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Proposal for a new COST Action

COST A32

“OPEN SCHOLARLY COMMUNITIES ON THE WEB”

Proposer: Dr. Paolo D'Iorio
Institut des Textes et Manuscrits Modernes
(CNRS/ENS)
4, rue Lhomond - F 75005, Paris
FRANCE
tél. +33, (0)1 44 32 18 84
diorio@ens.fr

COST National Coordinator: Dr. Michel Gorlicki
Ministère de la Recherche et des Nouvelles
Technologies Direction de la Technologie -
Bureau de la Coordination Européenne et des
Relations Internationales
1, rue Descartes 75231 Paris Cedex 05
FRANCE
michel.gorlicki@technologie.gouv.fr

TC-SSH Rapporteur: Mr. Jan-Arne Eilertsen
The Research Council of Norway
Stensberggata 26
0131 Oslo
NORWAY
Tl:+ 47 22 03 73 89
Fax:+ 47 22 03 74 09
jae@rcn.no

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MEMORANDUM OF UNDERSTANDING

for the implementation of a European Concerted Research Action designated as
COST A32

“OPEN SCHOLARLY COMMUNITIES ON THE WEB”

The Signatories to this Memorandum of Understanding, declaring their common intention to participate in the concerted Action referred to above and described in the Technical Annex to the Memorandum, have reached the following understanding:

1. The Action will be carried out in accordance with the provisions of document COST 400/01 "Rules and Procedures for Implementing COST Actions", the contents of which the Signatories are fully aware of.
2. The main objective of the Action is to create an infrastructure which will enable a de-localized community of experts in humanities to work together and to publish their results on the Web and which will also function as an advanced e-learning system for graduate students and young researchers.
3. The economic dimension of the activities carried out under the Action has been estimated, on the basis of information available during the planning of the Action, at € 30 million in 2004 prices.
4. The Memorandum of Understanding will take effect by being signed by at least five Signatories.
5. The Memorandum of Understanding will remain in force for a period of 4 years, calculated from the date of first meeting of the Management Committee, unless the duration of the Action is modified according to the provisions of Chapter 6 of the document referred to in Point 1 above.

COST A32

Open Scholarly Communities on the Web*From HyperNietzsche to Hyper-Learning***Abstract**

The overall aim of the Action is to create a research and publication infrastructure on the Web and an advanced e-learning system for the humanities. The *research infrastructure* enables a de-localized community of specialists to work in a cooperative and cumulative manner and to publish the results of their work on the Internet. The *e-learning system* unites research and education, and envisages not only knowledge transfer, but also the development and enhancement of critical thinking skills and of autonomous production of scientific contributions among graduate students and young researchers.

A. Background*State of the art*

An increasing number of scholars think a new instrument is needed for publishing scholarly work. In the hard sciences there is monopoly market that makes access to scientific information very expensive: a yearly subscription to “Brain Research” costs around 20.000 dollars. The best funded libraries have to use 80 to 90 per cent of their budgets for the purchase of scientific journals and nevertheless will be able to afford only a small part of this literature. The reasons for this phenomenon are explained in a very good article by Jean-Claude Guédon¹. Scientists tried to react to the so-called “serial pricing crisis” with initiatives such as Public Library of Science, Open Access Initiative² but, at the moment, the interest groups formed by the editors and researchers, who sit in the evaluation committees, and who want to maintain their role as gatekeepers, are resisting change. For scholarly publications in the Humanities there is not a monopoly market – there is no market at all. The public libraries have less and less money for monographs (which, according to Robert Darton, look like becoming an endangered species)³ and the realities of the book market are often in conflict with the requirements of scholarly work.

The main objective, clearly stated in section B, is to set up an open source platform for research and publication on the web. But why do scientists, who invented the Internet, still have so many problems with the electronic publication of their work? Because to set up such a platform one has to solve three problems which are not directly addressed in the already existing research framework programmes: 1) one must find a way to give the electronic

¹ See Jean-Claude Guédon, “In Oldenburg’s Long Shadow: Librarians, Research Scientists, Publishers, and the Control of Scientific Publishing”, in *Creating the Digital Future*, Proceedings of the 138th Annual Meeting of the Association of Research Libraries, 2001, <<http://www.arl.org/arl/proceedings/138/guedon.html>>.

² <<http://www.publiclibraryofscience.org/>>, <<http://www.soros.org/openaccess/>>.

³ <<http://www.nybooks.com/articles/546>>.

publications the same prestige as paper ones, for the purpose of academic career development; 2) one must find a way to ensure that ‘micropublications’, such as a transcription of one page of a manuscript or a short philosophical commentary, can be acknowledged as scholarly contributions; 3) one must organize the coexistence of electronic publication and the paper world, for example through print on demand systems. Without solving these problems, such systems will never get off the ground.

Another problem concerns the technical structure of the platform itself. What is the navigation system of a scholar in a library? When attempts have been made to transpose the library into an electronic environment, it has been sought to use systems of indexing and search to link all the documents. But that is insufficient because scholars navigate in an ensemble of documents above all following the relationships other scholars have indicated in quotes, footnotes and so on. That seems obvious but nobody other than this Action has transposed this principle into an integrated open scholarly environment. The application of computer science in the Humanities until now has been confined to computational linguistic, bibliographic or thematic databases, and digitalization projects.

HyperNietzsche

HyperNietzsche (www.hypernietzsche.org) represents an alternative model. It is an electronic research matrix that facilitates the cooperative and cumulative effort of a delocalized community of specialists and makes their work freely available on the Internet.

Financed by the Sofja-Kowalenskaja Prize of the Alexander von Humboldt-Stiftung, HyperNietzsche has achieved the following three main objectives over the last four years (2001-2004):

1. Provision of free and direct access via the Internet to primary sources for the study of Nietzsche, including digitized facsimiles of his published works and of manuscripts, page proofs, notebooks, copybooks, loose pages, letters, etc., as well as facsimiles of each of the books in his personal library.
2. Serving as a repository and publishing venue for secondary literature on Nietzsche, including transcriptions, translations, genetic paths, philological commentaries, essays, multimedia lessons, etc.
3. Development of the technological, administrative, and legal support necessary to compile and integrate these sources and to ensure the long-term sustainability of the project.

Hyper-Learning

The development of this research infrastructure was carried out in Open Source and therefore all of the software developed is freely available to any interested researcher groups. Therefore HyperNietzsche can be considered a pilot project for establishing Open Scholarly Communities on the Web devoted to other authors or discipline and to extend the model to distance learning.

The Open Source approach – fully explained below as a principle of this Action – allows a perfect integration with other research projects. This openness and flexibility requires a structuring Action able to establish a network with a clear European added value. A COST

Action will strongly contribute to address these problems at national, European and international level reinforcing scientific cooperation and optimizing future solutions through an Open Source platform.

B. Objectives and benefits

The main objective of the Action is to create an infrastructure which will enable a de-localized community of experts in humanities to work together and to publish their results on the Web and which will also function as an advanced e-learning system for graduate students and young researchers:

- The *research infrastructure* enables a de-localized community of specialists to work in a cooperative and cumulative manner and to publish the results of their work on the Internet.
- The *e-learning system* unites research and education, and envisages not only knowledge transfer, but also the development and enhancement of critical thinking skills and of autonomous production of scientific contributions among graduate students and young researchers.

In order to reach this aim, the Action envisages the development of the nationally funded project HyperNietzsche as a model-oriented system based on three objectives:

- 1) The final realisation of HyperNietzsche (<http://www.hypernietzsche.org>) as a model of an IT research infrastructure. The development of the system will be accompanied by work on editions, transcriptions of Nietzsche's manuscripts and correspondence as well as publication of critical essays and other scholarly contributions. Working simultaneously on these two tasks will produce, on the one hand, an IT infrastructure which responds effectively to the needs of actual users, and will, on the other hand, demonstrate to the community of Nietzsche specialists how this new work instrument can be used effectively.
- 2) The development and implementation in HyperNietzsche of a critical e-learning system for higher education featuring personalised logins according to level of competence, learning paths, dynamic learning contextualisation, virtual classes, multimedia lessons, contextualised forum/chats, etc... This system will be realised in the context of a new pedagogical paradigm based on a dynamic ontology and will set new technological standards: Hyper-Learning.
- 3) Preparatory work for the generalisation of the Hyper-Learning model to other authors. This includes the writing of a complete documentation of the procedures implemented by the model, the organisation of conferences presenting the project, brainstorming workshops with interested scientific communities as well as training for researchers beginning to apply the model to other authors. A design of the IT structure of a Hyper-Learning Network, which would enable the interoperability of the various Hyper-

Learning Platforms, will complete the Action with a tangible benefit able to be generalized at national, European and international level.

C. Scientific programme

To achieve its objective, the Action sets the following main tasks to be able to design an open and flexible framework: 1) Establishment of a core of Open Scholarly Communities on the Web and of an appropriate academic and legal framework. 2) Development of a distributed WEB platform; 3) Research on functional programming for complex interactive web sites.

1) Starting from the model proposed by the pilot project, HyperNietzsche, the *Scholarly Communities* will provide the necessary specifications for constructing Hyper-Learning platforms that respond effectively to the specific needs of Humanities. Simultaneously, they will make it possible to test the systems in sizeable field experiments and to conduct hands-on, concrete evaluations of the scalability of a distributed architecture in at least a dozen different nodes. The creation of such a technological structure presupposes a profound understanding of the activities of teaching and research. Furthermore, it requires having available a critical mass of teachers and students working together from the beginning on a certain number of scholarly enterprises in order to test the scalability of the pilot project. Building Scholarly Communities in conjunction with the software platforms is also the only way to insure that these new technologies will have an impact on the actual practices of research and learning. The Action plans to establish Open Scholarly Community on the following authors: Nietzsche, Beckett, Eminescu, Konstantinov, Leibniz, Proust, Schopenhauer, Wittgenstein, Woolf, Euripides, Puccini, Braudel. Each Scholarly Community must attain a critical mass that will establish it as an indispensable research and educational resource within its field of study. This will be possible if the Hyper-Learning platforms succeeds in integrating access to primary sources with the publication of top quality scholarship, and if they are overseen by an editorial board of respected and established scholars. The entire group of Scholarly Communities together must in turn attain a critical mass relative to the humanities as a whole. In this way, and thanks also to the free distribution of the software needed to activate a new node in the network, this group will act as a multiplier and will have a structuring effect on the European Research Area.

2) The *technology development* component of Hyper-Learning model will be implemented as:

- A contextualized and highly available local data repository model for the storage of Research and Learning Objects (Hyper-Learning Platform).
- A semi-decentralized peer-to-peer network of XML based web services and tools that collaborates in a virtual, distributed and semantically structured Hyper-Learning Network.
- Open source, standard, software (Hyper-Learning Server) that allows anyone to easily install, configure and maintain a node within the Hyper-Learning Network.

In order to have a practical and effective impact on education and research, the Hyper-Learning model must be so conceived as to be easily generalisable for other authors or other fields of research. From a methodological point of view, this means taking particular care in order to guarantee simple installation, configuration and interoperability. Such a system would allow any researcher who has a computer, access to the internet, and a clear knowledge of the relevant subject matter to install and implement a Hyper-Learning Platform tailored to that particular field of research. No advanced technical competence would be required. The Action plans to use a technology designed to enable people with no technical training to install a Linux server. In addition to the Linux kernel and basic packages, the Hyper-Learning Server will come bundled with a certain number of other software programs, all of which are available at no charge and are freely distributed in accordance with the Open Source legal model. Once this software is installed, a module is launched which provides step-by-step configuration for adapting the general Hyper-Learning framework to the specific field of study chosen by the scholars.

To preserve the rigorous structure of a Hyper-Learning system while making it flexible enough to be adapted to many different objects of study and easy enough to use that it will be widely adopted by humanities researchers the various Hyper-Learning nodes must be developed in such a way that they can communicate easily with one another. For example, if Schopenhauer is cited in an essay on HyperNietzsche, the reader should be able to move from HyperNietzsche to HyperSchopenhauer with a simple click of the mouse, and so have immediate access to the original context of the passage from Schopenhauer, translations of the passage in different languages, and relevant commentaries from Schopenhauer specialists. This is referred to as *crossing hypertexts*.

Proceeding from theoretical elaboration and empirical verification, the Hyper-Learning systems will experiment with a different model for organizing humanities scholarship and communicating the results, founded on a new system for the production, evaluation, and sharing of academic work. This system will be decentralized, cooperative, and cumulative, it will be managed by the scholars themselves, and it will be open to anyone who is interested.

3) Flowing from its aim the Action will promote research in computer science: the development of a *functional programming* language, that will be used first for the development of the web services of the Hyper-Learning Network. More generally this language, accompanied by its integrated programming environments, will permit the application of the functional approach to the development of all kinds of web applications. Functional programming is a programming paradigm that emphasizes the modular decomposition of a program into mathematical functions from arguments and initial state to results and final state. Unlike conventional imperative programming, which works by elementary modifications of the whole machine state, functional programming emphasizes high-level, abstract descriptions of the computations to be performed, and makes state modifications more coarse-grained and explicit (as functions from the old state to the new state), as well as more local (by explicit specification of the parts of the state relevant to the computation). Combined with the fact that functions are themselves first-class citizens and can be manipulated like any other data by other functions, these features of functional

programming greatly enhance the modularity and compositionality of large programs, ensuring non-interference between unrelated program parts.

Functional programming is particularly well suited to the manipulation of complex, tree- or graph-shaped data structures. Transformations on these data structures are expressed concisely and precisely as recursive traversals combined with high-level pattern-matching notations. Data structures are naturally immutable, implying that transformations do not modify the input structure in place, but reconstruct a fresh structure as result. Besides matching mathematical specifications more closely, this approach also supports safe sharing of data, which is crucial for complex cross-linked data structures.

D. Organisation

1. Action management

The management of the Action will be based on three strategic principles: introducing an Open Source process approach, seeking consultation and complementarities between partners, and decentralising management activities as far as possible. It will be performed by the Management Committee with a Chair, Vice-Chair and Core Group. The principles will underlie the decision making process to ensure a result-oriented approach and an effective and economical management of the Action, taking into consideration the need to harmonize and integrate multidisciplinary Action activities.

a) *Introducing an Open Source process approach*

The traditional project management approach (made up of clearly separated phases, of limited duration and using aims, resources and budgets set out in advance of the project launch) needs to be turned into an iterative approach with an emphasis on listening, dialogue, mobilisation of local resources, achieving goals and action as part of a continuous process, joint evaluation, etc. In the same vein, we need to move from prior verification to monitoring and results-based (subsequent) evaluation. The first management task to be carried out will be the *creation of a dedicated Hyper-Learning Web Site (HLWS)* to provide detailed information related to the project and establishing the first core partnership. This will define an open-ended, developmental nature through the involvement of different stakeholder groups with diverse interests. In particular it will allow each participant to participate in the management activity by being able to introduce all data regarding its activities directly on the Action web site. This will allow a vertical integration among participants who will be able to express stakeholders' needs (including users) concerning the area of its competence and realize a first, useful and effective exchange of information.

b) *Seeking constant consultation and complementarities between participants*

This is not simply a question of involvement. It entails making the recipients genuine stakeholders and/or participants who are able to assume responsibility of their own towards promoting the Action outside and within their countries. The Action does not seek to back a large collection of isolated projects, but to promote dialogue and convergence in the initiatives of various stakeholders, as part of a results-oriented approach on technology. A concern with learning from the experience of implementation as well as with achievements and impacts will be a major operative focus. It seeks to link activity at

various levels (software infrastructure, scholarly communities, legal and pedagogical framework), and does not try to bypass projects financed by governments, but rather to help build new partnerships to improve accessible and lasting e-learning services. The tool to ensure the respect of this principle will still be the Action web site (HLWS) that will enable the participants of one area to interact with other areas in order to obtain information directly on the state of progress of the whole Action (horizontal integration).

Furthermore, Working Groups meetings, Exchange Visits, Conferences, and the other activities planned will be discussed and approved by the Management Committee which will decide the allocation of resources between these activities.

c) *Decentralising management activities*

Delegating responsibility for management down to a level which is as close as possible to the recipients is a cornerstone of the approach according to the principle of subsidiary. Every participant will have an MC member as a contact point with the overall management of the Action. Each organization within the consortium operates according the rules of its internal quality system. In order to secure effective involvement and maintaining a high level of the commitment of the stakeholders and ownership each activity is considered as a short-term one. This will allow the creation of an architecture which devolves responsibility to local activity within a common framework and set of criteria for Action success. It will define an Action orientation, designed to influence its environment and create the conditions for sustainability by integrating nationally funded research activities.

1. *Working Group meetings*

The Action is divided into three main tasks that correspond to three working Groups: *Scholarly Communities on the Web*, *peer-to-peer Network* and *Functional Programming*. During the four years of the project the members of the Working Groups will organize meetings to integrate their research activities.

2. *Short Term Scientific Missions*

These will be used to support the daily collaboration especially between the *scholars* of each Scholarly Communities and the *computer scientists*. In fact the computer scientists have to customize the software solutions for the specific aspects concerning different authors. For this STSMs are the ideal mechanism.

3. *Open Workshop*

One open workshop per year (in four different COST signatory nations) is necessary for exchanging the experiences by all the participants and also to disseminate the knowledge acquired during the works. The conference at the end of the fourth year will be organized as the *final conference*.

4. *Publications*

A manual about how to create and manage an *Open Scholarly Community* will be edited.

The proceeding of each year conference will be printed in book form.

The most relevant results of the activities of each scholarly community will be printed.

5. Websites

The *Hyper-Learning Web Site (HLWS)* will develop a decentralized management of the project.

Each *Open Scholarly Community* will set up a Website to disseminate the result of its research activities.

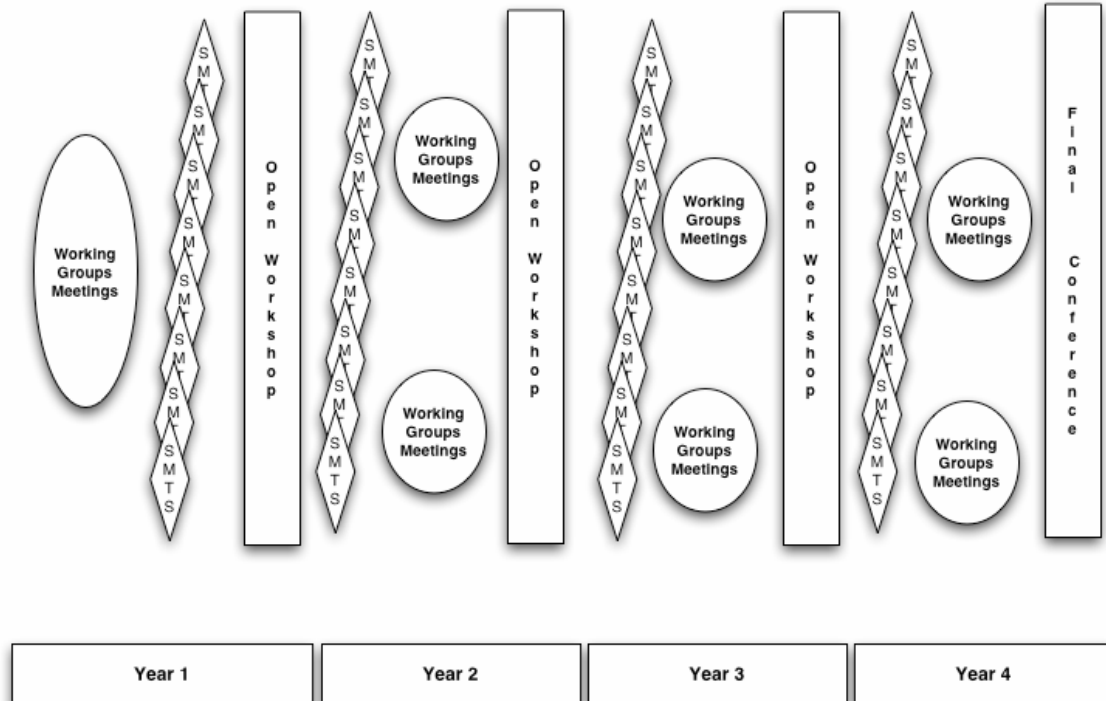
E. Timetable

The Action will have a total duration of *four years*.

The time of the various activities financed by COST will be planned as follows:

- Short Term Scientific Missions (STSM) and meeting of the Working Groups will take place each year.
- Interim milestones will be present at the end of every year with the organization of a workshop and the publication of its proceedings.
- A final Conference will present the result of the Action.

Timetable Chart of the Action



F. Economic Dimension

The following COST countries have actively participated in the preparation of the Action or otherwise indicated their interest :

Belgium	Italy
Bulgaria	Norway
France	Romania
Germany	United Kingdom

On the basis of national estimates provided by the representatives of these countries, the economic dimension of the activities to be carried out under the Action has been estimated, in 2004 prices, at roughly Euro 30 million.

This estimate is valid under the assumption that all the countries mentioned above but no other countries will participate in the Action. Any departure from this will change the total cost accordingly.

G. Dissemination plan

The Hyper-Learning Platforms and the Scholarly Communities are themselves the primary means of dissemination. The main product of the Action is precisely a tool that serves to optimise the dissemination of knowledge. And insofar as this tool succeeds in facilitating the distribution and sharing of knowledge within the humanities, it simultaneously demonstrates the validity of the technology.

The creation of a dozen of Scholarly Communities, composed of the best specialists on dozen major European authors, is a sizeable field experiment that aims to produce an effective impact on the Humanities. Within the Authors Hypertexts, the Standard Projects form a homogenous group of hypertexts dedicated to philosophers and writers who have contributed to the formation of European culture between the beginning of the 19th and the middle of the 20th centuries. These authors cite one another, or cite the same sources, or are in turn cited in the same scholarly works : Nietzsche, Eminescu, and Wittgenstein were influenced by Schopenhauer ; Strindberg corresponded with Nietzsche ; Virginia Woolf wrote on Joyce's Ulysses. This homogeneity and cultural and intertextual cross-referencing will allow us to test the possibilities of linking up one hypertext system to another (cross-hypertexts).

Certainly, creating new platforms or metadata standards does not mean they will actually be used by the scholars. In order to avoid artificial laboratory tests or miniscule case studies cut off from reality, the Action will begin with sizable field experiments, with a strong symbolic significance. The involved communities of scholars are going to employ actively the e-learning system in the real context of research and education. In creating real conditions for

using these systems, the Action is subjecting them to a test which will demonstrate their validity as well as their wider scholarly and scientific potential.

The impact of these learning systems is ensured by their being used in the existing research and education environments and is also strengthened by the fact that, under these conditions, the Action will target a strategic point in the dynamic of the Scholarly Communities, that of the transmission and dissemination of knowledge. This impact will go on, also outside of the original Scholarly Communities, because the chosen learning system functions in Open Source: whoever wishes to adopt it, may do so.

The symbolic value of the authors chosen for the experiment is important, because it can arouse a vivid interest on the part of other scientific communities, even outside the field of Humanities. In that case it will be the human sciences themselves which will show the way to the natural sciences which are at present prisoners of the publishers' market. In literature and philosophical studies the stakes are, in economic terms, minimal and therefore it is easy to experiment. Rather than attempting to destabilize a strong monopoly market, it is a matter of constructing a market where it does not exist (because libraries no longer have the funds for purchasing books in the Humanities). On this background, there is reason to believe that hypertexts on 13 towering literary and philosophical figures will have a symbolic impact strong enough to move the whole system and bring a "virtuous circle" into being.

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“OPEN SCHOLARLY COMMUNITIES ON THE WEB”

ADDITIONAL INFORMATION

NOT PART OF THE MoU

1. HyperNietzsche

HyperNietzsche is not merely a library of well-indexed and searchable electronic texts and studies made available on line, nor an electronic edition made available to the public as a finished product. Rather, it is a kind of electronic research matrix that facilitates the cooperative and cumulative effort of a delocalized community of specialists and makes their work freely available on the Internet. As we said, HyperNietzsche has three main objectives:

1. To provide free and direct access via the Internet to primary sources for the study of Nietzsche, including digitized facsimiles of his published works and of manuscripts, page proofs, notebooks, copybooks, loose pages, letters, etc., as well as facsimiles of each of the books in his personal library. In the language of HyperNietzsche we call these primary sources “Materials”: they are the objects of study on which the scholars work

2. To serve as a repository and publishing venue for secondary literature on Nietzsche, including transcriptions, translations, genetic paths, philological commentaries, essays, multimedia lessons, etc. In the language of HyperNietzsche we call this documents “Contributions”: they are the results of the work of the scholars on the Materials.

3. To develop the technological, administrative, and legal support necessary to compile and integrate these sources and to ensure the long-term sustainability of the project.

The principal results of the HyperNietzsche project can be summarized in five points:

1. IT Infrastructure that allows the consultation of primary sources and the publication of scholarly commentaries and critical essays. It also allows the establishment of a systematic and structured networking of these various documents.

In order to administer this complex infrastructure we conceived and implemented a completely new and original IT architecture, which goes beyond the standard model for the creation of dynamic Web pages using a script language and a relational database system: the *Pearl-Diver Model*.⁴ I would like to emphasize that the development of this infrastructure was carried out in Open Source and that therefore all of the software developed is freely available to any interested researchers.

After analysing standard procedures for electronic editing and the available encoding languages, we developed a new language for encoding transcriptions of manuscripts, for the editing of texts and for the publication of critical essays: the *HyperNietzsche Markup Language* (HNML). This language is a rare example of an encoding system which is both readable and easy to learn and use, even for non-specialists. Based on XML, it is highly compatible (for example with the specifications of the *Text Encoding Initiative*) and it already uses various XSL style sheets which allow the automatic generation of different representations of a manuscript page and its various writing layers using the same encoded transcription.

2. *Pilot edition of Nietzsche’s manuscripts and works from the period of the philosophy of the free spirit.* HyperNietzsche is not an electronic Nietzsche edition, but rather a work instrument, which allows the publication and administration of *several* Nietzsche editions, as well as critical essays and any other kind of scholarly contribution. However, in order to demonstrate the possibilities opened up by this new work tool, our research group is preparing a pilot edition of a selection of Nietzsche’s manuscripts, letters and texts.

⁴ Technical details can be found at the HyperNietzsche developers’ site: <<http://www.hndevolvers.org/>>.

The first results of our work have been: the definition of procedures for the digitalization of original sources; the establishment of new classification criteria in a digital environment; transcription and encoding of manuscripts; edition of Nietzsche's texts and the publication of critical essays. The current state of the subsequent editorial work can be summarized in some numbers:

- Digitalization in colour and in high resolution of around 30.000 pages of primary sources (manuscripts, letters, first editions, photos and other biographical documents: for example receipts for book purchases).
- Digital classification, retouching and publication in HyperNietzsche (with an Open Source license) of around 6.000 facsimiles of original Nietzsche manuscripts: This represents the complete genetic dossier of *The Wanderer and his Shadow* and *Daybreak*, beginning with the note books, going on to fair copy and printers copy, and finally to the first edition.
- Encoded transcriptions in HNML of 3.000 manuscript notes, of which around 1.000 have already been published in HyperNietzsche.
- New editions of 10 of Nietzsche's works.

3. *Philosophical Studies*. I was responsible for the organization of a European triple colloquium in 2000 (*Nietzsche: un bon Européen à Cosmopolis*, Paris, Weimar, Bologna) and for two conferences dedicated respectively to *Human, all too Human* (*Un esprit libre sur Internet*, 2001) and to *Daybreak* (*Philosophie de l'Aurore*, 2003).⁵ The papers presented at these conferences have been published first in HyperNietzsche and then in book form. Other articles have been chosen by our Editorial Board and sent directly to peer review for publication in HyperNietzsche.

4. *The system for peer review on the Internet* is operational from a scientific, technical and legal point of view. HyperNietzsche's Editorial Board consists of 13 renowned specialists from 9 countries and works in double anonymity (the members of the Editorial Board do not know the identity of the authors, and the authors do not know which members of the Editorial Board have evaluated their contribution).⁶ As far as the *technical* aspect is concerned, the system administers all voting procedures automatically, as well as the writing and reading of the reports and the publication or rejection of the contribution submitted for evaluation according to the procedures described in the rules established by the Editorial Board.⁷ From a *legal* point of view, the system administers the sending of contracts to the authors, who sign them and return them to the *Association HyperNietzsche* electronically.

5. *Legal problems and sociological studies*. The legal problems connected with our mode of publication have been resolved. After a series of studies on the legal status of both works and Nietzsche's literary estate,⁸ we signed an agreement with the *Stiftung Weimarer Klassik* for the digitalization and publication on the Internet of the Nietzsche holdings in Weimar. This agreement can serve as an accord model between researchers and archives wishing to make primary sources available on the Internet for the purpose of academic research.⁹ We have also written three Open Source licenses for the publication of critical essays on the Internet and a license concerning the use of our IT system.¹⁰ In order to have a legal framework for administering both the evaluation procedures by peer-

⁵ <<http://www.item.ens.fr/nietzsche/cosmopolis/>>, <<http://www.hypernietzsche.org/events/treilles/>>, <<http://www.hypernietzsche.org/events/treilles2/>>.

⁶ A list of the members of the Editorial Board can be found at: <<http://www.hypernietzsche.org/doc/cs/>>.

⁷ See <http://www.hypernietzsche.org/doc/peer_review/>.

⁸ See for example Silke Clausning's article: <<http://www.hypernietzsche.org/events/lmu/clausning.html>>.

⁹ See <<http://www.hypernietzsche.org/licenses/swkk/>>.

¹⁰ This license models were published for the first time in the book: *HyperNietzsche. Modèle d'un hypertexte savant sur Internet pour la recherche en sciences humaines. Questions philosophiques, problèmes*

review and on-line publication, we have founded the *Association HyperNietzsche*. It is this society which for one part signed the convention with the Archives in Weimar and for the other part enters into publication contracts with the authors.¹¹

The organizational model for scholarly research proposed by HyperNietzsche has inspired two sociological studies: P. D'Iorio, W. A. Turner: "Nietzsche sur Internet. L'observation des collaborations médiatisées par ordinateurs dans les sciences de l'érudition" (1999) and Y. Moulier Boutang: "L'impact des nouvelles technologies dans le cadre des communautés savantes délocalisées selon le modèle du système HyperNietzsche. Considérations sociologiques, économiques et de politique culturelle" (2002).¹²

I have also organized (with Philippe Chevet and Alexandre Gefen) an international conference with the title *L'Open Source dans les Sciences Humaines. Modèles ouverts de recherche et de publication sur Internet* (École normale supérieure, Paris, January 2002)¹³ concerning legal problems as well as the question of the economic and political investment necessary for publication on the Internet in the Humanities.

2. From HyperNietzsche to Hyper-Learning

As a concrete starting point, the Hyper-Learning Action will adopt the research paradigm, the software infrastructure and the legal framework already initiated by HyperNietzsche.

1) *Open Source in the Humanities*

From a methodological point of view, this enterprise transposes the concepts of *Open Source* from computer science to the Humanities. Computer science, for its part, had merely reformulated in its own terms the fundamental characteristics of scientific method and practice which had been in place since the seventeenth century. Science is by definition an open source enterprise to the extent that it is an open, public discussion on accessible objects, carried out according to verifiable procedures. Indeed, scientific progress is not possible in conditions of secrecy, exclusivity, or restricted access to information. In the Humanities, working in *Open Source* means on the one hand being able to access the digital version of objects of study: books, manuscripts, archaeological objects, images, sounds, film sequences, etc., (*Public Archives*) and on the other hand providing free access to the results of research work (*Open Publishing*). And the Internet is the medium best able to guarantee public access to cultural heritage and research work.

1) *Dynamic Ontology and Pearl-Diver Model*

From a cognitive point of view, HyperNietzsche can be understood as an ontology of a field of study examining Nietzsche's life and work. It is not a descriptive and static ontology, such as a photograph, which represents its objects and their relations at a given moment. On the contrary, it is a *dynamic* ontology which is capable of expressing the changes which the objects of study and their relations undergo due to the growth of knowledge.

juridiques, outils informatiques, sous la direction de Paolo D'Iorio, Paris: PUF 2000, 200 pp. (freely available on line at the address: <<http://www.hypernietzsche.org/doc/puf/>>).

¹¹ For more information the legal work realized in the context of the HyperNietzsche project see Philippe Chevet's book: *Guide juridique de l'Open Source. La numérisation et la diffusion des fonds scientifiques et culturels en libre-accès*, Ed. Maison des Sciences de l'Homme, January 2004.

¹² <<http://biblio-fr.info.unicaen.fr/bnum/jelec/Solaris/d05/5turner.html>>, <http://www1.msh-paris.fr:8099/html/activduprog/ZeEtudes/Etudes_Sommaire.asp?id=257>

¹³ See <<http://www.hypernietzsche.org/events/os/>>.

The point of departure for our system is what we call “*digitale Erschließung*” (“digital classification”): This process serves to create a map of a field of study by giving each object a name (siglum) and a short definition, and by drawing a collection of standard relations of inclusion and succession between the objects. A siglum can represent for example one of Nietzsche’s aphorisms or a page from one of his notebooks (in other disciplines a siglum can be the name of a gene or a protein). The hierarchical level to which the siglum belongs and its place inside a sequence is expressed by the *granularity*: for example, a notebook comprises several pages, a page several notes, each page of a notebook refers back to the previous and forward to the following page, and so on. Beginning with this base structure, scholarly contributions can transform the properties of the objects and their reciprocal relations by using two functions of the system: paths and dynamic contextualisation.

Paths enable the user to order the objects in sequences according to genetic, chronological or thematic criteria. They allow, for example, the tracing of a genetic sequence which follows the stages of the writing process for a particular aphorism, from the first outline in a notebook, through its copy in a book, corrections in proof copy and finally to the printed version; or the establishment of a thematic route consisting of several aphorisms on the free spirit in Nietzsche’s works.

Dynamic contextualisation is one key innovation developed by HyperNietzsche. While the user navigates the site, moving from one page to another, this feature makes available precisely those scientific contributions that are relevant to the siglum presently being viewed. For example, if the user selects the siglum of a manuscript page, the system immediately makes accessible, without the need for additional complicated searches, all the facsimiles, transcriptions and translations available for the page, as well as all the relevant text-genetic paths and critical essays that refer to the page. This material is presented in the form of an easily navigable list of hyperlinks. Likewise, if the user selects a critical essay, the contextualisation mask will present a list of hyperlinks to all the Nietzsche texts and manuscripts cited by the author of the essay and all the contributions that are cited in, or that cite the essay being viewed.

However, the growth of the contributions concerning a certain object actually represents a progressive transformation of this object, insofar as each essay discovers hitherto unknown properties. To know that an aphorism is thematically and genetically related to other texts and manuscripts of Nietzsche can radically change our comprehension of this object of study: It is as if one has identified a gene on the basis of a certain number of characteristics and then 10 scientific articles discover unknown properties and unsuspected relations with other genes, thus appreciably transforming the ontology of the field of study.

Scientific objects always result from a process of construction of meaning within a research community. Elements are recognized as being worthy of interest within an influential paradigm and function as a point of convergence of all successive research, including that research which will transform their definition. For this reason, an IT infrastructure capable of coming to terms with scientific development must be thought of as a dynamic ontology.

On the basis of this cognitive model, we have developed a web application which is capable of administering all these elements and their relations in a technically effective manner. We have also designed a navigation interface which is simple and comprehensive, elegant and precise which reflects the conceptual articulations of our objects of study and which also allows contributions to the hypertext.

2) *Hyper-Learning vs LEGO-Learning*

This cognitive model and IT infrastructure seems to us to be particularly effective for the requirements of scientific research. It takes on a revolutionary aspect when applied to e-learning.

In effect, the dominant e-learning model, as expressed in the standard technologies such as SCORM¹⁴, IMS¹⁵, IEEE LOM¹⁶ is quite poor in cognitive and pedagogical terms and in any case largely insufficient for the necessities of tertiary education. It is based on the existence of content producers on the one hand, normally companies selling prefabricated information packages (the assets, which are like little LEGO bricks) and on the other hand teachers who build courses according to the instructions incorporated into the assets. The students, for their part, have the task of being force-fed as much contents as possible. This procedure works well enough if it is a case of training employees in the use of certain conceptual instruments or techniques, or knowledge transmission on a medium or low level, but it has not been successful at the university level. Incidentally, the adoption of this model in a university context would have the effect of blocking the development of knowledge in precisely the place devoted to its evolution and transformation.

In an era in which conceptual buildings change rapidly, it is not important to memorize the conceptual bricks of which they are constructed, but rather to master the methods which allow orientation within knowledge, the organisation of knowledge and the creation of new knowledge.

The single brick represents an isolated notion, or, in the best case, a static ontology. Let us suppose a student learns the definition of properties of a gene by using an e-learning system. He or she can use this concept only until science discovers other properties of this gene or new relationships this gene maintains with other genes or phenotypes. Suddenly, the e-learning system becomes obsolete and the student must update his little conceptual brick (and also the ensemble of relationships binding it to other parts of its ontology). This is very practical for enterprises marketing contents for e-learning systems. However, if one wishes to follow a different logic, that of a free community of researchers, it would be important that e-learning forms part of a system capable of automatically following the evolution of knowledge. What would be the point of an IT standard making bricks of information interoperable, if they are not at the same time automatically linked to research developments? The Learning Objects are the legacy of didactics which must now be considered out of date. Above all they produce the paradoxical effect that, in using the most modern technologies, the student acquires concepts which are pre-programmed to expire. The slogan of LEGO-Learning might well be: *Learning Electronic, Going Obsolete*.

In contrast to the American model of “LEGO-Learning”, the Hyper-Learning project intends to propose a new methodology and set a new technological standard: the *Research Objects for Learning* (ROs).

In our dynamic ontology the elements are not conceptual bricks but a network of pointers, that we call “pearls”. The pearls contain a minimum of information which is their siglum (gene UGT-1, page 3 of notebook N IV 2, aphorism 27 of *The Gay Science*), but their characteristic is that of being pointers in a universe of relationships, not so much in the sense that they point towards something (certainly, they point towards an object or towards a property of the external world), but rather in the sense that successive researchers will point to them, since they represent objects which have been recognised by a scientific community as being scientifically interesting.¹⁷ If we construct an IT research and e-learning system which, by virtue of dynamic contextualisation, allows the user, when selecting the siglum of an object, to see all the articles which cite it, the researcher or student has at his disposal a

¹⁴ <<http://www.adlnet.org/>>.

¹⁵ <<http://www.imsglobal.org/specifications.cfm>>.

¹⁶ <<http://ltsc.ieee.org/wg12/index.html>>.

¹⁷ In computer science a pointer is an address, from the point of view of a programming language. The terms “pointer” and “reference” are generally interchangeable although particular programming languages often differentiate these two in subtle ways.

constantly up-to-date dynamic definition, and they can follow in real time the scientific construction of the object, which thanks to paths also includes all its “valences”, that is the context which it shares with other objects from the same field of study.

To sum up: in our model of e-learning the student receives first a map of his field of study and must master a collection of concepts which enable him to orient himself in the network of relationships between the objects in progressive transformation. Immersed in a virtual research and learning community, he or she learns to navigate by using various conceptual grids touching the same pearls, to use the methodology which allows the construction of relationships between the pearls and, finally, to create new knowledge in an autonomous fashion.

3) *Hyper-Learning Network*

In order to have a practical and effective impact on education and research, our Hyper-Learning model must be so conceived as to be easily generalisable for other authors or other fields of research.¹⁸ From a methodological point of view, this means taking particular care in order to guarantee simple installation, configuration and interoperability.

Such a system would allow any researcher who has a computer, access to the internet, and a clear knowledge of the relevant subject matter to install and implement a Hyper-Learning Platform tailored to that particular field of research. No advanced technical competence would be required. We plan to use a technology similar to DemoLinux or Knoppix, designed to enable people with no technical training to install a Linux server. In addition to the Linux kernel and basic packages, the Hyper-Learning Server will come bundled with a certain number of other software programs, all of which are available at no charge and are freely distributed in accordance with the Open Source legal model. Once this software is installed, a module is launched which provides step-by-step configuration for adapting the general Hyper-Learning framework to the specific field of study chosen by the scholars.

To preserve the rigorous structure of a Hyper-Learning system while making it flexible enough to be adapted to many different objects of study and easy enough to use that it will be widely adopted by humanities researchers: this is the real challenge of our project. It requires not only refined theoretical analysis and extensive technical competence, but also the careful study of several test cases.

The various Hyper-Learning nodes must also be developed in such a way that they can communicate easily with one another. Imagine, for example, that Schopenhauer is cited in an essay on HyperNietzsche. The reader should be able to move from HyperNietzsche to HyperSchopenhauer with a simple click of the mouse, and so have immediate access to the original context of the passage from Schopenhauer, translations of the passage in different languages, and relevant commentaries from Schopenhauer specialists. We refer to such cases as ‘crossing hypertexts’. We can also imagine ‘meta hypertexts’ that is to say, Hyper-Learning nodes for which the object of study is a theme that is common to more than one of the author hypertexts. For example, a hypertext dedicated to certain problems in epistemology may specify an object of study that includes elements from hypertexts

¹⁸ 2003 a proposal for an Integrated Project within the “6th Framework Programme” of the EU was submitted. This project, called *Hyper-Learning*, examined for the first time the possibility of a twofold extension of the *HyperNietzsche* model, *firstly* by applying it to other authors and *secondly* by developing its potential for distance education (*e-learning*) The consortium Hyper-Learning united 30 partners from 12 European countries (i.e. universities research centers, a large company and six small and medium companies). In the 13 *Virtual Collaborative Learning Communities* which were to be created and interconnected, the best specialists and scholars of 13 important European authors were represented. Although the project was well received in the course of the scientific evaluation by independent experts (with 24 points *ex-aequo* the second ranked project and only half a point behind the best ranked project) it was, regrettably, not financed by the programme committee.

dedicated to Aristotle, Descartes, Hume, Kant, Schopenhauer, and so on. Hyper-Learning Servers will be implemented to be a node of the Hyper-Learning Network.

In the design of certain parts of the Hyper-Learning Network we will use functional programming, a well established paradigm from a scientific point of view, which is also being used more and more in industry.¹⁹ Although there are many high quality implementations of functional languages (haskell²⁰, OCAML²¹), there is as yet no significant experience in developing large web applications in functional language. This is despite the fact that certain characteristics of these languages, such as their ability to make state modifications more coarse grained and explicit, representing them with functions from the old to the new state, their strong-static-typing capabilities, their particular suitability for manipulating complex data structures such as trees and graphs make functional languages particularly well adapted to use as technologies for the Web.

Our team has established a partnership with the Cristal²² project, directed by Xavier Leroy (INRIA), which wrote one of the most important implementations of functional language: OCAML. In a first stage the collaboration with the Christal project planned the development of software for the manipulation and insertion of contents in the Hyper-Learning Platforms. A certain number of platform elements will be successively developed in OCAML, and this will represent a first example of an OCAML application for the development of complex web applications.

Preparing the technological instruments will not alone be sufficient to generalise the Hyper-Learning Platform. Educators and scholars often regard e-learning systems as little more than expensive, ineffective toys. It is therefore necessary, in the context of creating the system, to also create the *legal*, *academic*, and *scientific* framework necessary to enable scholars, educators, and students to fully exploit these new tools in the daily practice of research and teaching, in the course of developing curricula, and in the process of building a career. For this reason, we must initiate a network of scientific communities interested in using this model, via the organisation of conferences and workshops.

As I write, the director of the Maisons de Sciences de l'Hommes in Paris, Maurice Aymard, is planning to put in place a hypertext on Fernand Braudel inspired by our model, and we are preparing a workshop to discuss the adaptation of the model and the best way, in this phase where our model is neither finished nor documented, of organising the transfer of knowledge.

Proceeding from theoretical elaboration and empirical verification, the Hyper-Learning systems will experiment with a different model for organizing humanities scholarship and communicating the results, founded on a new system for the production, evaluation, and sharing of academic work. This system will be decentralized, cooperative, and cumulative, it will be managed by the scholars themselves, and it will be open to anyone who is interested.

From an information society towards a knowledge society

Hyper-Learning is, to be sure, part of the movement which is moving us from an information society towards a knowledge society. The information society provided us with marvellous tools and the networks which enable us to communicate beyond space and time. Now it is time to free these instruments from their technological scaffolding while at the same time making them more user friendly, as one says, by designing interfaces which are elegant and suitable from a cognitive point of view, and by studying those functions which are really useful to specialized user groups: researchers in

¹⁹ <http://caml.inria.fr/users_programs-eng.html>

²⁰ <<http://www.haskell.org/>>

²¹ <<http://www.caml.org/>>

²² <<http://cristal.inria.fr/index-eng.html>>

the humanities in our case. Secondly we have to fill these new supports and media with European research, its language and culture, and to make our sites the reference-points for all those, in Europe and in the world, who are interested in learning about and enlivening our cultural heritage, our critical knowledge, our values.

The scientific community in the humanities is now starting to be sufficiently interested in the utilisation of the Internet (whereas that was not at all the case in 1996, when I presented at a conference an outline of a hypertext on Nietzsche that I was quick to file away). Gone is the euphoria and skepticism of the first phase of growth. The internet is nowadays a tool used by the majority of researchers, not only by the young. Everyone is conscious that the next generation of researchers will be even more immersed in the net, and that the next generation of leading European researchers will have to reorganize their work methodologies and even their conceptual instruments according to this medium. Research and education will be influenced more and more by this phenomenon which will also have effects on the established power structures. It would be strange, for example, if the organisation of the great collective research projects were not moved towards a more decentralised, co-operative and globalised model. Admittedly, in the natural sciences the large monopolistic publishers were successful in their counterrevolution, since the TULIP project with the invention of site licences. But the tendency seems to be more towards Open Acces with all that that comprises in the organisation of science, and we are perhaps moving even towards a collaborative, decentralised model of distributed intelligence.

Hyper-Learning proposes the model of one of these organisational possibilities and in particular, with the creation of virtual learning communities, it acts on one strategic point in the knowledge society, that of the transmission and dissemination of knowledge. This influence on the process of the transmission of knowledge has a *multiplying effect*. The impact is more than proportional to the effort put in: Both the dynamics dynamise each other reciprocally. That has also the effect of decreasing the digital divide which in many cases currently exists between students and professors: The students use the Internet extensively, but they find little material of scientific interest, whereas the professors, who are in the position of producing or collecting scientifically reliable papers publish little in the Internet.

Our project is also part of another movement: the reflection on legal questions raised by the development of the internet. It is well known that the digital revolution has created serious problems in the music and film industries and the envisaged legal solutions for these problems have been, in general, insufficient. Most experts think that the traditional copyright system is unfit to face up to the challenges caused by digital technologies.²³ As far as research and education is concerned, we believe we have found a viable solution for the creation of a legal framework for the management of knowledge and intellectual property by transposing into the Humanities the model of *copyleft*.

Copyleft is just a special case of copyright, in which the copyright holder decides to give widest circulation to his work by allowing others to use it freely, on condition that no-one should appropriate it by claiming any exclusive rights. Copyleft is an abstract concept: in order to make it operational, it is necessary to write license contracts which, within the most stringent protection of intellectual paternity and moral rights, allow everyone to consult the primary sources and critical contributions, but do not allow anyone to appropriate and monopolize them. The first systematic attempt to do this was undertaken by the HyperNietzsche project in its eponymous 2000 publication, which contained

²³ An Italian economist recently said, if the economy were a boat, technology would be its engine, law its hull: when the engine is too powerful and the hull is too old, the boat sinks.

three copyleft model licenses conceived for the Humanities²⁴. In the directive on copyright the European Union proposed an exemption to the author's exclusive copyright for teaching and research purposes, but not all member states received it in the same manner. Since a European harmonisation from above is missing, the idea of a set of licence contracts by which the author himself allows the utilization of his works for teaching and research purposes seems to be the most efficient solution. Apart from HyperNietzsche, other initiatives have also elaborated copyleft licence contracts, especially the *Creative Commons*.²⁵ However, the compatibility of the licences elaborated by *Creative Commons*, a North-American initiative applying US-American law, with the copyright laws in the different countries Europe is doubtful.

²⁴ These are *FreeKnowledge*, *OpenKnowledge* and *LimitedKnowledge*. HyperNietzsche chose *OpenKnowledge* as the standard for publications on its website. See: <<http://www.hypernietzsche.org/licenses/>>.

²⁵ *Creative Commons* was founded in 2001 with the generous support of the Center for the Public Domain. It is led by a Board of Directors that includes cyberlaw and intellectual property experts James Boyle, Michael Carroll, and Lawrence Lessig, MIT computer science professor Hal Abelson, lawyer-turned-documentary filmmaker-turned-cyberlaw expert Eric Saltzman, and public domain web publisher Eric Eldred, <<http://www.creativecommons.org>>.

3. List of potential participants in the Action

All the following experts have been contacted during the drafting and revision of the proposal and have already expressed interest in the Action. Recommended MC members are in bold.

FRANCE

Paolo D'Iorio (Proposer)
Institut des Textes et Manuscrits Modernes
(CNRS/ENS)
4, rue Lhomond - F 75005, Paris
FRANCE

Tel. +33 (0) 1 44 32 18 84
diorio@ens.fr

Jean-Vincent Loddo
Christophe Fouqueré
LIPN - UMR 7030
Universite Paris-Nord
F-93430 Villetaneuse
FRANCE

Tel. +33 (0) 1 49 40 36 84
loddo@lipn.univ-paris13.fr
cf@lipn.univ-paris13.fr

Jean-Luc Lory
Maurice Aymard
Maison des Sciences de l'Homme
54, boulevard Raspail - 75270 Paris cedex 06
FRANCE

jllory@msh-paris.fr
aymard@msh-paris.fr

Sylvie Calabretto
Laboratoire d'InfoRmatique en Image et
Système d'information / INSA de Lyon
Bat. Blaise Pascal
7, avenue Jean Capelle
69621 Villeurbanne Cedex
FRANCE

sylvie.calabretto@insa-lyon.fr

Luca Scarantino
International Council for Philosophy and
Humanistic Studies, UNESCO
1, rue Miollis, F-75732 Paris
FRANCE

luca.scarantino@ehess.fr

GERMANY

Hans Walter Gabler
Projekt HyperNietzsche
Ludwig-Maximilians-Universität München
Schellingstr. 9 – D-80799 München
GERMANY

Tel. +49 (0) 89-21 80 33 83
fax +49 (0) 89-21 80 135 40
Hans-Walter.Gabler@anglistik.uni-
muenchen.de

Matteo D'Alfonso
Projekt HyperNietzsche
Ludwig-Maximilians-Universität München
Schellingstr. 9 – D-80799 München
GERMANY

Tel. +49 (0) 89-21 80 54 69
dalfonso@fichte.badw.de

Peter Thiemann
Institut für Informatik
Universität Freiburg
Georges-Köhler-Allee Geb.079
D-79110 Freiburg i. Br.
GERMANY

thiemann@informatik.uni-freiburg.de

ITALY

Antonio Lamarra
Lessico Intellettuale Europeo e Storia delle
Idee (CNR)
Università degli Studi di Roma «La Sapienza»
- Facoltà di Filosofia
Villa Mirafiori - Via Nomentana, 118
00161 Roma
ITALY

0039-06-86 32 05 27
alamarra@evc.net

Michele Barbera
Net7 – Internet Open Solutions
via marche, n. 8a
I-56100 Pisa (PI)
ITALY

Tel. +39 - 050 - 55 25 74
barbera@netseven.it

Marco Segala
Università degli Studi dell'Aquila,
Facoltà di lettere e filosofia
Piazza S. Margherita 2
I-67 100 L'Aquila
ITALY

marco.segala@cc.univaq.it

Andrea Bozzi
Istituto di Linguistica Computazionale
(CNR), Area della Ricerca di Pisa
Via G. Moruzzi, 1
56124 Pisa
ITALY

bozzi@ilc.cnr.it

Glenn Most
Scuola Normale Superiore,
Piazza dei Cavalieri, 7
56100 Pisa
ITALY

g.most@sns.it

Gabriella Ravenni
Dipartimento di Studi Italianistici
Università di Pisa
Via S. Maria 44- via del Collegio Ricci, 10
56100 Pisa
ITALY

ravenni@ital.unipi.it

Sandro Barbera
Dipartimento di Linguistica
Università di Pisa
Via S. Maria 85
56100 Pisa
ITALY

barbera@ling.unipi.it

Maria Sofia Corradini
Dipartimento di Lingue e Letterature
Romanze
Università di Pisa
Via S. Maria 85
56100 Pisa
ITALY

corradin@humnet.unipi.it

Andrea Sasanelli
IBM SEMEA SUD
e-learning technology center
Bari
ITALY

andrea_sasanelli@it.ibm.com

UNITED KINGDOM

Julia Briggs
De Montfort University
The Gateway
Leicester LE1 9BH
UNITED KINGDOM

Tel. +44-116 250 6614
julia.briggs@hertford.ox.ac.uk

Peter Shillingsburg
De Montfort University
The Gateway
Leicester LE1 9BH
UNITED KINGDOM

+44-116 207 8126
pshillingsburg@dmu.ac.uk

BELGIUM

Dirk van Hulle
University of Antwerp, Department of
English
Campus 3 Eiken, Universiteitsplein 1

Tel. +32-3-820 27 75
dirk.vanhulle@ua.ac.be

B-2610 Wilrijk
BELGIUM

Marcello Aglietti-Zanon
Innovation & Development Consulting sprl
8, Av. Milcamps
B-1030 Bruxelles
BELGIUM

idconsulting@idconsulting.be

ROMANIA

Christiana Teodorescu
Facultatea de Litere
Universitatea din Craiova
13 A.I.Cuza, 1100 Craiova
ROMANIA

Tel. +40-741382795
cteodorescu@hotmail.com

BULGARIA

Svetlozar Zhekov
Pero Publishers
Sofia Press
113 "Tsarigradsko shosse" Bul.
1784 Sofia
BULGARIA

Tel. +359(2)974-30-74
pero_office@skynet.be

NORWAY

Alois Pichler
The Wittgenstein Archives at the University
of Bergen
Allégt. 27, N-5007 Bergen
NORWAY

Tel. +47-55-16 54 17
Alois.Pichler@aksis.uib.no

Open Scholarly Communities on the Web

From HyperNietzsche to Hyper-Learning

Coordination
 Institut des Textes et Manuscrits Modernes (CNRS/ENS) Paris
 Paolo D'Yoro

E-LEARNING SOFTWARE INFRASTRUCTURE		SCHOLARLY COMMUNITIES ON THE WEB		OPEN ACCESS / OPEN LEARNING	
RESEARCH	DEVELOPMENT	PILOT PROJECT	GOVERNANCE MODELS	LEGAL FRAMEWORK	
Functional Programming for Complex Interactive Web Systems LIPN; Laboratoire d'Informatique de Paris-Nord, CNRS/Paris XII, Paris (France) Christophe Fouqueré	Hyper-Learning Platforms Hyper-Learning Server Distribution (Paris, France) Michele Barbera	Friedrich Nietzsche Ludwig-Maximilians-Universität München (Germany) Paolo D'Yoro	International Council for Philosophy and Humanistic Studies ICPHS-UNESCO Bruxelles (Belgium) Luca Sciarantino	Maison des Sciences de l'Homme Paris (France) Philippe Chevet	
Functional Programming for Complex Interactive Web Systems Universität Freiburg Fakultät für Angewandte Wissenschaften Institut für Informatik (Germany) Peter Thiemann	HyperJournal Net7, Pisa (Italy) Francesca di Donato	Samuel Beckett Université d'Anvers Anvers (Belgium) Dirk van Hulle	Innovation & Development Consulting Bruxelles (Belgium) Marcello Aglienti-Zanon		
Ontologies and Data Integration Dipartimento di Informatica Università La Sapienza, Roma (Italy) Maurizio Lenzenari	Ontologies for Heterogeneous Knowledge Representations LIRIS : Laboratoire d'Informatique en Image et Système d'Information CNRS-NSA (France) SYWIS Calabretto	Marin Sorescu Universitatea din Craiova (Romania) Christiana Teodorescu			
	Procedures and Multimedia Tools for Electronic Publishing in the Humanities Istituto di Linguistica Computazionale CNR (Italy) Andrea Bozzi	Aleko Konstantinov Peri Publishing House Sofia (Bulgaria) Svetozar Zhekov			
LDAP Technology Integration with Functional Programming IBM Roma (Italy)	Hyper-Learning Network Ontologies for Heterogeneous Knowledge Representations CNR (Italy)	Gottfried Wilhelm Leibniz Istituto per il Lessico Intellettuale Europeo e Storia delle Idee CNR, Roma (Italy) Antonio Lamarra			
		Il mito di Adone Scuola Normale Superiore Pisa (Italy) Lina Bolzoni			
		Giuseppe Puccini Università di Pisa (Italy) Gabriella Biagi Ravenni			
		Fernand Braudel Maison des Sciences de l'Homme Paris (France) Maurice Aymard			
		Arthur Schopenhauer Università di Pisa (Italy) Sandro Barbera			

Proposal of a New
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4. Recent Publications

- 1) J.C. Guedon, In Oldenburg's Long Shadow: Librarians, Research Scientists, Publishers, and the Control of Scientific Publishing, Association of Research Libraries, Proceedings of the 138th Annual Meeting (2001).
- 2) S. Lawrence, "Online or Invisible", *Nature*, Volume 411, Number 6837, p. 521, 2001.
- 3) T. Berners-Lee, *The World Wide Web - Past, Present and Future*. Japan Prize 2002, Commemorative lecture.
- 4) Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities (Oct. 2003) <<http://www.zim.mpg.de/openaccess-berlin/berlindeclaration.html>>
- 5) Paolo D'Iorio (ed.): *HyperNietzsche. Modèle d'un hypertexte savant sur Internet pour la recherche en sciences humaines. Questions philosophiques, problèmes juridiques, outils informatiques*. Paris: PUF 2000, 200 pp.
- 6) Paolo D'Iorio (ed.): *HyperNietzsche. Modell eines Forschungshypertextes im Internet. Philosophie, Textkritik, Softwareinstrumente, Rechtsfragen*, <<http://www.hypernietzsche.org/events/lmu/akten/>>, May 2002.
- 7) Paolo D'Iorio, Nathalie Ferrand (eds): *Genesi, critica, edizione*. Pisa: Scuola Normale Superiore 1999, 275 p. With CD-ROM (Hypertext Prototypes).
- 8) Paolo D'Iorio, "Per una rivista elettronica di storia della filosofia", in: Daniela Gruber, Patrick Pauletto (eds.): *Umanesimo & informatica. Le nuove frontiere della ricerca e della didattica nel campo degli studi letterari*. Trento: Metauro 1997, pp. 109-127.
- 9) Paolo D'Iorio, William A. Turner: "Nietzsche sur Internet. L'observation des collaborations médiatisées par ordinateur dans les sciences de l'érudition", in: *L'information scientifique et technique et l'outil Internet, Le Micro Bulletin Thématique 3*. Paris: CNRS-DSI 1999, pp. 163-186. (also in J. Link Pezet: *Les Collaborations Médiatisées par Ordinateurs*, in: *Solaris, Dossier 5*. <www.info.unicaen.fr/bnum/jelec/Solaris/d05/5turner.html>)
- 10) Paolo D'Iorio, "Nietzsche Open Source", in: Paolo D'Iorio (ed.): *HyperNietzsche*. Paris: PUF 2000, pp. 1-36.
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