No. 4 - November 2009

DARIAH Newsletter

Digital Research Infrastructure for the Arts and Humanities

Contents

This free newsletter is published quarterly. If you find it useful, please tell your colleagues and friends about it.

Open Access: between dream and deed
By Peter Doorn (DARIAH Director)

The week of 19 - 23 October 2009 was declared "International Open Access (OA) Week." One of the aims of DARIAH is to provide access to distributed digital resources for arts and humanities research. When we talk about access to digital resources, it makes sense to draw a distinction between data, software tools and publications. The discussion on OA usually concentrates on access to publications. In this area, the conflicts of interests are also very clear. It often boils down to a struggle between academic organizations setting up publication repositories, and publishers who defend the business model of the classical journal.

When we look at software, the situation is relatively straightforward: there is commercial software, there is open source software, and there are semi-commercial forms in between as well.

With respect to data the situation is probably the most complicated of all digital scientific or scholarly resources. The famous *Berlin Declaration* is about Open Access to *"Knowledge" in the Sciences and Humanities*, which also includes "cultural heritage resources". The *OECD Declaration on Access to Research Data from Public Funding* fosters broader, open access to and the wide use of research data, which will enhance the quality and productivity of science systems worldwide. However, possible restrictions related to security, property rights and privacy need to be taken into account, according to the OECD Ministers.

The open access to data is indeed a minefield. It is hardly civilised to be against open access. But what does it mean when you are in favour of it? When we limit ourselves to OA for scientific/scholarly use research, this simplifies matters a bit. However, a nasty question arises immediately: what is scientific or scholarly research? Does it for instance include contract research? What about a private research company doing research for a public body? In one case, when a publicly financed data set was made accessible for free to researchers, whereas commercial companies had to pay for the same data, the lawyers of a Dutch ministry found out that this was discriminatory and hence against the law. Sometimes data is even only accessible to a specific group of researchers: in the Dutch archaeological data archive, access to archaeological datasets is limited to "professional archivists", out of fear for treasure hunters abusing the detailed information on excavation sites.

Free and open access to cultural heritage certainly includes books (literature), film and video, music, and pictures (photos, digitized works of art). What will happen to the artists if access would be completely open and free? Open for research purposes would do less harm, but requires a clear answer to the question of what is research.

And then, many researchers love to have access to the data collected by others, but at the same time they keep the data they collected for themselves, often out of fear that somebody else could publish earlier than they do. There is hardly a reward for sharing the research data you collected so painstakingly. On the contrary, it takes time to document the data, and if somebody finds a mistake in your data, he may nail you to the pillory. But I believe that here we can change something, in the first place by providing scientific/scholarly credit to digital research outputs such as data and software.

And then the privacy issue: in social research it is obvious that the privacy of respondents to interviews must be protected. But is it different for, e.g. historical records or speech files (video/audio) of living persons?

I think the struggle for OA to digital resources is beautiful as an ideology, almost as beautiful as the struggle for world peace and justice. Almost a century ago, the Belgian poet Willem Elsschot wrote a poem, well-known in the Dutch-Flemish culture area, about an unhappy marriage. The husband is contemplating killing his wife, but "In between dream and deed, there are laws and practical objections". The same is the case, I am afraid, with the beautiful dream of OA. If we want to improve access, we need to work with surgical precision in clearly defined areas. But don't let my deliberations prevent you from joining the data liberation movement!

Case Study of Digital Humanities in the Republic of Ireland – A Summary

This case study provides an overview of the development of the digital humanities infrastructure in the Republic of Ireland. The aim of the case study is to identify the development of a digital humanities infrastructure and to map all the relevant recommendations, strategies and initiatives put forward to enable the development of future policies. It also identified the key policy makers and planning processes and accounts for achievement and under-achievement to date. It addressed the challenges to the future development of a digital humanities infrastructure in Ireland. The case study is divided into three sections: section one provides an overview of the current situation; section two provides an overview of the digitisation projects underway and section three dicusses the challenges and opportunities for the development of digital humanities in Ireland.

Section one of the case study reviews a number of reports from HEANet, HEA/Forfas, the Royal Irish Academy (RIA), the Irish Manuscript Commission (IMC) and the Institute of International and European Affairs (IIEA) published in the last number of years, which have highlighted Ireland's continuing deficit in digital infrastructure. The role of policymakers and academics in the development of digital humanities in Ireland is also discussed in this section. Ireland's small size is a strategic advantage, as it allows key policy makers and researchers to interact through a number of fora.

Section two provides an overview of digitisation projects that are taking place in the local library sector, the National Library of Ireland, the National Museum of Ireland and in higher-education institutions. For example the Library Council established the Cultural Heritage Project, which involved local libraries, museums and archives in the digitisation and online publication of their local studies materials. Its aims and objectives were to carry out a programme of pilot digitisation projects in libraries, museums and archives in order to demonstrate the viability of a national digitisation strategy and to prepare the ground for a national digitisation strategy for important library holdings. Within the higher-education sector, the establishment of the Digital Humanities Observatory (DHO) represents a major milestone in the development of digital humanities in Ireland.

Section three assesses the opportunities and challenges for the development of digital humanities in Ireland. It notes that despite all the reports and recommendations that have been put forward by national institutions, funding bodies and other agencies, there is still no national, cohesive strategy for digitisation or a trusted digital repository in Ireland. It argues that Ireland has a number of advantages in becoming a leader in digital humanities. As a small country it can leverage the considerable expertise of key stakeholders including industrial partners in this area. In terms of industrial collaboration, Ireland is in a favourable position, as the European headquarters of international computer companies such as Google, Intel and Microsoft located here.

The number of digitisation activities currently underway in Ireland indicates that there is interest and awareness in the importance of digitisation. The issue is one of a lack of co-ordination across the various institutions and projects rather than a lack of awareness and interest. As noted in the case study, a large corpus of digitised work has been accumulated in Ireland, partly due to increased government investment in research, and it is expected that this will grow exponentially in the future. It argues that a comprehensive national digitisation strategy formulated at government level is essential; the work is being done on the ground, it now requires the input of government to bring it together into a national policy and a Trusted Digital Repository.

Case study of Digital Humanities in Slovenia – A Summary

The case study aims to identify the development of the digital humanities infrastructure in Slovenia. Most attention is paid to the development process itself; not only the analysis of policies and documents, but also individual initiatives, ideas, collaborations, accomplishments, references and the obstacles encountered. As a result, the case study is focused on the communication dynamics between various centres and individuals in the area of digital humanities infrastructure, and based on the analysis of national documents (strategies, resolutions and priorities), online discussions, conversations and interviews with individuals.

National resolutions, strategies and action documents indicate that digitisation is considered a priority, and consequently accounts for much of the infrastructural development to date. The objective of the national strategies is to provide easy public access via the internet to the nation's cultural heritage. Documents comply with the recommendations and actual requirements of the European Commission.

The Institute of Information Science – an information service of Slovenian science, culture and education established by the government in 1994 – provides the organisation and maintenance of information systems to monitor research activity in Slovenia. In cooperation with the Slovenian Research Agency it establishes science research infrastructure providing information on research programmes, projects, researchers and research institutions.

Digital research centres in humanities (there is no central repository for humanities) have developed within said programmes of research infrastructure. Digital centres differ from each other: they can be online portals of institutions or a digital service for internal users, whereas in a few cases they provide access to digitised publications, documents and other material for the general public – in particular the presentation of publications (table of contents and abstracts), other databases and such similar.

Interviews and online discussions demonstrate that the current state of digitisation of the research infrastructure in humanities is actually rather scattered and disorganized. Debates among researchers and development strategy planners indicate disappointment over the State's under involvement, as well as require a better coordinated national policy and intensified links between researchers, scientists, support communities and the State. A lack of collaboration is also perceived on the level of various humanities researcher centres, as well as between the researchers in humanities and ICT professionals. Some projects in the field of research or cultural heritage (most often than not unrelated to each other) were the result of individual digitization initiatives and cooperation.

Despite several initiatives, the digital library (dLib) remains the only central portal with significant content and a strong connective role between various institutions in Slovenia. The digital library provides free and open access to journals, articles, books, photographs, manuscripts, sheet music, a collection of sound recordings, etc.

Researchers welcome the digital library project and they use its services. However, there are some doubts as to the priorities of digitising content. The driving principle behind the digitisation of library content is its preservation (significance for national cultural heritage and the preservation of the original material). Though a legitimate approach for libraries, it proves to be inadequate with regard to the researchers' requirements. Researchers draw attention to the lack of a comprehensive approach, including aspects of various professions and disciplines (social, cultural,

economic, political and technological), as well as the users' requirements and adapted applications.

This case study indicated a support to the national development programmes in the field of science and culture as to the establishment of digital infrastructures. Nevertheless, the programmes remain mainly declarative and fail to provide strategic solutions for further development; rather than placing an emphasis on a coordinated national policy, they prioritise the mere establishment. To be more specific, there is in particular a lack of actual development policies aimed at digital humanities.

According to conversations conducted with individuals, such development would be possible within European projects and programmes, though some doubts arise as to the dispersion at European level, which requires a thorough consideration of how to define the actual objectives and roles of individual European digital networks (on the basis of whom they are to serve). This said however, further efforts have to be invested in looking for support at the national level, both between research communities and Ministries (re scientific policies), as well as the national funding bodies.

Second project phase of TextGrid funded

Members of the TextGrid development team

The project "TextGrid - virtual research environments in the e-Humanities" was recently funded by the German Federal Ministry of Education and Research (BMBF) for the period June 1 2009 - May 31 2012. The expanded consortium with ten project partners, seven universities among them, began work at a Kick-Off-Meeting in Göttingen on July 6. The goals of TextGrid in the second project phase are to convert the virtual research ambit, including the Grid–infrastructure, into an enduring operation and to achieve an expanded user base. TextGrid is one national nucleus for DARIAH.

The TextGridLab will be expanded to a comfortable and intuitive operable entrance to the virtual research sphere based on the evaluation, which has already begun. The grid–infrastructure and the TextGrid repository will be scaled and linked with other initiatives.

New academic communities from art history, classical philology and musicology have joined the TextGrid consortium. The tools and services will be fitted to their requirements:

- Art history: annotation of image data
- Classical philology: edition of glosses
- Musicology: integration of notes in XML editor

It is also planned that TextGrid will integrate another academic discipline and its tools into the running project.

In general, the focus is on assembling a community in which researchers as well as developers could participate actively in order to advance TextGrid and to link available tools and services with TextGrid. Therefore, many workshops and training sessions will be offered in the course of the project. Interoperatibility and the observance of standards are prominent goals of TextGrid, especially with regard to the many e-Humanities and e-Research initiatives with which TextGrid is and will be cooperating.

The Academy of Athens interviews Professor Ioli Kalavrezou

Interview by Katerina Kouriati

Ioli Kalavrezou is the Dumbarton Oaks Professor of Byzantine Art History, Department of History of Art and Architecture, Harvard University (1989-present). She was Chair of the Department of History of Art and Architecture (1996- 2001 and 2007-2008). She is also Senior Fellow and Senior Research Associate at Dumbarton Oaks, Center for Byzantine Studies (1988- present).
Ioli Kalavrezou's teaching covers a wide range of topics in art and architecture from the early

fourth century to the fall of the Byzantine Empire. Fields of interest and publications range from monumental wall paintings and mosaics to objects carved in ivory and steatite, icons, and manuscripts. Of special interest are topics in political history: the representation of the relationship of Church and State, images relating to the Schism, and imperial art. Recent research has focused on the woman in Byzantine society, where she also held a large exhibition on The World of Byzantine Women."

Based on your research experience, how would you define digital humanities?

Digital Humanities is an established term. It is understood as a methodological approach, a field or concept of methodological studies. Nowadays, we can study humanities from a variety of fields at the same time and apply various approaches methodologies combining them all to come up with new results. It is, in other words, an interdisciplinary approach, that allows a researcher to apply disciplines other than his own, such as geography, economics, statistics etc. Historians, for example, use a lot of art works, which they did not use before, a practice that widens their field. Obviously, humanities remain the focus of the researcher's interest, he/she does not engage with its technological aspects. These assist the scholar to retrieve valuable information from databases and other digital resources. Information becomes available through an extraordinary digital process. If you know where to find the information, it's amazing what one can learn from it.

Would you consider yourself a digital humanist?

I'm starting to feel like I am becoming one. But it has taken me some time. You see, one needs the equipment, computers with large memories, etc. to be able to access and store all the information. One also needs to learn how to use it. At least for my generation, it takes a lot of time to become a digital humanist, but I think we all have to get there. We do no longer need limit ourselves to using books and libraries and travelling here and there to find the manuscript or whatever it is we are looking for if it can be locate it on the web.

How do you think one can approach the digital humanities research concept?

One has to have an open mind, not to fear the unknown. There are scholars who refuse to experiment, an attitude that helps neither the discipline nor them. The discipline is moving on and things are changing, so one suddenly becomes old-fashioned. I was at a conference recently and it was surprising to see how many people were using Google maps in their presentations. Of course, one must have the right equipment and training and that's not easy. For example, as an art historian, I have thousands of images stored in my computer. That means that *I* am the one who is responsible for creating a catalogue and a system to retrieve these images, a task that has taken hours and hours and hours of my time, endless hours.

How did you achieve this transition to digital data organization?

We used to go to the slide collection of the University library, where all images were organized geographically or the name of the artist. Now, for example, we can also do it for ourselves but we have the problem with the digital photography, we end up collecting many, more images than we used to. Organizing all this new information is a lot of work for the researcher. But this is something one has to accept and say, “OK. I'm going to use digital images for example, or any other kind of digital information and I have to learn to use it and organize it.”

Has this affected your every-day research and educational activities? In what way?

Yes, it has. Basically, a lot of bibliographical information is much more easily available. One can now find a large amount of articles in digital form. There are a lot of e-journals and databases, such as JStore, which I use frequently. I assign to my students the readings and I tell them to look at that article in JStore without needing to distribute it. It is fantastic. Or, the students find something that is not available in JStore in other similar databases and we exchange these digital texts. This is very helpful.

As for my personal research, when I need a book or an article, instead of borrowing a periodical, the University now digitizes most of the material and I can order it in digital form. They will send it to me the next day in my e-mail, which means I don't have to go the library. I can be in Athens and I can ask for this article and they send it via e-mail. This is amazing. Besides, museums now provide a lot of their collections in digital form. You can retrieve the images, you cannot publish them, but you can study them. And so you don't have to go to Madrid to visit the Prado, because the Prado make their collection available in very

good photographs. So you can study them from your office, from your home! It opens up a world for you at your desk, which was otherwise impossible to do. The Perseus Project is also available in the same way, which does mean that you do not have to travel right away to an archaeological site for a first study.

So, as you said, we are able to have a variety of resources at our disposal (digital collections) along with the ability to manage them (store, categorize). An additional service that digital infrastructures could offer is the possibility for researchers to collaborate simultaneously and remotely. What would be your comment on such a research perspective?

I think this is very positive, because you can work with someone who is in Denmark for instance, or with someone who is a specialist in another area that your research touches upon. This collaboration results in a much better project, if you and this scholar work together. I think that finding other scholars in other countries to work together on certain projects is a policy promoted by the EU. That is only possible with the help of technology. I've been invited to participate in a project on a text by a traveller, who describes certain monuments and sites in Asia Minor. The project team consists of a historian, an art historian for the monuments, a geographer, and all these people will produce one or several separate essays on the same traveller's text. This method is more productive; it facilitates testing sources and brings together people with different opinions. Thus, by exchanging ideas perhaps one can get better results than by working alone. Collaborative projects encourage cooperation with other scholars, especially since in the humanities people used to work on their own, unlike scientists who always worked in teams and publish collaborative papers.

Also, research work can be more readily available and therefore always current and more exposed to evaluation. Do you think that this creates problems or that it helps knowledge enrichment and scientific progress?

Both points are true. The web has become an easy and fast place to publish one's research. Even universities are organizing sites for faculty to place their work on the web. However, as much as this might be profitable for the sciences, unfortunately studies in the humanities some times are being "published" which are not as carefully finished or researched and they stay there for ever. This often happens with conference abstracts. Abstracts are a kind of preliminary idea of what one plans to present in six months or next year, and personally I am reluctant to publish an abstract, because I do not want to put something on the web that is perhaps not yet fully developed and researched. Others may think differently. There is, in fact, this kind of dialogue, whether it's good to publish more or to publish less on the web. Although a number of faculty was reluctant, Harvard University, voted in favour of a website to place one's latest articles. Some of these publications are almost unfinished documents, but they want to make known what they are working on. Most scholars however still prefer to publish their work in a periodical. This will be a question as long as scholarly journals continue to exist.

In the sciences it is important for people to publish their work as fast as possible. In the humanities it is has not been as crucial, if a paper appeared a year later. This however will change soon since in the humanities we see more and more collaboration. The interdisciplinary approach and collaborative projects will require a faster publication. Interdisciplinary studies have become necessary. They are moving the discipline to the forefront.

"Interdisciplinary". You have already mentioned this term in your definition of digital humanities. Does this mean we enter into a new knowledge environment? What other impacts could this approach have?

With access to the digital infrastructures the humanities are becoming increasingly a democratic discipline. To me, that is important. It concerns not only the person who has the grant, who can afford to travel for his research needs. Now everyone can have access to all the available material in this democratic approach to data. This is very positive.

You have a very positive attitude toward e-services and technology supported innovation. Would you identify any weaknesses or risks? In which cases would you recommend caution?

Having all the material available is a very positive aspect. However, we cannot absorb all this information. So, we have to be very careful about how to use it and not to get carried away by our initial excitement. To be able to use the information, one has to have the knowledge of

what one wants to do with it. The danger is that a lot of this information is used superficially with not much understanding and perhaps even misunderstanding of the content, as is the case with archaeological reports. You need you know, for example, what is involved, the culture or whatever it is that one is to investigate. Collecting becomes more exciting than actual research. It results in superficial knowledge. In fact certain series of scholarly reports can be very disappointing, because scholars expect to read analysis and it ends up being a list of informative facts.
So, yes, caution always, caution especially in the way one applies the material. It is easy to just download a text and incorporate it into one's work, which can happen even to the most careful writer. Referencing is still very much part of the discipline but younger people is not sensitive in this respect. The information is there on their computer. It is what they call contextualize, it is like a phrase, quotation something that becomes a part of your own writing. In the medieval world that was not considered bad, on the contrary it showed knowledge of older or previous work and you could show how learned you were.

How necessary would you consider training researchers to digital research methodologies and tools? Do you think that this would require a modification of university curricula in humanities departments?

Yes, it is necessary. I would say it is not the responsibility of the humanities departments alone. It should involve the broader University educational system, not just people in the humanities, who have not yet the knowledge of the new technologies. It has to be run by the University for all disciplines. Scientists might need less training, but they might also need to be educated in finding historical information and other things, such as archival information for themselves.
In fact, Harvard, my university, is assisting with technologically trained staff to inform professors how to create for example, web pages for their classes, for their lectures, and other sites for the personal needs. Most universities have a whole department that is not devoted to teaching, but to helping professors, and, to a certain extent, the students in working with all this information, geographical, bibliographical etc. Unless it is organized in the larger scale it is not going to take off as one might hope. Information is flooding the web, I feel it is coming towards me like a big wave and I have to get above it.

Focus on DARIAH Associate partners

Introducing *The Heritage Laboratory*: A Brief Profile

The Heritage Laboratory (LaPa)[1] is part of the Spanish National Research Council (CSIC), the largest research organisation in Spain employing over 4,000 staff scientists distributed across multiple institutes and research centres country-wide. LaPa itself is based in Santiago de Compostela, capital town of Galicia and end of the UNESCO World Heritage-listed pilgrims' route *Camiño de Santiago*, in north-west Spain, and employs approximately 50 people.

LaPa emerged as a well-defined group from the research leadership of its current director, Prof. Felipe Criado-Boado, in the early 1990s, and in the context of the University of Santiago de Compostela. Since then, an average annual growth rate of 15% in staff and resources has allowed LaPa to become an important referent in areas such as landscape archaeology and integral heritage management. It has been recently announced that CSIC has secured an 11 million € budget to build a new centre by 2013, which will host a future heritage research institute that will expand and continue the work of today's LaPa.

Research
Currently, LaPa focuses on research. According to the LaPa Strategic Plan 2010-2013[2], the research line that gathers all the efforts of The Heritage Laboratory is named *Interdisciplinary Research on Cultural Heritage*. This line is organised around the following sub-lines.

Landscape Archaeology and Cultural Landscapes
The objective of this sub-line is "to study the processes of the human construction of the landscape, examining their relationship with economic, social and cultural dynamics, and characterizing their evolution through prehistory and history."

Material Culture and Formalization Processes of Cultural Heritage

[1] http://www.iegps.csic.es/lapa
[2] http://digital.csic.es/handle/10261/12211

The objective of this sub-line is "the study of material culture through the archaeological record, linking its transformations with the socio-cultural processes attested in Iberian and European contexts. We attempt to determine how the patterns of regularity and changes of style are linked to processes of socio-cultural change and to strategies of definition of social identity in the past and present communities."

Theoretical and Historiographic Research on Cultural Heritage Studies
The objective of this sub-line is "to determine the circumstances that constitute the operational field of these disciplines, which is fundamental in order to firstly develop a theoretical insight into their possibilities and validity as tools for the management of the social reality and the production of value, specifically, within a part of this reality constituted by cultural heritage."

Archaeology of Buildings
The objective of this sub-line is "to understand buildings from an integral perspective that combines the historical, architectural, archaeological, anthropological and artistic perspectives, and which makes it possible to discover their meaning as a social product."

Processes of Heritage Formation: Memory, Identities and Conflicts
The objective of this sub-line is "to develop a critical body of research on traditionalisation and heritage formation processes with the purpose of functioning as consultants for various social agents regarding intangible heritage policies; to implement protocols for the ethnographic study of cultural heritage; and to develop a line of methodological tools, integrated in the common LaPa information system for the analysis of intangible heritage."

Semantic Technologies for Cultural Heritage
The objective of this sub-line is "to create, select, develop, analyse, validate, demonstrate and disseminate the necessary technologies for the construction of meaning around the information that is generated and handled during work involving research on, and management of, cultural heritage, particularly that which is carried out within this research line."

Socio-economics of Cultural Heritage
The objective of this sub-line is "to integrate a series of different approaches towards cultural heritage from disciplines that are not linked to the interpretation and management of heritage elements. This includes sociological, anthropological, economic and political investigations into cultural heritage."

Work in Information Technologies
The research sub-line of Semantic Technologies for Cultural Heritage sets the perfect scene to carry out research in information technologies applied to cultural heritage. In this respect, LaPa departs from the approach that is most often taken to achieve this, namely using the information technologies that are available to solve cultural heritage problems. To the contrary, LaPa performs research in pure software engineering and other areas of information technologies, actually developing new technologies rather than being a mere user of them. Cultural heritage is seen as a driver that sets the context of usability and need for what technologies are to be pursued. A consequence of this approach is that LaPa recruits engineers to work side by side with archaeologists and anthropologists, and that the research outcomes in the field of information technologies for cultural heritage tend to be slightly more basic (as opposed to applied) than what is usually seen in other interdisciplinary research centres.

Specifically, the current expertise and research interest of LaPa in the field of information technologies for cultural heritage revolves around the following areas:

Conceptual Modelling
This includes advanced structural modelling, the extension of the object-oriented paradigm for the modelling of heritage-related information, and the integration of exotic modelling constructs such as powertype patterns and "clabjects" into existing modelling languages.

Some work is also being done in subjectivity and temporality management, and specifically into the versioning of information along these two dimensions. In addition, domain-specific languages in the areas of landscape and geometric decoration are being studied.

Method Engineering
LaPa is especially interested in method representation languages for the expression, dissemination and institutionalisation of production methods. Metamodelling is being used as a technique to specifying such languages and the ISO/IEC 24744 standard metamodel is being used as a reference.

User Interaction
Some work has been done in this area, although most of the work here is still to be done. LaPa is

extremely interested in three-dimensional interactive environments that allow direct manipulation of discrete entities. The usage of technologies that are common in the virtual world field, such as entity streaming and variable level of detail, will be studied.

We hope that this brief profile gives you a good reason to become interested in LaPa and our work. Please do not hesitate to contact us at lapa@iegps.csic.es for general enquiries or the author of this profile for specific information on the research on information technologies for cultural heritage.

Introducing Fondazione Rinascimento Digitale – A Brief Profile

Marco Rufino (right), head of Fondazione Rinascimento Digitale, with DARIAH project director Peter Doorn

The Fondazione Rinascimento Digitale – *Nuove tecnologie per i beni culturali* (FRD) ["Digital Renaissance Foundation – *New Technologies for Cultural Heritage*"], has been created to stimulate the adoption of ICT technologies in the sector of Cultural Heritage.

FRD, in collaboration with other research institutions, promotes projects for the development, documentation, promotion, training for the production and the management of digital materials, and for the preservation of digital memories.

FRD is a private, non-profit organisation created within the activities of a Bank Foundation: the Ente Cassa di Risparmio di Firenze. Paolo Galluzzi is the President of the Foundation, and Paolo Blasi is the coordinator of the Scientific Committee.

Fondazione Rinascimento Digitale intend to establish strategic collaborations and partnerships with structures and centres of excellence that share its purposes on the local, national and international levels, co-financing analyses, studies and research projects, as well as events, seminars and courses.

In order to reach its objectives, the Fondazione conducts activities of exchange, collaboration and partnerships with practitioners involved in the ICT technologies in the Cultural Heritage and in the Humanities sectors to:

- define methodologies, software architectures and tools for the creation, the access and the use of Digital Libraries;
- developing effective strategies and repositories for the Long Term Preservation of Cultural Heritage's digital data;
- select and spread "good practice" examples;
- develop training activities to faster the best use of ICT methodologies and technologies by cultural heritage professionals and operators.

FRD established many partnerships and agreements with Italian and international institutions like the Italian Ministry for the Cultural Heritage, the Ministry of University and Research, the Central National Libraries of Florence and Rome, the Library of the Uffizi, the Universities of Florence, Pisa, Siena, Parma and Milan, the Italian National Research Council (CNR), the Library of Congress of Washington, and so on.

FRD is also involved in different European Projects like "Digital Preservation Europe", "VIDI-Video", "Readme.cc", "e-CLAP" and in the COST Action "Interedition".

For FRD the participation to DARIAH is a natural continuation of its activities. Infrastructures are one of the foundations for the growth and the diffusion of a ICT based approach for Cultural Heritage and Human Science. Infrastructure represent an essential instrument to put together all efforts, results and data produced in the last years by several cultural and research institutions in Italy, in Europe and in the World and, on the other hand, they are one of the main way for a pervasive and user driven diffusion of ICT methodologies and tools in the whole Humanistic domain.

FRD MAIN PROJECTS

Pinakes 3.0 for the Integration of the Archives
The Pinakes[1] project is the result of a long-term activity within the research framework of the Institute and Museum of History of Science in

[1] http://pinakes.imss.fi.it

Florence that became, from 2005, one of the main research projects of the Fondazione Rinascimento Digitale.

Pinakes 3.0 is an open source software architecture that allows both understanding the importance of the computational methodology within humanities research and offers a tool to experiment, practice and customize this methodology within and across different disciplines.

The application Pinakes 3.0 (Beta version) is available for free on the web, distributed under the Gnu General Public License.

The expected result is that Pinakes 3.0 will permit the web publishing of research results derived from a large number of different projects from various disciplinary areas of the humanities. The use of this application will ease the ever-increasing re-use of digital information on the web and will offer the possibility to work in a cross-disciplinary way and in a multilingual environment.

Pinakes Text
The *Pinakes Text*[1] (*PKText*) application is a tool to compare, interoperate, distribute and navigate among digital texts. *PKText* has been developed by the Institute for Computational Linguistics of the Italian National Research Council (CNR) in Pisa and by the Fondazione Rinascimento Digitale. This application is the result of previous experimentations in the field of computational philology and aims to offer a tool to researchers interested in producing collaborative critical editions of digital documents.

PKText allows one to work with huge amounts of digital texts using the tagging meta-language produced by the Text Encoding Initiative (TEI). One of the core elements of the application is that it introduces an off-text encoding system by which a schema (or ontology) makes it possible to refer a concept (person name, place, date or whatever abstraction) to a single portion of text. By using the schema of the *Pinakes 3.0* project, it is also possible to bring catalographic and editorial data together in order to access all kinds of sources at any point of the text and to dispose of all the texts needed for any catalogued object.

Trusted Digital Repositories – Digital Stacks
The Digital Repositories Project[2] (also called Digital Stacks) experiments on a large scale a storage and management infrastructure of digital objects that is secure and reliable. The term "repositories" in its name evokes the well-known "book repositories" of libraries (take, for example, those of the National Libraries). Like the latter, Digital Repositories also intends to offer long-term access service to digital resources by organising an infrastructure that is scalable and reusable.

The *Trusted Digital Repositories Project* is developed by the National Central Libraries of Florence and Rome in collaboration with FRD.

National Bibliographic Numbers
The persistent identification of resources on the Internet is one of the fundamental problems of the cultural world, especially within 'digital library' and 'digital preservation' applications which seek to use the Internet as a platform for searching and disseminating contents. The main objective of the National Bibliographic Numbers[3] project is to experiment a new technology based on the Uniform Resource Name (URN), utilising the National Bibliography Number (NBN) as the reference namespace, and to develop a prototype oriented at implementing an identification service of cultural digital works on the Internet, with the purpose to facilitate access to resources.

The project is developing a prototype system, free from the management of the single cultural institution, which shall realise a national register of persistent identifiers for the digital cultural objects on the Internet, and experiment a service of resolution and access to these resources by inserting several elements of novelty in the system's architecture and functionality.

The *National Bibliographic Numbers* project is developed by FRD in collaboration with University of Milan, CILEA and Central Library of the Italian National Research Council (CNR).

[1] http://pinakes.imss.fi.it:8080/PinakesText/home.jsf

[2] http://www.rinascimento-digitale.it/projects-digitalstacks.phtml

[3] http://nbn.rinascimento-digitale.info