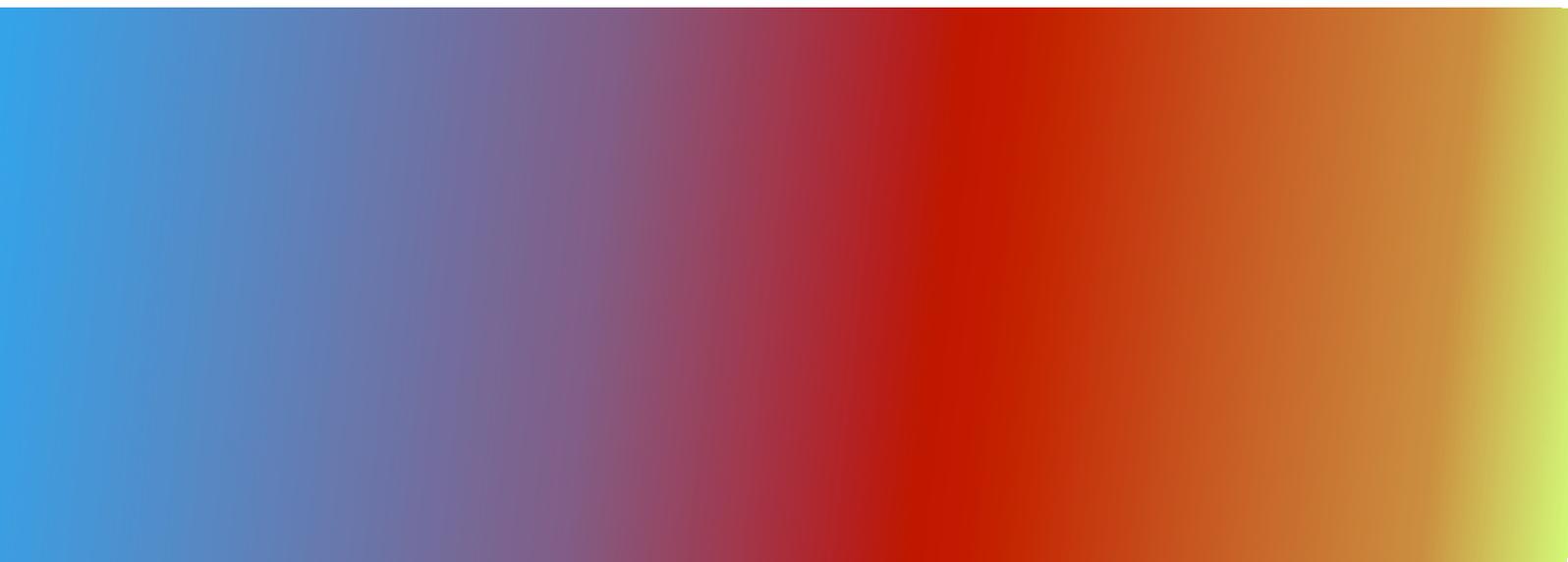
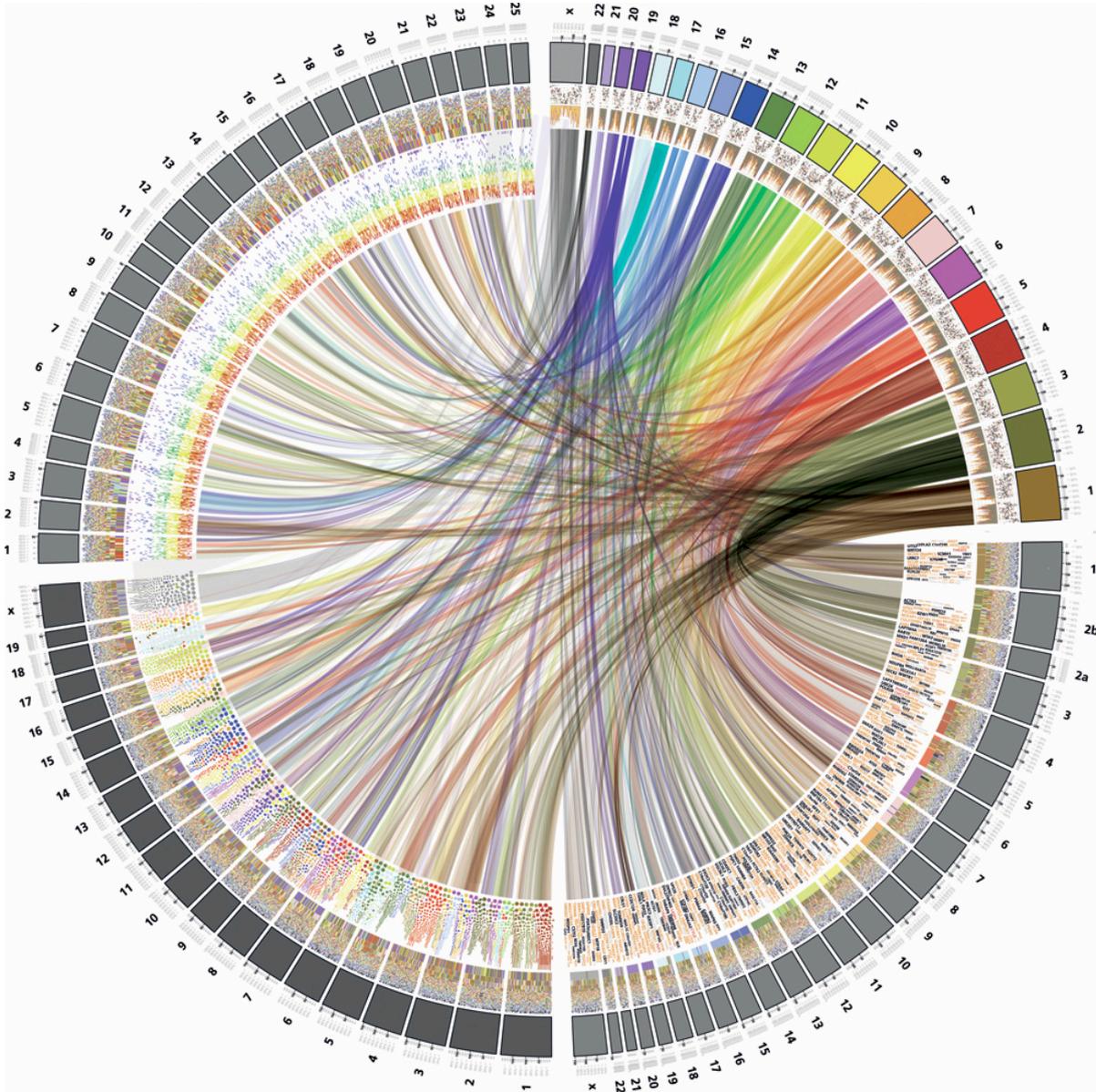


HEUREKA, enHancing the EUropean REUse of Knowledge Arts

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An open environment to enhance the experimenting practices for the re-use of the Europeana's cultural items,
in the world of the creative digital society

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Abstract.

HEUREKA will stimulate the best re-use of digital cultural, scientific and artistic resources coming from Europeana through a double-core environment. The first one, called Heureka Governance Network is based on a corpus of best practices and standards for the creation and the adoption of a unique High Quality Standard for the Cultural Heritage exploitation in the digital creative economy, spread out by networking bodies within the Consortium;

the latter, called Heureka Experimental Hub, is a forge ecosystem where the creative industries (CCIs) could experiment the re-use of Europeana's cultural resources for creative purposes through new models, applications and innovative services tailored for each cluster creative field.

HEUREKA works:

- Setting a High Quality Standard through best practices and case histories coming from the governance activities of the BPN: this will generate an inside networking system among the users and BPN itself, thanks to its social network system, spreading out the standards adoption.
- Offering a technological environment for experimentation - perpetually linked to the rules coming from the Governance Network - provided with the most advanced modeling tools, high-tech methods, as well as systemic intelligence turning the test simple, creative and best-rules-driven.

This will allow CCI's inspiration stimulating new business development. As a result, HEUREKA will represent the ideal prosecution of the successful intentions in harvesting and dissemination actions as well as the concrete implementation of the inspiring ThoughtLab.

¹ **X23 Ltd.** developed HEUREKA project together with several European institutes, universities and private entities. In particular, contributions came by: **ITC-CNR**, Consiglio Nazionale delle Ricerche - Istituto per le Tecnologie della Costruzione, (Milan, Italy); **Digiutopika**, Portugal; **FUNDACIÓ PER A LA UNIVERSITAT OBERTA DE CATALUNYA**, Spain; **F.LLI ALINARI IDEA SPA**, Italy; **GEOIMAGING LTD**, Cyprus; **STAFAN CEL MARE UNIVERSITY OF SUCEAVA – USV**, Romania; **SEARCHLIGHTER LTD**, UK; **MUSEO GALILEO - ISTITUTO E MUSEO DI STORIA DELLA SCIENZA**, Italy; **PROMALAGA**, Spain; **BIC LAZIO**, Italy; **UNIVERSITY OF WARSAW - ICM**, Poland; **LINCOLN UNIVERSITY - SCHOOL OF COMPUTER SCIENCE**, UK; **BUDAPEST UNIVERSITY OF TECHNOLOGY AND ECONOMICS**, Hungary; **CAP DIGITAL**, France; **EXOR GROUP LTD**, Malta; **ROYAL HOLLOWAY UNIVERSITY OF LONDON**, UK; **CENTRE DE RECERCA I INNOVACIÓ DE CATALUNYA, CRIC S.A**, Spain; **FUNDACIÓ IZCAT**, Spain; **ASSIST SOFTWARE LTD**, Romania; **OFFICE-FR**, Turkey; **CULMINATUM INNOVATION**, Finland; **THE AMSTERDAM UNIVERSITY OF APPLIED SCIENCES**, The Netherlands.

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1. Introduction.

HEUREKA will represent the ideal ecosystem for all creative industries and player where to find an ideal mix of networking, governance rules as well as innovative technological features. It will stand as an enabler of innovation, a unique system for CCIs to share each other's resources, working spaces, and innovation, thus increasing their competitiveness. Thanks to the contributions of a well-balanced Consortium (networking organizations, experts in economy, communication and ICT) and in particular to the highest diffusion on the European area brought by the networking bodies (covering all 27 European members), HEUREKA will produce high quality standards of adoptions (models of exploitations, IPRs arrangements, etc.) as well as new models and applications for the best re-use of Europeana's cultural resources. The project aims to create inborn virtual environments for experimenting tools and models for the wider dissemination of the Cultural Heritage thus stimulating digital business dynamics.

HEUREKA project will:

- 1) set high quality standards of adoption for the best re-use of the digital resources for the creative clusters [1. Architecture, Visual Arts and Design; 2. Writing, Publishing and New Media; 3. Animation and Computer Games (Entertainment software); 4. Film, Television and Video; 5. Music, Composition and Production; 6. Advertising, Graphic Design and Marketing; 7. Leisure and Tourism] as well as best practices, case histories, guidelines and policies;
- 2) offer to the users a powerful networking system in every creative clusters through the network expertise itself;
- 3) set the most advanced technological tools (semantic web, augmented meta data set, distributed computing, 3D representation, dynamic geo-localization, etc) for the powerful enrichment of the actual Europeana cultural resources;
- 4) allow users to create their own virtual lab in order to experiment the re-use of cultural resources;
- 5) stimulate the creative industries' business growth introducing new models, applications and services (tourism, e. learning, publishing, A/V broadcasting, gaming, etc.).

Following the focus points set by the European Digital Library initiative, HEUREKA will provide to the users (above all the creative industries - CCIs) a free, instant and open access to miscellaneous resources, indeed with an added value: the users could benefit from standards of adoption for the best re-use of the cultural resources, as well as the most performing tools to convert the Europeana cultural items for their own business development. The aim is to stimulate an hacking sentiment, creative-oriented to new services or products development, in the cultural, creative and information market — such as digital tourist services (mobile), e.learning modules (VLE), e-publishing services (e.books), etc. So that HEUREKA could be considered as the ideal prosecution of the successful intentions in harvesting and dissemination actions as well as the concrete implementation of the inspiring ThoughtLab.

Activities and Outcomes.

HEUREKA is a double core-system targeted to the creative and CCIs. This sector is considered one of Europe's most dynamic and yet it could be said that digital market could be one of the most relevant and potential application field for creative and cultural enterprises. However, at present time there is a gap between the potential usage of technological tools and its real applications to the cultural and creative fields, so that market potentials are not yet sufficiently exploited.

The players of this vital market need to discover the versatile uses of cultural resources, their countless applications and to experiment them according to an environment ruled by a powerful engine. Besides experimentation, which is a relevant point of HEUREKA, understanding rules,

sharing knowledge and best practices as well clustering together for best exploitation are key elements. Users need to be supported about how to use the cultural resources, in particular considering IPRs management in order to avoid copyright infringements and they really need an environment to refer to, to get this information, flowing them in their own networking system.

To achieve these objectives, HEUREKA will involve the most skilled and relevant private and public organizations in:

1. contributing in setting a unique, efficient and easy-to-find/follow standard of adoptions, in perpetual implementation thanks to the community contributions;
2. supporting the CCIs with an excellent networking system, very extended on the European area;
3. building and proposing the most advanced, interesting and useful models, samples, applications and services to support the users in their business development.

HEUREKA will stand as an active and vital Hub where CCIs, organizations as well as individuals could refer to, not only for an inspiration but for a really engaging prototyping stage, connected together and to the establish networking system, thus creating a “Network inside the Network”.

Impact.

HEUREKA will stand as an active and vital Hub where creative industries, organizations as well as individuals could refer to, not only for an inspiration but for a really engaging prototyping stage.

On the basis of its social network criteria, the creative industries will, at first, use the models developed by the BPM itself but soon they will also be able to propose their own best practices or experimental models, thus enriching the ecosystem. As a result, HEUREKA will allow creative industries to develop their own solutions and test them in its experimental environments, introducing newborn applications in the industrial process.

HEUREKA's impact will result from:

4. a powerful networking systems covering the European areas, involving a huge amount of potential users in the creative fields (more than 280K entities¹ in Europe) and starting up an active networking among the users themselves coming from the sharing of needs, samples, solutions;
 1. a huge interaction between the users and the systems thanks to experimental labs;
 2. a wider potential re-use of Europeana's resources connected to the main creative applications for the 7 creative clusters [1. Architecture, Visual Arts and Design; 2. Writing, Publishing and New Media; 3. Animation and Computer Games (Entertainment software); 4. Film, Television and Video; 5. Music, Composition and Production; 6. Advertising, Graphic Design and Marketing; 7. Leisure and Tourism];
 3. an increasing innovation approach to the use and re-use of Europeana's cultural resources coming from the standards of adoptions and related policies developed by the network;
 4. a definite boosting in the digital economy as a result of the rising of a new dynamic process aggregator dealing with economics and technology, tailored for the creative players (both companies, organizations and individuals);
 5. a factive contribution to the creative industries' business development.

¹ Study on The Entrepreneurial Dimension of the Cultural and Creative industries - EU Commission 01 - 13 - 11

2. Project Description.

Relevance. Project objectives.

HEUREKA addresses to the ICT PSP Objective 2.1 b) “Experimenting with the use of cultural material for creativity” by enhancing the value of the actual cultural items coming from Europeana through a smart networking system able to mix together governance’s rules, support policies as well as technological features. HEUREKA, thanks to the contributions of a well-balanced Consortium (networking bodies, experts in economy, communication and ICT) and in particular thanks to the highest diffusion on the European area brought by these networking bodies (covering all 27 European members) will produce high quality standards of adoptions (models of exploitations, IPRs arrangements, etc.) as well as new models and applications for the best re-use of Europeana’s cultural resources. The project aims to create inborn virtual environments for experimenting tools and models for the wider dissemination of the cultural resources thus stimulating digital business dynamics.

HEUREKA project will:

- 1) set high quality standards of adoption for the best re-use of the digital resources in each creative cluster [1. Architecture, Visual Arts and Design; 2. Writing, Publishing and New Media; 3. Animation and Computer Games (Entertainment software); 4. Film, Television and Video; 5. Music, Composition and Production; 6. Advertising, Graphic Design and Marketing; 7. Leisure and Tourism] as well as best practices, case histories, guidelines and policies;
- 2) offer to the users a powerful networking system related to every creative cluster through the network expertise and support;
- 3) set the most advanced technological tools (semantic web, augmented meta data set, distributed computing, 3D representation, dynamic geo-localization, etc) for the powerful enrichment of the actual Europeana’s cultural resources;
- 4) allow users to create their own virtual lab in order to experiment the re-use of cultural resources;
- 5) stimulate the creative industries’ business growth introducing new models, applications and services (tourism, learning, publishing, A/V broadcasting, gaming, etc.).

Stimulating the re-use of Europeana’s Cultural Heritage through new models, applications and services, requires a unique eco-system based on knowledge and collaboration interchange sharing as well as an active powerful networking system, coming from a really cohesive Consortium and community’s activity. This is the role played by HEUREKA and the need it fulfills.

HEUREKA will bring together the most skilled private and public organizations to set high quality Standards of adoption for the digital [enriched] contents coming from Europeana, aiming to a unique standard for the Digital Rights Management systems and technologies to be used by the creative industries.

As a result, HEUREKA will:

1. offer wider market opportunities to the potential users (creative industries, but also organizations and individuals dealing with culture and creativity) through a smart and powerful networking system;
2. foster a purposeful hacking approach for the creation, production and distribution of digital contents and services through HEUREKA Experimental Labs;
3. stimulate the growth of the market and, ultimately, a “smart, inclusive and sustainable growth”.

Contribution to the European Digital Library initiative.

HEUREKA will provide to the potential users a mass content of digital cultural resources, such as books, images, journals, movies, maps, photos, portraits, studies, etc. coming from Europeana. Following the focus points set by the European Digital Library initiative, the project will allow users (above all the creative industries) a free, instant and open access to miscellaneous resources, but with an added value: indeed, users could benefit from new standards of adoption for the best re-use of the cultural resources as well as the most performing tools to convert Europeana's cultural items for their own business development. The aim is to stimulate an hacking sentiment, a creative-oriented approach to new services or products development in the cultural, creative and information market — such as digital tourist services (mobile), learning modules (VLE), e-publishing services (e.books), etc. Last but not least, HEUREKA will contribute to the dissemination of Europeana's value and awareness, due to the intrinsic connection between the main and formal source of the cultural resources and its creative application coming from HEUREKA's contribution. From a Research point of view, HEUREKA will allow a free access to Research projects connected to the creative or cultural scenarios, stimulating new experimentations, thus increasing the scientific consistence of Knowledge and the value of a common access point to the Europe's Cultural Heritage.

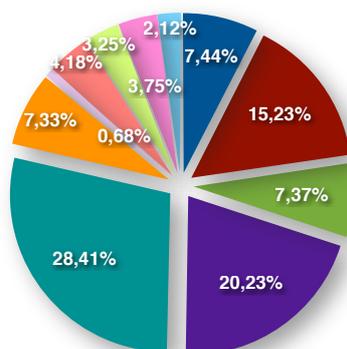
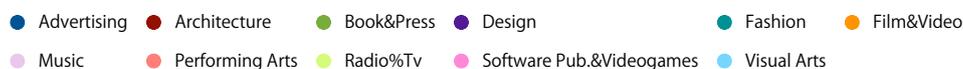
HEUREKA could be considered as the ideal prosecution of the successful intentions in harvesting and dissemination actions as well as the concrete implementation of the inspiring "ThoughtLab".

3. Impact

Target outcomes and expected impact

HEUREKA is a double core-system targeted to the creative and cultural industries [CCIs]. This sector is considered one of Europe's most dynamic and yet it could be said that digital market could be one of the most relevant and potential application market for creative and cultural enterprises. The creative market is formed by more than 280k CCIs: around 80% of enterprises are SMEs with many sole traders or micro-SMEs employing only a handful of people, while the number of large-scale enterprises is marginal at less than one percent, but responsible for more than 40% of the annual turnover. As a result, medium sized enterprises seem to be almost absent.

Percentage of Enterprises per Sector (source: Eurokleis 2009, statistical analysis)



This characteristic, of course, has a relevant impact on the potential growth of micro/SMEs, because they cannot afford the costs for research infrastructure and development activities, thus increasing the difficulty in accessing markets opportunities, almost covered by the majors. Moreover, at present time there is a gap between the potential usage of technological tools and its real applications to the cultural and creative fields, so that market potentials are not yet sufficiently exploited. To get over this impasse, Micro/SMEs has to be involved in clustering activities with different or similar organizations in order to benefit from a large collective structure, providing them knowledge sharing as well innovative business models, thus re-balancing the competitiveness level inside the market and transforming the traditional mechanism of the value chain. The CCIs are innovative, multitasking and forefront by nature; they have (and need) to interact not only with their own target audience, but also with each others, so that they can monitor changing scenarios and trends and provide their customers with forefront products and services.

There is a clear need to promote the adoption of a networking system, so of knowledge sharing among all creative players as a powerful lever for stimulate new skills and cross-sector collaboration: as an immediate result, CCIs will benefit from open innovation processes as well as the increasing of new business development (i.e. new brands, services, products).

The players of this vital market sector need to discover the versatile uses of cultural resources, to acknowledge their countless applications and to experiment them according to an environment ruled by a powerful engine. Besides experimentation, which is a relevant point of HEUREKA, understanding rules, sharing knowledge and best practices as well clustering together for best exploitation are key elements. Users need to be supported about how to use the cultural resources, in particular considering IPRs management in order to avoid copyright infringements.

To achieve these objectives, HEUREKA will involve the most skilled and relevant private and public organizations [in particular the networking bodies] in :

1. contributing to set a unique, efficient and easy-to-find/follow standard of adoptions, in perpetual implementation thanks to the community contributions;
2. supporting the creative industries with an excellent networking system, very extended on the European area; this is brought by the networking bodies who are already deeply connected with CCIs and their needs, already supporting them in business opportunities as well as in knowledge dissemination;
3. building and proposing the most advanced, interesting and useful models, samples, applications and services to help user overcoming that gap preventing them a proper growth, thus support them in their business development.

The eco-system will allow CCIs to develop their own solutions and test them in such experimental environments, introducing these newborn applications in the industrial process.

HEUREKA will stand as an active and vital Hub where CCIs [organizations as well as individuals] could refer to, not only for an inspiration but for a really engaging prototyping stage.

On the basis of its social network criteria, CCIs will, at first, use the models developed by the BPM itself but soon they will also be able to propose their own best practices or experimental models, thus enriching the ecosystem with knowledge, powerful relations and business opportunities.

HEUREKA's impact will result from:

1. a powerful networking systems covering the European areas, involving a huge amount of potential users in the creative fields (more than 280K entities¹ in Europe) and starting up an

- active networking among the users themselves coming from the sharing of needs, samples, and solutions;
2. a huge interaction between the users and the systems thanks to experimental labs;
 3. a wider potential re-use of Europeana's resources connected to the main creative applications for the 8 creative clusters 1. Architecture, Visual Arts and Design; 2. Writing, Publishing and New Media; 3. Animation and Computer Games (Entertainment software); 4. Film, Television and Video; 5. Music, Composition and Production; 6. Advertising, Graphic Design and Marketing; 7. Leisure and Tourism;
 4. an increasing innovation approach to the use and re-use of Europeana's cultural resources coming from the standards of adoptions and related policies developed and spread out by the network;
 5. a definite boosting in the digital economy as a result of the rising of a new dynamic process aggregator dealing with economics and technology, tailored for the creative players (both companies, organizations and individuals);
 6. a factive contribution to the creative industries' business development.

This powerful European networking will allow users a wider scenario, broadening the horizons and facilitating new potential joints among users/creative industries from different countries: best practices sharing, peer review criteria and experimental happening would stimulate new business relationships, thus improving skills, expertise as well as bringing out the economic potential of digitization actions across Europe.

Long term viability

HEUREKA was formed by the balanced composition of organizations that operate in the area of culture, technological research, and the territorial network [distributed throughout all of Europe and, indeed the entire planet] of business and the digital economy applied to Heritage and creativity. The notable heterogeneity, incorporated according to keys of strong reciprocal completion, is an indicator of the solidity of the Consortium and the capacity of affirming the system that will soon construct, projecting it with significant prospects for the medium-long term.

The remarkable attraction of HEUREKA is the model underlying it. A system of social networking that is extremely enhanced, with the technological aid of a so-called HPW [High Power Web] environment is constantly supported by a dynamic core of governance and legislative guidelines to allow users in Europe and worldwide to actively interact with each other in the re-use of Europeana's cultural Heritage, resulting in what we call the "Network of networks "[NNS]. This Network can grow its potentialities vertically and continuously. Growth of this type is called "Growth by the Law of Power", and is critical to the success of the largest networks in the world, with a projection for the next 25 years². The growth of the system, with a continuous progression over time, will then benefit from the opportunities offered by partners, naturally having a "network" goal such as Cap Digital [over 600 entities spread throughout Europe]; Eurada [150 agencies]; EBN [240 members]; i2cat Foundation [several clusters of several units continuously growing]; ProMalaga (2 incubators and more than 100 enterprises), BIC LAZIO (powerful connection with DIGIBIC, a 7FP project dealing with CCIs), Culminatum Innovation (covering 9 cluster fields, connecting together 9 companies and foundations, 15 universities and research centers, 4 regional council and municipalities), HvA (linking together creative entrepreneurs, research centers, and majors in the creative area), d-Media (a mix of entrepreneurs, to large-scale corporate entities, to the public sector and with sensibilities from 'art house' to 'blockbuster') who could constantly feed

² High degree of robustness - Dorogovtsev, S. N. & Mendes, J. F. F. Evolution of Networks: from Biological Nets to the Internet and WWW (Oxford University Press, Oxford, 2003)

the system and platform. This level of coordinated partners will be given the role of collector and receiver of requests related to the issues of chief concern to HEUREKA. As a result this would incrementally supply the circuitry - the CCIs will be directed towards HEUREKA - and a consequent progressive scalability of its international distribution. The partners of the network can provide a consistent and widespread dissemination of the project and its goals at the European level, thanks to their extensive presence all over the area, sometimes even reaching local scenarios within any given country. To cite one example, Cap Digital has a distribution in an extremely extensive district-cluster, with over 600 entities spread across Europe in many areas of creativity; bear in mind, its extension to other main global-regions [Silicon Valley, Israel, Rio de Janeiro, and Tokyo]. Therefore it is a level of worldwide reference in the dissemination of HEUREKA~Europeana policies that could give them values of "background" in the affirmation of the HEUREKA ecosystem around the world. This element is a key factor in the capability of our ecosystem to ensure an ideal scalability.

The HEUREKA ecosystem can guarantee a pandemic spread of its own karyotype even after conclusion of European funding. The evolution of the model, upon conclusion of the first funded operative part/segment, gives the priority of the constant growth, in terms of users and of services and the products offered through inferences of genetic "growth / learning" that its driving force absorbs physiologically [as one of its natural characteristics, in fact] from the network. This way, the technological level can sustain itself and evolve, infusing the system with constant tendencies toward innovativeness and suitability to the general global changes. Indeed, the prospects of our project assume with a considerable margin of probability that a system that benefits the "laws of growth of power" can live at high altitudes of cutting-edge technological excellence, much like the large worldwide frameworks of systematic networking. This is a condition of great benefit to the heritage of Europeana, and an important bearer on the way to reaching the goals of Horizon 2020. An ongoing user activity in the organization of the system, joined to the processes of absorption and regeneration of new practices implemented in the ecosystem, would make it the essential condition for the reproduction of the models, and for their self-sustenance.

The business model designed for this purpose has an overall strategy for dissemination and affirmation founded on the adaptability of the functional elements of the ecosystem [relationships, technologies, rules, sectorial clusters, and the stakeholders]. The fundamental principles are defined in an operational framework that pulses like a growing biological system - we have named it the "Game of Quasi-Equilibrium", founded on the parallel principles of "capacity to differentiate," to learn and the "capacity to focus." The dynamics - which will be illustrated in greater detail in the forthcoming Business Plan - follows the steps of a so-called "upstreaming" movement. In other words, the tactical fluctuations of comparison with the external environment continually realign our ecosystem with the objectives set by long-term strategies, and do so with constant programming.

The mechanism of the social participation of the users provides an eye-catching game model: the participants are encouraged to produce experimental and creative activities, thereby regenerating models and innovative uses of resources.

The unique purpose of the personal core-business, corresponding to the "corporate missions" of one's own organization, is to support HEUREKA users on a level of playful interests ["made into a games" that meet the criteria for action-success, typical of game activities], so that the production of experimental and pre-industrial corresponds to the accumulation of a growing reserve of "personal heritage"; and the stakeholders working on HEUREKA endow themselves progressively. The currency minted for the productive game model is called "EUKEY" [acronym "UKs"; symbol ]; each subject will enrich it with creative type-actions, such as the prototyping of new models, the increase of items in the theme Libraries of cultural issues, the

inter-operating exchange with other labs, the implementation of the ecosystem of contributions of various functional and/or social categories.

The existence of a “gamified” virtual currency brings a whole new value: the more activities the users perform in the ecosystem, the more **uKs** they receive from the system itself, thus promoting permanence and inspiring them to be as active as possible.

In contrast, insufficient activity will devalue the proportional “personal heritages” of the **uKs**, and bounce back with noticeable negative feedback. HEUREKA, at the conclusion of the funding cycle, will make an effort to withhold a percentage of the value of **EUKEY** accumulated by the users, according to a percentage formula, inversely proportional to the output [and not the heritage owned or heritage absorbed: those who are more active in experiments of the reuse and regeneration of resources, have already contributed to the systemic vitality of the best-practices network of re-use, so they will be subjected to contribution percentages in smaller **uKs**]. The entire ecosystem will thus rely on the ever increasing revenues which converge with the growth of Heritage wealth of the individuals, the clusters, the catalogue and re-regeneration flows that plunge into Europeana and other related projects. The economic livelihood of the ecosystem is guaranteed, and the processes of augmentative genetics extend to the medium and long term.

Wider deployment and use

The goal of HEUREKA is to offer new market opportunities to use Europeana’s cultural resources, with particular reference to business-type users, whether enterprises, organizations or individuals. The table below summarizes the potential target groups of HEUREKA, their areas of interest, their needs, the services offered by HEUREKA and the type of actions planned by the Consortium for their broadest dissemination and use.

Affirmation of the network

The HEUREKA Consortium boasts organizations with transverse competencies, including intermediate bodies who can perform the function - a vital function - of collecting and receiving the needs of creative businesses. HEUREKA can indeed count on the support of the networks CapDigital, i2cat Foundation, Culuminatum Innovation, HvA, ProMalaga, BIC Lazio, EBN, d-Media and Eurada who, with their hundreds of agencies globally distributed and with the exact expertise in the cluster field, will be able to offer a database of dozens of ICCs so we can involve them actively, even in the beta phase. The role of this level of intermediary bodies will prove to be particularly strategic, even in the support activities during the dissemination of the project; in any event by communicating the existence of HEUREKA to all stakeholders, not just in Europe but also globally. The partners chosen to compose the Consortium have been selected by virtue of their skills [science, technology, management], with real expertise [previous experience in other European projects, unquestionable solidity in the target market], and for their ability to determine which are the spread and multiplier nodes of the processes activated by HEUREKA. Some of the networking activities are continuous and have high priority; in fact, they are included in the most strategic WPs, with the aim of reinforcing the inherent cohesion [i.e. intrinsic networking], achieved through the use of collaborative tools + distributed management. This allows the best tuning of the work processes and cooperation in the project objectives: it is a mechanism called “genetic learning”, in which many factors of adaptability, closeness, clustering, coupling, micro-arraying and branched expansion are emphasized and made effective for the end stakeholders and users of the cluster fields [creative users] - through intermediate players and networks. These are then integrated with the actions designed to support the scientific and technological partners, each in their own sphere of action. All subjects involved, then [from technologists, to network districts, end users and entities - cataloguing and interoperating the digital cultural Heritages] with Europeana - refer to

the level of HEUREKA Governance. The latter is a dynamic core, highly adaptive, which assumes, interprets, updates and infers the updated rules back to the network in a reverse process.

The result will be a pan-European networking system for the creative and cultural market where CCI's will benefit from a collaborative environment, a granular eco-system devoted to information and knowledge exchange and at the same time a forefront forge for experimenting with innovative models, tools, technological features. HEUREKA will represent an enabler of innovation, a unique system for CCI's to share each other's resources, working spaces, and innovation, thus increasing their competitiveness.

Clustering Activities for promoting HEUREKA results

HEUREKA was conceived as the natural and ideal continuation of the actions [undertaken or currently underway] by other European players who have focused their harvesting and dissemination of the Europeana Digital Cultural Heritage. HEUREKA is, in fact, the actual implementation of the intentions already expressed within the sphere of the "ThoughtLab", opening doors for experimentation in the real-economy of heritage resources. In the initial phase, they were collected and then made universally available. Subsequently possible interlinked pathways were mapped among the entities able to provide a new intake of the vast European catalogue. The focus today is the applicability of items in the fields of production, industrial and - above all - creative technique [the most philologically congenial to the intangible core of Heritage], establishing a process of transposition of the intangible layer to a concrete "quantitative" environment, feasible, applicable, and therefore economic.

In this sense, the connection with projects such as Linked Heritage and Europeana Pro represent the important aspect as a continuum of the values of HEUREKA, in the transfer and permutation from spheres of "pure value" to those of "concrete, accurate measurability". It emphasizes a particular link with the brand-new project Europeana Fashion that makes available over 700,000 digital objects associated with fashion, further remarkable considering the Fashion leading role in terms of percentage of the market and turnover. In such an area, there are numerous creative companies that are active, and - thanks to HEUREKA - they could experience in person models made available from the catalogue of Europeana Fashion, through applications and services offered by a powerful forge-environment; thus prototyping innovative businesses related to this rich and dynamic market segment. It is therefore planned to activate a series of clusters-groups of connection with European projects already deeply rooted or currently underway, integrating and optimizing the actions proposed by each consortium with the goal of translation into the measurable criteria of the digital economy.

Last but not least, the remarkable activities brought out by the 8 networking bodies, who will activate direct and tailored relationships with the CCI's related to the various cluster fields.

Brand Strategy and positioning

The strategy for the brand awareness of HEUREKA aims to build a strong identity, even in terms of mission; nonetheless it intends to simultaneously maintain a constant reference to the Europeana brand [brand calling].

The positioning of the HEUREKA brand therefore will be defined according to a principle of equilibrium able to bring back to Europeana awareness among all the stakeholders and the innovation of its image, thus helping to bring values that are thereby revived and extremely representative of the new dynamics borrowed from domains of creativity. The combination of

the universal scope of the Heritage, the vitality of the creative processes of use, re-use, re-generation, hacking and quantitative economics, should spawn a significant boost, bringing Europeana to similar reference levels of prominent actors in the global market.

The brand HEUREKA, for its own part, should be highly recognizable by the target audience. Considering the specific objectives of the project, its appearance should take on the role of burster-element, a lightning component of Europeana ; and though it should avoid any overlaps with the main brand, and maintain a complete line of continuity with the overall mission, it should aim to be a karyotypic growth factor. The character of Europeana, the birth of its own "phenomenon" which is HEUREKA, benefits from a strengthening, and passes through the phase of social force and intensity, with a huge amount of use, access, ranking, interaction and growth. A catalogue with such a wealth of data [big data and large datasets] cannot help but encounter processes of growth due to the "law of power", big sociality and broad usage. For this reason, a specific deliverable was provided - in the WP7 - on the Brand Strategy, on which a special team of experts in the field of communication will work.

Planning of Communication Activities

Given the strategic value of the brand and the importance of communicating adequately to the whole target audience, an entire WP has been dedicated to the communication and dissemination of HEUREKA.

The activities include:

1. the establishment of a working group (Comm-Staff). This group, in constant contact with the development groups (Dev-Staff) and with the network and Governance group (Governor's Staff) will:
 - a. define the brand strategy;
 - b. define the strategic plan of spreading HEUREKA among the stakeholders and end-users [strategic, tactical action, target segmentation, timetable];
2. the launch of PR activities and media relations for a better dissemination of HEUREKA;
3. planning and implementing events for the HEUREKA targets [workshops and seminars, cluster fields hackathons], including the presentation conference and the event for opening/closing the project;
4. the endowment of a HEUREKA intranet with collaborative platform instruments for sharing the workflow and to stimulate a constant networking among the partners;
5. the implementation of wiki pages on europeana.eu for exposure of the project, complete with Deliverables [if public] and study documents or reports;
6. building sets of communication tools according to the principles of corporate identity for the use and benefit of all the partners in all the aspects regarding outgoing communications [flyers, templates for presentations] and incoming [fact sheets, etc.];
7. the preparation of a template for progress reporting, to be filled out according to project planning by all the partners.

4. Implementation

Chosen approach. Governance and Networking

HEUREKA will play the role of enabler of innovation for CCIs by bringing to life a unique eco-system able at the same time to set governance regulations, boosting networking and collaborations as well as provide technological innovation. HEUREKA network will base on

the so-called “Evolutive Network [of networks]” which differs from the other network structures in:

1. an augmentative model (genetic augmentative)
2. a dynamic periphery
3. an innovative karyotypic structure
4. loose-coupled relationships

The Third Austrian Report on Creative Industries³ underlines that though CCIs are dynamic and spontaneously disposed to networking, yet they are not enough embedded in networks: the general trend is to establish very short relationships with a high risk of burnout. As recommended by the Report, HEUREKA cross-networking system will base on 4 key relevant relationships:

- a. level one: within CCIs, but encouraging external connection in sub-sectors
- b. level two: within the value chain, but outside creative industries
- c. level three: both outside value chain and creative industries
- d. level four: on a global scenario.

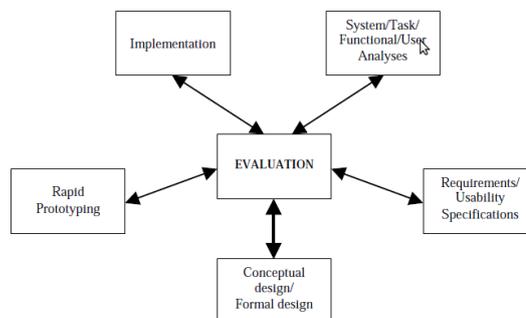
Basing on the intrinsic characteristic of CCIs, i.e. the ability to mix together creation (=experience) and production (=knowledge), HEUREKA’s approach will found on a “Corpus juris in anima technicarum”: an augmentative engine (Governance regulations) setting ongoing rules, standards, guides and policies, spread out by a pulsing cross-networking systems, powered and applied by a Technium⁴ where “technologies are in some ways co-dependent and related and connected to each other in some way ...”, bound together in a super-network.

The methodology used by HEUREKA to achieve such an eco-system can be divided into two steps:

- I. a first networking stage, during which potential users will be involved by a personal engaging experience inside the social network (individual user experience); in this stage, fun, leisure, interest, social relations will be relevant.
- II. a second networking stage, a more mature one, where the individual becomes a node for spreading out HEUREKA’s networking; the action of networking bodies become predominant, so that individuals slowly become “companies” and social/personal relations turn into business relations where business, engagement and experimentation will be relevant.

Technological approach

The chosen approach for the development of the platform will be inspired by the Star lifecycle model (H.R. Hartson and D. Hix, Developing User Interfaces, John Wiley, New York, 1993) for interactive systems, depicted below.



³ The Third Austrian Report on Creative Industries, 2009, Austrian Federal Economic Chamber

⁴ Kevin Kelly, What Technology Wants - 2010

In this model, final users are constantly involved in the lifecycle of the system, by participating at the evaluation activity, central to the star lifecycle. Doing so, the final users will not only be an active part during the system requirements' gathering phase, but every advancement in the system's lifecycle, from its design to its development, will be validated against their needs and expectations. To allow this, after a first sequential approach to the activities depicted in the figure (preliminary analyses, requirements specifications, design, prototyping, implementation) they will be iterated starting from any point in the star and followed by any other stage. By doing so, the requirements, the design and the system gradually evolve, becoming at each interaction more defined and stable. Because of this approach, the platform EVALUATION, that will be carried in WP6, spans all the two years of the project, starting together with the development work package WP4 and ending after it. Combining a rapid prototyping approach to the star lifecycle will allow to better track the adherence or not of the system to be developed to its users' needs; this approach will also be supported by the adoption of already existing Open Source software as a basis for the development of the functionalities; Open Source solutions that could be adapted to fit the development requirements will be identified during the surveying of the state of the art.

Design-and modeling

Giving the fact HEUREKA platform will consist of a set of core functionalities extended by various services that will be exploited via the Internet, concepts and tools of the COMET (Concurrent Object Modeling and architectural design mETodology) object-oriented software lifecycle model will be used for the design of the system. This would specify the star lifecycle to the design and development of a distributed system such as HEUREKA; it is based on the UML standard, built around the use case concept, and implements an incremental prototyping approach, thus rendering it simple to integrate in the star lifecycle.

In particular:

- user requirements will be modeled as use case diagrams
- an analysis model will be developed, including
 - a static model of the problem domain
 - a structure of the system in terms of classes and objects
 - a dynamic model including:
 - an object interaction diagram
 - a statechart for each state-dependend object
 - a messages sequence description for each interaction diagram
- a design model will be developed, including:
 - an initial software architecture by sythesizing artifacts of the analysis model
 - an overall software architecture design, by structuring the application into subsystems and specifying each subsystem's interface
 - a distributed component-based software architecture design
 - a design of the classes in each subsystem, including specifications of each class interface and operations
 - a detailed software design for each subsystem

Adopted standards

Additionally the architectural foundation for the system will be built and specifications developed for an interoperable service platform based on Web-services technology aimed at service-to-service integration and multimedia information delivery; XML, SAML, local UDDI, WSDL, SOAP will be the technology baseline. Specifications of the framework will establish open APIs allowing implementations outside of the project consortium and expansion of the network.

5. Security, privacy, inclusiveness, interoperability; standards and open-source

Security and Privacy

The HEUREKA platform is designed and developed with strong requirements on security and privacy.

To meet those requirements a middleware infrastructure that maximizes security and privacy will be chosen. The login to restricted areas of the platform will be based on trust implemented by a public key infrastructure (PKI) according to the ITU-T standard X.509 as well as on Metadata for the OASIS standard Security Assertion Markup Language (SAML). The PKI will allow to encrypt documents and will also allow for digital signatures guaranteeing their integrity. Users will be provided with good and reliable information about what they may do with each content item, whether they can freely re-use it for their educational, creative or even commercial projects or not and which Digital Rights Management systems and technologies they should adopt to protect their product. All metadata produced and aggregated by the system will support re-use of data and content through Creative Commons legal tools (for example CC0 public domain dedication). Users' original products will respect the Europeana Licensing Framework but will be stored on encrypted repositories with fine-grained policies for restricting the release of personal attributes, allowing for a high degree of privacy protection.

Inclusiveness

The accessibility to HEUREKA Platform does not depend on non-free software clients and makes use of standard client software (e.g. browsers). This, in combination with Web-based graphical user interfaces carefully designed for intuitive usage, will ensure to include users with virtually any kind of cultural and technological background; also aspects concerning gender, elderly people, disabled people, ethnic issue will be dealt with. All software tools will be developed to minimize the steepness of the learning curve, letting users concentrate on the creative process instead of technical issues. Documentation and on-line help, carefully written to amend issue related to gender, elderly people, disabled people, ethnic issue, will support users through the different steps of mining, use, re-use and dissemination of the digital Heritage.

Interoperability

Interoperability between the various software modules composing the HEUREKA platform will be assured by the development of a set of APIs during WP4 activities that will be exploited in the subsequent development of services during WP5. The APIs will define how each additional service will be interfaced to the core platform, and how data can be exchanged between two or more services.

Open Source

Both the core platform and the specialized sub-ecosystems implemented as Web services will be developed exploiting (where possible) already existing Open Source software; in turn, the source code produced during the project will be freely available for everyone to promote technological advancements by third parties, even when the project will end. There will be no need to adopt closed-source or proprietary software whatsoever.

Standards

The architectural foundation for the HEUREKA platform will be built based on Web-services technology open standards, aimed at service-to-service integration and multimedia information delivery; XML, SAML, local UDDI, WSDL, SOAP will be the technology baseline. Specifications of the framework will establish open APIs allowing implementations outside of the project consortium and expansion of the network.

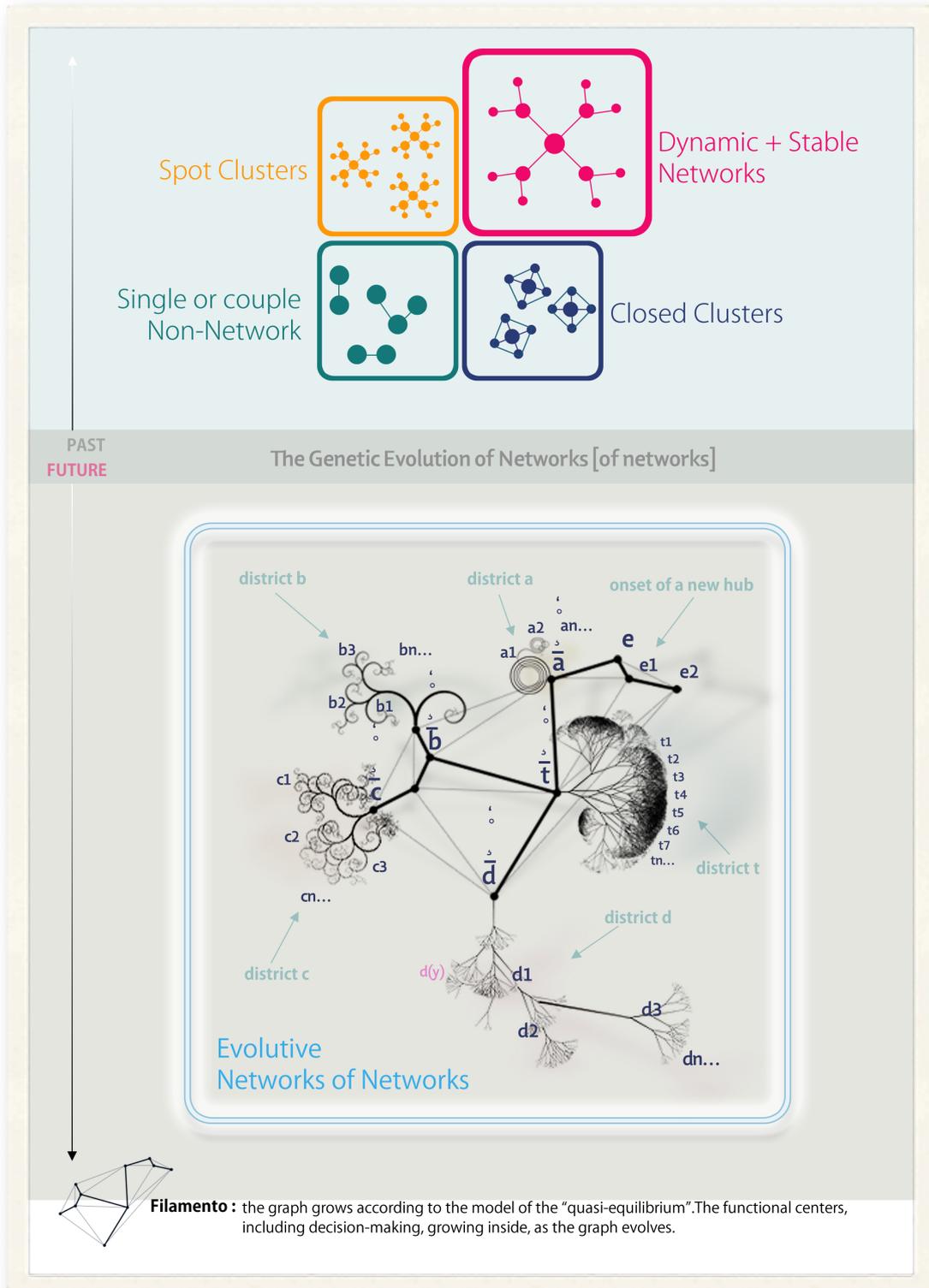


Fig. Genetic Evolution of Networks [of networks] - HEUREKA chosen approach

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ANNEX I

Risk Assessment

| Description of possible risk | Impact | Probability | Remedial Actions |
|---|--------|-------------|--|
| POPULATING ARCHIVES Breaking down of one or more interoperable archive | High | LOW | To prevent: Slavish and accurate use of protocols for interoperability Actions: to draw from alternative resources in case of unexpected absence; investigate whether extra resources could either be involved or shadow any work dependent on a single channel interoperability. Immediate restoration of broken protocols. |
| POPULATING ARCHIVES Too many concurrent connections | Middle | LOW | To prevent: Overestimate the size of bandwidth and access numbers. Actions: Override limits and properties. |
| POPULATING ARCHIVES Decrease of data integrity | High | LOW | To prevent: Define policies and procedures for data quality and data integrity; set policies and procedures to identify the extent of the impact of problems and recording of data integrity and compromises ones; ensure that information resources are properly assessed; undertake assessment of threats to important data; ensure adequate protection of all data; applicate integrity constraints and data validation rules. Actions: Intrinsic data recovery; replacing data from the original source. |
| POPULATING ARCHIVES Loss or duplication of data | Low | LOW | To prevent: Use of predicting models for intrinsic control. Actions: Intelligent re-merge of dataset or DBs. |
| POPULATING ARCHIVES Databases vulnerability | High | LOW | To prevent: Use of vulnerability assessment standard, policy driven scanning engine, intrinsic-intensive identifying of vulnerabilities and misconfigurations, built-in templates to satisfy the requirements of security best practices. Actions: Concurrent databases scanning; Deep analysis of users and role permissions; advanced report; non-stop checks for SQL injection vulnerabilities or other infections; automatically crawling site; Code Auditing; servers Lockdown [when possible]; recurrent backups. |
| GOVERNANCE SPECIFICATION Lack of data to be analysed | Middle | HIGH | To prevent: Properly balancing the number of indicators; properly balancing the number of licensing models collected and analysed; continuous brainstorming with key partners in Governance. Actions: To increase the No. of electronic questionnaires sent to get higher response rate; increase the No. of interviews; increase the No. of best-practices analysed. |
| GOVERNANCE SPECIFICATION Preponderance of negative responses from respondents | High | LOW | Prev: To achieve an excellent level of analysis and enable interviews phase strictly at the best time of rules implementation in the ecosystem. Actions: To make sure management has properly applied the rules; plan urgent computing of data-user driven modifies; check before each part of ecosystem design that it properly relates to business practices in every cluster-fields. |

| Description of possible risk | Impact | Probability | Remedial Actions |
|--|--------|-------------|--|
| GOVERNANCE SPECIFICATION Incompatible standards adopted | High | LOW | To prevent: Decline very closely the standards and rules for each cluster-field expected in experimental models. Actions: Make sure management has properly applied the rules; plan urgent computing of data-user driven modifies; check before each part of ecosystem design was properly related to business practices in every cluster-fields; urgently update the analysis and results to incorporate any new global standards. |
| GOVERNANCE SPECIFICATION Refusal in satisfaction of users | Middle | LOW | To prevent: Massive usage of user-side-data-driven criteria of analysis and rules forge. Actions: Urgently update the analysis and results to incorporate considerable guidance to the needs of the network and users. |
| GOVERNANCE SPECIFICATION Sudden changes in market scenarios or laws | Middle | LOW | To prevent: Continuous and massive use of screening instruments and monitoring of market and regulatory scenarios; determination of a project design and a dynamic and adaptive business plan [use of "upstreaming strategy"]. Actions: Urgently inject new law-driven criteria; use of intrinsic adaptive capacities of the ecosystem to urgently adapt to market scenarios. |
| TECHNOLOGY DEVELOPMENT Changes in priorities of Governance management | Middle | LOW | To prevent: Use of adaptive techniques for developing and semi-strong rules. Actions: Managerial decision on technical feasibility, observance of new constraints, application into development tasks. |
| TECHNOLOGY DEVELOPMENT Poor intra-project communications and consequent lack of compatibility between the technologies developed | Middle | LOW | To prevent: Robust assessment phase; constant use of track tools and collaborative development; special care in planning meetings between leaders; using a common platform for development, whose servers are located in a unique distributed cloud infra-structure. Actions: Strong involvement of coordinating bodies, leaders and executive board; stress running of the framework and compatibility toolkit. |
| TECHNOLOGY DEVELOPMENT Poor capture of requirements | High | LOW | To prevent: Excellence in design phase; collaboration in the drafting stage of the project; intrinsic functions of control by the managers and the leaders of tasks; double-replicated assignment of tasks and deliverables always to couple of different partners in the Consortium. Actions: Mutual substitution of the incorrect job with the correct one; phase of urgent clarification and implementation of cluster correction work in the time schedule. |
| TECHNOLOGY DEVELOPMENT Insiders bad issues [poorly trained, disgruntled, malicious, negligent, dishonest, or terminated employees] | Middle | LOW | To prevent: Particularly prior analysis of the quality of staff; intrinsic functions of control by the managers and the leaders of tasks. Actions: Replacement of any malicious subject and maintaining the standard quality originally expected. |

| Description of possible risk | Impact | Probability | Remedial Actions |
|--|--------|-------------|---|
| TECHNOLOGY DEVELOPMENT Lack of Academic or Departmental buy-in | Middle | LOW | To prevent: Correct balance between contributions from the public research institutions and universities, and private companies; proper planning of the work phases in person / months; adequate notice of the relevance of the project. Actions: ——— |
| TECHNOLOGY DEVELOPMENT No suitable solution found that meets all the objectives | High | LOW | To prevent: Project excellence in design, use of a very adaptive and criteria of loose-coupling, using criteria criteria-things-distributed, scalability goals, modular design, strong cooperation between the partners; periodic-model of "regular-proceeding" rather than strictly based on the achievement of objectives. Actions: Possible replacement of an unattainable goal with an equally attractive. |
| TECHNOLOGY DEVELOPMENT Developmental delay compared to the global technology standards | Middle | LOW | To prevent: Using strong adaptivity; use of predictive models in project design; continuous activity of a global benchmark; strong segmentation; system based on "Genetic Machine Learning". Actions: Managerial decision on project feasibility, observance of new constraints, application into development tasks, urgent computing. |
| FORGE LABS DEVELOPMENT Low usability of digital resources | High | LOW | To prevent: Use the best protocols for interoperability; structuring the Consortium so that it pools resources intrinsically safe and high quality [i.e. Alinari + Museums as a internal partner]; establish a Library of recursive digital objects, clustered and usable by the experimenters. Actions: Strengthening of crawling and integration of best resources; detailed improvement of the resources in different formats; improvement of the dataset and descriptive metadata. |
| FORGE LABS DEVELOPMENT Low usability of DRM | High | LOW | To prevent: adoption of a wide variety of licensing models; properly balancing the number of indicators in the analysis phase by Governors; continuous brainstorming with key partners in Governance; continuous monitoring of usage-driven data. Actions: urgent adaptation and simplification of rules and systems usability; adaptation to typical models already known; adopting DR-Management systems already tested, or particularly globally successful. |
| FORGE LABS DEVELOPMENT Low coherence between the environments | Middle | LOW | To prevent: Robust assessment phase; constant use of track tools and collaborative development; special care in planning meetings between leaders; using well-matched platforms for development, whose servers are well-distributed in cloud + overseeable infrastructure. Actions: Strong involvement of coordinating bodies, leaders and executive board; stress running of the framework and compatibility toolkit; parallel testing-phase all over the territory, undertaken by the intermediate-networking partners [Capdigital, EURADA, EBN, i2Cat, etx.], with their entrusted groups of creative local subjects. |

| Description of possible risk | Impact | Probability | Remedial Actions |
|---|--------|-------------|---|
| <p>FORGE LABS DEVELOPMENT</p> <p>Poor safety management in the use of resources by users</p> | High | LOW | <p>To prevent: Use of vulnerability assessment standard, policy driven scanning engine, intrinsic-intensive identifying of vulnerabilities and misconfigurations, built-in templates to satisfy the requirements of security best practices.</p> <p>Actions: Concurrent databases scanning; deep analysis of users and role permissions; advanced report; continuous checks for SQL injection vulnerabilities or other infections; automatically crawling site; code Auditing; servers lockdown [when possible]; recurrent backups.</p> |
| <p>FORGE LABS DEVELOPMENT</p> <p>Bad results out from the intrinsic tests</p> | Middle | LOW | <p>To prevent: Intrinsic repeated test phases during the development work; environments development with periodic cross-checks between the partners; fictitious entries test; pattern test; abstraction-filtration-comparison test; substantial similarity model adoption [for DRM matter].</p> <p>Actions: urgent amendment of errors before delivery.</p> |
| <p>USER EVALUATION</p> <p>Feedback noise and/or Low level of user satisfaction</p> | High | LOW | <p>To prevent: Rigid clustering in fields, divided by creative areas; continuous use of feeling testing during development, led by partners of intermediate network; tuning HEUREKA ecosystem on the needs of creative, based on analyses of the organs of governance, and taking in a strong consideration the signals coming by "Intermediate and network" partners.</p> <p>Actions: Managerial decision on project feasibility; amendment and implementation of new features; urgent computing; strong work in the area of dissemination and training; strong cooperation with partners and network brokers; strong capabilities in distribution of workloads and analysis of results through the districts.</p> |
| <p>NETWORK AND USAGE CONSISTENCY</p> <p>Low clustering coefficient or low usage of Europeana resources</p> | High | LOW | <p>To prevent: High attractiveness of the gamification system; high rating resulting from ASAASRI system [Action Success Action,Action Success Registration Invite]; high sensitivity of the system approaching the subjects, because of their peculiarities; strict similarity to DNA microarrays technology; Continuous monitoring and adjustment of the network degree; use of a scale-free network [w/ high modularity]; characterising the links; creating hot links [the districts and the cluster-fields involved by network partners for dissemination]; extending the cluster influence to the whole network, but controls over it; integrated approaches that address the properties of one as a whole.</p> <p>Actions: increasing the intrinsic characteristics; to spread a campaign of calls for award action taken by users in the ecosystem; devaluation or revaluation of the UKs; increase the attractiveness of cultural resources, their ranking or their way of being represented; urgently create a large number of examples of application; connect the ecosystem HEUREKA to other successful systems such as Europeana Fashion, ThoughLab or other; stronger interconnection with the global systems of social networks; start of Contests, or team-involvement, phases, or otherwise, pushing people to self-assembly in groups based for affinity.</p> |

| Description of possible risk | Impact | Probability | Remedial Actions |
|---|--------|-------------|--|
| <p>NETWORK AND USAGE CONSISTENCY</p> <p>Low rate of new experimental models</p> | High | LOW | <p>To prevent: High attractiveness of the gamification system; high rating resulting from ASAASRI system [Action Success Action,Action Success Registration Invite]; strong adherence of forge-labs created by our technologists to the needs of creatives; high attractiveness of the forge-labs as their tools of reuse, creative-hacking and manipulation of Europeana digital resources; large amount of digital resources available in many formats and size.</p> <p>Actions: increasing the gain-rate [in uKs] coming from each singular creation of a new model; increasing the visibility of new models; providing new channels of communication between the creative people who will use the platform and the external industrial, economic and commercial entities; urgently implement additional plans of disseminations; bring-into common Libraries new examples; improve the Libraries clustering-rate on the basis of different creative-districts and fields; urgently implement new user guides; increasing the rate of help given online to the users; increasing sourcing and crowd-sourcing from other projects [Europeana Fashion].</p> |
| <p>NETWORK + ECONOMETRIC CONSISTENCY</p> <p>Low consistency of working capital fund in uKs [C (sigma Capital)]</p> | Middle | LOW | <p>To prevent: High attractiveness of the gamification system; high rating resulting from ASAASRI system [Action Success Action,Action Success Registration Invite]; establish a consistent, intrinsic link between every action performed on the platform and its equivalent in UKs; exactly offset the value assigned to the currency.</p> <p>Actions: discourage the trade carried out by the platform, especially those of current cash; determining periodic injections of capital from non-ordinary events or extrinsic ones; increasing the number of stakeholders; increase the level of coupling between users; inflating or deflating the absolute value of currency.</p> |
| <p>TRAFFIC ANALYSIS</p> <p>Low rates from measurement of indicators</p> | Middle | LOW | <p>To Prevent: Adoption of an excellent communication plan that strongly advertises the existence of HEUREKA; widespread distribution of the reputation of the ecosystem, due to the presence of a large network of partners and disseminators throughout Europe; adoption of a simple + non-bouncing system; continuous tuning of the key values of navigation and user interaction; adequate language coverage; adequate accessibility and properties of cross-platform, cross-OS; strong expansion towards using mobile.</p> <p>Actions: greatly increasing the dissemination network through social systems, word-of-mouth, advertising and institutional channels; strengthening techniques ROI; urgent analysis of the traffic's processes by intelligence tools, and improves the performance of the system; optimising web.pages by making them SEO friendly; covering new languages; creating buttons for feeds, widgets and other HEUREKA's portable objects to visitor's personal sites; creating HEUREKA's virtual identity into other environments, and actively updating.</p> |
| <p>DISSEMINATION + EXPLOITATION</p> <p>Poor feedback from the target</p> | High | LOW | <p>To prevent: High attractiveness of the system; high sensitivity of the system approaching the subjects, because of their peculiarities; continuous monitoring and adjustment of the network degree; creating hot districts, cluster-fields dedicated, involving network partners for dissemination.</p> <p>Actions: increasing the intrinsic characteristics; to spread a campaign of calls for award action taken by users in the ecosystem; stressing Europeana attractiveness; to increase HEUREKA's interaction with Europeana Fashion, ThoughLab and other existing projects; stronger interconnection with the global systems of business, i.e. Start-up and innovation circuits; Contests, pushing people to self-assembly in groups based for affinity.</p> |

| Description of possible risk | Impact | Probability | Remedial Actions |
|--|---------------|---------------|---|
| <p>DISSEMINATION + EXPLOITATION</p> <p>Too much specification into a little part of target fields</p> | Middle | LOW | <p>To prevent: Strong differentiation of districts and cluster-creative fields, gaining many network partners, which could ensure a very wide range of dissemination in many creative fields; creation of 7 different testing environments, very carefully chosen between the creative and commercial areas in the spotlight at the moment, and in the next decade; to underline HEUREKA's intrinsic combinatorial system, which motivates people to explore all its areas, also in a ludic way.</p> <p>Actions: urgently to agree with partners an acute attention to the dissemination of creative industries who are not giving feedbacks; to start contests with prizes and virtual events, conducted on the platform, which could attract creative people from non-responding areas; change the values in the UKs premium, so that the interest in the creative industries could be reward for each other.</p> |
| <p>DISSEMINATION + EXPLOITATION</p> <p>Large global players exceeded the results achieved</p> | High | MIDDLE | <p>To prevent: Using strong predictive models in project design; non-stop global benchmarking; strong segmentation; system based on "Genetic Machine Learning".</p> <p>Actions: Hold partnership actions with major player [Google Books, Apple, etc] to promote connections in co-branding; ...</p> |
| <p>DISSEMINATION + EXPLOITATION</p> <p>Dissemination networks are not particularly active</p> | High | LOW | <p>To prevent: Ongoing brainstorming with key partners; choice of subjects as Consortium partners who have the highest quality; careful selection of areas of interest, so that the disseminators are facilitated in their actions in the local area.</p> <p>Actions: Significantly stimulate the actions of the dissemination for each weaker partner; Strong involvement of coordinating bodies, leaders and executive board.</p> |
| <p>DISSEMINATION + EXPLOITATION</p> <p>Ostracism of the institutions or local authorities</p> | Middle | LOW | <p>To prevent: Excellent involvement and membership of institutional partner in the Consortium; existence of a previous activity on Europeana, run by the project ThePrimate, already connected to many relevant institutions.</p> <p>Actions: urgent interest to the European bodies; to propose a mechanisms of reward-success for their actions</p> |

ANNEX II

Indicators

A basic set of indicators is presented, both of qualitative nature (that will be associated to nominal values) and quantitative. Indicators will be used to assess yearly progress of the project as a whole and, at a more strict timeline, of some crucial activity such as WP 3 Governance, WP 5 Sub-ecosystems and Experimental Models and WP6 System Testing and User Evaluation.

The HEUREKA technological solution will offer an open extensible framework that will enable definition and adoption of flexible and adaptable working models.

We have defined general kernel sets of indicators allowing the evaluation of the project progress in terms of planned deliverables and milestones but also in terms of assessment of:

| INDICATOR N. | Relating to which project objective or expected result? | Indicator | Method of measurement | Expected Progress | |
|---|--|---|--|--------------------------------------|----------|
| | | | | Y1 | Y2 |
| #1. Indicator WP3 - Governance | Scientific studies on licensing models adoption and user experience collected and reviewed | No. of studies reviewed | Studies collection and reviewing | 50 studies | - |
| #2. Indicator WP3 - Governance | Sample of licensing models collected and analysed. | No. of licensing models collected and analysed | License models collection and analysis | Up to 10 new sample licensing models | - |
| #3. Indicator WP3 - Governance | Brainstorming workshop with key partners | No. of workshop participants | Organising 1 day Workshop | 25~30 participants | - |
| #4. Indicator WP3 - Governance | E-survey of licensing model adoption and user experience with sample target group completed | No. of electronic questionnaires sent and response rate | Electronic questionnaires sent to 400-450 contacts | About 300 properly filled out | - |
| #5. Indicator WP3 - Governance | E-survey of licensing model adoption and user experience with sample target group completed | No. of data analysed | Data spreadsheet | 1000~2000 data analysed | - |
| #6. Indicator WP3 - Governance | Sample of interviews on adoption and user experience related to existing licensing models collected and analysed | No. of interviews collected and analysed | 50 interviews between 60-90 min. each analysed | 600~700 pages of transcripts | - |
| #7. Indicator WP3 - Governance | Report of findings | Report of findings and recommendations | 1 Report | - | 1 Report |
| #8. Indicator WP3 - Governance | IPRs management scientific studies and best-practices collected and reviewed | No. of studies/best-practices reviewed | 30-50 studies/best-practices | ~50 studies | - |

| INDICATOR N. | Relating to which project objective or expected result? | Indicator | Method of measurement | Expected Progress | |
|--|---|--|---|-------------------------------|--|
| | | | | Y1 | Y2 |
| #9. Indicator WP3 - Governance | e-survey on IPRs management in cultural heritage completed | No. of electronic questionnaires sent and response rate | Data spreadsheet | About 300 properly filled out | - |
| #10. Indicator WP3 - Governance | e-survey on IPRs management in cultural heritage completed | No. of data analysed | 1000-2000 data analysed | 1000~2000 data analysed | - |
| #11. Indicator WP3 - Governance | Sample of interviews on IPRs management standards including socio-technical issues on security and privacy collected and analysed | No. of interviews collected and analysed | 50 interviews between 60-90 min each analysed | 600~700 pages of transcripts | - |
| #12. Indicator WP3 - Governance | Report on IPRs management findings | Report of findings | 1 Report | - | 1 Report |
| #13. Indicator WP3 - Governance | Deliverable 3.3 preparatory workshop with key partners | No. of workshop participants | Organising 1-2 days Workshops | - | 25~30 participants |
| #14. Indicator WP3 - Governance | DMR's structure compliance to the Standard sets | #1. DOI Compliance rate #2. Interoperability rate #3. security features and copyright protection rate #4. usability, non unobtrusive rate #5. electronic licensing efficiency rate #6. granularity rate | #1,2 Software measurement of DOI Compliance, Interoperability rate #3. intelligent measurement #4. experts measurement #5. software measurement #6. intelligent measurement | - | Very High [tend. ±99 % of positive values] |
| #15. Indicator WP3 - Governance | Project findings presented and discussed in a workshop with key stakeholders among target groups | No. of workshop participants | Organising 1 day Workshops | - | 25~30 participants |
| #16. Indicator WP3 - Governance | Report of workshop outputs and recommendations for the development of IPRs management high quality standard | Report of workshop outputs and recommendations | 1 Report | - | 1 Report |

| INDICATOR N. | Relating to which project objective or expected result? | Indicator | Method of measurement | Expected Progress | |
|--|---|---|--|-------------------|---|
| | | | | Y1 | Y2 |
| #17. Indicator WP3 - Governance | Users standard adoption evaluation workshop with key partners | No. of workshop participants | Organising 1 day Workshops | - | 25~30 participants |
| #18. Indicator WP3 - Governance | Pilot users standard adoption evaluation identified | Internet indicators monitoring results | Electronic questionnaires sent to 50 participants | - | ~45 properly filled out |
| #19. Indicator WP3 - Governance | Pilot user standard adoption evaluation is completed | Standard adoption evaluation questionnaire and report | 1 Report | - | 1 Report |
| #1. Indicator WP4 - Hub usability | HEUREKA metadata increasing | #1. Number of metadata generated and stored in HEUREKA repository; #2. Number of providers; #3. Number of objects; #4. Languages heterogeneity; #5. Heavy users #6. Mobile users | Software Measurement of new items/objects/ records benchmarked | - | #1. ~2Mln new metadata p/y #2. ~1K p/y #3. >2Mln new objects #4. >15 languages #5. ~23K #6. 20% of total |
| #2. Indicator WP4 - Hub usability | HEUREKA ~ Europeana* Interoperability | Number of Europeana URI accessed | Software + intelligent measurement of number of query [success/refused access] | - | tend. ±150% [starting from previous Europeana* daily URI hits] |

| INDICATOR N. | Relating to which project objective or expected result? | Indicator | Method of measurement | Expected Progress | |
|--|---|--|---|---|---|
| | | | | Y1 | Y2 |
| #3. Indicator WP4 - Hub usability | HEUREKA graph growth | <p>#1. Number of nodes + edges, diameter in the complex graph inside platform;</p> <p>#2. hierarchy topics, classes, sentiment-properties or semantic relations between items;</p> <p>#3. nodes, fractal dimension, graph degree exponent and distribution, topological robustness, Prior-Polarity and Polarity ambiguities, re-weighted number of features for polar classification, words token, words prior polarity, topic proximity, lemmas, etc.</p> | <p>#1. Intelligent measurement of number of nodes;</p> <p>#2. Intelligent measurement of ontologies, and semantics indicators;</p> <p>#3. Intelligent measurement of length of the strings, close ratios, coefficients of microarrays, number of pairs, number of clusters, graph stability, graph degree, etc.</p> | Harmonious growth of nodes, ontologies, and other coefficients from the starting values of HEUREKA = tend. ±99% | Harmonious growth of nodes, ontologies, and other coefficients from the starting values of HEUREKA = tend. ±99% |
| #4. Indicator WP4 - Hub usability | Semantics Engine | number of CIDOC-CRM statements used to model the semantic description of Europeana digital items | Statistical Measurement of number of statements and triples | Huge amount of triples, statements tend growth ±99% | Huge amount of triples, statements tend growth ±99% |
| #5. Indicator WP4 - Hub usability | User interaction - effectiveness/ efficiency in management and reuse of content and knowledge - | Value of factors like correct execution, response time, efficiency | <p>#1. Software Measurement of time per process;</p> <p>#2. Software Measurement of time lags;</p> <p>#3. Software Evaluation of ratio input ~ task completed /per user</p> | Harmonious growth of efficiency in the response time | Harmonious growth of efficiency in the response time |
| #6. Indicator WP4 - Hub usability | User interaction - effectiveness/ efficiency in management and reuse of content and knowledge - | decreasing value of time to find information (both response time of the system and navigational path length to reach it) | Statistical Measurement of ergonomics and familiarity gained by users, based on the amount of <input ~ task> completed /per user | - | tend. ±150 % meliorative only |

| INDICATOR N. | Relating to which project objective or expected result? | Indicator | Method of measurement | Expected Progress | |
|---|--|---|---|-------------------|---|
| | | | | Y1 | Y2 |
| #7. Indicator WP4 - Hub usability | User interaction - effectiveness/ efficiency in management and reuse of content and knowledge | decreasing value of ratio between spent time per user and number of unsuccessful task-time per user, in performing complex activities, e.g. material preparation. | Statistical Measurement of ergonomics and familiarity gained by users, based on the amount of <input ~ task> completed /per user | - | Harmonious growth of ergonomics rate |
| #8. Indicator WP4 - Hub usability | User interaction - Usability (human, subjective aspects) ref. to ISO standard and well in creative content authoring | increasing value [quantitative] of productions with innovative contents of greater complexity and ease of re-purposing | Statistical Measurement of ergonomics and familiarity gained by users, based on the amount of input ~ task completed /per user | - | Harmonious growth of ergonomics rate |
| #9. Indicator WP4 - Hub usability | User interaction - Global Usability (human, subjective aspects) ref. to ISO standard and well | #1. Distance as a qualitative measure of the relationship between the task the user has in mind and the way he would like to carry it on; #2. Short distance measure; #3. Ready comprehension of the system's reactions | #1. Expert Evaluation of tools and the work strategies which can be effectively accomplished via the interface; # 2. Software Measurement of immediate translation of user's intentions into actions; #3. Software Measurement of lapse of time between <user input~system> ÷ <response~new user input> | - | Very high response-rate of user-system interaction |
| #10. Indicator WP4 - Hub usability | User interaction - Usability (human, subjective aspects) ref. to ISO standard and well | #1. No of Functional Points; #2. Usability error estimation | #1. Expert analysis of Functional points; #2. Expert Verification of platform main functionalities usability through different devices, e.g. personal computers, mobile devices (mobile porting of selected functionalities) | - | #1. Harmonious growth of the functional points and function relations ~ tend. ±99 % #2. mobile users growth to ~10% of total users |

| INDICATOR N. | Relating to which project objective or expected result? | Indicator | Method of measurement | Expected Progress | |
|---|---|--|---|--|--|
| | | | | Y1 | Y2 |
| #11. Indicator WP4 - Hub usability | User interaction - Accessibility (strictly ref. to indicators-WAI-W3C. Improving the accessibility of the services) | Number of passed tests obtained from a selected list of online facilities proposed by W3C at http://www.w3.org/WAI/RC/tools/complete | Software measurement of results on the human accessible web interfaces of the Platform ecosystem | > 99 | > 123 |
| #12. Indicator WP4 - Hub usability | User interaction - Satisfaction | Value of click-through factor | Software Measurement of click-through rate; | > 80% | > 90% |
| #1. Indicator WP5 - Experimental Model | EXPERIMENTAL MODELS - usability of digital resources | #1. Amount of usage of protocols for interoperability; #2. Amount of instantiated resources; #3. Amount of output manipulated resources; #4. Amount of uKs circulating [sigma Capital delta coefficient] | #1, 2, 3. Software + intelligent measurement of number of process and instances; #4. global amount of circulating virtual currency [Sigma Capita, in uKs]; number of [virtual] economic interchange transaction; | Harmonious growth from the starting values of HEUREKA = tend. ±99% | Harmonious growth from the starting values of HEUREKA = tend. ±99% |
| #2. Indicator WP5 - Experimental Model | EXPERIMENTAL MODELS - usability of DRM | #1. Amount of usage of free items; #2. Amount of usage of protected resources or subject to copyright; #3. amount of service requests; #4. Amount of attempts to use of DRM-protected resources interrupted or not successfully completed | #1, 2, 3, 4. Software + intelligent measurement of number of process, instances, alerts | - | Harmonious growth from the starting values of HEUREKA tend. ±150 % |
| #3. Indicator WP5 - Experimental Model | EXPERIMENTAL MODELS - coherence between the environments | #1. Amount of internal reports of errors or inconsistencies in the collaborative framework and track; #2. amounts of user-reports of inconsistency between the environments coming out from interviews | #1. Software Measurement of alerts, negative reports, open discussions #2. Questionnaires and interviews directed to the users of the system | < 10% | < 5% |

| INDICATOR N. | Relating to which project objective or expected result? | Indicator | Method of measurement | Expected Progress | |
|---|---|---|---|-------------------|--------------------------|
| | | | | Y1 | Y2 |
| #4. Indicator WP5 - Experimental Model | EXPERIMENTAL MODELS - safety use of resources by users | #1. Amount of internal reports of warning of danger, attack, intrusion, or violation of safety systems; #2. amounts of user-reports of abuse | #1. Software Measurement of alerts, negative reports, open discussions; #2. Questionaries and interviews directed to the users of the system | < 3% | <1.5% |
| #1. Indicator WP6 - System Testing and User Evaluation | Effectiveness of HEUREKA services | Answers to question: have you noticed a sensible reduction of the time you employ to carry out your work? | 250~ 500 Questionaries and interviews directed to the users of the system | - | ~450 properly filled out |
| #2. Indicator WP6 - System Testing and User Evaluation | Effectiveness of HEUREKA services | Answers to question: do you think using the system have you helped you discovering new ways of using Europeana? | 250~ 500 Questionaries and interviews directed to the users of the system | - | ~450 properly filled out |
| #3. Indicator WP6 - System Testing and User Evaluation | Effectiveness of HEUREKA services | Answers to question: do you think the system supports/boosts your creativity? | 250~ 500 Questionaries and interviews directed to the users of the system | - | ~450 properly filled out |
| #4. Indicator WP6 - System Testing and User Evaluation | Effectiveness of HEUREKA services | Answers to question: do you feel you have sensibly changed the organization of your work, by using the system? | 250~ 500 Questionaries and interviews directed to the users of the system | - | ~450 properly filled out |
| #5. Indicator WP6 - System Testing and User Evaluation | Capability to reuse Europeana* content | No. of SW modules offering for: retrieving data from Europeana | Expert Software inspection | ~5 | ~10 |
| #6. Indicator WP6 - System Testing and User Evaluation | Capability to reuse Europeana* content | No. of SW modules offering for: aggregate data retrieved from Europeana | Expert Software inspection | ~3 | ~5 |
| #7. Indicator WP6 - System Testing and User Evaluation | Capability to reuse Europeana* content | No. of SW modules offering for: augment metadata associated to data retrieved from Europeana | Expert Software inspection | ~3 | ~5 |

| INDICATOR N. | Relating to which project objective or expected result? | Indicator | Method of measurement | Expected Progress | |
|--|---|---|---|-------------------|---|
| | | | | Y1 | Y2 |
| #8. Indicator WP6 - System Testing and User Evaluation | Capability to reuse Europeana* content | No. of SW modules offering for: hybridate data retrieved from Europeana with data coming from other data providers | Expert Software inspection | ~5 | ~10 |
| #9. Indicator WP6 - System Testing and User Evaluation | Pilot experience - conformability to standards of the assembled materials | Expert advice on a 5 level scale: insufficient, sufficient, average, good, optimal. | Expert advice | - | Good or Optimal |
| #10. Indicator WP6 - System Testing and User Evaluation | Pilot experience - amount of material harvested from Europeana* and different sources | Interoperability Rating | Use of standard protocol + Software Measurement of statements | - | tend. ±200% |
| #11. Indicator WP6 - System Testing and User Evaluation | Pilot experience - amount of new aggregate materials | Data consistence | Software +Intelligent Measurement of consistence, purity. | - | tend. ±200% |
| #12. Indicator WP6 - System Testing and User Evaluation | Pilot experience - amount of access to the HEUREKA materials | Query, hit -rate | Software +Intelligent Measurement access. | - | tend. ±200% |
| #13. Indicator WP6 - System Testing and User Evaluation | Pilot experience - amount of HEUREKA platform's hits | Query, hit -rate | Software +Intelligent Measurement access. | - | tend. ±200% |
| #14. Indicator WP6 - System Testing and User Evaluation | Pilot experience - amount of accesse to Europeana* materials | Query, access -rate | Software +Intelligent Measurement access. | - | tend. ±200% |
| #15. Indicator WP6 - System Testing and User Evaluation | Pilot experience - amount of different users of LO | Analytics user-oriented indicators | Software +Intelligent Measurement access. | - | tend. ±200% |
| #16. Indicator WP6 - System Testing and User Evaluation | Pilot experience - Effectiveness | Answers to question: Express your overall satisfaction with regard to the Effectiveness of the System in a scale from 0-really unsatisfied to 10-highly satisfied | 250~ 500 Questionaries and interviews directed to the users of the system | - | ~450 properly filled out; Average ≥8.5 |

| INDICATOR N. | Relating to which project objective or expected result? | Indicator | Method of measurement | Expected Progress | |
|---|--|---|---|-------------------|---|
| | | | | Y1 | Y2 |
| #17. Indicator WP6 - System Testing and User Evaluation | Pilot experience - Usability | Answers to question: Express your overall satisfaction with regard to the Usability of the System in a scale from 0-really unsatisfied to 10-highly satisfied | 250~ 500 Questionnaires and interviews directed to the users of the system | - | ~450 properly filled out; Average ≥ 8.5 |
| #1. Indicator WP7 Dissemination, Exploitation and New Business Paradigms | TRAFFIC ANALYSIS - Community consistence rate | Typical Traffic Analytics indicators (quantitative) | Intelligent Value Measurement of: performance of the system; interaction rate, size, receptivity degree to the dissemination actions etx. | - | 1. pilot community ± 5000 entities 2. potential community (after launch) 500K~1M |
| #2. Indicator WP7 Dissemination, Exploitation and New Business Paradigms | TRAFFIC ANALYSIS - Rating from measurement of indicators | Typical Traffic Analytics indicators (qualitative) | Intelligent Value Measurement of: performance of the system; SEO optimisation; geographic distribution of visits; feeds; behaviour; clients technology; mobile access; bounce rate; fidelity; referrals; page-time; user-time; exit-pages: involvement rate; pages global ranking; etx. | - | Very high traffic rate ~ tend. $\pm 200\%$ meliorative only |

| INDICATOR N. | Relating to which project objective or expected result? | Indicator | Method of measurement | Expected Progress | |
|--|---|--|--|-------------------|--|
| | | | | Y1 | Y2 |
| #3. Indicator WP7 Dissemination, Exploitation and New Business Paradigms | ECONOMETRIC CONSISTENCY | - Consistency of working capital fund in uKs [C (sigma Capital)] | #1. Mathematical measurement of: number of stakeholders; increase of coupling level between users; inflating or deflating value of currency [uKs]; global amount of circulating virtual currency [Sigma Capita, in uKs]; number of [virtual] economic interchange transaction; number of abuse alert; amount of publicity measures proposed by external entities; #2. Intelligent evaluation of fitness coefficient. | - | Very huge capital circulation ~ tend. ±200 % |
| #4. Indicator WP7 Dissemination, Exploitation and New Business Paradigms | NETWORKING GRANULARITY EFFICIENCY INCREASE | - European coverage expansion average given by intermediary organizations | Reporting activities | 3 (quarterly) | 6 (bimestrial) |
| #5. Indicator WP7 Dissemination, Exploitation and New Business Paradigms | STAKEHOLDERS/ END USER INVOLVEMENT | #1. Extrinsic dissemination effectiveness #2. Intrinsic dissemination effectiveness | #1. Extrinsic: Reporting activities #2. Intrinsic: growing rate of the networking activities as well as relations among the users | - | Exponential increasing |

* Ref. #1. Log-report M3.1.2 – Europeana Log Analysis Report 1, Distribution 1.0 2011-08-21 PUBLIC - Rev. D J Clark 2011-08-15;

* #2. Report on the integration of the plug-in with the Europeana portal ECP-2007-DILI-517005 ATHENA;

* #3. CIBER Research Limited 7 October 2011; 'The new Renaissance', report by the Comité des Sages on Bringing Europe's Cultural Heritage On-line, 10 January 2011