Future **Pu**blication**s** in the **H**umanities (**Fu-PusH**) - Description of the project funded by the German Research Society (Deutsche Forschungsgemeinschaft)

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1. Summary

The use of computer and internet has the publishing process significantly changed. More and more researcher publish their results with multimedia components to enhance and to illustrate their presentations by research data, retro-digitized materials, images, sounds, music, videos, etc. As well publications will be increasingly integrated into web-based communication and collaboration environments. The spectrum covers enriched publications, that contain different media formats, until to publications, that include primarily contextualized linked data. But the digital publications are still strongly oriented towards the model of printed formats, so that their potential is not fully exploited. Therefore future publications have to be developed, which are better suited to the nature of electronic media and which have to be optimized in order to enhance the knowledge and information transfer in education and research. It can be assumed that the new formats are read no longer primarily through print media, but on desktop devices and/or mobile devices (eBook reader, iPad etc.). Therefore the ergonomic conditioning, navigation, structuring and visualization of data are essential design criteria.

With the project, which is determined to the humanities, the requirements of digital publications will be explored supposing, that future publications are no longer oriented to the model and to the value chain of printed materials, but that they are based on the original potential of digital media. From that the digital publications of selected humanities research projects should be prototypically implemented and evaluated as sample scenarios for enhanced publications. The further objective of the project is to identify the changes in the service profiles of libraries, media and computer centers to ensure that future publications are available and searchable and to provide the requirements for their long-term availability. The associated issues and challenges should be analyzed with the players of the publication process (authors, editors, libraries, media and computer centers, publishing houses, IT providers, researchers etc.).

[1] http://www.exzellenz.hu-berlin.de/clusters-of-excellence/imageknowledgegestaltung
[2] http://www.exzellenz.hu-berlin.de/clusters-of-excellence/topoi
[3] http://www.buchwissenschaft.uni-mainz.de/forschung.html und http://www.medienkonvergenz.uni-mainz.de/forschung/

2 Starting position

Knowledge and media are closely interrelated and are interacting mutually: Knowledge can not be conveyed or distributed without the transformation of the media. As well the media represent our understanding of knowledge. Knowledge paradigms are preconditions for the design of the media presentation. Therefore the media design for knowledge is not based only on technology, but is also due to the different discipline related cultures of knowledge. In the European context knowledge was aggregated and published in the different formats of printed texts since many centuries. But the solely printed and text based presentations of knowledge are getting continuously less important. Instead data-driven patterns of publications arise, which are enriched with multimedia components and applicable for any collaboration contexts even based on contextualized data of different provenance like printed materials that are digitized as full texts and structured to RDF for further processing. Additionally the use of software components from app galeries or app stores provides the ability to process data based knowledge in various aspects and regards. Different information materials can be performed in **one** digital document and get part of **one** processible publication or will be published as distinguished data assets.

Thus the new digital media formats exceed the potential of printed formats significantly. This has implications for communicating and disseminating future knowledge combined with the extremely high potential of the web-based communication possibilities, which are recognized as an information reservoir just in time available. The single channel communication of printed publications will be increasingly replaced by the networked communication of the digital media. The profound change has the potential to expand printed texts to multimedia presentations and to replace the linear 'step by step process' of the printed publication practice by the 'all to all communication' of the internet as the primary distribution channel for scientific publications.

The new and interactive design of the publication process will renew the relationships and roles between the players of the value chain. The traditional players such as publishers, booksellers and libraries are developing either new strategies in the market of scientific information or they will lose their previous position in the value chain. New players such as media and computer centers and commercial IT providers (e. g. software developers, search engines providers) will be added. It is also necessary to design a number of new features within the value chain of publishing, which is not a 'chain' any more, but a network for publishing. Without considering these trends the publishers however continue to distribute their digital products through the licensing of 'packages' or subscriptions. But the different ways of Open Access publishing make clear, that the value chain is subjected to ongoing changes. The subscription model is only one of several business models to deliver scholarly communication.

In Germany the current discussions about the further development of the future academic information infrastructures are very intensively. 2011 and 2012 the German Commission of the Future of the Information Infrastructure[4], the German Research Council[5] and the German Research Society[6] (Deutsche Forschungsgemeinschaft) published a number of recommendations. All these recommendations claim to renew the academic information infrastructures and to

[4] http://www.allianzinitiative.de/fileadmin/user_upload/KII_Gesamtkonzept.pdf
[5] http://www.wissenschaftsrat.de/download/archiv/2359-12.pdf
[6] http://www.dfg.de/download/pdf/foerderung/programme/lis/positionspapier_digitale_transformation.pdf

establish the digital transformation in order to improve the infrastructural conditions and environments of research and education and to bring it in a better alignment to the new technical possibilities. The central issues of the recommendations are national licenses, hosting and long-term archiving, open access publishing and repositories, digitization of pieces of cultural heritage, research data management, virtual research environments, and information literacy. All these issues affect the publishing process in its different phases and the publications of research results themselves. From that the new information infrastructures aim the publications of research results as well as they should be used for scientific work to optimize the future scholarly communication efficiently.

Scientific publications are directly related to the scholarly communication, which is extremely necessary on all research fields. Against this background the evaluation of observations and the collection of data, the aggregation of partial and intermediate results and the explanation of results and conclusions occupy center stage of scientific publishing. Basically scientific publications record and convey a certain status of research results or a new status of findings in the research discourse. So far the basic patterns for scientific publications are represented by static documents as they are typical for publications in printed form. However digital knowledge presentations tend to dynamic publications that in principle can be enriched, changed and revised - even from third parties – at any time. As well they can be made accessible or withheld by different levels related to varying users and user groups. Furthermore digital publications can be available in various output formats and they can be further processed by technical means. Beyond this digital publications are able to record and to track the single publishing phases (e.g. versions) much better than printed publications could ever do.

The importance and the role, that the result or process oriented publications occupy, are crucial in this context. The extent, to which the opportunity is availed to represent the process orientation of research results as liquid documents, depends significantly on the culture of knowledge of the various subject fields, which can change very quickly, so far as it is based on the new technologies. The research process, which can be defined in our context as pre-publication phase, includes in particular the evaluation of data and information, the aggregation and the generalization of single results, the derivation and the justification of conclusions, the project related communication and collaboration processes as well as the creation and the editing of the final document. In the post-publication phase the publication can be enriched with additional data, supplemented by notes and comments as well as further processed and integrated - even collaboratively - in new research contexts. The explorations of the project are focused on the question, to what extent the results and processes of the research work should be published and permanently available as its components – including all the arising requirements which have to be considered for this purpose.

3 Objectives of the project

Facing the issues outlined in point 2 (starting position) the researchers needs and requirements for future publications should be identified by interviews. The answered questions will signify probably, what the future tasks of the providers of the information infrastructures will be. The player of the academic support will be interviewed too. The results of these analyzes should be structured and

illustrated by a so called basic business model for digital publication as the first part of the project. In the second part of the project a number of selected publication projects should take up the basic business model and should implement various publication scenarios experimentally. To clarify the questions, which are connected with the disciplinary knowledge cultures, a cultural and socio-anthropological background analysis will identify and explore the impact of the various research patterns[7] on the existing publication requirements and on the future publication models. With the scenario samples, which will implement enhanced publications in an experimental way, a basic publication practice should be established exploiting the potential of digital media sustainably. Thereby the technological approaches, proposals and standards of enhanced publications, which the EU project DRIVER II (2009)[8] identified primarily for enhanced publications of scientific disciplines, will be taken up and examined for their applicability to the humanities and to cultural studies.

4 Work Packages (WP)

WP1 Determining the requirements of the individual professional communities: First the disciplines will be selected, which will be taken as examples of the humanities. Then the representatives of the selected disciplines will be surveyed on the basis of expert interviews. The questions of these interviews concern in particular the usage of research resources in research projects, the approaches and methods, which are used primarily for dealing with project related data sets, and the inclusion of data in the publication of the research results. Facing the result and process oriented features of research projects the enrichments with data, the contextualization of objects as well as the interoperability and reuse of the publications including its components play an important role. Mainly by cultural and socio-anthropological methods the specific knowledge cultures should be analyzed.

WP2 Roles and Tasks of the providers of the information infrastructures: The representatives of institutions of the information infrastructures (bookseller, libraries, media and computer centers as well as publishers and commercial IT providers) will be consulted in expert interviews too. The interviews should identify the new tasks and roles that will arise from enhanced publications like the preparation, navigation, structuring and visualization of data and contents including enrichments, annotations and options for their re-use. In addition it has to be determined, how the academic support processes of libraries, media and computer centers must be aligned to the new tasks like digitization, research data management, hosting, long-term archiving, open access publishing, repositories, editing and structuring of data etc. Also in this context the cultural and socio-anthropological aspects of the selected disciplines must be considered.

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[7] s. the recommendations of the German Research Council: The further development of the academic information infrastructures in Germany until 2020 (2012) - http://www.wissenschaftsrat.de/download/archiv/2359-12.pdf p. 35ff. There the following patterns of research activities are listed and explained: Experimental patterns of research, simulations as patterns of research, observational research patterns, hermeneutic-interpretive research patterns, conceptual-theoretical patterns of research or creative research patterns.

[8] s. http://www.driver-repository.eu/Enhanced-Publications.html with the State-of-the-Art-Study: http://www.driver-repository.eu/component/option,com_jdownloads/Itemid,83/task,view.download/cid,53/ and the Report on Object Models and Functionalities: http://www.driver-repository.eu/component/option,com_jdownloads/Itemid,83/task,summary/cid,54/catid,8/ However specific support scenarios of the players, who are involved in the publication process, as well as the identification of business and exploitation models have not been explored in the DRIVER- Project.

WP3 Basic model of future publications: On the results of the both surveys the basic business model will be developed, which covers the creation, the use and the long-term availability of future publications. From that the organizational and technical interdependencies can be identified. The intended business model is based on the following three components which react on each other: (1) preparation and navigation of data and contents as results and/or processes (editing, design and visualization) (2) service and support, which the players of the publication process and/or the institutions of the academic information infrastructures provide, referring to technical formats, uniform identifiers and interoperability (3) business and exploitation models including the legal protection of access and re-use of data and contents (copyright), the questions of fees and licenses for the integration of data and data stocks as well as open access scenarios and publication grants. The basic business model presents the fundament of the experimental phase of the project and the experimental implementation of the publication scenarios.

WP4 Experimental publication scenarios: From the background of the basic business model a number of selected publication scenarios will be implemented experimentally and evaluated in terms of their realization. The spectrum of publishing scenarios will cover enhanced publications, which integrate diverse media formats, as well as contextualized data publications. The dynamic and static components and the various levels of results and processes should be demonstrated with the scenario samples in order to illustrate the character of liquid documents. In regard of the added values of future publications like enrichment, processing, interoperability, collaboration, reuse, processing of the material it is already foreseeable, that the importance of the academic support will increase significantly.

AP 5 Evaluation: The project results achieved with the publication scenarios should be evaluated and published. Additionally recommendations for action will be established.