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Coding the Humanities – Interfaces for learning and research

List of participants

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1.1 Objectives

Learning and research (in the humanities) are hindered by a lack of coding skills and the seeming incommensurability of educating massive groups of students and providing high quality education. Although traditional knowledge institutions are losing their monopoly on education and research, ICT skills and knowledge production remain privileges of a cultural, technological and economic elite. We propose to tackle this problem by providing online and offline interfaces between people on the one hand and learning and research on the other hand, which focus on new forms of collaboration and a user- and tool-oriented approach to learning programming skills. These interfaces lower the technological, economic and organizational barriers to participation, empower many different groups of people to more deeply and effectively engage with technology and motivate lifelong learning.

We identify four dilemmas about statements on learning and research that can be challenged or embraced:

Digital Literacy: Education and research (in the humanities) increasingly depend on people with programming skills.
Organization: Traditional knowledge institutions are losing their monopoly on education and research.
Numbers: Future education should revolve around massive numbers (Big Data, MOOC).
Elite: Coding and knowledge production remain privileges of a cultural, technological and economic elite.

Problems and Projects

Our answer to these dilemmas provide the following objectives:

The goal to heighten digital literacy. We want to increase the number of people who approach learning and research collaboratively, through an online platform where users learn programming and build tools, thereby increasing digital literacy and at the same time lowering the technological threshold to engage with and reflect on digital tools.

The goal of organization. We intend to create interfaces for users to teach each other and learn and research collaboratively, out of their own motivation, but use institutional structures to kick-start this process and provide disciplinary contexts.

The goal of strengthening numbers. We want to increase the number of people learning and researching by focusing on collaboration and sharing knowledge, so that individual approaches and feedback remain possible, thereby retaining high quality education.

The goal of addressing the issue of the elite. We want to make learning and research accessible and relevant by offering interfaces that allow many different types of users to learn to use and do research with technology

These objectives present learning and inclusion as problems of interfaces. By definition, interfaces determine who or what is included and excluded. The focus of this project is thus on providing interfaces that increase inclusion, where users build, explore and reflect on digital tools and how we use them. The overarching goal is to weave technology and humanities together to foster innovation through three forums: an expandable platform for humanities students collaborate through coding, a lab space where humanities thinking influences product and business design, and an exhibition which engages technology, art, business, and humanities. We propose to do this in three parts:

Platform as interface: an expandable platform for humanities students to collaboratively learn programming and build tools for their research. The coding platform would develop new courses with both on and offline components. Our goal is to introduce four new courses of 12 ETCs, one each year. The new courses would enable Coding the Humanities to expand students' introduction to programming to an open space where they would collaborate with people from all over the world in their ICT engagement. It would foster communication among students and other participants by serving as a space where they can share and experiment with findings, improvise together, and enjoy the thrill of new learning with a network of support. The goal in terms of inclusion would be to reach 20,000 users in four years. The University of Amsterdam would begin by including four other universities in this platform, linking the students through the coursework. The University of California Santa Barbara, University of California Irvine, and Humboldt University of Berlin are highly motivated to take part in this platform.

Lab as interface: The lab space would be an offline physical space in Amsterdam where students could work together with private partners to create new products and services that involve humanities thinking; applying a humanities perspective to practical applications outside academia. Our goal is to create one new product or service per year that meets a need within the humanities, and one new product or service per year that meets a need for a more general or different audience.

Collections as interfaces: The exhibition would be a combination of on and offline projects, culminating in a public six week exhibition in Vienna three years into the project. We endeavor to involve students from the platform, partners from the lab space, as well as other private and public partners, developers, and the general population. This exhibition would consist of workshops, data events, speakers, art installations, and presentations on relationships between ITC, art, business, and cultural heritage.

We also challenge the traditional educational dichotomy of researchers as experts and students as novices. Learning and research are hard to separate as both revolve around involve producing and sharing knowledge, where each participant can be both the sender and receiver of knowledge. This leads us to five principles which will guide our implementation of these interfaces:

Training over support: Our first core value is training so that a learner will soon be able to pass on the knowledge to another learner. While support can result in repeatedly assisting the same person with the same issue, maintaining a distinction and even hierarchy in skill sets, training provides experience to the learner to bring them to an equal level to the trainer.

Collaboration over ownership: Related to training over support is our second core principle, which favors collaborative over competitive efforts. Owning processes and results together on an equal basis promotes great teamwork.

Online over Massive: The format of the platform encourages students to first learn coding online, but intends them to also have a physical team within their institution. This complements the Massive Open Online Course (MOOC) concept, which includes only an online context for learning.

Knowledge production over data processing: The increasing amount of data available demands the skill not just to process this data but to make sense of it. In order to turn data into knowledge, technical data processing needs to be accompanied by interpretation and conscious understanding. Numbers need to be turned into narratives.

Accessibility over state-of-the-art: Our fifth core value is that of tools that are less complicated to begin to use over those that are state-of-the-art. Whereas state-of-the-art tools attract primarily the technically biased, more accessible tools have the power to reach a wider group of new users, including the non-technically biased. This supports our goal of inclusion of traditionally and currently underrepresented populations in ICT.

Coding the Humanities is already a strong and unique research project in Amsterdam (UvA, VU, HvA) that has been successfully running for over one year. Closely linked to projects such as dh, data drive, AAA, chat, and circa, Coding the Humanities explores interplay between humanities and technology. We engage traditionally non-technically biased students with technology in order to empower them to proactively create their own tools, as well as to more deeply and holistically reflect on those tools. We aim to extend beyond the coursework currently offered in order to connect humanities students to artistic, cultural, and business institutions.

To enrich these courses and enhance the analysis of the coding platform's processes and results, we seek funding from other sources to offer two PhD positions related to relationships between humanities and technology. These positions would be excellent additions to the project, whose primary focus is to create new products and services and support research and development activities. Each project will address a key aspect of the overall objective to foster connections between technology and humanities.

The first project will address the Physical Lab element, and will involve a PhD student working part-time as an embedded researcher in a separate institution. The project will

investigate sustainable forms of knowledge transfer and creative and collaborative work practices in combined digital and physical learning environments.

The second project would relate to the core project of the coding platform. The PhD student would research how to reflect on tools through coding. S/he would conceptualize, plan, monitor, and program the coding platform. This PhD would serve as a way of measuring the development and success of the platform over four years. This researcher will be well integrated into the context of the university's department of digital humanities, and will also collaborate with private and public partners.

1.2 Relation to the Work Programme

Indicate the work programme topic to which your proposal relates, and explain how your proposal addresses the specific challenge and scope of that topic, as set out in the work programme.

The project proposed fits the work programme "Platform for ICT for Learning and Inclusion" as it seeks to initiate a dialogue between university scholars and students, artists, knowledge institutions and private companies about the potential merits of ICT for new forms of teaching, learning, knowledge production and transfer.

The dialogue will be initiated on and around a open online learning and collaboration platform that allows students, researchers but also the general public in an hands on approach to shape ICT and discuss ICT related issues. The platform seeks to train students and researchers to understand and shape the digital tools surrounding them. The open design of this interface encourages them to pass on the tools they created and the knowledge they generated.

The exchange on the use of and knowledge about ICT in research and education will be further advanced by an offline lab that accompanies the online platform. In this space, that explores the interplay of on- and offline collaborations, workshops, hackathons and presentations are set up to point the attention of a broad audience towards ICT as a means to enhance knowledge production and encourage them to participate on the online platform itself.

Finally the software projects, insights of students, private and public partners will feed into a 6 week exhibition in Vienna on the engagement of ICT and knowledge production addressing a large audience and engaging them in workshops. The documentation of the exihibition will be openly accessible online.

Thus this project aims at providing a platform that equips its users with agency concerning the application of ICT for knowledge production, in order to increase the overall amount of people that can join ICT related discussions.

The members of the consortium combine a broad expertise that allows to explore how ICT can enhance humanities research and education, how these insights can help

knowledge institutions to make their heritage more accessible and understandable for a larger public and how these knowledge can inspire SMEs for the development of new products and services.

The consortium will provide training and consultation to humanities students, researchers and scholars. It will generate models and strategies concerning the use and development of ICT for teaching and education in an online and offline context that are valuable to other universities, public institutions and companies.

In order to involve a large number of students, researcher, scholars but also non-technology biased people in general terms, the platform reaches out to other universities, knowledge institutions and private partners alike in order to initiate a dialogue about new forms of education that not only integrates ICT but empowers a large number of people to use and shape these technologies to their specific needs. Due to the open licenses used the digital tools developed by the students can be applied and altered also by social institutions, civic movements or the general public.

1.3 Concept and approach, quality of the coordination and support measures

1.3.1 Introduction

Many humanities students and scholars are reluctant to learn new technologies, and thereby limit both their own ability to influence the outside world, as well as the incorporation of technology in their research. As Mitch Resnick has said, not being able to take charge of the technological tools we use to meet our own particular needs is similar to being able only to read a language but not write. For full use of the language and to use it to express ourselves, we must also be able to use it to create new structures. To make full use of technologies, we must be able not just to use them passively, but to modify them. This venture will empower humanities students and scholars to proactively drive their own learning and research. When they engage with technology through coding, they open the doors to master and innovate their own tools.

The coding platform will build upon Coding the Humanities, an already strong research project at the University of Amsterdam that has been successfully running for more than a year. Coding the Humanities is closely linked to several other projects, including zooniverse, dh, chat, and circa, and explores interplay between humanities and technology within the humanities faculty. It currently introduces programming to humanities students through coursework. We have three courses that are incorporated into the curriculum on programming basics. The course "Art, Science, and Technology" is running now, and the courses "Coding the Humanities" and "From Objected Data" will both begin in September 2014. Increasing the number of humanities students and scholars with programming skills through this coding platform will allow them to shape and create digital tools that meet their particular research needs and encourage new forms of learning, teaching and knowledge production. This skillset will sensitize the participants to their technological environment and make them aware of the challenges and opportunities ICT offers for humanities research. Coding knowledge makes those in the

humanities more employable because humanities students and scholars will increasingly need to be able to read and write code. Expanding the context beyond the classroom to the coding platform will give students a venue to connect and share with participants outside the university.

1.3.2 Assumptions involved

There is an assumption in society that academia is separate from the rest of the world, and that the two cannot interact; we intend to break down this constructed notion and open channels for the two to connect. More specifically, we address the assumption that humanities students and scholars are separate from the hard sciences and technology, endeavoring to bring the two together.

At the present time, universities face a loss of authority and control over their own knowledge production as models of traditional education are being replicated in online formats. Transfering the classroom into online formats does no justice to the possibilities provided by online tools in terms of peer learning, collaboration, and exchange that abandons the dichotomy of experts and layman.

1.3.3 Approach

This research proposal consists of three integrated action fields in which public-private-civic partnerships (quad-helix) lead to a sharing of expertise and collaborative practices geared at the development of a cutting-edge innovative educational ecosystem that is specific to the (digital) humanities but reaches beyond this realm. These fields are socio-technical in their approach; apart from combining insights from different partners to develop technological solutions (such as an online educational platform), valorize existing and new R&D methodologies (such as design thinking methodologies and embedded research practices) and the translation of data streams and information in intuitive interfaces that make use of visualization, this research proposal seeks to specially gear technological developments and efforts to enhance society by closing the digital divide. By collaborating throughout the project with public, private and civic partners, the project foresees the accumulation of knowledge and a digital skilling of particular hitherto unreached civic groups.

These efforts should be viewed in line with two overarching developments in contemporary society and in humanities' research; the move to create smart cities where citizens are digitally empowered and the development of digital humanities. By integrating the digital skilling of citizens with the agenda of the development of digital humanities, the project aims to perform academic research through a digital inclusion methodology/practice. Practically, the envisioned educational platform realizes local engagement, user-focused learning with both an individually-oriented as well as collective component; collaboration and the accumulation of knowledge and skills are key to a successful implementation of the platform.

Each of the three areas anticipates and addresses an upcoming challenge.

1.3.3.1 The Platform as Interface

In order to initiate a fruitful debate about the development and application of ICT it is crucial not only to start that debate among ICT experts. On the contrary, this debate should evolve around users and their needs. Thus one of the main challenges to face for the creation of a sustainable dialogue about the opportunities ICT offers is to interest and educate non-technologically biased persons, meaning those who are not inclined to use and develop ICT.

CtH pursues this goal by addressing humanities students and at the same time provides an online learning interface that reaches out to non-technologically biased people in general by lowering the threshold to engage with ICT. This platform therefore opens up the closed university realm for the education up to bigger numbers and overcomes the limitation of ICT training to a cultural, technological and economical elite.

Whereas classical digital humanities programs often rely ICT experts that develop programs for the humanities and provide for supportive actions for the implementation of these tools, coding the humanities seeks to train the students and researchers themselves to shape ICT and understand the possibilities the tools they hold in their hands offer. Hereby the online platform intends to enlarge the circle of people that are involved in the development of ICT beyond the small group of experts.

The platform provides an "online first" approach which means that the students find the means to learn coding and work collaboratively online first through courses and tutorials but can complement these tools with offline meetings. This approach avoids the mere transfer of offline teaching methods into the online world, which is a typical weakness of many Massive Open Online Courses (MOOCs), but explores what offline collaboration can be informed by strategies applied with online tools and how innovative offline practices can initiate and foster online cooperation. It seeks to provide students with the technological foundations to acquire and develop these skills by themselves and in peer learning based processes, based on tutorials and assignments

CtH projects are produced and stored under open licenses which encourages the collaboration and reuse of the software tools by other institutions, companies or partners and therefore provides. These platform in this sense triggers direct debate on the status of ICT in the humanities.

In times of big data more and more data is available but not necessary turned into knowledge. The Coding the Humanities platform educates students, researchers and non-technologically biased people on how to approach this data. It allows its participants to gain insights by addressing these dataset. The CtH projects and tools are therefore easily relateable to already existing open data movements - it seeks to provide its users with digital agency that evolves into debates on open data.

The platform will embrace open source culture and open licenses. The students share their code projects on a distributed repository which encourages re-use, altering and further development. This platform is therefore open, inclusive and sustainable.

Technical approach

On the technical side the design of the platform is inspired by and makes use of open source software and the attached collaborative strategies.

Users make a profile on GitHub, an online public platform for maintaining and sharing repositories that has distributed version control (each user has access to all versions of all documents in the project and can modify existing projects). Their profiles contain all their work, every single contribution to their repositories, which encourages sharing and reuse but also provides them with a portfolio which shows their skills. This portfolio increases the employability of humanities students in addition to serving as a documentation site.

The platform is developed in JavaScript, which will also be the main programming language that is used on the platform. JavaScript is the language that is used on most websites and in all modern web browsers to let the user interact with the web. The advantage of using JavaScript is that it gives users access to the full stack of technologies: client-side, server-side and database levels can be controlled with JavaScript. With it, programmers can interact with data on any website and any web platform. JavaScript also combines the major programming paradigms, so users switching to other programming languages will recognise many elements and don't need to start from scratch.

All interaction with the platform is done via the web browser. All modern browsers allow users to directly interact with web sites and servers through the browser console using JavaScript. Thereby users can directly apply their coding skills to anything they encounter on the web. Another advantage is that this minimises the threshold to developing and using programming skills, as web browsers are found on most computers and are provided by default with all popular operating systems. At the same time, using JavaScript in the browser exposes users to the full range of programming possibilities.

Furthermore, the platform is tool oriented. Students develop small tools and widgets that perform small parts of the research they want to conduct. The reason to focus on tools is that researchers in general and humanities scholars in particular need to reflect critically on the tools they use for their research. By becoming proficient at conceptualising and developing tools, scholars develop a keen eye for perceiving how digital tools work in general.

Developments in programming languages have shifted the focus from computation to language. Commands in modern programming languages are more like natural language expressions, whereas older languages forced programmers to formulate very algebraic commands. This makes modern languages more intuitive to use, which lowers the threshold and together with the vast number of interesting JavaScript modules available

on the web, even novice programmers can build interesting applications in a matter of hours or days instead of months or years. Promoting programming skills to a large audience makes more sense now than ever before.

User Experience

The users of the platform will acquire programming skills via modular online courses and tutorials with direct visual feedback and the ability to concurrently work on the same code and copy and comment on each others work in real-time. This approach encourages peer learning and collaboration.

The platform is set up in such a way that universities can integrate learning modules from CtH in their curriculum, while students can build up their portfolios through research projects, with which they can show both their progress to teachers and their skills and achievements to (future) employers. Furthermore, as was indicated about the application, it integrates naturally with Github and other open source environments, lowering the threshold for a diverse audience to reuse, copy and extend the prototypes, products and results of interest to society, including the general public, academics and companies.

The platform will be introduced to students for the University of Amsterdam with an accompanying offline course that allows students to earn ECT points. This phase will be followed by public release.

1.3.3.2 The Lab as Interface

Universities are opening up towards other universities, civic movements and companies, so that other groups can benefit from and enrich their knowledge.

This process of opening up can be accelerated by spaces that are situated in between the involved actors. The "living lab" we propose shows how this can lead to innovation. The physical lab provices a space for embedded research, a place for "overlapping", theory and artistic practice, physical and digital research, of studio, workshop, library, of institutions - private and public, an independent place

Introduction

One of the challenges concerning new forms of online learning is to form a community of participants that are interested to engage with a platform over a longer period of time and actively contribution to sustainable projects. This sub-project addresses these challenges by the design and production of an offline living lab as interface between digital and analogue world.

As a user-driven methodology, Living Labs aim to blur the boundaries between technology users and producers by including (future) users of technologies from the start of technology development. Positioning users as co-creators reverses traditional "top-down" R&D-processes performed by companies in favour of "bottom-up" innovation,

performed by users and grounded in society instead of in research laboratories. This practice is to lead to unexpected insights into user ideas and practices (Almirall, 2008: 43 Almirall, E. (2008). Living Labs and Open Innovation: Roles and Applicability. The Electronic Journal for Virtual Organizations and Networks, 10(August), 21–46) and lead to the development of more successful ICTs. To gain unexpected insights, methodologies focus on the inclusion of real (end) users in daily life contexts. The Living Lab thus also comprises a setting; a setting that affords "experimentation environments in which technology is given shape in real life context and in which (end) users are considered co-producers" (Ballon et al., 2005: 13 Ballon, P., Delaere, S., Pierson, J., M, P., Slot, M., Bierhof, J., & Diocaretz, M. (2005). Test & Experimentation Platforms for Broadband Innovation: Conceptualizing and Benchmarking International Best Practice).

This living lab, the OverLab, will explore the integration and complementation of ICT based learning and collaboration into an offline environment. It will serve as a testbed to initiate, support and foster online ICT projects. At the same time, the strategies and practices of the analogue space inform the development of the digital platform. Innovative perspectives on the application of ICT in general and its integration into an offline space will be explored through experimental, user focused workshops that result in a physical space. The conception and design of the lab according to user needs is a crucial part within this subproject. This approach will produce models and concepts for the design and user culture of a living lab that feeds of and informs the online learning platform. The process will be openly documented and intends the imitation and formation of living labs related to the coding the humanities platform.

The initial users of this interface are researchers that are situated in between a variety of aspects themselves: Embedded researchers work between theory and (artistic) practice, physical and digital research, science and art, universities and public or private partners. Their needs as digital knowledge worker on the one hand and a specific but homogeneous group on the other hand, allow valuable insights concerning the question of how ICT can provide instruments to make research more open, accessible and sustainable.

It will be an independent place outside the department structure of the university in which studio, workshop and library intertwine, a room that enables and allows to experiment.

Project Overview

Embedded researcher is a new and exciting role within the university. Its goal is to establish sustainable partnerships between private partners and universities. In practice, however, this turns out to be problematic, since the role and position of this kind of researcher is peripheral by definition. The embedded researcher usually works on short term projects and in between the academy and a company which seeks to establish sustainable collaborations between the creative industries and universities. Though the future of research lies more and more in collaborations between disciplines and fields, between public and private partnerships, practice and theory, between classic methodology and flexible theory, co-creation and collaborations the interdisciplinary

researcher enters work spaces which are not built by or for them and uses methodology and means of exposure which remain in the respective fields.

Where artists use their atelier, designers their studio and scientists their lab for experimentation, testing and collaboration, the embedded researcher enters a traditional, disciplinary university environment even though they are often expected to address research questions with a practical and creative research aspect. But artistic expression and creativity do not obey closing hours and bureaucratic sterility of university buildings.

A virtual and physical lab is essential to compensate for the aforementioned problems. An online and offline platform - that already exists before they start, and will start after their contracts end - a space is a necessary precondition for embedded research projects that are actually sustainable. In this project we want to explore how such a lab should look like. Therefore this project seeks to investigate and built upon the combined needs for newly established forms of research by means of self-reflective research by the combined skills and expertise of the public and private partner using design thinking.

Therefore this project seeks to investigate and built upon the combined needs for newly established forms of research by means of self-reflective research by the combined skills and expertise of the public and private partner using design thinking. When working from a human-centered approach it is crucial to not think of the form of the outcome right away or to be limited to just one medium or technology. But in order to experiment and innovate, a flexible workspace is as much needed as a fl∫exible methodological framework which stimulates creating research designs with specific tools.

Challenge The work space of the embedded researchers are regular office spaces at the university, supplied with a desk and a computer. The scope of most projects however requires a variety of work settings. When working from a human-centered approach it is crucial to not think of the form of the outcome right away or to be limited to just one medium or technology. But in order to experiment and innovate, a flexible workspace is needed. Artistic expression and creativity do not obey closing hours and bureaucratic sterility of university buildings. How could the ideal workspace for knowledge workers look like? How could the working environment be adapted to meet the changed research requirements of knowledge workers at the Departments for Digital Humanities, Media Studies, Cultural Analysis and Artistic Research? How can these physical structures create a sustainable link with an online learning environment? And how can the analogue and digital workspaces best be linked to each other?

How to: user-centered approach Design Thinking aims at finding out about users's needs via an ethnographic research tools, synthesizes, narrows insights down to hit the core of a problem, condensed synthesis enables to start into an ideation part generates a broad variety of ideas, makes ideas tangible in rapid and rough prototypes, cost-efficient development

Future University related research has to be informed by open methodologies. Increasingly funding is spread competitively for small research periods, also in order to

foster the collaboration between the public and the private sector, for example in the form of embedded researchers. Even though the emphasis here is on sustainable research, the projects are often closed and presented and not open for further development (unless some additional funding allows to proceed) Truely sustainable research is OPEN and would mean that a project has releases - at some point (after the official end of the research period) other students, embedded researchers are allowed and encouraged to take the outcome of the research, alter and develop it further. At some point (after the official end of the research period) other students, embedded researchers are allowed and encouraged to take the outcome of the research, alter and develop it further.

There is an increasing need of knowledge workers to combine theoretical as well as hands-on approaches in their research. Current workspaces do not provide enough space, the right material, or the appropriate technology to experiment. It is also essential to have a methodological framework for researching interdisciplinary methodology, as well as best practice for building sustainable public-private-partnerships

1.3.3.3 Collections as Interfaces

Collection as an interface: the exploration of the opportunities interfaces and visualization of data holds for knowledge production and inclusion

There are not only dramatic geographic differences in accessibility to and user skills of ICT but also socio-economic and demographic gaps.[1] Vast societal groups face the problem of digital exclusion. Accessibility to and digital literacy about ICTs determine whether a person is included into economic, social and cultural life, and whether they can participate in decision making processes within the democratic realm. In other words, using and comprehending ICT is about agency and inclusion. With regard to the growing impact of ICT not only on economic productivity but also within the cultural, social and political realm, this exclusion forms a challenge in terms of equality, inclusion and chances of participation.

One area in which the challenge of digital literacy and exclusion is prominent is within humanities research. Academia is increasingly confronted with large amounts of data. In order to turn this data into information and into knowledge, researchers and students need tools that allow to structure, search, correlate, analyze, but most importantly, present and visualize this data. This is also true for working fields related to the humanities: museums, libraries and archives are challenged to make the huge data sets that result from digitalization of the cultural heritage they foster[2], accessible and understandable for as many people as possible. Despite the opportunities these mass resources generated in numerous digitization projects provide, humanities researchers and students are – due to a lack of skills - reluctant to exploit these troves.

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[1]Menzie D. Chinn and Robert W. Fairlie: *The determinants of the global digital divide: a cross-country analysis of computer and internet penetration. Oxford University Press 2006*

[2]   cf. www.opencultuurdata.nl/

At the same time, governments, municipalities and cultural institutions increasingly share their data openly online. A good example of this development in the field of cultural heritage is our partner in this project the Europeana network[3]. But also in the political field a lot of open data sets wait be explored by dedicated citizen. The skills to compile graspable information from big data sets therefore become more important on the level of politics and social agency. It allows civic movements but also single citizens to understand political and social processes, identify problems and develop solutions – that can be software based.[4]

Coding the Humanities trains students and researchers to read and handle data streams and shows possible ways to translate these into visualizations. Visualizations such as cartography, timelines, graphs, diagrams or animations, as well as the design of interactive interfaces help to translate data into knowledge by providing a context for different information and a combination of different data sets. This approach can boost humanities research and at the same time it makes humanities concepts and research productive and understandable for a broader audience as the visual translation of the data can inspire the mind to new insights.

In practice, the choice is made to encourage researchers to first learn to program in JavaScript; JavaScript has a low threshold for the practical application of code in various fields. Here the researchers can also experiment with and apply their knowledge to existing open code resources. In addition to this, existing visualization applications and programs - such as cartography, timelines, graphs, diagrams or animations - are made available to humanities' researchers. Combining newly developed JavaScript coding skills with enhanced visualization applications literacy, allows humanities' researchers to elicit new knowledge and scientific insights by experimenting with existing JavaScript libraries such as D3 (Data Driven Documents)[5] while also gaining good control over the visual outcome of their research endeavors. These tools thus enhance the analysis and understanding of complex relations and concepts relevant to humanities' research. At the same time data sets become comprehensible and presentable to a broader audience. Supported by private partners in the consortium, researchers will also develop new tools that may be applied to different open data sets, provided by cultural institutions and organizations.

The developed tools can be applied to different data sets. Especially with regard to the above mentioned open data sets provided by more and more cultural institutions and organizations, data visualization tools provide a great foundation for collaborative activities between universities and other institutions. These tools allow to exceed the mode of mere data processing to the actual production of new insights and knowledge.

Practically, the foreseen educational platform realizes local engagement, user-focused learning with both an individually-oriented as well as collective component; collaboration and the accumulation of knowledge and skills are key to a successful implementation of

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[3]   www.europeana.eu
[4]   Cf http://gdeltproject.org/; https://okfn.org/
[5]http://d3js.org/

the platform. Apart from a digital educational platform and the realization of a physical research space where public-private-civic partners can collaborate, a third component of the project is the translation of data in intuitive interfaces and data visualization. Students and researchers ("users") will be taught to translate data into visualization, thereby not only learning how to interpret data, but also how to code and reflect on what coding practices mean; how the act of coding influences how data is represented. Users, in this way, become more aware of how data may be manipulated while at the same time gaining skills that empower the user. By learning how to read and handle data streams and how these may be translated in visualizations, users therefore not only gain skills, but also become more empowered, "smart" users. Moreover, data visualization tools provide a great foundation for collaborative activities between universities and other institutions; these tools move beyond the mode of mere data processing to instead produce new insights and knowledge.

The project thus involves visualization and interface expertise of private partners to not merely facilitate and realize skilling of humanities' researchers, but to moreover stimulate new knowledge production. Directly connected to this is the fact that the consortium is complemented by open data collections provided by cultural institutions. These open data collections provide research material for humanities researchers to interact with, to investigate and to draw new knowledge from.

This also relates to the second part of the Collection as Interfaces sub-project; the research performed by consortium of actors will culminate in a public six week exhibition, situated in Vienna in the third year of the project. Involving and drawing from the research practices of students on the platform, the partners in the lab, as well as other private and public partners, developers and the general population, the exhibition publicly presents workshops, art installations and events about the relationship between ICT, art, business and cultural heritage.

The exhibition would be a combination of on and offline projects complemented by workshops, data events, speakers, art installations, and presentations on relationships between ITC, art, business, and cultural heritage. Situated in public space, the exhibition invites the public to engage with art work, developed interfaces, and visualizations which are the result of researchers' efforts in researching open data provided by cultural institutions.

The exhibition will be presented in the third year of the project. However, at the end of the first year, a trial event will be organized in Vienna, where first results are to be presented. Between the first and third year, the consortium will work on realizing the six week exhibition through crowdfunding mechanisms, such as kickstarter.[6]

Consortium

In this research field we work with the Dutch company Weyeser with expertise in supporting organizations to translate big amounts of data into knowledge by means of

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[6]   www.kickstarter.com

data mining, machine learning and visualization. Their solutions offer governments, governmental institutions, universities, think tanks and corporations ways of objectively assessing their knowledge portfolio and that of their peers. Within the framework of CtH, Weyeser supports humanities students in the analysis and visualization of humanities' related data sets relevant to their research.

Weyeser's expertise with visualization and interfacing-practices is complemented by the Austrian company CastYourArt. CastYourArt is focused on consulting, production and online/offline distribution of audio and video material in which they present artists, exhibitions and collectors and take art out of the museum context.

Moreover, the consortium in this research field will be completed by a public partner, the Europeana network, which will initiate projects that encourage students to work with the datasets related to their collection. In a series of workshops with the private and the public partner the students will learn about the status quo of visualization within the museums context. With their humanities background the students are predestined to comprehend how to turn data into a narrative and how to meet the demands of the visitor. With their coding skills and the support of the private partner, the students will collective conceptualize and develop software solutions for this field but not limited to this field. The outcome of this project will be accessible and free to use by other students, scholars, cultural institutions or civic movements.

Visualization empowers the students to make the increasing number of large datasets productive for their research. The new perspectives gained also provide arguments and strategies for a larger audience ranging from museums to foundations to civic movements.

Describe any national or international research and innovation activities which will be linked with the project, especially where the outputs from these will feed into the project;

The proposed projects will connect to the Amsterdam Centre for Digital Humanities in terms of shared seminars and benefit from the collaborations with scholars that have insights research concerning tools for humanities research. Furthermore Coding the Humanities will benefit from research and network of the Creative Research Centre Amsterdam to connect with SMEs of the creative industries sector to collaborate on the development of innovative products and services. Collaboration with Material Encounters with Digital Cultural Heritage (meSch)[7] is a highly likely possibility, as the UvA is already involved in this project. It is a four year European Union funded project based in the United Kingdom that aims to co-design novel platforms for the creation of tangible exhibits at heritage sites. Curators will be able to offer visitors new interactive experiences through material interaction with smart objects.

Additionally, V-MusT.net[8] could be a potential network to collaborate with. It is a network of excellence that focuses on virtual museums, endeavoring to provide the

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[7]   www.mesch-project.eu

[8]   http://www.v-must.net/

heritage sector with the tools and support to develop virtual museums that are educational, enjoyable, long-lasting and easy to maintain.

The overall approach to this project is to stimulate both self-empowerment and at the same time, collaboration, between those working in the humanities those outside academia. This will be done by offering PhD positions, encouraging embedded research activities, and working together with Design Thinking companies for fruitful interaction in the physical lab. There is already an extensive amount of coordination between the University of Amsterdam and outside institutions for this project. Productive meetings with several companies have taken place, including Dark Horse.
Where relevant, describe how sex and/or gender analysis is taken into account in the project's content.

This project is about empowering people to use technology, concentrating on those who are hesitant or face obstacles to do so. Girls and women overall face greater obstacles to accessing technology and education in general. Raising awareness of this issue, fostering discussion on feminism and coding, and working to create new ways of increasing the participation of girls and women in coding are all essential elements to our project.

Previously unmet needs that can be met by bringing sex and gender into the research:
-addressing the roots of the divide between women and men in technology.
- equipping more girls and women with coding skills will enable them to create tools that they need, which have been overlooked in the male-dominated world of coding and technology in general.

The number of woman attracted by coding within CtH could be increased by collaborations with initiatives that seek to do the same - increase the number of female coders, like Railsgirls[9] or geekettes[10] in forms of workshops, information evenings in the lab.
A recent EU study shows that only 30% of the people in the ICT sector in Europe are women, a number that mirrors the low number of women with a degree in that field. Digital Agenda: Bringing more women into EU digital sector would bring €9 billion annual GDP boost[11], EU study shows While the same study shows the potential of having more woman working in that field traditional ICT programs fail to attract female students. At the same time female students in the humanities outnumber male students. Thus an approach like CtH holds enormous potential to engage more women in ICT via their research interests. The seminar Coding the Humanities at the University of Amsterdam has shown that, in combination with tools relevant to their research, woman are as keen as men to engage with coding.

2. Impact

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[9]   www.railsgirls.com
[10] www.geekettes.io
[11] cf. "Woman in ICT", http://ec.europa.eu/digital-agenda/en/women-ict [accessed 21.04.2014]

2.1 Expected impacts

The main goal of the project is to reach and train a large number of humanities students, researchers and scholars and initiate collaboration through coding projects and a debate about the digital tools in use. This goal will be pursued through active involvement of students and researchers on the online interface, the use of the offline lab, collaborations with universities, organizations and private partners.

On a larger scope the project will provide an online learning platform that is freely accessible and contains collection digital tools that can be re-used, adapted or developed further. The platform therefore holds the potential of enabling and equipping a large number of non-technologically biased people to use these and other tools according to their needs. In order make this project known to potentially digitally excluded persons Coding the Humanities seeks to facilitate collaborations with diverse partners, such as knowledge institutes, civic movements and municipals.

This hands on approach will train thousands of humanities students to develop digital agency and at the same time seeks to interests many potentially digitally excluded persons and train them to collaboratively expand their coding skills and to pass on this knowledge. Every active user therefore become a collaborator and multiplyer.

Targets

As concrete targets we intent to:

- have 20.000 active users of the online platform after four years
- have at least 50 regular users of the physical lab
- have the model of the lab implemented by at least four other public or private institutions
- reach at least 1000 people workshops, presentations, hackathons with varying levels of technological knowledge
- to give presentations together with the private partners on at least 5 conferences / symposiums per year
- involve international digital/media artists and reach and involve hundreds of visitors of the fare for digital devices in Vienna in 2017

Reaching these goals

University of Amsterdam

The three offline courses "Art, Science, and Technology", "Coding the Humanities", "From Object to Data" initiate the participation on the platform with 20 students per course, 60 students in total in 2014 and create a awareness of the project before the official release.

In the following years four courses (12 ECT) per year starting 2015 will reach 320 students. These students are meant to work as tutors and pass on their knowledge to other humanities students and engage with them in projects based on their research interests.

During the same time 40 embedded researchers will use the online interface and the pilot and the actual physical lab. The experience gained for the work within this analogue and digital collaborative space, naturally integrates into their research which is aimed at modeling a product or service for a cultural institution with regard to the digital enhancement the services.

Best practice models for other universities and organizations

Collaborations with at least four other universities with humanities departments equal in size to that of the faculty of humanities of the University of Amsterdam (7.000 students) will introduce the platform on an international level to a large goup of humanities students and scholars. These universities integrate the platform into their curriculum. Coding the Humanities will provide scholars from the other universities with consultation on the implementation of the platform in the coursework.

The success of these collaborations can be directly measured through the number of participating students and of their portfolios on github. Among the involved humanities scholars an active exchange about the integration of the platform into their teaching will be initiated and curated by Coding the Humanities communications staff.

Coding the Humanities will furthermore reach out to initiatives like the open knowledge foundation, railsgirls and research centers like the Creative Industries Research Centre Amsterdam and Centre for Digital Humanities Amsterdam to diversify and enlarge the usergroup further.

Public and Private Partners

The direct cooperation with different SMEs will allow for the co-development of products and services and thus include another perspective into the digital tools needed in humanities teaching and education.

Events

All findings, for example in form of reports, presentation, videos, design blueprints, and the code generated in the project will be documented and accessible online. The project manager of Coding the Humanities will initiate a series of events that points the awareness groups with various levels of technical knowledge to these tools and the interface itself. Furthermore, the project will be presented at various conferences, symposia and conventions in the field of education and software.

Via the online interface, the physical space and a series of events, Coding the Humanities is going to reach and empower a diverse audience of people different levels of

programming and technological knowledge. The mix of hands on courses and tutorials and offline workshops will empower humanities students to enter a dialogue on the impact of digital tools on their research and ways of collaboration.

The collaboration with different institutions and organizations will increase the diversity of participants and loosen up the homogeneous group of humanities researchers. The development of services and products related to humanities research but also aimed at the needs of a larger public (for example knowledge institutions) ensure that the dialogue about digital tools exceeds an abstract realm which is not user centered and evolves between ICT experts. Instead it includes a diverse groups of a new kind of enabled users.

2.2 Measures to maximize impact

2.2.1 Dissemination and Exploitation of Results

The project reaches out to a diverse group of humanities students, researcher and scholars, universities and research institutes, museums, archives, SMEs of the creative industries sector, civic movements and especially non-technologically biased people within the general public.

The projects seeks to provide models, products and services to enhance educational training to the indicated group. These impacts shall be reached following the strategy.

Users
To a large extent, the results of the coding platform will automatically be available to all. A project manager will be hired and will be responsible for strategizing and implementing a campaign to disseminate results. Building the network through the coding platform, as well as connections to our art network will help to extend this project to others.

We will reach:

1) Humanities researchers (novice and experienced) through:
- online courses in regular curriculum
- workshops at academic events
- embedded research projects

2) (Open Source) Software Developers through:
- presenting and pitching at PICNIC, European platform for innovation and creativity
- presenting at EYEO Minneapolis
- presenting at VisConf Boston
- presenting at JSConf
- create online tutorials

- share our curriculum on github

3) Museums and Archives, through:
1. build and offer visualization tools
2. collections as interfaces
3. exhibition
4. course projects
5.
4) Civic organizations
- collaborative open data projects like hackathons
- General public
- organizing the coding sessions'
- presentations by the partners involved
- presentations by students and embedded researchers
- exhibition in Vienna
- open projects and challenges like hackathons

Uses

How will we increase the (inclusive and innovative) uses and usage of ICT for:

1) Research
- governmental and heritage collections will be used in new ways in humanities and social science research when new users with expertise in their respective disciplines approach them collaboratively, through programming. Moreover, the platform will foster new inter-disciplinary collaborations, which further enrich these collections and make them more accessible and interesting for education.
- embedded researchers will explore the possibilities the integration of online collaboration tools into a living lab

2) Commercial ends
- promoting the platform at developer conferences will draw companies to the platform to scout for talent, find new ideas for applications and new solutions to problems, new collaborations with and projects for institutions
- direct involvement of private partners in student projects will advance the above mentioned processes

3) Investment
- these collaborations between students and researchers will result in programs that point to the needs of humanities research and the needs of knowledge institutions to make collections accessible and presentable. These perspectives can be commercialized and lead to collaborations between universities and businesses.

4) Society

- citizens that know how to apply and shape digital tools gain new insights on policy and decision making processes from open data sets and provide citizen with political agency
- software applications can solve problems of municipalities in a cost effective and citizen involving way

5) policy making
- o this project provides policy makers with a different way for looking at, measuring and improving inclusion

6) education
- the "online first" approach we are developing results in new types of humanities courses that give learners and researchers different perspectives on their materials of study

7) labs
- the OverLap provides the blueprint for a living lab for on- and offline collaboration that can be put into practice by various groups and in various spaces

Exploitation

Apart form the material overarching the project like yearly reports and best practices, the following materials will be generated and collected in the three sub-projects:

1) The platform as Interface
1. code portfolios from coursework
2. code portfolios from projects with privat partners
3. best practice

2) The Lab as Interface
- best practices concerning on- and offline collaborations
- reports / evaluations of workshops with students
- models / design for living lab furniture interior design
- reports on the integration of online platform and offline lab

3) Collections as Interfaces
- digital artworks (visualizations, videos, animations)
- video documentation of creation of artworks
- video documentation of the fare
- visualizations

The material generated and collected shall be open for use and reuse.

Code and the digital tools resulting from students' work and collaborations with partners will be stored on different repositories on github[12]. In order to guarantee the accessiblity and to give the possibility to re-use the code, it will be stored under the MIT[13] license. This license will be attached by default to every repository create on github by its the users. The users will be informed about this procedure and the license on the platform. CtH seeks to clone interesting student profiles into one repository reserved for this purpose in order to create and present an interesting portfolio.

Documents, like evaluations, reports, presentations or conference papers will be made accessible and stored on github by the different parties of the consortium under the Creative Commons "share alike"[14] license.

Video and audio material will be stored and made accessible under the same license on the websites of the parties of the consortium who porduced the content.

In order to make guarantee the conservation and accessibility of that content over a long period of time we are going to use services like DANS.[15]

The project fundamentally builds on open source and knowledge strategies that encourages sharing and re-use of code, data and other materials. We thus follow the maxime that all knowledge generated within the project should be freely accessible, usable and adaptable.

As the consortium follows a non-hierarchical structure as far as possible, every partner is responsible to make the material and documents he produces in the realm of the project accessible. The Coding the Humanities documentation manager controls these processes.

2.2.2 Communication Activities

Describe the proposed communication measures for promoting the project and its findings during the period of the grant. Measures should be proportionate to the scale of the project, with clear objectives. They should be tailored to the needs of various audiences, including groups beyond the project's own community. Where relevant, include measures for public/societal engagement on issues related to the project.

Communication activities

Cross-medial process documentation

What?

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[12]   www.github.com
[13]   For information on the MIT license please find information on: http://opensource.org/licenses/MIT.
[14]   www.creativecommons.org
[15]   www.dans.knaw.nl/en

- to display and expose the project through various media and communication channels using ressources from public-private-partnership
- apply creative strategies to the research documentation and medial communication of larger research projects combining sub-projects into a larger communication framework, which includes on-/offline best practices, as this project has a complex structure, uses a variety of technology, adresses and includes different audiences
- to share the knowledge from building the different sub-projects
- Serving the overall deliverable to make learnings and models available in best practices and libraries.

Why?

Science communication is a constituting element of research and learning in order to bridge the gap between science and society. However, many of the new medial possiblities, and above all interactive interfaces, aren't strongly developed yet. The research centers innokom and Stifterverband conclude in their trend study on science communication, that the step towards "an open-result-oriented, societally engaged dialogue is overdue. Drivers behind this development are new formats in interactive media".[16] Until now, science communication has been communication by the universities' press office, who pubslished research results with gate keeper principles. Which means that the results were communicated further depending on whether or not print, tv or radio would pick up on it.

There can be identified two main reasons for science communication not reaching beyond an academic public: Either scientists don't have the necessary skill set in order to act as communicators and media designers, or the media professionals try to squeeze scientific content into the standardized storytelling they know from corporate films or TV reports. The newly emerged field of eLearning and MOOC's possesses great possibilities for the distribution of knowledge and exchange. However, there are currently few examples of projects or courses where the promises of moving images are used to their fullest, and where the different field of expertise of academic teachers, videographers and students result in products which reflect their research content in the best possible way.

How?

The project partners's expertise include both media professionals as well as researchers. A creative consultant specialised in cross-media production between research projects, univiersities and media professionals will coordinate the activities, but also train the participants through workshops in order to better understand each other's communication, start making and creating media themselves. The bridging element of the media and research consultant characterizes yet again the idea of inclusion and learning, and plays an important role both for the internal and external media exposure and science communications activities. Throughout the project, the partners will attend workshops in

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16   Gerber, Alexander (2011): Trendstudie Wissenschaftskommunikation – Vorhang auf für Phase 5., Berlin: edition innovare / innokomm Forschungszentrum, p.24

order to reflect on the forms of scientific communication and built best practices for the variety of comunication activities (see below).

(1)   built a bridge between the concrete implementation of video, learning and collecting as one part of the overall platform
(2)   cross-medial best practice for science communication; use format of Scientific Research - trailer as a point-of-departure; produce video sequences which use filmic language and do justice to the respective research topic and people who conduct the research

b) Communication activities
All of the private partners are strong communicators and multipliers in their respective fields. Each of them will use their regular communication channels to attract attention and maximize exposure. Iteration of all of those activities in order to build strong cases regarding science communication and develop further storytelling strategies for researchers.

The curation of the physical lab includes a variety of communication activities:

1. every 6 months throughout 3 years: project exhibition of the process
2. every 3 months throughout 3 years: symposium with workshops and speakers / party
3. monthly: Digital Salon/ Digital Workshop/ Presentations to all Project partners
4. Workshops and Pilots
5. Grand finale in order to end the four year collaborative research partnership with Dark Horse and mark the moment of complete independency
6. Science slams / Pecha Kucha's
7. presenting project results at different types of conferences: developer-, educational-, heritage-, humanities-oriented (here we need representation costs).
8.
We're reaching commercial companies and various kinds of institutions by:

9. using kickstarter and crowdfunding to finance and promote the exhibition. This is also good for societal engagement.
10. challenging students (a.k.a. researchers or users) to collaborate on projects with people outside their courses and universities.
11. The coding sessions workshops: reaches all kinds of new users.
12. announcing projects and (hackathon) challenges via Europeana. As a massive European portal for thousands of heritage institutions, such announcements will reach enormous audiences.
13. involving other universities in using and developing courses, the project is promoted in different countries
14. exhibitions of the Collections sub-project generates massive media attention and a very broad audience.

3. Implementation

3.1 Work plan – Work packages, deliverables and milestones

Please provide the following: brief presentation of the overall structure of the work plan.

The proposed project is structured into three fields:

1) The Platform as Interface: In this work package an online platform for learning and research will be conceptualized by offering programming training to humanities students. It will serve as a forum for a wider user group and will engender fruitful collaborations in learning new technologies.

2) The Lab as Interface is to be an offline space that complements the online platform and provides an in-between environment for university partners, in addition to public and private partners to connect and pool their skills and perspectives towards innovations.

3) The Collection as Interface will be an exploration of the inclusive opportunities interfaces and visualization of data holds for knowledge production.

These three fields will be developed simultaneously, with an emphasis in the early stages on building the platform.

Inspired by open source culture and software development practices the fields are going to be explored simulataneously so that insights from one of the fields can be applied tranfered early on to the other fields.

Table 3.1 a: Work package description
Collections as interfaces: The exhibition would be a combination of on and offline projects, culminating in a public six week exhibitio in Vienna three years into the project. We endeavor to involve students from the platform, partners from the lab space, as well as other private and public partners, developers, and the general population. This exhibition would consist of workshops, data events, speakers, art installations, and presentations on relationships between ITC, art, business, and cultural heritage.

Work package number	3	**Start Date or Starting Event**					Kick-off workshop 10/2014
Work package title	Collections as Interfaces						
Participant number							
Short name of participant	Haas						
Person/months per participant:	2/12						

Objectives : The objective is to build a network that bridges ICT to art that culminates in the first World Coding Fair, participate in the Fair both as the primary organizer and as a participant.

Description of work (where appropriate, broken down into tasks), lead partner and role of participants

CastYourArt will use their network of electronic media, art, and museums to bring in new participants to the pilot fair in July 2015 and the complete World Coding Fair in July 2017. This will take place over time, starting in September 2014 and continuing throughout the process until the pilot Fair in July 2015.

Additionally, they will organize and participate in the World Coding Fair that will take place in Vienna in 2016, as well as the pilot Fair that will take place in Amsterdam in 2015. The organization will consist of recruiting participants (artists, developers, students) to be a part of the pilot Fair, as well as arranging the venue (in Vienna). CastYourArt will also promote the pilot Fair to attract international participants and attendees.

CastYourArt will also make two short films documenting one participating artist and one participating developer in their process of making their contribution to the Fair.

Deliverables (brief description and month of delivery)

In October 2014, Wolfgang Haas will present himself and CastYourArt's work at a 2 day kick-off workshop in Amsterdam that includes students, as well as other partners. He will connect what they do to the students' research.

The other deliverables will be the films made, as well as a presentation at the Fair itself.

Work package number	2	Start Date or Starting Event					Kick-off Event in Amsterdam (2 persons, 5 days)
Work package title	Lab as Interface						
Participant number	6 & 7						
Short name of participant	DH						
Person/months per participant:	2/12						

Objectives

Within the proposed project Dark Horse is going to conduct research on and develop a conceptual

framework and design for a physical space that accompanies and complements the online learning platform.

Description of work (where appropriate, broken down into tasks), lead partner and role of participants

Their user centered approach and the background in anthropology and interior design allows Lisa Zoth and Patrick Kenzler to understand and translate the requirements of such a space into a practical design concept and the according user culture. They will provide an answer to the crucial question of how online collaboration and innovative practice can be initiated, accelerated and fostered through an offline setting. Moreover their research will provide insights to the students' needs that cannot be satisfied merely by the application of ICT but are better addressed with a combination of digital instruments and offline collaboration and training methods.

Deliverables (brief description and month of delivery)
Deliverables will include new products and services developed in the course of their work. See section Deliverables and Milestones for details.

Work package number	3	**Start Date or Starting Event**					
Work package title	Collections as Interface						
Participant number	9						
Short name of participant	WEY						
Person/months per participant:	2/12						

Objectives
First and foremost this is due to the interfacing options offered as dialog systems on top of these datasets. They focus mainly on retrieval and object by object examination. They offer retrieval for which the user needs to know what he or she wants to retrieve. A move towards interfaces that are more discovery oriented is desirable. These discovery environments would offer the user a way to look at the body of data as a whole in a visual way and while examining the data in such a way find what there is to discovery, this might well lead to a classic retrieval scenarios but one in which the user has been able to educate him or herself about the data with little to no upfront knowledge. That would result in greater inclusion with regard to all potential users of such datasets.

Description of work
We propose a system that includes a visualization and interface layer that is exposed to the user via web browser. This vis/ux layer will be fed by the dataset directly and by an engine performing the necessary operations to do such things as item matching (image or text similarity). Thirdly we would want to open up these capabilities not only through our vis/ux layer but also by means of an API so others can build their own vis/ux layers and for instance build mobile applications.

Deliverables
To summarize there are three deliverables (detailed description for Deliverables & Milestones below) :
1. Visualization and interface layer
2. Machine learning capabilities to enable similarity searches
3. API to expose these capabilities to others

Table 3.1 b: List of work packages

Work package No	Work Package Title	Lead Participant No	Lead Participant Short Name	Person-Months	Start Month	End month
1	Platform as Interface		UvA	1-30		
2	Lab as Interface		DH			
3	Collections as Interfaces		CYA	Haas - 12	09/2014	09/2015
				Total months: 12		

Table 3.1 c: List of Deliverables

Deliverable (number)	Deliverable name	Work package number	Short name of lead participant	Type	Dissemination level	Delivery date
3.1	Organizing Fair	3	Haas	DEC	PU	7/2015
3.2	Presentation	3	Feier	DEC	PU	10/2014
3.3	Making Films	3	Haas	DEC	PU	10/2015

Table 3.2 a: List of milestones

Milestone number	Milestone name	Related work package(s)	Estimated date	Means of verification
1	5 Participants on Board		4/2015	Participation contract
2	Fair participants chosen to film		02/2015	Written agreement with participants
3	Event of World Coding Fair		07/2015	Documented event

Table 3.2b: Critical risks for implementation

Description of risk	Work package(s) involved	Proposed risk-mitigation measures
High dropout rate in courses	1	Empowering and collaborative style encourages students to involve themselves
No guarantee of deliverables: innovation, experimentation	2	Focus on creating one high-quality product or service per year
Low level of interest in participation (artists, developers to participate in Fair)	3	Begin early to organize high-quality Fair, network extensively
Exclusive to high socio-economic people	3	Develop and implement strategies to increase audience of lower socio-economic people

Table 3.4a: Summary of staff effort

Please indicate the number of person/months over the whole duration of the planned work, for each work package, for each participant. Identify the work-package leader for each WP by showing the relevant person-month figure in bold.

Work Package: Platform as Interface

	WPn	WPn+1	WPn+2	Total Person/ Months per Participant
Participant Number/Short Name	1564486/Hoogstad			12
Participant Number/Short Name	/Weyeser			12
Participant Number/Short Name	/Europeana			
Total Person/Months	2/12			1/12

Work Package: Lab as Interface

	WPn	WPn+1	WPn+2	Total Person/ Months per Participant
Participant Number/Short Name	/DH			12
Participant Number/Short Name				12
Participant Number/Short Name				
Total Person/Months	2/12			1/12

Work Package: Collections as Interface

	WPn	WPn+1	WPn+2	Total Person/ Months per Participant
Participant Number/Short Name	Haas			12
Participant Number/Short Name	Feier			12
Participant Number/Short Name				
Total Person/Months	2/12			1/12

Table 3.4b 'Other direct cost' items (travel, equipment, infrastructure, goods and services, large research infrastructure)

Participant Number 6&7 /Dark Horse	Cost (€)	Justification
Travel	8.400	44 days presents time for workshops, events, curation and project-meetings
Equipment	8.000	Event equipment
Other goods and services	32.000	4day Testing of different formats with user-groups (Materials for events (12.000) and preparation (8.000)); external lecturer for events and workshops, coming from art, interaction and IT (12.000)
Total	48.400	

/CYA	Cost (€)	Justification
Travel	5.000	Attend Kick-off workshop with other partners in Amsterdam, travel to network at events and meet with potential participants in the Fair
Equipment	10.000	Film and post-production equipment – 1 work station, 2 film cameras, 2 tripods, 2 mobile light sets, 3 software bundles, 3 wireless microphone sets, 2 angles, 2 microphones including windshields, 1 mobile audio recorder, 2 external hard drives, 1 beamer, 1 mixing colsole, speakers, microphone
Other goods and services	20.000	Organization, marketing and distribution, editing film, insurance of artworks, installation costs, security, post-Fair wrap-up costs
Total	35.000	

/Europeana	Cost (€)	Justification
Travel	5.000	Travel for conferences and meetings
Equipment	0.00	
Other goods and services	15.000	Organizational activities
Total	35.000	

Participant Number/Weyeser	Cost (€)	Justification
Travel	5.000	Travel for conferences and meetings
Equipment	0.00	
Other goods and services	15.000	Organizational activities
Total	35.000	

Participant Number/Europeana	Cost (€)	Justification

Travel	5.000	Travel for conferences and meetings
Equipment	0.00	
Other goods and services	15.000	Organizational activities
Total	35.000	

total budget				1,2 million
Overall Budget				
starting date	01.04.2015			
end date	30.09.2017			
	months	number	FTE	total
Junior Developer	30,00	1,00	1,00	153.951
UI/UX Designer / Developer	30,00	1,00	0,67	102.634
Project Manager	30,00	1,00	1,00	153.951
Project Documentation Officer	30,00	1,00	0,50	76.975
Creative Consultant	30,00	1,00	0,50	76.975
Travel Expenses, Conference Fees				50.000
direct personnel cost				564.486
direct material cost				50.000
indirect costs (25%)				153.622
cost				768.108
subcontration: Senior Developer				200.000
				968.108

3.2 Management structure and procedures

Describe the organisational structure and the decision-making (including a list of milestones (table 3.2a));

The management structure of the platform will be distributed rather than centralized, aligning with our mechanisms from open source development and Github. Github is an excellent platform to collect ideas and share feedback, allowing for open discussion and a well informed decision making process. Additional sources of inspiration include contemporary project management methods such as agile and scrum. We will have Pull Requests for bug and problem fixes and new features, Forks and Clones of the platform

and the course curricula, and maintainers who are responsible for individual aspects of the project. The platform will be used to facilitate its own management.

To get regular feedback, we will have an international advisory board with members from different universities, as well as private partners and civic organisations. The board will meet approximately once per year. We will also have a student board with students from courses, locally, with the goal of extending the board internationally. The student board will meet twice per semester to evaluate the on and offline aspects of the platform.

Table 3.2a List of Milestones

Milestone	Date
Meeting 1 student board	Month 2
Meeting 2 student board	Month 4
Meeting 3 student board	Month 6
Meeting 4 student board	Month 8
Meeting 5 student board	Month 10
Meeting 1 international board	Month 12

Explain why the organisational structure and decision-making mechanisms are appropriate to the complexity and scale of the project;

The meetings every two months with the student board are appropriate because the platform will be constantly developing; discussing changes will be essential to organizing plans and making decisions. The annual meetings with the international advisory board is appropriate because the board must also convene to make larger decisions.

Describe, where relevant, how effective innovation management will be addressed in the management structure and work plan;

Effective innovation management is central to the way of working in the lab as interface field of this project. Linking humanities students to the business world will steer innovation towards products that are marketable, original, as well as appropriate.

Innovation management is a process which requires an understanding of both market and technical problems, with a goal of successfully implementing appropriate creative ideas. A new or improved product, service or process is its typical output. It also allows a consortium to respond to an external or internal opportunity.

Describe any critical risks, relating to project implementation, that the stated project's objectives may not be achieved. Detail any risk mitigation measures. Please provide a table with critical risks identified and mitigating actions (table 3.2b).

3.3 Consortium as a whole

The consortium for the proposed project consists of the public institutions University of Amsterdam (NL), Europeana (NL) and The National Museum of World Cultures (NL) complemented by the private partners CastYourArt (AT), The Dark Horse (D) and Weyeser (NL).

The constellation allows the consortium to look at and discuss the role of ICT in education and teaching from various perspectives. Each partner adds another expertise to the project that enables to develop the concrete online platform, the offline lab and the test case of a concrete applicable tools. At the same time is every partner is feeding into the dialog and debate with students, researchers and scholars about that the possibilities and limitations of ICT related knowledge production. This input is thus informed by their experience from former projects but also derives from the concrete development of solutions for ICT applications within the framework of the project.

The University of Amsterdam will bring in the insights gained during the three above mentioned coding related seminars with students conducted in 2013/2014 to conceptualize the needs of humanities students for the development of the platform. Further information for the development of the different platform components will be introduced by the design thinking company The Dark Horse with its experience in the conceptions of online interface. Together with one software developer members of the UvA are going develop the platform itself and benefit form the knowledge about visualization strategies brought into the project by the dutch company weyeser.

In a series of workshops The Dark Horse will apply their user focused strategies to analyze the needs of students and researchers concerning an offline lab that can stimulate and enhance the use of ICT based learning processes and collaborations. The Dark Horse is experienced in the conception and design of spaces that are situated between on- and offline word. They will be committed to the actual design of a lab in Amsterdam of which serves as a blueprint in terms of design and collaborative working practices for similar labs.

The two interfaces described above form the working basis for the actual development of coding projects that feed from the expertise, encountered audience related challenges and data sets of the Europeana network. The challenges pointed out by Europeana representatives in a series of workshops will be discussed and approach by students and researchers of the UvA. CastYourArt and weyeser will initiate discussions and projects with the students that will produce software solutions that interface digitized cultural heritage with an potential audience.

A series of events that follow up events initiated by the UvA in 2013/2014 ("datadrive", "codingsessions") will be organized together with the private partners in form of workshops, hackathon and presentations and ensure that the produced outcome of the student projects and the knowledge generated by the partners involved is made known to a bigger audience. The project the students projects will finally be presented in an exhibition in Vienna. This exhibition will be organized, curated and documented by CastYourArt.

The UvA trains the students, The Dark Horse develops models form the experience of the students for the online and offline platform and the interrelation of the two. Europeana provides challenges and data-sets for the students projects. weyeser supports the students in their projects and co-develops the online platform with the UvA. CastYourArt also supports the students in their projects, organizes, curates and documents the exhibition.

The National Museum of World Cultures operates in the Netherlands and has both a physical and a digital collection. They have a strong focus on ethnography and therefore on the colonial past of the Netherlands in particular, which inherently deals with hiearchies and distribution of knowledge. Their projects connect the digitized collections with on-site exhibitions and crowd-sourced information retrieval. Therefore as opposed to Europeanan, where the focus lies on providing accessibility to digital heritage, the newly formed museum will function as testing grounds for the student project. It offers the researchers and students in Amsterdam to interact with both their physical and digital collection and therefore to set up projects which are locally and globally situated in between rather than just deriving data sets.

All of the achieved insights are documented in form of presentations, evaluations forms, reports, video and code on an open online repository accessible through the online learning platform.

Table 3.1 a: Work package description

Description of work (where appropriate, broken down into tasks), lead partner and role of participants

1. Overall - Management and Documentation of the project
2. The Platform as Interface
3. The Lab as Interface
4. Collections as Interface

Deliverables *(brief description and month of delivery)*

1. Overall - Management and Documentation of the project

Deliverables:
We built best practice cases and models of collaborations (types, scenarios), the connecting interfaces, physical labs cross-media process documentation libraries of software businessmodel consulting / training

Milestones:
1.1 - Identify the learnings of establishing Coding the Humanities Document it's complexity by using adequate media and technology

2. The Platform as Interface

Deliverables:
2.1 Software
2.1.1 Platform
- Regular (half-year) updates based on course feedback
- Web interfaces for platform
- APIs (Application Programming Interface) for platform

2.1.2 Open Source Components for:
Monitoring: observe progress and problems of students Feedback: build in feedback elements into tutorials and exercises Visualizing Learning Trajectories: tool that guides users in chosing which specific programming skills to learn to build the project/application they envision Managing Workflow: tool that supports the user in breaking down their research project into a sequence of steps Course building: tools to put together and modify online courses on and off the platform 2.2 Education

2.2.1 10 Online courses, 2 per year
2.3 Events
2.3.1 Coding Sessions
2.3.2 Hacking the Humanities
2.3.3 Conference
2.4 Reports:
2.4.1 Yearly evaluation reports based on online courses
2.4.2 Yearly evaluation reports based on overall usage, projects and feedback of the platform
2.4.4 Workshop reports based on Coding Sessions / Hacking the Humanities
2.4.4 Yearly portfolio of (exemplary) research projects

Milestones:
- platform release for regular courses Open Source Components platform public release

- courses offered:
1 course (tutorials, exercises, projects) offered on the platform 5 courses offered 10 courses offered Coding the Humanities offered as Coursera/Udacity/Edx course Universities:

- 2 universities offer courses on the platform 5 universities offer courses on the platform

3. The Lab as Interfaces

Deliverables:
3.1 Concept for a Living Labs/eLab meeting the needs of Coding the Humanities

3.2 Prototype OverLab

3.3 Create the physical OverLab

3.4 Manage connection between the on-/offline learning platform

3.5 Conduct a Self-Reflective Toolbox for interdisciplinary researchers

3.6 Conduct a Self-Reflective Toolbox for public-private-partnerships

3.7 Iteration: Evaluate Results and Prototype/Test

3.8 Joint curation of the OverLab with public and private partner > pyramid

Milestones:
3.1.1 Definition of the characteristics of Single Users of the OverLab

3.2.1 Visualisation of the needfinding process

3.3.1 Conclude the first iteration round of Design Thinking

3.3.2 1st prototype OverLab

3.5.1 community building events geared towards coding and exposure (on- and offline) of the OverLab

3.5.2 Concept for curating the OverLab

4. Collections as Interface

Deliverables:
4.1 Interfaces exhibition Vienna

4.2 Open Source Library for Visualizing Humanities Research

4.3 Repository with museum related projects open to use and develop further

Milestones:
4.1.1 kick-off workshop private and public partners (introduction the CtH platform as foundation for the project)

4.1.2 presentation / workshop for students / researchers Europeana representatives "Engaging audiences - Interfaces and Visualizations in the museum context"

4.1.3 presentation / workshop for students weyeser "Visualization as means of inclusion"

4.2.1 presentation / workshop CastYourArt "Video and audio in the museum context"

4.2.2 formation of project groups mentored by private partners

4.2.3 first presentation of the projects / particpants feedback on collaborative working on the platform / the lab

4.3.1 evaluation / report "Online / offline Inclusion"

4.3.2 final presentation of projects

4.3.3 evaluation / "Including Interfaces"

4.3.4 coming out: cultural hackathon event inviting the general public to work with the student proposals and the museum datasets