content aggregation/curation
- Support users

8. Key Partners

- Game developers
- Game producers
- Museum experts/professionals

9. Cost Structure

- PR and marketing
- Software development
- User support
- Merchandise

The focus of this business model lies – in this case as well – on the value proposition, as this is the reason why customers decide to have this product over another. It needs to be pointed out again that the online Memory Card Game is not an innovative product per se, as there are already a lot of memory games for children on the digital market; however, it offers some extra options which extend its value. The application is considered to be valuable for the following stakeholders:

1. For **pre-school and elementary-aged children** the Memory Card Game offers an attractive and free educational app about the topic of natural history. The app market has become a significant one for children. A study has shown that over 80% of top-selling paid apps in the educational category of the iTunes Store target children. From this number, 72% target pre-school or elementary aged children.[24] This shows that there is a general interest for this kind of apps, as especially **parents** search for applications with good and trusted content, combining a game with a learning experience. The Memory Card Game fulfils these conditions and the fact that it will be a freemium game makes it even more attractive on the app market.

The game can also be of added value for schools, as complementary teaching tool for **teachers** and as additional learning tools for **students**. However, there is the concern that it is extremely difficult to enter the classroom, as devices in general are primarily consumer and not institutional-focused, meaning that they will not be tailor-made for existing educational programmes.

[24] See Carly Shuler, "iLearn II: An Analysis of the Education Category on Apple's App Store", Joan Ganz Cooney Center, New York, January 2012, p. 3, available online at: http://www.joanganzcooneycenter.org/publication/ilearn-ii-an-analysis-of-the-education-category-on-apples-app-store/; accessed February 20, 2014.

Distribution, awareness and access are significant issues, therefore the Museum Card Game should not only target the school market, but rather the consumer market, as this is the way to assure a multiple use of this application in the classroom, at home or on the go.[25] The Museum Card Game is a good additional learning tool to practice the knowledge on natural history in a playful way, giving teachers also the opportunity to choose their own content for the game according to the topics dealt with in the classroom.

2. For children's museums, the Museum Card Game can be used as a collaborative tool while visiting the exhibition. For **museum educators** it can be very useful to use the app on borrowed devices from the museum in order to guide a group and at the same time to offer them some excitement and diversification in experiencing the exhibition. The other extension is that museum and gallery professionals or other professionals from institutions with exhibitions can use this app for their exhibitions, creating sets according to their exhibition collections and displaying the game on touch panels directly in the exhibition room. The additional information on the cards can include, for example, information about where the object is located in the room, exhibition or museum building.

3. The Museum Card Game is interesting for **technology providers** and **game developers** because they can promote their services in new growing markets (children, museums). Since 2009, the percentage of apps for children in general has risen; especially the toddler and pre-school age category saw the greatest growth. Because the software developed within the Europeana Creative project will be licenced under an open GNU/GPL licence, they can get inspiration to create their own applications and versions of apps and games; they can re-use the content-rich software for their own purposes; besides participating via the re-use of content-rich software, they can also participate with hardware solutions (e.g., tablets).

In the following sections we will elaborate on the strategies that we develop to *allow wider access to cultural content* (while guaranteeing the copyrights and related intellectual property rights of third parties) and on the opportunities to *create revenues to guarantee the long-term sustainability* of projects and services exploiting the content.

[25] See Shuler 2012, p. 20.

5. A Content Re-use Framework for Education

Over the past decade a tremendous effort was made to make digital content in Europe more accessible, usable and exploitable. At the moment of writing, around 20% of heritage materials has been digitised; 31% of that material is available on cultural institution websites and an estimated 6,2% is accessible online. This means that this material is made accessible through the website but without explicit rights of use or re-use.[26] One of the goals of Europeana Creative is that the works are offered online in a complete form (with metadata) and the rights policy is explicit so other parties know what they can or cannot do with it. A lack of (good quality) metadata and especially rights labelling information of digital objects is a big obstacle for third partners to search for and re-use the materials that they are looking for.

To allow parties from the creative industries and wider stakeholders like EUROCLIO and NMP to develop products and services with digital resources from cultural heritage institutions aggregated by Europeana, work has been undertaken in the Europeana Awareness[27] project to build a Europeana Licensing Framework that gives a unified set of terms of use that enables access to metadata and thumbnail images on Europeana.

In January 2013, Europeana launched a Rights Labelling Campaign[28] to reduce the amount of metadata records without rights statements on Europeana; at the end of 2012, 36% of all metadata records were still missing rights information. Because of the demand for access to high-quality re-usable content via Europeana,[29] this framework is currently being extended with a Content Layer within the Europeana Creative project. This *Content Re-use Framework* will allow content providers to voluntarily make available content for specific re-use scenarios[30] in a (digital and physical) environment called the Europeana Labs.

The following process steps from access to the re-use of content are defined within the Natural History Education and History Education themes:

[26] See Directorate-General for Internal Policies 2013, p. 117.
[27] See http://pro.europeana.eu/web/europeana-awareness; accessed February 20, 2014.
[28] See http://pro.europeana.eu/pro-blog/-/blogs/1494947; accessed February 20, 2014.
[29] See Maarten Zeinstra, Paul Keller and Antoine Isaac, "D3.1 – Specifications for Implementing the Content Layer of the Extended Europeana Licensing Framework", August 2013, available online at: http://pro.europeana.eu/documents/1538974/1601973/eCreative_D3.1_KL_v1.0; accessed February 20, 2014.
[30] For an overview of all issues related to the extension of the existing Europeana Licensing Framework we refer to the Discussion Document 'Extending the Europeana Licensing Framework' (Keller, 2013).

1. Filtering and Adding New Content to Europeana

Via the Content Re-use Framework digital objects are filtered based on three technical and IP-related specifications:

- The metadata for the Cultural Heritage Object contains at least one direct link to a Digital Object itself (as opposed to a page where the object is available).
- The Digital Object meets minimum technical quality requirements.[31]
- The Digital Object is provided with a rights statement that allows re-use of the object. (as opposed to rights statements that only allow access).[32]

In addition, a content inventory of other sources that are relevant for the purpose of the Pilot is made. In the case of the Critical Analysis Tool, World War I was identified as an important theme for the sourcing of content, and the Museum Adventure Game will source content that highlights specimens/objects and are suitable for the game application. For each of the identified content sources an agreement must be made with the data owner of the source, in which conditions for the re-use of the content are specified. Content can then be ingested in Europeana and accessed by specified re-users (e.g., educational services like EUROCLIO). To be able to participate in one of the three developed applications as partner, it is important that each content partner contributing content agrees on the conditions to deliver content to Europeana via this Content Re-use Framework.

2. Re-using the Content in Educational Resources

Once the content can be accessed, the content will be enriched with new metadata and content. In the case of the Critical Analysis Tool, history educators will create learning objects based on the content of cultural heritage institutions and contextualise the content in an educational context (adding historic contexts, questions, etc.). For the Memory Card Game users build their own sets from Europeana content (user-generated content). They can search Europeana via the Europeana API and tag content for their own sets. Via a predefined template users can create a quiz for each specimen or tagged content to extend the memory game also to a knowledge game.

[31] See Zeinstra, Keller and Isaac 2013 for the exact technical requirements list.
[32] Content that is identified by cultural heritage institutions as in the public domain or is licenced under an open licence that allows re-use.

3. Publishing Educational Resources for the Educational Community

For end users to be able to access the educational resources, the educational resources should be published on the Historiana platform. Because the Europeana Creative project wants to stimulate creative re-use of cultural heritage objects for history education, it was identified that – also considering the community spirit of the teachers active on the Historiana platform in the case of the Critical Analysis Tool – the open licencing of educational lessons should be promoted in Europeana Creative:

- For educational resources that are based on (a combination of) content in the public domain (PDM), under CC0 or CC BY (attribution), educational resources should be licenced under an open licence (CC BY).
- For educational resources based on copyright or a licence that does not allow commercial re-use (CC BY-NC or more restrictive), permission of the data owners should be asked for publication under an open licence (CC BY).

To support this open licencing strategy of educational resources and encourage the open sharing of sources by the educational community, a simple and easy-to-understand standard agreement should be crafted and signed by end users once they have registered to make use of the service or tool.

6. Business Models for Educational Re-use

This chapter outlines the requirements for the business models developed for applications that re-use cultural resources in Europeana for educational purposes:

- **Open access:** The vision of the European Commission's Comité des Sages that "public domain material digitised with public money should be freely available for non-commercial re-use by citizens, schools, universities, non-governmental and other organisations"[33] is considered as the most widely held view among heritage institutions in Europe, and most access models rely on open access.
- **Open source:** In the case of all the Pilots the product owners (EUROCLIO and NMP) are publicly funded organisations that also receive public funding in Europeana Creative to develop their applications, which will be licenced under an open source licence which permits the (commercial) re-use of the developed software by other parties;
- **Revenue from (in)direct beneficiaries:** EUROCLIO already offers free direct access to their learning resources for teachers and students that can be re-used non-commercially. In our search for strategies to generate revenue for the Critical Analysis Tool it was key that the revenues cannot be generated by the direct beneficiaries of the service (teachers and students). We therefore decided to focus more on indirect beneficiaries that value the service but do not directly use them. For the Pilot applications in Natural History Education, also commercial revenue models generated directly from the consumers were explored.
- **Additional services and goods:** Another strategy to generate revenue while keeping access to the application for free for direct and indirect beneficiaries is to focus on transaction-dependent revenues generated by charging fees for specific additional services (e.g., charging fees for tutorship) or additional unspecified services (e.g., membership fees, donations)[34] or goods (e.g., fan merchandising) from direct beneficiaries.

[33] Directorate-General for Internal Policies 2013, p. 121.
[34] See Gabriela Hoppe and Michael H. Breitner, "Business Models for E-Learning", Discussion Paper No. 287, Universität Hannover, Hannover, October 2003, available online at: http://diskussionspapiere.wiwi.uni-hannover.de/pdf_bib/dp-287.pdf, p. 9; accessed February 20, 2014.

6.1 Critical Analysis Tool

Following this line of reasoning, we propose the following business model taxonomy (including revenue models) for the re-use of public content for the History Education Pilot.[35]

1. A **crowdsourcing** scheme entails the outsourcing of tasks, allowing the public to contribute and add information, and is increasingly getting popular. Initiatives range from Oxford University's Anglo-Saxons archivethat asks the public in the project Worldhord to upload stories, poems, writing, art or songs they have composed or heard that relate to Old English and the Anglo-Saxons,[36] to providing free access to publicly available eLearning contents made by teachers by the Virtual School platform of Fuse[37]. Teachers feed in the material and the sessions can be accessed by mobile devices or YouTube. In exchange, their schools gain access to the resulting eLearning materials. Eight of the top ten UK teaching schools are now on board.[38] The crowdsourcing business model, which does not generate revenue but creates a core value of the service for educators and students, applies to the goals of the History Education Pilot and Critical Analysis Tool.

- Strengths and weaknesses: Crowdsourcing empowers end users to be in charge of the design of their ideal online learning environment themselves (instead of IT professionals), but the model also relies on active participation by highly IT-skilled history educators who are still a minority in the educational community. The Critical Analysis Tool can count on the extensive network of educators run by EUROCLIO.
- Short- and long-term viability:[39] The core of the value proposition of this application is about teachers creating online learning materials on the Historiana platform. It was decided that this business model should be followed up on the short term.

[35] See Guthrie, Griffiths and Maron 2008; European Commission 2011; Hoppe and Breitner 2003. See also Peter B. Kaufman, "Marketing Culture in the Digital Age: A Report on New Business Collaborations between Libraries, Museums, Archives, and Commercial Companies", Intelligent Television, Library of Congress, Washington, 2005; Peter B. Kaufman, "Assessing the Audiovisual Archive Market: Models and Approaches for Audiovisual Content Exploitation", Intelligent Television, PrestoCentre Foundation White Paper, 2013, available online at: https://www.prestocentre.org/system/files/library/resource/assessing_the_audiovisual_archive_market_-_peter_b_kaufman_white_paper_3.pdf; accessed February 20, 2014.
[36] See http://projects.oucs.ox.ac.uk/woruldhord; see also www.galaxyzoo.org as an effort of crowdsourcing the classification of galaxies; accessed February 20, 2014.
[37] See http://www.thevirtualschool.com and http://www.fusion-universal.com; accessed February 20, 2014.
[38] See Balch 2012. However, the Fuse platform is also dependent on corporate sponsorship to support running costs.
[39] We defined short-term viability as viable for the project period of the pilot (before August 2015), and long term for after the project period (after August 2015).

2. In a **public–private partnership** organisations support a project or organisation because it is instrumental to the mission or to the institution's image as an inclusive place of learning; it can increase the organisation's reputation and can attract and engage students. The Massachusetts Institute of Technology (MIT) initiative OpenCourseWare[40] and Apple iTunes U initiative[41] are examples of partnerships with universities that provide online courses free of charge for end users. The partnership can be structured around a partner fee, the pooling and sharing of resources and services (e.g., the JISC Digitisation Programme[42] is a joint venture that aims at creating "a unique digital collection of BBC cultural broadcast assets"[43] and integrates academic libraries, UK research councils and the BBC archives) or redeployment of resources. The partnership model, which can generate revenue (e.g., educational publishers, technology providers, public organisations) and/or reduce funding needs via indirect beneficiaries (e.g., technology providers, memory institutions), is seen as a qualified model to support the goals of the History Education Pilot and Critical Analysis Tool.

- Strengths and weaknesses: The opportunity to create a broad support from key stakeholders for the platform in which partners contribute to their respective strengths. In this model it will take some time until the envisioned benefits will be visible to end users and for the technology to evolve from a Pilot application to a product that is market-ready; expectation management will be key to keep early partners satisfied (in opposition to a contractual model between a memory institution and a technology provider).
- Short- and long-term viability: It was decided that on the short term it is most important to develop partnerships with memory institutions to get quality content as building blocks for teachers to build new resources with, and also get resources from their educational departments to work on the platform. On the longer term, when the basic tools prove to be valuable for the market, the focus can broaden to establish partnerships with technology providers (and maybe also some memory institutions that want to join) to build more tools in partnership with educational publishers.

3. Although maintaining the core business free of charge for students, the organisation can engage itself in business resulting in direct sales of **additional goods or services and consulting**. According to Hoppe and Breitner, some service-based revenue models include the sale of eLearning products and services and revenues by brokerage, i.e., from bringing

[40] See http://ocw.mit.edu/index.htm; accessed February 20, 2014.
[41] See http://www.apple.com/education/ipad/itunes-u; accessed February 20, 2014.
[42] See http://www.jisc.ac.uk/whatwedo/programmes/digitisation.aspx; see also Sarah Fahmy, "Towards the 'Research Education Space' (RES)", January 2013, available online at: http://www.jisc.ac.uk/blog/towards-the-research-education-space-res-07-jan-2013; accessed February 20, 2014.
[43] http://www.jisc.ac.uk/about/partnerships; accessed February 20, 2014.

interested parties together and facilitating transactions.[44] Examples are museum stores and services like Stanford University's HighWire Press[45] and Johns Hopkins University's Project MUSE[46] that offer paid access to its electronic journal collections for non-students. You can also think of mobile apps that connect learning communities[47] or paid side services that leverage a network effect like *The Guardian* offers. *The Guardian* offers a side service of a dating site which charges membership fees and a "Comment is free" blogging site, which has largely contributed to the average reader's "length of visit" times.[48] The goods and services model is seen as a qualified model to support the goals of the History Education Pilot and the Critical Analysis Tool and concentrates on training services and seminars for teachers.

- Strengths and weaknesses: It can create high value for end users and improve the overall quality of contributions by teachers and students to the platform. However, you will need active marketing and sales power to engage enough demand in the market for the trainings, which might not be skills that are available at the organisation at the moment.
- Short- and long-term viability: EUROCLIO is already offering training services to their community, but does not promote this very explicitly yet. It was decided that on the short term it is worthwhile to use the Pilot period to see if a training model for the new application can be developed, and EUROCLIO can promote this more explicitly into their community, so this business model can mature throughout the project

4. **Governmental funding** relates to centralised investment/loans, sustained by a variety of income sources. This can be European, national or regional public funds. However difficult to make the case for grants from the public sector in times of hardship, in Europe this is still the most common way of funding educational platforms (e.g., the Dutch educational platform ED*IT[49] or Wikiwijs[50]).

In the United States, there is an example coming from the Obama Administration of a pledge of grant funding for the open source cause for career and training programmes to be administered and overseen largely through local colleges. The condition that was given by the Obama Administration was that all associated material should be produced under an open Creative

[44] See Hoppe and Breitner 2003. Other revenue sources based on services and consulting is adversiting and sale of customer information. These have been referred previously. Membership fees and subscription were not considered.
[45] See http://highwire.stanford.edu/, "ePublishing solutions for the Scholarly Community"; accessed February 20, 2014.
[46] See http://muse.jhu.edu; accessed February 20, 2014.
[47] See Nancy Proctor, "Introduction", in: Mobile Apps for Museums, American Alliance of Museums, August 2013, available online at: http://mobileappsformuseums.wordpress.com; accessed February 20, 2014.
[48] See Guthrie, Griffiths and Maron 2008.
[49] See http://www.ed-it.nu; accessed February 20, 2014.
[50] See http://www.wikiwijsleermiddelenplein.nl; accessed February 20, 2014.

Commons licence, so students and teachers could re-use the materials freely. The governmental funding or subsidies model, which generates revenue from indirect beneficiaries, is seen as supportive to the goals of the History Education Pilot and the Critical Analysis Tool.

- Strengths and weaknesses: Financial commitment of governmental organisations who have a shared mission to improve the quality of (online) education will raise the credibility of the platform for end users. Decreasing public funds make it hard to fully rely on this business model; a lot of pre-investments in time should be made before the grants can be made effective.
- Short- and long-term viability: Since this business model requires a long breath, it was decided that it would be good to start with this on the short term by promoting the Pilot and results at conferences, to develop a network of public funders and make an analysis of which funding cycles are interesting and when they are open.

5. **Philanthropic funding** or donations are a very frequently used source for funding and can be sourced from both individuals (e.g., teachers who are very committed) as well as organisations. There are a number of channels that can be used, for example, fundraising events or grant contests. In the United States the endowment model has been applied to a large extent. It implies that donors give enough capital that enables the organisation to run their operation with investments or interests without actually having to tap that fund.[51]

As it results from a tradition of large private funding, the endowment model is clearly substantiated in a different mindset in comparison with the European mindset. However, the philanthropic business model, which generates revenue from indirect beneficiaries (e.g., public organisations, technology providers) and is optional for direct beneficiaries (teachers, students), is seen as a qualified model to support the goals of the History Education Pilot and and Critical Analysis Tool.

- Strengths and weaknesses: Highly committed end users and organisations are actively engaged to contribute to the platform and play a special role in the development. But, in times of crisis, generating enough donor money to enable living from funding in the endowment model seems highly questionable.
- Short- and long-term viability: For this model to work, a very good tool and an enthusiastic community of users are needed to be able to promote this to donators. On the short term this is not established yet, so it was decided that this is something for the long run to try out. As this model is highly dependent on the current economic climate, it was also noted that this model should not be considered as a standalone revenue source.

[51] See Guthrie, Griffiths and Maron 2008, p. 47.

6. **Corporate sponsorships** can support a non-profit project by offering the opportunity to disseminate products or services or be positively associated within the non-profit organisation's brand and/or audience. The manner in which a sponsorship can be translated into practical terms varies greatly, but one can relate to paid advertising (product placement, branding) and special facilities for corporate members.

An example of this model is HathiTrust whose contributors include a range of universities, but also commercial partners such as Google.[52] The corporate sponsorship model, which generates revenue from indirect beneficiaries, is seen as a qualified model to support the goals of the History Education Pilot and the Critical Analysis Tool (e.g., technology providers can sponsor interactive whiteboards or hardware).

- Strengths and weaknesses: This is a strong model to engage corporate partners because brands can mutually benefit from each other's reputation and existing services and products. This model entails private sector investment in public services and therefore there is a risk of conflicting intentions.
- Short- and long-term viability: Like with the philanthropic model, a very good tool and an enthusiastic community of users are needed to be able to promote this to sponsors. On the short term this is not established yet, so it was decided that this is also something for the long run.

7. **Crowdfunding** can be traced back to 2005, when Kivawas first launched in micro-financing cultural production.[53] Since then a number of platforms have been developed,[54] which arguably have changed the way entrepreneurs and (cultural) organisations look at sources of funding their projects.

There are four basic models of crowdfunding: donation-based (funders donate to a project without any expected compensation), reward-based (non-financial rewards are offered to funders), lending-based (funders expect repayment and interest) and equity-based (funders receive equity, revenue or a share of the profits).[55] Examples are Wikipedia (in-kind contributions) and CrowdCulture[56], a Swedish crowdfunding platform that pools private and public money where members control how the money is spent.

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[52] See http://www.hathitrust.org; accessed February 20, 2014.
[53] See http://www.kiva.org; accessed February 20, 2014.
[54] For further reading, see David Röthler and Karsten Wenzlaff, "Crowdfunding Schemes in Europe", EENC Report, September 2011, available online at: http://www.eenc.info/wp-content/uploads/2012/11/DRöthler-KWenzlaff-Crowdfunding-Schemes-in-Europe.pdf; accessed February 20, 2014.
[55] See Sara Bannerman, "Crowdfunding Culture", in: *Wi – Journal of Mobile Media*, vol. 7, no. 1, March 2013, available online at: http://wi.mobilities.ca/crowdfunding-culture/; accessed March 20, 2014.
[56] See http://crowdculture.se; accessed February 20, 2014.

The crowdfunding model is seen as a model that can support the goals of the History Education Pilot and the Critical Analysis Tool in funding the development of new eLearning tools and modules, e.g., in cooperation with technology partners. As more ideas for tools have been developed in the co-creation workshops than can be built within the scope of the Europeana Creative project, this is an alternative way to fund the ideas that have not been realised yet.

- Strengths and weaknesses: You will get very direct feedback on whether a project idea is relevant to the community you are targeting; if the crowdfunding is successful, it will be very likely that the tool/project will be used. Crowdfunding is a successful example of a scheme that needs ongoing efforts and investment to be sustainable; it works better for clearly defined projects than for organisations as a whole.
- Short- and long-term viability: It was decided that the crowdfunding model is interesting on the longer term, when the product is mature enough, the community is enthusiastic and can play a role in obtaining funding, and there is a need to build the product with specific features or add-ons.

8. As a result of considerable cuts on government subsidies and dwindling corporate contributions, **straightforward advertising** is getting in the spotlight as an alternative way of funding public causes. An example is the Museé d'Orsay in Paris which had a deal with a perfume company that allowed the placement of sizeable billboards on the museum's walls. Online advertising is also growing: advertising can be published by a supplier of eLearning products whereas eLearning services can remain free.[57] Search ads (advertisers create ads related to keywords in search providers), display ads (advertisers pays for a fixed placement on a page) and classified ads (advertisers rent a space in a for-purpose website) can be distinguished.[58] The advertising model is not seen as supportive to the goals of the History Education Pilot and the Critical Analysis Tool because it will turn schools and learning environments in commercial spaces.

- Strengths and weaknesses: Financial commitment of commercial partners to a shared mission to improve the quality of (online) education. The weakness of this model lies in the fact that schools are positioned as commercial spaces.
- Short- and long-term viability: It was decided that this model has no viability for the History Education Pilot.

[57] See Hoppe and Breitner 2003.
[58] See Guthrie Griffiths and Maron 2008.

9. **Selling audiences to businesses** is a business model in which costumer-related information is sold to data-mining agencies whereas the core service of the platform can remain free to access for end users. This online mode is a considerable source of revenue to some well-known global corporations like Google. In the last few years, Google's tools have radically transformed dissemination value for businesses: from a basic mission of connecting with buyers to supplying customer data and consequently delivering tailored ads for targeted customers. The advertising model is not seen as supportive to the goals of the History Education Pilot and the Critical Analysis Tool because it will turn schools and learning environments in commercial spaces.

- Strengths and weaknesses: The model aims at a deeper knowledge of users or viewers which caters the increased needs of (public) organisations to develop content that interests their public most. The weakness of this model lies in the fact that schools are positioned as commercial spaces.
- Short- and long-term viability: It was decided that this model has no viability for the History Education Pilot.

6.2 Museum Adventure Game

For the Museum Adventure Game we propose the following business model taxonomy / revenue models (based on the findings in chapter 5) for the re-use of public content for the Natural History Education Pilot:

1. The first chapter of the Museum Adventure Game (set in Berlin) will be distributed for free via the Apple App Store market. The second chapter (set in Prague and other locations) will be payable content, as well as all other following chapters, so the users need to pay to be able to access them. Revenue will be created by additional chapters, full versions but also by additional items that can be purchased (**freemium business model**).

- Strengths and weaknesses: The fun and entertainment component of the game can create an "addiction" for the user. By making the first chapter available to play and leaving the solving of the mystery uncompleted, the interest of the users in the game can be stimulated, so they purchase the next chapter to continue the quest.
- Short- and long-term viability: Offering more versions or chapters of the game requires more resources and especially more content. At least for the second chapter of the game, additional funding is needed to finance the development and programming; especially after the end of the project funding, new means have to be found to keep this project going.

2. The game can be adapted for other museums and institutions (**consulting and projects**). The product owners can generate revenue by consulting offers from museums and/or project funding that are acquired from other (public) funds that align with the mission to make cultural heritage accessible in new ways.

- Strengths and weaknesses: The game can contribute to an increase of museum visits because it offers a tailor-made experience of the collection in ways that museums have not offered yet. To get a good result, there needs to be a productive relationship between museum professionals and game developers, which will cost time and money to invest in. As public funding is decreasing, it can be very difficult to find the right financial resources.
- Short- and long-term viability: For the Pilot period this model is out of scope, but this can be explored as a model on the long term, to be repeated for other museums in either a standard service model offer or on a project basis. It is advised to start already within the project period to search for new funding opportunities.

3. **Merchandise:** While maintaining the basic version of the Museum Adventure Game free to use, the organisation can engage itself in business resulting in direct sales of additional goods. Because the game is targeted at consumers and tries to create a community of fans and players, fan merchandising can be an interesting way to bind the community and generate revenue. An example is the hugely successful merchandise strategy of Rovio's Angry Birds game.[59] For the Museum Adventure Game one can think of action figures or plush items that reflect the riddles that the user has to solve.

- Strengths and weaknesses: A strong community-building element. However, this cannot be the core business model of the game and relies heavily on an active fan community. Also, specific merchandising expertise in the team is needed which is not available at the moment.
- Short- and long-term viability: It is advised to explore this model on the long term, once a strong fan base is created around the game.

[59] See http://www.thinkwaystrategies.com/content/lessons-angry-birds; accessed February 20, 2014.

4. **Philanthropic funding**: This is a frequently used method which could generate revenue to further develop the application. Revenue would mainly be generated from indirect beneficiaries (e.g., organisations, technology providers, companies, etc.) and not so much from direct beneficiaries (e.g., teachers, families, gamers etc.).

- Strengths and weaknesses: This model is a very powerful way to bind a community of users and get direct support from them in the further development of the game.
- Short- and long-term viability: A very enthusiastic community of users is needed to be able to promote the game to donators. On the short term this is not established yet, so it is advised that this is something for the long run to try out. As this model is highly dependent on the current economic climate, it was also noted that this model should not be considered as a standalone revenue source.

5. **Corporate sponsorships:** Support of the product by corporate members through money or know-how. It is also very useful to associate the product with commercial partners like Apple; this would lead to a higher visibility of the product and would attract more sponsors.

- Strengths and weaknesses: This model offers a powerful way for technology providers to enter a growing market with their existing software and/or hardware solutions, but it also requires that they meet the company's professional expectations, which will be high in the case of bigger brands like Apple or Microsoft; they may be lower for smaller technology companies.
- Short- and long-term viability: It is advised to explore this model on the longer term if the product is mature enough to be presented to corporate sponsors.

6. **Crowdfunding**: A donation-based crowdfunding model seems to be the most suitable approach in this project. Especially families, online users and adventure game fans may have an interest in supporting the further development of the game. At the same time this means more control by the community, more feedback on the game and also direct feedback, if the game and the idea behind it are relevant to the targeted audience.

- Strengths and weaknesses: The benefits for the community of fans that are enthusiastic about the game are high. They can influence the further development of the game and be part of the product.
- Short- and long-term viability: It is advised to explore this model on the longer term if there is an established community to be targeted.

7. **Advertising:** Online advertising is widely spread and a good way of generating revenue. For this approach, the right partners have to be chosen. Serious advertising is needed to keep the quality of the application high; advertising partners that have the same customers as the application should be chosen (e.g., eLearning products, education products and offers, etc.).

- Strengths and weaknesses: A proven model to generate revenue, although, if used in formal educational contexts, it is too commercially driven. As the main customer of the Museum Adventure Game is more broadly focused on consumers, this might not be a problem.
- Short- and long-term viability: It is advised that this model is considered on the longer term because it is important to choose the right (thematically close) and serious partners for this. However, it is advised to develop this network of partners during the project period.

8. **Public–private partnership:** This model can be useful for the Museum Adventure Game as it can bring important new partners (e.g., Apple) and new resources, services and know-how. At the same time it can generate revenue (e.g., educational publishers, technology providers, etc.), and even reduce funding needs via indirect beneficiaries (e.g., technology providers).

- Strengths and weaknesses: This is an opportunity to create new alliances and to get support from other key stakeholders. However, it is very important to define targets, tasks, duties and limits of this partnership from the very beginning, to assure a good outcome and a long-running collaboration.
- Short- and long-term viability: It is advised to explore this model on the longer term if the product is mature enough to present it to potential private partners.

9. **Selling audiences to businesses** is, again, a business model in which costumer-related information is sold to data-mining agencies, but maybe also museum marketing departments around Europe. The advertising model is seen as supportive to the goals of the Museum Adventure Game.

- Strengths and weaknesses: The model aims at a deeper knowledge of users or viewers which caters the increased needs of (public) organisations to develop content that interests their public most.
- Short- and long-term viability: It is advised to explore this model on the longer term if the product is mature enough and the community is big enough for the marketing intelligence to become valuable.

6.3 Memory Card Game

For the early version of the Memory Card Game we propose the following business model taxonomy / revenue models (based on the findings in chapter 5) for the re-use of public content for the Natural History Education Pilot:

1. **Crowdsourcing:** Crowdsourcing does not create revenue but rather value and a sense of community. In the Memory Card Game the users (parents, teachers, students, museum lecturers) can create a quiz from a predefined template for each specimen or tagged content to extend the memory game. Museums can also use this app for their exhibitions, creating sets according to their exhibition collections and displaying the game on touch panels directly in the exhibition room. To stimulate crowdsourcing activities for the application, competitions can be set up including winners' packages. For example, if a player completes a certain collection or are the best player for a certain quiz, he or she can pick up a prize at the museum and or get free admission to the museum.

- Strengths and weaknesses: This model empowers the end user to contribute to the application (e.g., design, scope) and to add information. However, the model relies on active user participation. For the Memory Card Game various schools and students from NMP's network are engaged, but there is a challenge if this community can grow (virally) during the project period.
- Short- and long-term viability: The success of the Memory Card Game is dependent on an active community of users that are enthusiastic about the product, want more and might even be willing to pay for premium services. It was decided that this business model should thus be followed up on the short term.

2. As with the previous application, revenue can be generated by offering the first version and deck of cards of the Memory Card Game for free, which is also in line with the open access requirement mentioned earlier. Additional versions or decks for the game can be purchased for a fixed prize afterwards, to help sustain the game after the project period (**freemium business model)**. An example of such a freemium modelled card trading game is the recently released game "Hearthstone: Heroes of Warcraft" by Blizzard[60].

- Strengths and weaknesses: The game anticipates users that like to collect natural history objects which can create an "addiction" for the users. By adding new sets to the game, the interest of the users in the game can be stimulated, so they purchase new versions or components to continue to collect things that are available in the game environment until a collection is complete.

[60] See http://us.battle.net/hearthstone/en/; accessed February 20, 2014.

- Short- and long-term viability: Offering more versions or chapters of the game requires more resources and especially more content. At least for the second chapter of the game, additional funding is needed to finance the development and programming, meaning that especially after the end of the project funding, new means have to be found to keep this project going.

3. **Projects and consulting:** Like the previous application, this game can also generate revenue by customising the app for other museums for children to use it for their exhibitions. Together with the museum and according to their exhibition collections, a new set of cards for the game is made and offered on touch panels that can be lent for visiting the exhibition. The app will create interactive elements in the exhibition. The costs of such a project could be covered by the budget of the museum or external (governmental) project funding. An additional way of covering these costs would be to ask for a financial contribution by the direct beneficiaries in form of a rental fee for tablets that can be used to navigate in the museum and to play the game.

- Strengths and weaknesses: For the target group of natural history fans that like to collect things it would be very interesting to be offered a card deck that covers natural history collections from all over Europe, adding unfamiliar species to what they already know. Considering the major budget cuts in Europe, it is difficult to rely on public funding either directly from museums or from governmental sources with the goal to improve accessibility of digital heritage.
- Short- and long-term viability: For the Pilot period this model is out of scope, but this can be explored as a model on the long term, to be repeated for other museums in either a standard service model offer or on a project basis. It is advised to start already within the project period to search for new funding opportunities, especially by building a network of interested museums with natural history collections that are willing to be part of the game.

4. **Merchandise:** While keeping the basic version of the card game free to use, the organisation can engage itself in business resulting in direct sales of additional goods. Because the card game is targeted at consumers and tries to create a community of fans and players, fan merchandising can be an interesting way to bind the community and generate revenue. An example is the hugely successful merchandise strategy of Rovio's "Angry Birds" game.[61] For the Memory Card Game one can think of special deck holders, T-shirts, geological gadgets or plush natural history items like fossils.

[61] See http://www.thinkwaystrategies.com/content/lessons-angry-birds; accessed February 20, 2014.

- Strengths and weaknesses: A strong community-building element is needed. However, this cannot be the core business model for the game and relies heavily on an active fan community. Also, specific merchandising expertise in the team is needed which is currently not available.
- Short- and long-term viability: It is advised to explore this model on the long term, once a strong fan base has been created around the game.

5. **Philanthropic funding**: This is a frequently used method which could generate revenue to further develop the application. Revenue would mainly be generated from indirect beneficiaries (e.g., organisations, technology providers, companies, etc.) and also, if possible, from direct beneficiaries (e.g., teachers, families, gamers, etc.).

- Strengths and weaknesses: This model is a very powerful way to bind your community of users and get direct support from them in the further development of the game.
- Short- and long-term viability: A every enthusiastic community of users is needed to be able to promote the game to donators. On the short term, this is not established yet, so it is advised that this is something for the long run to try out. As this model is highly dependent on the current economic climate, it was also noted that this model should not be considered as a standalone revenue source.

6. **Corporate sponsorships:** Support of the product by corporate members through money or know-how. It is also very useful to associate the product with well-known commercial partners that also target pre-school and elementary-aged children. This would lead to a higher visibility of the product and would attract more sponsors.

- Strengths and weaknesses: This offers a powerful way for technology providers to enter a growing market with their existing software and/or hardware solutions, but it also requires that they meet the company's professional expectations, which will be high in the case of bigger brands like Apple or Microsoft; they may be lower for smaller technology companies.
- Short- and long-term viability: It is advised to explore this model on the longer term if the product is mature enough to present it to corporate sponsors.

7. **Crowdfunding:** A donation-based crowdfunding model seems to be a suitable approach in this project. Especially collectors and fans of natural history topics may have an interest in supporting the further development of the game. At the same time, this means more control by the community, more feedback on the game and also direct feedback, if the game and the idea behind it are relevant to the targeted audience.

- Strengths and weaknesses: The benefits for the community of fans that are enthusiastic about the game are high. They can influence the further development of the game and be part of the product.
- Short- and long-term viability: It is advised to explore this model on the longer term if there is an established community to be targeted.

8. **Advertising:** Online advertising is widely spread and a good way of generating revenue. For this approach, the right partners have to be chosen. Serious advertising is needed to keep the quality of the application high; advertising partners that have the same customers as the application should be chosen (e.g., eLearning products, education products and offers, etc.).

- Strengths and weaknesses: A proven model to generate revenue, although, if used in formal educational contexts, it is too commercially driven. As the main customer of the Memory Card Game is more broadly focused on consumers, this might not be a problem.
- Short- and long-term viability: It is advised that this model is considered on the longer term because it is important to choose the right (thematically close) and serious partners for this. However, it is advised to develop this network of partners during the project period.

9. **Public–private partnership:** This model can be useful for the Memory Card Game as it can bring important new partners (e.g., Apple) and new resources, services and know-how. At the same time it can generate revenue (e.g., educational publishers, technology providers, etc.), and even reduce funding needs via indirect beneficiaries (e.g., technology providers).

- Strengths and weaknesses: This is an opportunity to create new alliances and to get support from other key stakeholders. However, it is very important to define targets, tasks, duties and limits of this partnership from the very beginning, to assure a good outcome and a long-running collaboration.
- Short- and long-term viability: It is advised to explore this model on the longer term if the product is mature enough to present it to potential private partners.

10. **Selling audiences to businesses** is, again, a business model in which costumer-related information is sold to data-mining agencies, but maybe also museum marketing departments around Europe. The advertising model is seen as supportive to the goals of the Memory Card Game.

- Strengths and weaknesses: The model aims at a deeper knowledge of users or viewers which caters the increased needs of (public) organisations to develop content that interests their public most.

- Short- and long-term viability: It is advised to explore this model on the longer term if the product is mature enough and the community is big enough for the marketing intelligence to become valuable.

6.4 Success Indicators

In the sections above we elaborated on the strategies to *allow wider access to cultural content* (while guaranteeing the copyrights and related intellectual property rights of third parties) and on the opportunities to *create revenues to guarantee the long-term sustainability* of projects and services exploiting the content for the History Education and Natural History Education themes.

Table 1: Success Indicators

Business Model	Critical Analysis Tool	Museum Adventure Game	Memory Card Game
Crowdsourcing	yes	no	yes
Additional content and services (freemium)	no	yes	yes
Consulting and projects	yes	yes	yes
Philanthropic funding	yes	yes	yes
Corporate sponsorships	yes	yes	yes
Crowdfunding	yes	yes	yes
Advertising	no	yes	yes
Public–private partnerships	yes	yes	yes

Additional goods: merchandising	no	yes	yes
Additional training services	yes	no	no
Governmental funding	yes	yes	yes
Selling audiences	no	yes	yes

In order to be able to evaluate the success of the implementation of the proposed business models, we developed an evaluation framework based on several key success indicators for each of the business models that was decided to be worthwhile to develop on the short term, i.e., within the project period of the Pilot projects.

For the History Education theme and Pilot, the following evaluation framework is relevant:

Table 2: Evaluation Framework History Education Pilot

Business Model	Stakeholder	Success Indicator	Evaluation
Crowdsourcing	History educators and students (end users) (B2C)	*Positive feedback of the end users (educators, students):* – increase of contributions by educators – increase in the use of resources and tools by students – increase of knowlegde by students – increase of satisfaction by educators and students – etc.	Focus groups, usability testing, website statistics

Partnerships	Memory institutions (B2B)	*Participation of memory institutions:* – growing network of partner institutions – agreements with partner institutions in using content / copyright clearance strategies for content – increase in number of sources included in the Historiana database – participation of educators working at the partner institution contributing to the platform – etc.	Analysis, website statistics
Additional services	Educational publishers, educational/public organisations (B2B)	*Participation in training services (schools, publishers, etc.):* – increase of use of the training services – increase of income via training – etc.	Analysis, focus groups, usability testing
Governmental funding	European Commission, national, regional and local governments	*Financial support via subsidies:* – subsidies for specific (community) projects – subsidies for new tools for the platforms – etc.	Analysis

For the Natural History Education theme and Pilot (Museum Adventure Game), the following evaluation framework is relevant:

Table 3: Evaluation Framework Natural History Education Pilot (Museum Adventure Game)

Business Model	Stakeholder	Success Indicator	Evaluation
Freemium service	End users (B2C)	*Positive feedback of the end users:* – increase of free downloads of the game – increase of the time spent playing the game – increase of satisfaction in the use of the game – increase of museum visits by end users	Focus groups, usability testing, website statistics, ticket sales
Consulting and projects	Museums and public funders (B2B)	*Financial support via project funding or consulting offers:* – line-up of museums that are interested in an adaptation of the game – project funding (opportunities) for new adaptations of the game	Analysis

For the Natural History Education theme and Pilot (Memory Card Game), the following evaluation framework is relevant:

Table 4: Evaluation Framework Natural History Education Pilot (Memory Card Game)

Business Model	Stakeholder	Success Indicator	Evaluation
Crowdsourcing and freemium service	End users (B2C)	*Positive feedback of the end users:* – increase of free user registrations – increase of completed free collections / decks – increase of satisfaction in the use of the game – increase of museum visits by end users	Focus groups, usability testing, website statistics, ticket sale
Consulting and projects	Museums, public funders (B2B)	*Financial support via project funding or consulting offers:* – line-up of museums that are interested in an adaptation of the game – project funding (opportunities) for new adaptations of the game	Analysis

7. Conclusions and Next Steps

This White Paper documents the efforts to identify, implement and evaluate business models that are developed within the Europeana Creative project for the re-use of cultural objects for Natural History Education and History Education; it specifies the approach *how* the business models were developed as well as the business models *themselves*.

We have the following conclusions and recommendations for cultural heritage organisations and/or creative industries partners to consider when (jointly) engaging in the creative re-use of cultural heritage resources for the Natural History Education and History Education themes, which together can be seen as guidelines for the business development approach (including the design of a workshop) as well as for business models themselves.

1. Guidelines for a Business Development Approach

- Start the conversation with getting a **shared understanding** of what business model innovation and a business model is and how you could use this. The Business Model Canvas proved to be a simple and robust tool to trigger a discussion around business modelling and the development of business models for the concepts developed during the Pilot co-creation workshop.
- The **right people** must be involved. It is important to have a mixed group of in- and outsiders involved in the process from the beginning, with people representing different stakeholders and having different professional backgrounds. For this theme, we mixed representatives from the technology sector, business, content providers and end users (history educators and students).
- Spend enough time on introducing each other's **perspectives**. Do not take for granted that a cultural heritage institution understands the perspective of an educational publisher and vice versa. In the business model workshops we addressed this by having a presentation and discussion about Europeana and the relationship and collaboration between creative industries and cultural heritage institutions (based on the research from the Market Activity Analysis).
- In order to further develop and assess the viability of the developed business models, it is important to get a clear path how to turn each concept into a sustainable and relevant application as a result of the business model workshop. It is important to have a shared understanding of the **value proposition** of the business models, i.e., a clear idea of the added value, meaning that (1) the application concept developed during the co-creation workshop should be robust enough to be further assessed on its "business" potential and (2) to reach consensus on the relevance and potential of each concept of all stakeholders. To assess this, also a technological assessment is of importance.

- Once there is a clear path about the value propositions, this should be taken as a baseline for the implementation. When going from the drawing board to the actual implementation, **commitment of all partners** is key to the process. This means having clear roles and responsibilities in the process (in which the product owner is key), having regular conversations, defining concrete actions and also being prepared to change plans when basic conditions for certain areas in the business model are not met (for instance, when there is no interest of memory institutions to commit to the re-use of cultural resources according to the Content Re-use Framework).

2. Guidelines for Business Models for Educational Re-use

- Certain business models that are widely accepted in the creative industries (like straightforward advertising and selling audiences to businesses) seem to meet an important requirement for publicly funded organisations with a public mission, namely, free and open access to public content at all times, but might not be in line with the overall strategy of public organisations (they might, for instance, turn classrooms in commercial spaces). It is important to **openly discuss strengths and weaknesses** of these models and choose an approach that supports end users' needs as good as possible.
- We explored the basic requirements for the development of business models for the educational themes: For the business model for the History Education theme we found out that it relies on **open access** of public domain material digitised with public money, on open access to the **open-source-**licenced software developed within the project, on the assumption that, for the Critical Analysis Tool, revenue can only be generated by indirect beneficiaries. Regarding the business models for the Natural History themes, however, the scope for the Memory Card Game and Museum Adventure Game can be more commercially driven by generating revenue from both **direct and indirect** beneficiaries; additional revenues can be obtained from **additional services and goods.** We choose to focus on the short term (from the start of the Challenges until the end of the project period) and on the development of the following business models: crowdsourcing, freemium, consulting and projects, governmental funding and the development of partnerships with memory institutions and museums (that could eventually be extended with private partners from the IT sector, for instance).
- As we are just beginning to develop new business models for the creative re-use of cultural resources and are exploring fruitful relations between cultural heritage organisations and the wider creative industries, it is important that we share more **best practices** in the field and also reflect on failures.

3. Next Steps in Business Development

In conclusion, we also sketch out some next steps for the further development and implementation of the developed business models in the Europeana Creative project. We specify steps for each of the developed application.

The Critical Analysis Tool:

- Approach content providers to participate in a partnership and contribute to the Content Re-use Framework.
- Develop learning resources with pilot schools.
- Develop a training service and attract customers.
- Make an analysis of future funding rounds for public funding.

Museum Adventure Game:

- Approach content providers to participate in a partnership and contribute to the Content Re-use Framework.
- Build a growing network of natural history museums that are interested in adapting the game to their collections and exhibitions.
- Make an analysis of future funding rounds for public funding.

Museum Card Game:

- Approach content providers to participate in a partnership and contribute to the Content Re-use Framework.
- Build a growing network of natural history museums that are interested in adapting the game to their collections and exhibitions.
- Develop new collections and card decks with school teachers and students in pilot schools.
- Make an analysis of future funding rounds for public funding.

8. Resources

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Annex I: Report History Education Business Model Workshop

Europeana Creative

History Education Pilot – Business model requirements gathering workshop

15th May 2013, The Hague

Index

1. Introduction and context

This report documents the activities and results regarding the discussion and development of a set of Business Model canvas for the "History Education Pilot" of the Europeana Creative project.

The Business Model canvas was discussed and developed during a workshop with the relevant stakeholders that took place on the 15th May, in The Hague. This report therefore provides the context, workshop objectives, methodological approach, workshop programme, participants, developed canvas and final considerations.

Co-Creation Workshop for the "History Education Pilot"

Prior to the "Business model requirements gathering workshop" for History Education, a co-creation workshop was held. This workshop made use of co-creation tools to facilitate the concept development of the History Education Pilot through the co-creation of possible software applications that make use of the Europeana and Historiana repositories.

At the end of the History Education Pilot co-creation workshop 6 different concepts for possible software applications were developed. Of these, 3 were chosen as having the most potential to be further explored. The co-creation workshop took place right before the business model workshop.

The 3 concepts were then picked-up to be explored for their "business potential" in the "Business model requirements gathering workshop". This step must be underlined so that it is clearly understandable as the co-creation workshop thus provided the basis for the business model workshop – the other way around is not feasible.

It is therefore recommended that the reading of this report is completed with an analysis of the results of the correspondent (same theme) co-creation workshop. Nevertheless the 3 concepts as developed in the co-creation workshop are presented in the annex of this document.

Europeana Creative and the Pilots

Europeana Creative is a European project which will enable and promote greater re-use of cultural heritage resources by Europe's creative industries.

The project sets out to demonstrate that Europeana, the online portal providing access to more than 26 million digitised cultural heritage objects from Europe's libraries, museums, archives and audiovisual collections, can facilitate the creative re-use of digital cultural heritage content and associated metadata.

Partners will develop a number of pilot applications focused on design, tourism, natural history education, history education and social networks. Building on these pilots, a series of open innovation challenges will be launched with entrepreneurs from the creative industries to identify, incubate and spin-off more viable projects into the commercial sector.

The project goals will be supported by an open laboratory network (the Open Culture Lab), an on- and offline environment for experimentation with content, tools and business services, and a licensing framework where content holders can specify the re-use conditions for their material. The project will be supported by continuous evaluation and business modelling development.

2. Objectives of the workshop

Based on the co-creation workshop results for the "History Education" pilot, the Business model requirements gathering workshop will trigger a discussion on how a business model can be developed for each of the mentioned results.

The developed business model canvas in the workshop will provide a framework and a guideline on how the "History Education" pilot could be explored in a sustainable way, while at the same time providing "inspiration" for the challenges.

These objectives thus support the previously defined aims as laid out in the Description of Work of the project:

"*Furthermore, this work package [2] will support the development of creative re-use scenarios (business models) supporting the applications and services developed within the different Challenges set out in the project. In order to do so requirement gathering workshops will be held with the aim of integrating the Challenge specific Business Models into the Content Re-use Framework."*

3. Methodological approach

A business model refers to how value is created, delivered and captured within an organization point of view (www.businessmodelgeneration.com). Value takes several forms such as cultural, economic, social, environmental, etc. (thus not being limited to a common perspective that refers to business per se for profit). A business model can also be developed not only around organizations but also specific projects, products or services.

Putting it in another way, it's about which pieces are necessary and how to put them together so that your organization/product/service/project is built in a sustainable perspective.

It is important to have such definition in mind to ensure to the best extent that a business model discussion is not limited or biased by misconceptions or any other perspectives that don't portray the whole picture.

How to develop a business model?

A quick online search on "how to develop a business model?" will provide thousands of responses back, thus making it difficult for a "non-expert" to know where to start. On the other hand this is a well-studied topic where several methodologies are available.

Within the Europeana Creative context, several stakeholders, especially those dealing with education issues, are not particularly familiar with business modeling. As such a simple but robust methodology was needed.

The "Business Model Generation Canvas" (www.businessmodelgeneration.com) has proven to be a successful methodology by allowing an individual or group of individuals to discuss and develop business models by using a simple but effective canvas as a working tool.

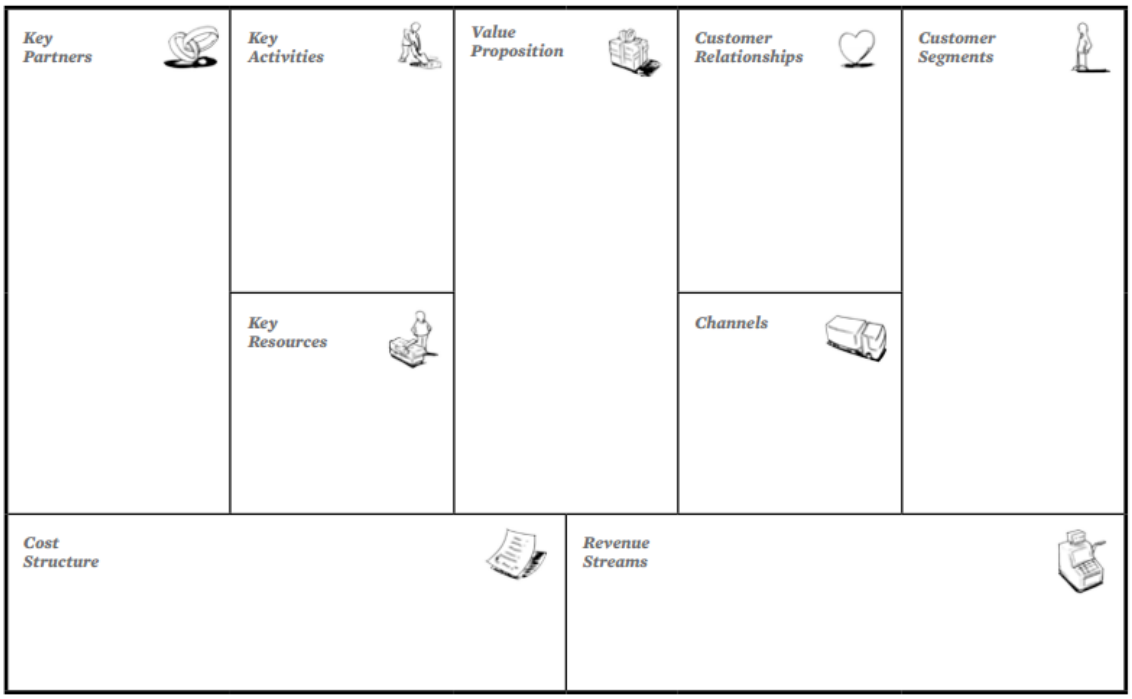
This was the methodology chosen to discuss and develop 3 business models based on the co-creation workshop results. This methodology is explained next.

The Business Model Generation Canvas

This methodology describes a business model through nine building blocks covering the four main areas of a business: customer, offer, infrastructure and financial viability. Being a visual methodology ideas can be laid out in the canvas and discussed in groups and used as a tool to structure thinking.

"*The business model is like a blueprint for a strategy to be implemented through organizational structures, processes, and systems*." [from businessmodelgeneration.com].

The canvas is presented in the following image where the nine building blocks can be seen.



Customer Segments: The different groups of people or organizations a business aims to reach and serve.

Value Proposition: A business seeks to solve customer problems and satisfy customer needs with value propositions.

Channels: Value propositions are delivered to customers through communication, distribution, and sales Channels.

Customer Relationships: Customer relationships are established and maintained with each Customer segment.

Revenue Streams: Revenue streams result from value propositions successfully offered to customers

Key Resources: are the assets required to offer and deliver the value proposition to the customer segments16

Key Activities: The activities a business needsto perform in orderto bring value propositions to its customer segments.

Key Partners: Some activities are outsourced and some resources are acquired outside the enterprise

Cost Structure: The business model elements result in the cost structure

The actual process of filling each of these blocks with relevant information is usually done by having a group of persons (ideally the ones that have developed an idea/concept that might translate into a viable product/service/…) using post-it's as a complementary tool.

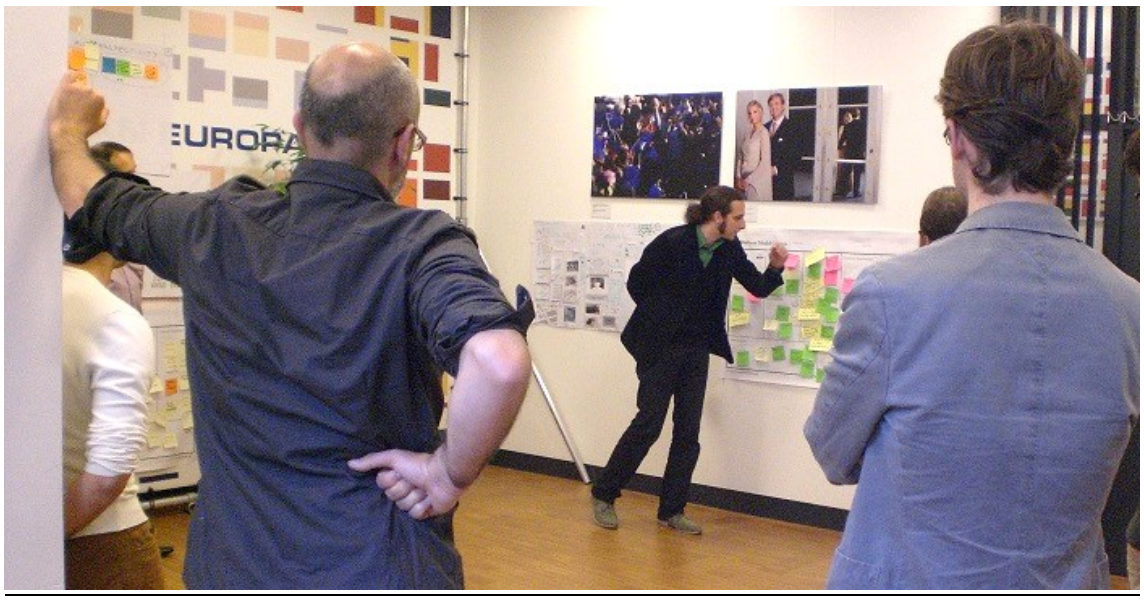
A business model development expert is ideally necessary to have in such sessions to ensure all participants have the same understanding on how the methodology works and more importantly to provide guidance throughout all the process.

The process can take from hours to days, depending on the complexity of the issue and the refinement needed at a certain stage.

Participants' interaction

Such methodology implies, by its nature, to have an active participation of every individual in a workshop that envisage discussing and developing a business model.

This means that the participants in the workshop were divided in 3 groups (one per concept developed in the co-creation workshop), and as the groups were relatively small (3/4 persons) the discussion and interaction between them is more active.



4. Workshop programme and participants

The programme of the workshop mostly focused on the business model discussion and development. The whole workshop lasted 4 hours.

The programme for the workshop was as follows:

Introduction to the business model workshop (general presentation of the structure of the workshop, expectations and expected outcomes)
Presentation of the outcome of the Market Activity Analysis (presentation of the results from the Market Activity Analysis carried out within the Europeana Creative project)
Lunch Break
Business model canvas methodology (presentation of the business model canvas methodology as presented earlier in this report)
Business model canvas discussion and development (division by 3 groups to discuss and develop 3 business models for the 3 concepts developed in the History Education co-creation workshop)
Presentation of business models results (presentation by each group on the developed business models)
Wrap-up

Similarly to the Natural History Education business model workshop, the original programme for History Education also envisaged a slot for discussion the business environment (key trends, market forces, etc.) which was removed due to time constrains of the day. It should be noted however that the removal of this slot was not seen as critical as the results for the same discussion under the Natural History Education workshop were too vague/not focused on the theme. This is due to specific nature of the discussion which requires a reasonable amount of time to achieve concrete results, being therefore not a direct objective of this workshop.

Invited external expert

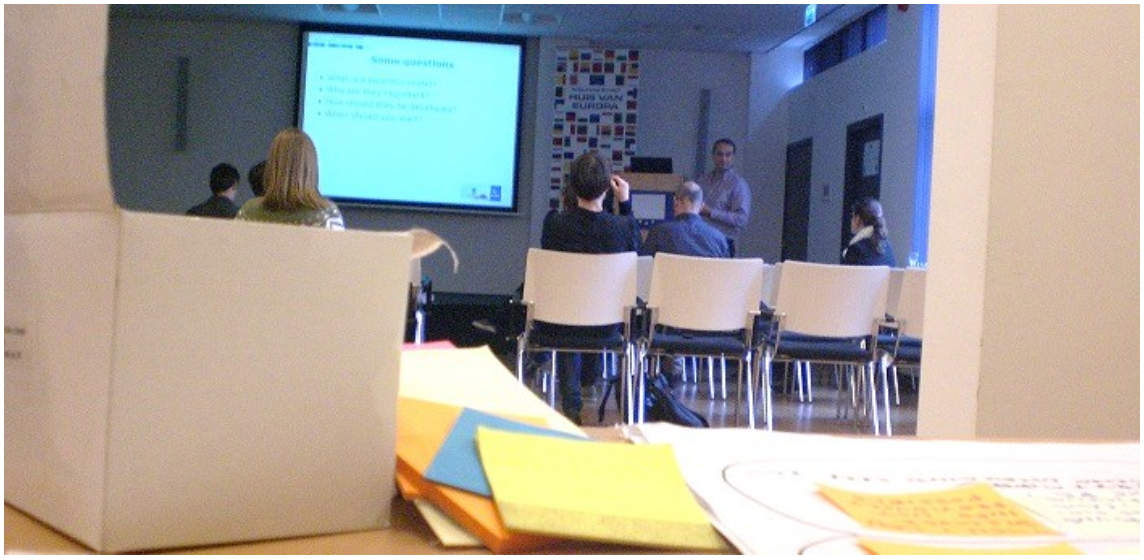
David Tee was the invited external expert both to provide a briefing on the methodology and how to use it and also to provide guidance to the groups during the discussion and development. David Tee is a senior consultant and experienced entrepreneur.

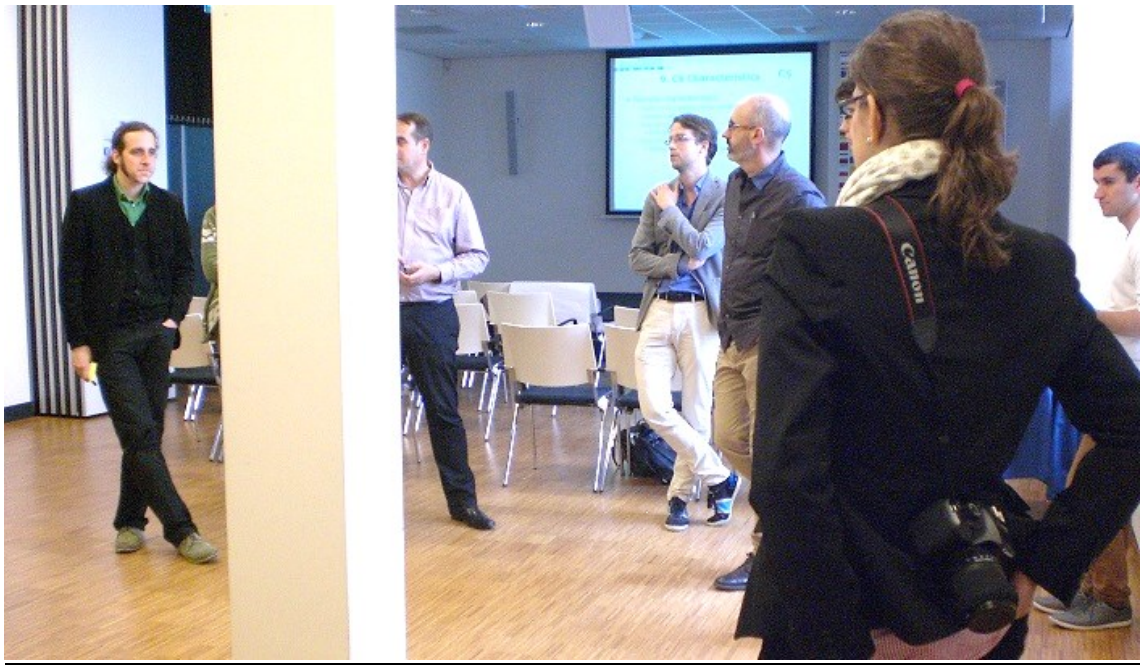
Participants

The workshop counted with the participation of a total of 12 individual, including the external expert, and covering either some project partners as well as some EUROCLIO members as representatives and experts of the “History Education” area.

The participants list is the following:

Nikki Timmermans	Breandan Knowlton	Rui Monteiro	Lizzy Komen
David Tee	Enric Senabre	Katharina Holas	Hans de Haan
Guy Counet	Francesco Scatigna	Louise Edwards	Jana Hoffmann




Canon


WELKOM IN HET
HUIS VAN

5. Business model canvas results

For each of the groups the results as is are presented below as a table format.

In the annex of this document can be found the description of each of these concepts as developed during the co-creation workshop.

 # 1 – My Newsreal (online version - https://bmfiddle.com/f/#/rpjq4)

Customer Segments *Who are we creating value for?* Students 13+ Middle school history teachers Government (national ministries; inter-gov) School leadership (public; private) WWI amateur historian Content institutions (local libraries; history institutions; regional archives) Museum/heritage educator
Value Propositions *What value do we deliver to our customer?* School promotion Value of digitization Saving time Compelling way to present trusted sources Learn subject material (meets curriculum standards) Relevant and timely (during WWI centenary) Browse international resources (multiperspective) Social reinforcement Teaching IT skills (editing; media) Tool for source analysis (teaching method) “Sexy” creative way to teach/learn fact based topic Exposure through education usage (reinforces public mission)
Channels *How do we reach our customer segments?* Browsing video interface My Newsreal app Labs Historiana In-service training Social web
Customer Relationships *What type of relationships do our customer segments expect?* Accounts (hosting contents) Euroclio EUN/School network
Revenue Streams

What value are our customers willing to pay for?
Public investment
Training services (teachers)
Customisation (?)
Adds
Private investment

Key Resources
What key resources do our value propositions require?
Teachers (as curators/selectors)
Mozilla web platform
Historiana assets
Digitised assets (video; images; sound; text)

Key Activities
What key activities do our value propositions require?
Community building
Evaluation
Curation
e-popcorn integration
e-historiana
UX design
Software development
Marketing

Key Partners
Who are our key partners?
Data providers
Mozilla foundation
Europeana
Schools (school network)
Ministries (culture; education; defense)

Cost Structure
What are the important costs inherent in our business model?
Licensing
Curation
Development
Management
Marketing
Hosting
Tech development

Figure 1 – Photography of developed business model canvas for “My Newsreal”.

 # 2 – Pupils research (newspaper as a tool for multiperspectivity) (online version - https://bmfiddle.com/f/#/Z5h64)

Customer Segments *Who are we creating value for?* History teachers Amateurs historians Media teachers Social studies teachers International students Language students Social science researchers Ministry of educations Schools / education institutions
Value Propositions *What value do we deliver to our customer?* Contribute to history learning with what you know Create online learning objects Meet and talk to other students around history Find/discover nice learning objects/activities Access to historical sources Enabler for deep discussion and debate
Channels *How do we reach our customer segments?*

Educational institutions (EUN)
Social networks
Historiana website
Europeana
Schools

Customer Relationships

What type of relationships do our customer segments expect?

Quality assurance/watchdog
Community of users (sense of engagement)

Revenue Streams

What value are our customers willing to pay for?

Government subsidies
Sponsorship
Training for institutions

Key Resources

What key resources do our value propositions require?

Quality board
Software development (open source)
Content
Admin users/ Super users/ Community leaders

Key Activities

What key activities do our value propositions require?

Clearing of rights
Translation of basic information (by teachers or students)
Selection of sources
Community facilitation

Key Partners

Who are our key partners?

Teachers
Euroclio
Content partners (newspapers + images?)
Publishers of educational resources

Cost Structure

What are the important costs inherent in our business model?

Hardware storage
Human resources

Figure 2 – Photography of developed business model canvas for “Pupils research”.

 # 3 – A tool for critical analysis of sources (online version - https://bmfiddle.com/f/#/V9qG7)

Customer Segments *Who are we creating value for?* Visitors of museums Students high school Any researcher seeking to understand meaning/usage of pics/photos Teacher Ministry education Universities Content providers Parents
Value Propositions *What value do we deliver to our customer?* Educational material to work on together Additional exhibition info Make history through meaningful pictures (much better than book) Support in their [teacher] work Research used in society through history education Improvement in quality of education Trustworthy/ curated content/ info Improve analytical skills (critical evaluation of pics/photos/paints) More direct way to “read” and understand past events/costumes/culture Give interesting insights on pictures/photos contents Allow dissemination of their [content providers] collection in an educational way

Channels

How do we reach our customer segments?

Customers (website, promotion within universities/schools)
Partners (extensive use of personal contacts; networks Euroclio)
Students (facebook; pinterest – social media)

Customer Relationships

What type of relationships do our customer segments expect?

Organize trainings and workshops
Providing content for source analysis exercises
Loyalty (subscription: periodic news/news pictures)
Communities in social media (facebook; pinterest)

Revenue Streams

What value are our customers willing to pay for?

Partnerships (museums; cultural institutes (adverts)
Future visitors of museums
Sponsorship advertising on the website (companies interested in young audiences)
Grants
Subscription fees to database
Possibility to order replicas

Key Resources

What key resources do our value propositions require?

Content (people)
Teaching material
Web space

Key Activities

What key activities do our value propositions require?

Be complement of museums activities (not competitors)
Building a network of content providers
Network of teachers
Make collections curate

Key Partners

Who are our key partners?

Media/ documentary makers
Content providers of sources
Teachers (ministry education)
Research institutions
Museums (show where the pictures are “stored”)
Publishers (content; network)
Web developers

Cost Structure

What are the important costs inherent in our business model?

App development
Website management (design…)
Digitization
Rights clearance

Meetings within network Licensing

Figure 3 – Photography of developed business model canvas for “A tool for critical analysis of sources”.

6. Final considerations

- The Business Model Canvas methodology proved to be a simple and robust tool to trigger the discussion around business modeling and the development of business models for the concepts developed during the co-creation workshop and as such it should be used in the remaining pilots.

- It is important to ensure the group contains from the beginning (co-creation workshop) a mix of individual backgrounds while prevailing individuals with a background on the theme of the pilot.

- The developed models still naturally have to be revised and discussed even further to fully assess their viability, however it is sure to say that at this moment the models provide a more or less clear path on how to turn each concept into a sustainable and relevant app.

- A particular reference to the Value Proposition of the three developed models should be made as for all of them it is clear that exists a clear idea on the added value by each concept, meaning that 1) the app concept developed during the co-creation workshop is robust enough to be further assessed on its "business" potential and 2) there was a consensus on the relevance and potential of each concept.

- On this it should also be noted as mentioned earlier in the report that the 3 concepts explored during the business model workshop were selected among 6 originally developed as the ones that were assessed as the most "robust" according to the evaluation indicators used – the point here is that it is certainly of great usefulness to go to the "business model development stage" after having a more or less clear technological proposal (thus following the best methodological approach).

- Comparing the three business model canvas it can also be said that each group of participants filled in each building block in a quite concrete way thus pointing a direction to be further explored and also pointing out ways that other app can potentially explore too.

- The discussions/conclusions around the development of business models should therefore be taken as a baseline for the implementation of the pilots and therefore refinement as further discussion should take place.

7. Annex

This annex contains the descriptions of the concepts developed during the History Education co-creation workshop which were then further developed on a business perspective on the "Business model requirements gathering workshop" for History Education.

The descriptions below are a direct transcript from the History Education Co-Creation Workshop Report (developed by Platoniq).

1 – My Newsreal

The concept would be that students and users could create their own newsreal based on WW1 video material from Europeana. The webpage could let them choose videos, add their own voice, publish and share the results. It would be an opportunity to search for basic data (propaganda, news, etc.) and in connection with the Mozilla project popcorn.js remix together videos with voice over, news narrator, pictures, backgrounds, links to webpages, etc. Its seen as an iterative process between sourcing media content and editing it to final product. It would have the possibility to embed the newsreal in any webpage like Historiana or other eLearning ones where more interactions (such as questions, exercises, forums, etc) would help to expand all its learning potential. Narration and/or subtitles could be in different languages too, and it will be interesting to use image assets to appear them over the video, as well as offering more narration options. This opportunity to remix historical content could connect as a source with remix.europeana.eu (European film project) as a set of creative activities of sound and film and multimedia in general to experience past.

2 - Pupils research (newspaper as a tool for multiperspectivity)

Oriented to students of around 14-16 years, and following the example of studying the subject of WWI Versailles treaty, the core idea is if you could look at a certain newspaper in your country and find out what was the actual opinion at that time, then tell something about the social or political background based in the information and opinions from the newspaper. Students based on that original piece of news should explain (generating content oriented to that specific object) points of view, for example at the moment when the contract was signed. Ideally the pilot should allow for the possibility to choose the country of the newspaper, where the assignment will be always focused on the opinion in the newspaper. Another important feature would be the possibility of translating the source by the student and also his/her comments, so other students from other schools or countries could see and discuss the differences, comparing news about the same event. The teacher could make new assignments looking at another newspapers in other countries have done around the same event and tasks.

 # 3 - A tool for critical analysis of sources

It was presented as a development oriented as well for students activities, where they must be critical, as a broad tool that can be used everywhere. The initial information about content will be given by teacher or Historiana (what its all about) or also given by Historiana in a specific theme. It will focus around 5 historic key moments in Europe (for example the end of WW1). In the case of this conflict, Historiana gives a source, and students work on it asking questions about the source. Hidden there's extra info curated by experts, that its highlighted only if the question is pertinent (option to zoom in and search for specific information) and addresses the interesting/important issues around the content. Students have to think, for example in the case of words of art, about the intention of the artist. Question that have not been answered should allow to get more sources and (unsatisfying information in the first step) it should help to create a toolset designed for answered or not answered questions. A tool like a "lectionary" for history (different topics that belong to entities that enable a deeper information) with 3 layers (space, time, things that belong to the area). Technically layers could be adjusted to requirements (hide or choose layers), results could be compared with the content (or a timeline), and finally teacher could manipulate different hidden layers, with the possibility to share layers with other teachers.

Annex II: Report Natural History Education Business Model Workshop

eCreative
Natural History Education Pilot – Business model workshop

8th May 2013, National Museum Prague, Czech Republic

Participtants:

- Partners from institutions with natural history content (Museum für Naturkunde and National Museum Prague)
- Developers/programmers of applications
- Selected consortium members from WP1, 2 and 3
- External expert

Index:

One of the main objectives of the project:
To identify business models that allow key stakeholders within the Europeana ecosystem to develop their own applications and services based on the Europeana Content Re-use Framework.

Main objective of the business model workshop in Prague:
To support the Natural History Education Theme with identifying, implementing and analysing one or more business models via interactive activities and discussions.

Rationale:
There are no clear business models that demonstrate sustainable relationships between key customers, channels, resources, partners and costs for re-use projects. The wider relevance and adoption by the (creative) industry will depend on the creation of these models.

Key stakeholders:
Key stakeholders for the project are cultural heritage institutions and the creative industries.
For this workshop following important stakeholders were identified: content providers (in this case the two partners: MfN and NMP), technical partners, partners from the creative industries/gaming sector, end-user, business model experts and last but not least consortium members from WP1, 2 and 3.

List of participants

Subtask partners:

- Nikki Timmermans – Kennisland (WP3 Lead)
- Corina Suceveanu – MFG (Subtask 3.2.3 Lead)
- Jiri Frank – NMP (Subtask 3.2.3 Partner and host of the BMW)

WP3 partners:

- Harry Verwayen – EF (Presentation of Europeana and the Open Labs)
- Louise Edwards - EF (presented the Market Activity Analysis)
- Breandan Knowlton - EF
- Rui Monteiro – EBN (Subtaks 3.2.2 Lead – History Education Theme)
- Jana Hoffmann – MfN (Content Provider)
- Rebekka Knutzen – XZT (Development partner)
- Felix King – XZT (Development partner)
- Sašo Zagoranski – SEM (Development partner)
- Lizzy Komen – NISV (WP4 Lead)

WP1 partners:

- Enric Senabre – Platoniq (organizer of the Co-Creation Workshop)
- Olivier Schulbaum – Platoniq (organizer of the Co-Creation Workshop)

WP6 partner:

- Nico Kreinberger – MFG (Evaluation)

External Expert:

- Juliane Schulze – Peacefulfish (Expert in business models)

End-user: educators, students from the co-creation workshop

- Vasilis Teodoridis - proff. on Faculty of Education, Charles University
- Tereza Odchazelova - PhD on Faculty of Education
- Lukas Liabl - education specialist and lecturer

General introduction: Presentation of Europeana and the vision of the Open Labs context by Harry Verwayen from Europeana Foundation

The workshop began with a short general introduction on Europeana by Harry Verwayen. This was considered to be an important part of the program as the participants of the workshop had different backgrounds, and were therefore more or less familiar with the Europeana project.

Europeana was launched in 2008 with 2 million objects from 27 EU countries. During the next year Europeana worked on an operational service and created a strong network of museums, archives and libraries.

Europeana can be seen as an aggregator aiming to give access to all of Europe´s digitised cultural heritage. To achieve this, more collaboration is needed, also with other aggregators of content. The ambition is to give new forms of access to culture, to inspire creativity.

For this Europeana identified four strategic tracks to focus on in the years to come:

- **Aggregate** content to be able to build an open trusted source of European cultural heritage
- **Facilitate** knowledge transfer, innovation and advocay in the cultural heritage sector
- **Distribute** heritage/conent to users whenever, wherever
- **Engage** users in new ways to participate in (their) cultural heritage[1]

[1] http://www.pro.europeana.eu/c/document_library/get_file?uuid=c4f19464-7504-44db-ac1e-3ddb78c922d7&groupId=10602, p. 5.

Market Activity Analysis by Louise Edwards from Europeana Foundation

The Market Activity Analysis plays a major role within task 3.2 on Business Models for Themes. The analysis identifies characteristics of successful collaborations between cultural hertiage institutions, creative industries and other external stakeholders.

During the business model workshop first results coming from the desk research, the survey and in-depth interviews with key people were presented. However this were not the final results, as the analysis was not finished.

<u>Who answered the survey?</u>

- Business
- No Strings (NL)
- Doklab (NL)
- Frontwise (NL)

- Public/business
- MFG Innovation Agency for ICT and Media (GER)
- MainRaum (GER)

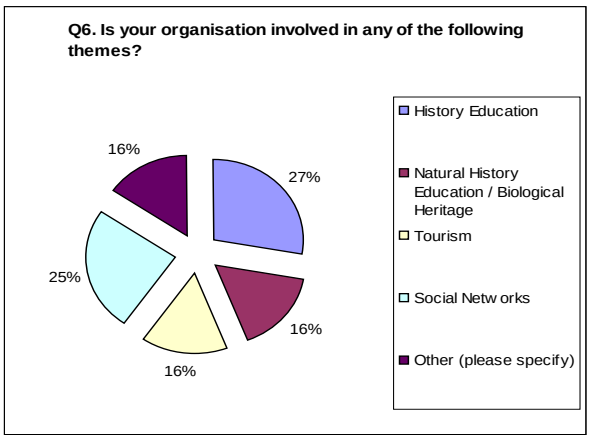
- Library
- National Library of Spain
- National Library of France
- The Electronic Library
- National Library of Finland

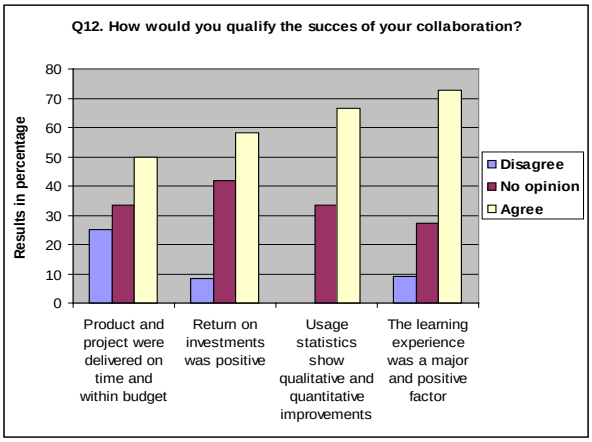
- Archives/library/heritage/culture/museum
- The Society of Swedish Literature in Finland
- Cité de la Musique
- Rijksmuseum Amsterdam

- Education
- Hochschule Luzern – Design & Kunst

In-depth interviews with:

- EYE Film Institute (NL)
- Rijksmuseum Amsterdam (NL)
- Salterbaxter (GB)
- Heritage in Motion (Europa Nostra/European Museum Academy)
- Wikimedia Nederland (NL)





Charts from the presentation of Lousie Edwards

Some results

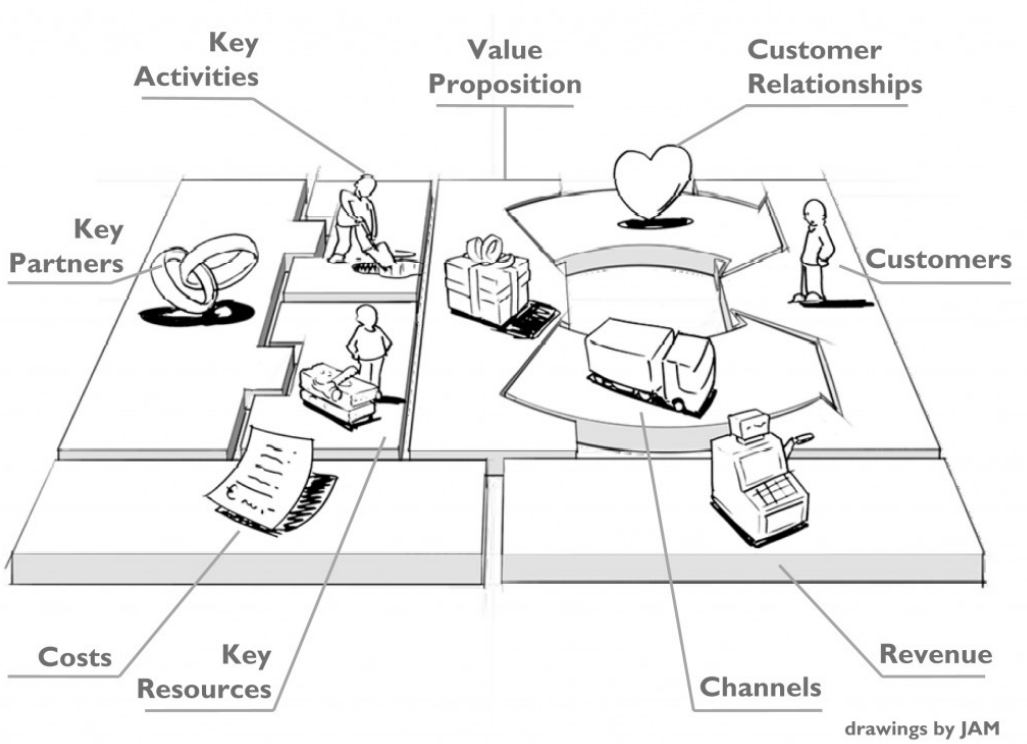
- Many cultural institutions regard themselves as part of the creative industries
- Many think creativity applies to both digital and non-digital
- Businesses and cultural institutions play to their respective strengths e.g. libraries clear rights and does curation, business does marketing and selling
- Cultural institutions want new business models of profit sharing and gaining benefits of the cooperation
- Have a clear idea of the end result, otherwise cost and time escalate
- Understand the project and its scope
- Start to cooperate at an early stage
- Have good project management
- Have clear and transparent decision-making
- Branding matters and is seen as an asset on both sides
- Positive learning experience for both

Concept used for the business model workshop

The starting point for a good discussion and for a successful workshop on business models is a shared understanding of what a business model is and how it can be used . Therefore a concept is needed that everyone can easly understand and apply. The concept must be simple, relevant and understandable.

For the workshop in Prague the decision fell upon the business model concept of Alexander Osterwalder & Yves Pigneur from their famous book called "Business Model Generation".

They consider that a business model can best be explained and used through nine basic building blocks, that cover the four main areas of business: customers, offer, infrastructure, and financial viability. With their Business Model Canvas new business ideas can be sketched out and visualized. The Canvas can be used in teams as a shared language, for better strategic conversations and as a tool to structure thinking.



Source: http://customerdevelopment.org/wp-content/uploads/2013/04/bmcanvas-basic-model3.jpg

Business model environment

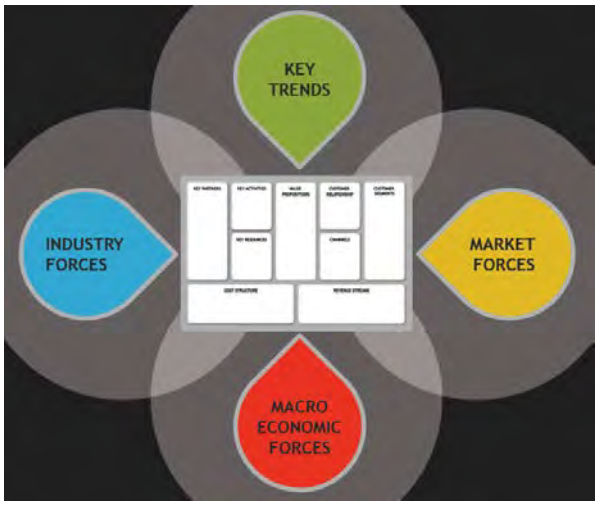
„Business models are designed and executed in specific environments. Developing a good understanding of [the] environment helps you conceive stronger, more competitive business models"[2]

This is the reason why an analysis of the existing environment around the Natural History Education Theme was seen as an important step for the workshop. Only by understanding the complex economic landscape, the technological innovations and the market needs, one can effectively work on business models.

[2] A. Osterwalder & Y. Pigneur (2010): Business Model Generation, p. 220.

To better analyse the business model´s environment the four main areas suggested by Osterwalder and Pigneur were used for this workshop:

- Market Forces // Industry Forces // Key Trends // Macroeconomic Forces



Objective

To vizualise and map out everything that is going on in the business model´s environment and that can influence the development of the business model(s)

Why is this exercise important?

- No individual alone could map a holistic picture of the business model´s environment. Therefore a diverse group of people, each with his specialist´s knowledge, is needed to be able to develop a shared understanding and a complete map of the evironment
- This visual map can help discover new associations, new patterns, and also new ideas
- It is last but not least a good preparation for the next step: designing the business model(s)

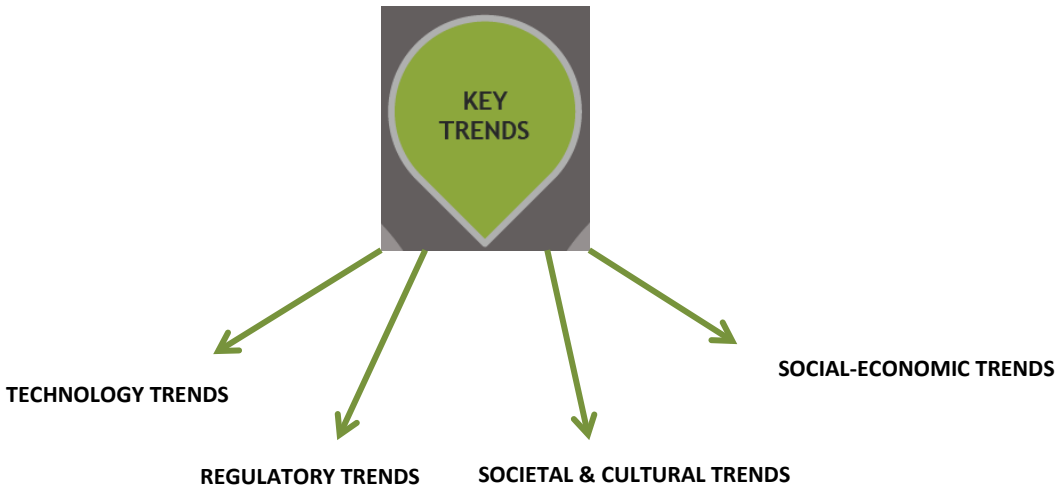
Expected outcome

- A visual map
- Deep discussions about the business model´s environment
- A shared understanding of the environment&the needs for the business model
- A starting point for the business model

After a short presentation on this approach, the participants of the workshop were asked to choose one of the areas and to map their own environment accordingly. They also received instructions for this task, containing helping questions for the different areas. Afterwards each group was asked to explain their findings in the plenary.

In the following all four main areas will be briefly introduced together with selected questions from the instructions handed in during the workshop. At the end of each the results of the groups will be presented.

Key Trends: Foresight



Technology Trends:

- What are the major technology trends both inside and outside the market?
- Which technologies represent important opportunites or even threats?
- Which emerging technologies are peripheral customers adopting?

Regulatory Trends:

- Which regulatory trends influence your market?
- What rules may affect your business model?
- Which regulations and taxes (if it is the case) affect customer demand?

Socioeconomic Trends:

- What are the key demographic trends?
- Describe spending patterns in your market
- Describe incomes/wealth distribution

Societal and Cultural Trends:

- Describe key societal trends – cultural and societal values
- Which trends might influence buyer behaviour?

Group 1: Results from the Business Model Workshop

Technology Trends:

- (Open) Hardware
- Cloud Computing
- Convengence of Devices
- Big Data
- 3D Printing
- Extract Knowledge
- Constant technological innovations (Google glasses)
- Bioinformatics
- Semantic Elements

Regulatory Trends:

- Content Abuse – cost of autonomy
- Cost/Gain of attribution
- Crowd sourcing
- © Content
- Piracy
- Tax regulation
- Open Data

- Privacy issues – open IP
- Licensing closed/open

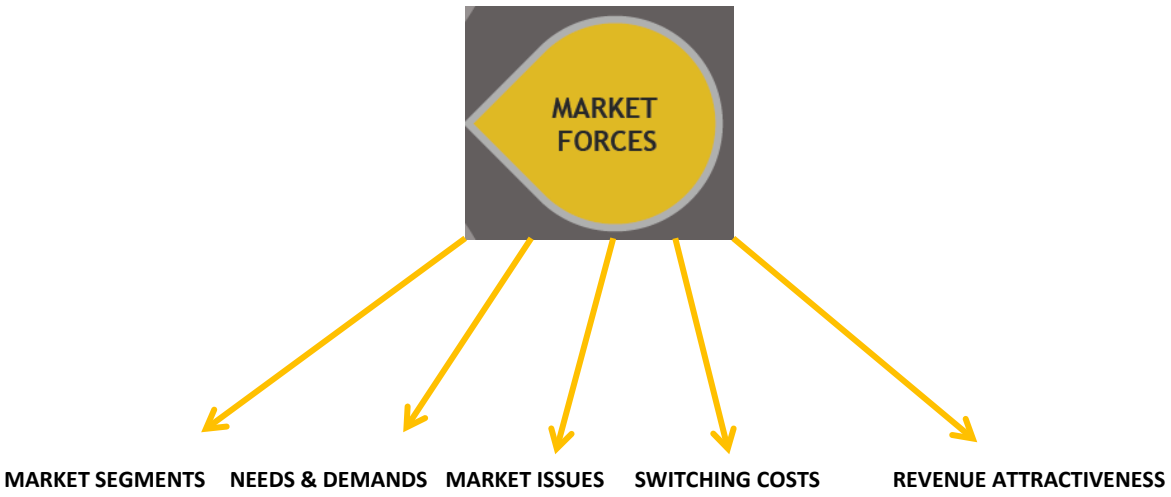
Socioeconomic Trends:

- New Protocols
- Private Public Partnership funding
- Crowdfunding
- Collaborating Economy
- Citizen Science
- Sharing Economy
- P2P
- Open Educational Formats

Societal and Cultural Trends:

- Demographic Change: living longer, retiring later
- Digital Museum
- Virtual Exhibition
- Spending Patterns

Market Forces: Market analysis



Market Segements:

- What are the most important Customer Segments?
- Where is the biggest growth potential?
- Which peripheral segments deserve attention?

Needs & Demands:

- What do customers need?
- Where are the biggest unsatisfied customer needs?
- Where is demand increasing? Declining?

Market Issues:

- Who are our competitors?
- Who are the dominant players in our particular sector?
- What are their competitive advantages / disadvantages?
- What is their main offer?

Switching costs:

- Whait binds customers to a company and its offer?
- How important is brand?
- What switching costs prevent customers form defecting to competitors?

Revenue attractiveness:

- What are customers really willing to pay?
- Where are the biggest unsatisfied customer needs?
- Where is demand increasing/declining?

Group 2: Results from the Business Model Workshop

Market Issues:

- Educational publishing
- Some big museums
- New apps (from the gaming industry)
- American & UK products

Market Segments:

- Triangle: Teacher-pupils-parents
- Influencers
- Ministry of Education
- EDU Games
- Free riding “gamers” (by social influences)
- Save the planet – government, NGO, charity

Needs & Demands:

- Enterprise / Personal
- Demands for “ready to use” teaching material (structured)
- Entertainment
- Local content ?
- Engagement & Fun for attracting 10-16y to knowledge
- Parents: need to find educational pasttimes → orientation

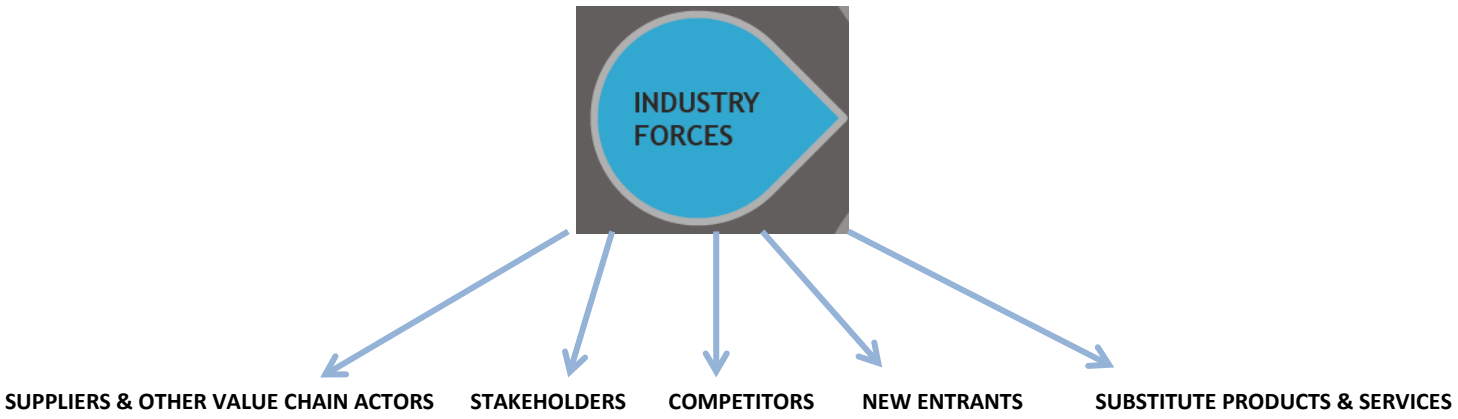
Switching costs:

- From free to paid
- Nagging: market to kids → they ask parents
- Teachers: paid better than free (perception)

Revenue attractivness:

- Connect to museum visits/entrance
- Already paid (through taxes)
- High perceived (badge) value
- Optional modular payment (if it works)
- Productivity (teachers)

Industry Forces: Competitive analysis



Suppliers & other Value Chain Actors / Stakeholders / Competitors / Substitute products & services:

- Who are our competitors?
- Who are the dominant players in our particular sector?
- What are their competitive advantages or disadvantages?
- Descriebe ther main offers
- Which Customer Segments are they focusing on?
- What is their Cost Structure?
- How much influence do they exert on our Customer Segments, Revenue Streams, and margins?

New Entrants:

- Who are the nw entrants in your market?
- How are they different?
- What competitive advantages or disadvantages do they have?
- What is their Value Proposition?
- Which Customer Segments are they focused on?

Group 3: Results from the Business Model Workshop

Suppliers & other Value Chain Actors:

- Competitors for content provider
- BHL, NMP, MfN
- Europeana
- Publishers
- Public scientists

Stakeholders:

- Cultural industry; memory institutions
- Higher Education sector
- Classic industries
- Community (citizens etc.)
- Policy makers

Competitors:

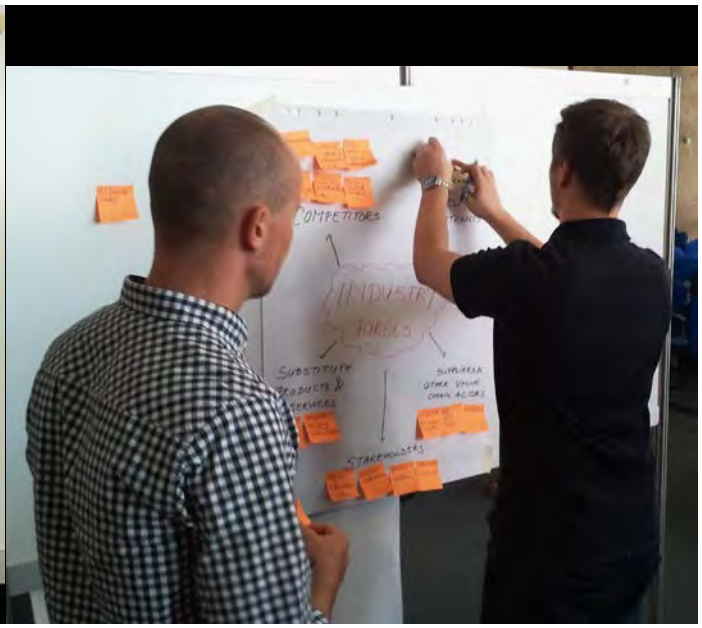
- Other game companies
- Geocoaching
- Cultural & Creative Industries
- (+) no limit to an education topic
- (+) gain profile via ingame advertising
- (-) no trusted content

New Entrants:

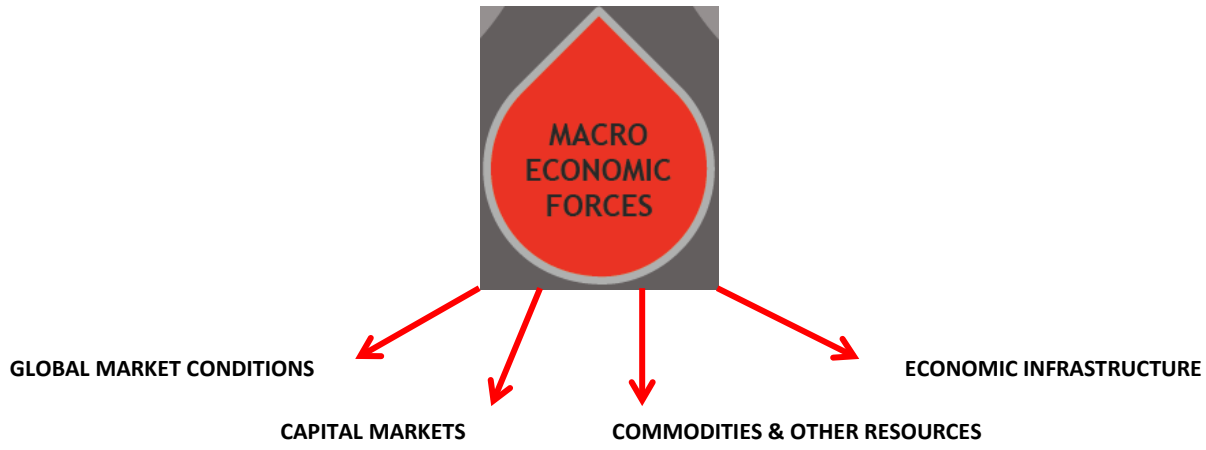
- Semantic elements
- Tourism environment

<u>Substitute products & services</u>:

- Physical learning content (books, museum)
- Games consoles, cinema, webpages



Macro Economic Forces: Macroeconomics



Global Market Conditions:

- Is the economy in a boom or bust phase?
- Describe general market sentiment

Capital Markets:

- How easy is it to obtain funding in your particular market?
- Is seed capital, venture capital, public funding, market capital or credit really available?

Commodities & other Ressources:

- How easy is it to obtain the resources needed for your business model?
- How costly are they?

Economic Infrastructure:

- How good is the public infrastructure in your market?

Results from the BMW presented by Juliane Schulze:

Global Market Conditions:

- Game = very strong industry
- High demand & growing
- Lots of talent = lower prices?

Capital Markets:

- Eco Crisis
- More ++ equity sources
- Funds? Not easy but possible

Commodities and other Ressources:

- Costly programming
- Labor costs ok – outsourcing possible

Economic Infrastructure:

- Established infrastructure
- Shelf life for EDU games?

Discussion after the four presentation:

After the presentation of the four main forces a discussion started on the roles, requirements and objectives of both the cultural heritage institutions and the creative industries.

Here are some of the outcomes:

- Creative industries: are making something for a cultural institution (on contractual agreement)
- Cultural institutions: the collaboration with the creative industries is new, still has to be explored, it´s an investment, they expect a good return of investments

→ *Cultural institutions want a fair deal out of it vs. return on investment on collaboration is good*

Business Model Canvas

Definition: A business model describes the rationale of how an organization creates delivers, and captures value.

The nine Building Blocks

Customer Segments: The different groups of people or organizations a business aims to reach and serve.

→ The target audience for a business´ products and services.

Value Proposition: A business seeks to solve customer problems and satisfy customer needs with value propositions.

→ The products and services a business offers.

Channels: Value propositions are delivered to customers through communication, distribution, and sales Channels.

→ The means by which a company delivers products and services to customers

Customer Relationships: Customer relationships are established and maintained with each Customer segment.

→ The link a company establishes between itself and its different customer segments.

Revenue Streams: Revenue streams result from value propositions successfully offered to customers

→ The way a company makes money through a variety of revenue flows.

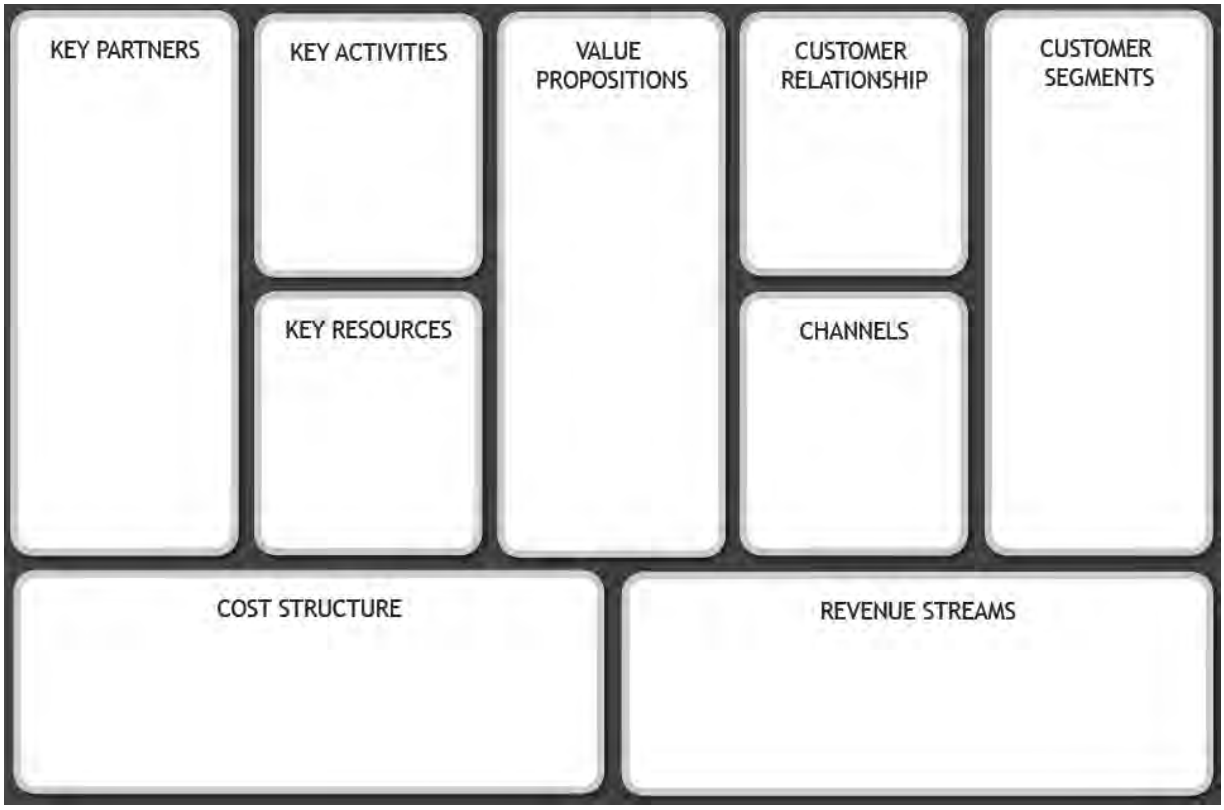
Key Resources: are the assets required to offer and deliver the value proposition to the customer segments

Key Activities: The activities a business needs to perform in orderto bring value propositions to its customer segments.

Key Partners: Some activities are outsourced and some resources are acquired outside the enterprise

Cost Structure: The business model elements result in the cost structure.

→ The monetary consequences of the means employed in the business model



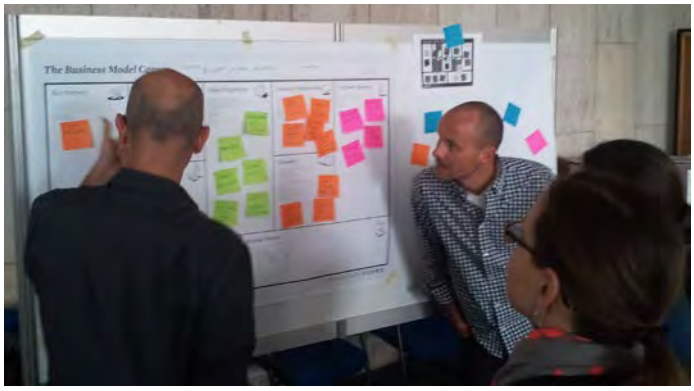
The business model canvas by Osterwalder and Pigneur

After a short presentation on this approach, the participants of the workshop were asked to work on their own business model canvas. The groups were the same as during the co-creation workshop. All the participants agreed that it would be usefull to continue working on the design already created. They also received instructions for this task, containing helping questions for the different blocks (to be found in the printed versions of the canvas). Afterwards each group was asked to explain their results in the plenary.

Results from the workshop: The different models

Group 1 – Night at the museum

For a better view of the canvas: https://bmfiddle.com/f/#/C2Wd7



Group presentation by Enric Senabre

Value proposition: fun, entertainment, brain training, museum visit, social recognition
Revenue streams: extra level of the game, additional items that one can get via the game, possbility to achieve the full version via download, visitors in the museum, iTunes account, adaptation to other institutions

Question & Answer Session asked after the presentation:

- *What is the USP of your product?*

Trusted content, fun, authentic experiences from the museum

- *Which building block was the hardest to fill in?*

Customer relationship (this is mostly what other partners do like Apple or the museums - different perspectives of the cultural institutions and creatives)

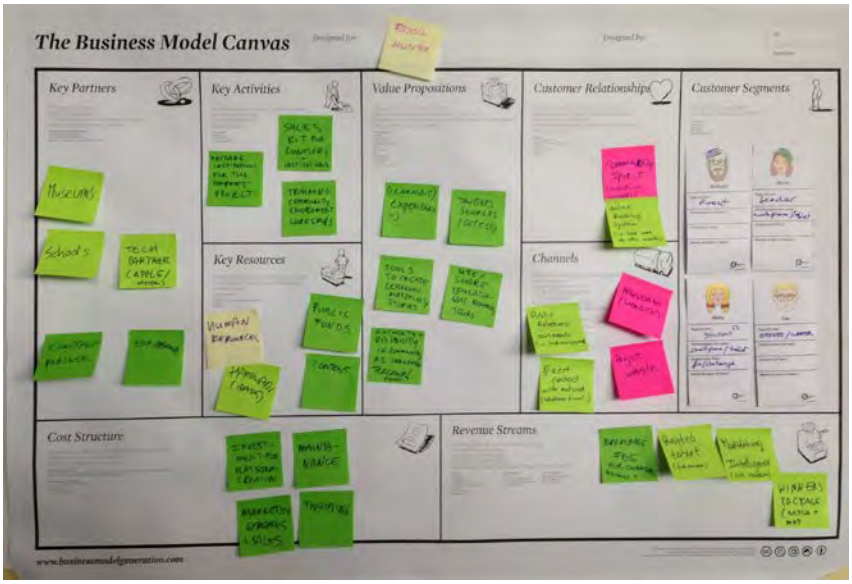
- *How much does this cost?*

Not clear yet

- *If you want to sell than this will be deducted from your project budget. What is the market potential?*

Not all the code can be produced under an open license, so this is something to consider when we make the decision on what to produce

Group 2 – Fossil Hunter



For a better view of the canvas: https://bmfiddle.com/f/#/vnW82

Group presentation by Rui Monteiro and Felix King

Value proposition: (learning) experience, trusted sources, tools to create learning stories/ tours, use/share educations resources

Revenue streams: visitors of the museum as a revenue stream, creators will get a percentage of the revenue of the museum ticket sale

Question and Answer Session after the presentation:

- *Which building block was the hardest to fill in?*

Revenue streams

Channels: advertisement in spaces that are nearby, on places that are on the map (local partnerships)

- *What is the USP of your product?*

Still not clear what you can do with the app - geological layers of the place that you are in, "hidden geological layers" in Prague

→ print your own fossil with a 3-d printer

Group 3 – Card Game

For a better view of the canvas: https://bmfiddle.com/f/#/hP5v6

Due to an unexpected issue on open source and licensing, a part of the workshop members left the room to be able to discuss this. Therefore the last group did not get the chance to present the outcomes of their work. It was also not possible to have a final, summing-up discussion.

Learnings from the workshop

- It is important to have a mixed group, with people representing different stakeholders and having different professional backgrounds. It is also crucial to have experts, for the theme itself and for the business models.
- The general presentation on Europeana was very useful, as not all the participants had previosly worked with it, or had enough knowledge about it.
- The presentation on the Market Activity Analysis was interesting in order to know about the relationship & collaboration between the creative industries and the cultural heritage institutions – it was only a pity that it was not finished before the workshop – it can be also used for further workshops, as it can lead to very interesting discussions between the different stakeholders, maybe also leading to new outcomes and ideas.
- The discussion about the business model environment can also be regarded as an useful exercise. It can be seen as an exercise on a "meta level", for a better understanding and consideration of the environment, as this definetly can influence the design and the outcome of the business model(s).
- The exercise on the business model environment can also lead to interesting discussions between the participants of the workshop (especially if they have different backgrounds, and represent different stakeholders). During this exercise there were also discussions on the requirements and objectives of the cultural heritage insitutions and the creative industries. Therefore point four of the programm was seen as obsolete, as the discussion already took place.
- However this exercise can last for a longer time than expected, due to discussions, which might put the exercise on the business model canvas and the time allocated for it in danger.
- Using the concept of Ostenwalder and Pigneur proved to be a good one, as it is a very interactive and easy to use exercise. The groups were small and everyone had the chance to participate and to bring in his/her ideas.
- It was a pity that there was no summing up of the workshop – due to unexpected cirumstances. For the future this would be an important part of the programm, because it can be used to define further steps and needs. Also a general feedback would be useful to be able improve the workshop accordingly.