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Musomed

Mutual Sources on Modern Mediterranean Architecture: towards an open and shared system

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PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

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Publishable executive summary

An emerging research topic…

For most Europeans, tangible heritage in the Mediterranean is primarily evocative of archaeological remains or earthen architecture. A Roman amphora was typically chosen as the logo of the EC-funded Euromed heritage program in 2002.

This wide-spread image does little justice to the wealth of modern architecture that can be encountered in most urban centers of Mediterranean countries. Beyond the medieval structures still surviving in historic nuclei, fine and diverse buildings from the 19th and 20th century – from Neo-Classic and Eclectic designs to late Art déco and Stream line – abound in all cities.

The legacy of pre-colonial and colonial European engagement in the region, this cultural heritage is an asset that is attracting increased local attention, as current initiatives by concerned actors in Casablanca[1], Cairo[2], Beirut or Istanbul[3] demonstrate. The issue is of relevance to Europe as well, since it offers concrete and extensive material to reflect upon the past diffusion and present appropriation of European culture abroad. It forms moreover a rich field to study historical and cultural phenomena of supra-national or trans-national scale. Beyond academia, it represents an opportunity to sustain intercultural dialogue with neighboring countries through a topic of common interest.

… of transnational nature…

Because of its relation to colonization, whether plain or partial, direct or indirect, European architecture abroad has long been approached by scholarship through a political lens.

Its forms have been viewed as political and social engineering tools devised by colonizing powers in order to dominate and discipline colonized societies. In the process, the indigenous dynamics of Westernization that sustained the development of European architecture in the region have been largely disregarded, as has been its diasporic dimension (through the circulation of cosmopolitan elites and minorities).

The consequence is that buildings from the past two centuries in the Mediterranean have been overlooked both as **common place** (i.e. as built-up environments of a functional nature within their current settings) and as **works of art** testifying to the range of European techniques and aesthetics imported and reworked across the region and to the array of actors involved (European as well as local patrons, architects, enterprises and craftsmen). Indeed, apart for a limited number of emblematic projects, such as the over-commented "Obus plan" (1931-32) by architect Le Corbusier for Algiers, accurate knowledge on 19th and 20th c. architecture in the Mediterranean is not easy to retrieve, although archive material is abundant.

[1] www.casamemoire.org
[2] www.egy.com
[3] www.archmuseum.org

… with structural documentation problems

Researchers willing to study 19th and 20th century architecture in the Mediterranean (i.e. buildings designed and implemented in the southern Mediterranean during the pre-colonial, colonial, and post-colonial era) face specific structural problems regarding the gathering of relevant data on the buildings and sites they are interested in.

Specialized resources on Internet are virtually non-existent, on-line data are difficult to search due to non-geographical indexing of existing information, and relevant primary material is scattered in a multitude of non-, little- or badly-inventoried collections in Europe as well as in Mediterranean countries, due to transliteration problems and lack of appropriate gazetteers. Access to material, often of fragile nature, is uneasy. Research requires manipulating data of heterogeneous nature (multilingual written material, historical and contemporary visual data), that needs specific qualifications. In fact, the most relevant data lay in the personal laptops of the growing number of researchers working on the topic.

Using IT to share data

The hypothesis underlying the project MUSOMED is that a significant and relatively low-cost step could be made towards the development of such promising research domain by sharing knowledge and data at Euro-Mediterranean level, based on the use of new information technologies. The feasibility of a research infrastructure devoted to the **Archives of Architecture in the Modern Mediterranean**, was accordingly studied by considering scientific, legal and technological issues related to the sharing and cross-searching of relevant available data.

Main findings

Two major findings have resulted from the project. One is that architecture is also a semantic sphere, and as such belongs not only to tangible heritage (to which it is generally related), but indeed to intangible heritage. In the course of the study done in partnership with a Tunisian and an Italian team, it soon appeared that architectural objects are polysemic items, that can receive different labels according to time, place, locutor or source, and that these lexical variations are per se worth taking into account as explicit indicators of distinctive perceptions and representations. A second important related finding is that rather than working towards data standardization – the usual procedure in database making –, what is needed in the field at this stage is means to adapt search engines to relevant data, rather than adapting data to search engines. In other words, the project helped define new technological challenges: the building of shared spaces allowing for the mediation of information on a distant-access basis and the adaptability of search engines to heterogeneous, dispersed and little-structured data. Beyond the research topic considered here, the perspective interests the Humanities at large, and in particular the disciplines working with large sets of dispersed visual or multilingual data.

Tests made within the project showed that designing and managing such tool is feasible, although far beyond academic reach at national level, considering the funding needed to develop and install the projected digital platform and the human resources needed to

manage it. Research input during the project revealed however that the creation of a specialized digital repository with different levels of restricted access, where willing researchers' could store and share primary information and semi-elaborated free-copyrighted material, was a desirable initiative, and represented a preliminary move towards the collaborative building of digital Archives of Architecture in the Modern Mediterranean. Action in that direction is currently being taken by the leading partner of the project, within the information system of Institut national d'histoire de l'art in Paris and with the support of the scientific networks associated to the project[4]. The content management system envisioned is expected to be operative by the end of 2009.

The impact of the project is many-fold. It concerns both frontier and applied research, and furthermore, IT knowhow, the cultural heritage sector at large, as well as policy-making. At fundamental research level, expected results are the enhancement of working methodologies in the field of Humanities and the strengthening of new collaborative communities and of international scientific cooperation. Shared platforms are still rare in Humanities; the project and its following-up are likely to produce feedback on the topic. At applied level, the production of thesauri and methods to deal with Mediterranean toponyms, and their varying transliterations over time, are crucial to any European librarian or archive curator keeping Mediterranean material, i.e. related to North Africa or the Middle East, and in particular in middle-size institutions that can not afford specialized librarians. The technological challenges identified within the project are of interest to IT enterprises, and may result in opportunities for joint work. Easing access to archive material in the field of architecture and construction has appeared of notable interest for architectural firms involved in conservation and rehabilitation, as well as for educational purposes in architectural schools. At policy level, fostering scientific cooperation on issues of common relevance to Europe and its neighboring Mediterranean countries is fruitful for intercultural dialogue.

Dissemination of knowledge

Dissemination activities of the results of the project have taken multiple directions:

1. Public presentations of MUSOMED'S scope of work, results and developments achieved so far to varied audiences. These have range from researchers and higher education authorities, students in architecture, as well as librarians, archivists, curators and the general public in France and Belgium, to architects and cultural heritage specialists in North Africa and in the Middle East.

2. The organization of, and participation to, scientific events (seminars and conferences) on themes related to the issues developed within Musomed, with mentions to the ongoing project.

3. The preparation and wide distribution of a 12-page leaflet presenting the project and its preliminary findings. Other paper publications include 2 academic books published by an Italian publisher. A synthesis of the findings of the project (see annex below) will appear in the EC brochure on Humanities research, due to be released in the fall 2009. It should be noted, in this context, that Musomed was selected among a dozen other projects, to represent and present European research in the Humanities to a large institutional audience.

4. Regular posting of information and scientific content on the websites maintained by INVISU: the general website of the unit, where a specific rubric devoted to Musomed has

[4] www.anamm.org

been constructed and is periodically updated (http://invisu.inha.fr) and the website of the GDRI “Architectures modernes en Méditerranée” (http://www.architecturesmodernesenmediterranee.net/index.html).

5. Exhibitions using and displaying results at major public venues in the North Africa and the Middle East prepared by the Italian partner, in coordination with the consortium and based on the scientific results of the project.

(See Annex 2 for the overview table for the dissemination of knowledge)

Project's website: http://invisu.inha.fr/?Musomed-Mutual-Sources-on-Modern

Contract number: No. 028817 (CIT6) Start date : 01/05/06
Contract type: SSA Duration (in months): 30 (extended to 34)
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Some visual examples

Fig. 1: **An example of polysemic architecture**: Built in Heliopolis (Cairo, Egypt) as the « Villa hindoue » for Belgian magnate baron Edouard Empain (Alexandre Marcel, arch., 1907-10), this structure, a technical prouesse in reinforced concrete, will be labeled a "mansion" by cultural heritage specialists. Known today in Arabic as "Qasr al-Baron" (the baron's palace), the mansion was listed as national heritage in 1993 and bought by the Egyptian Government in 2005 as a pilot project in restoration and reuse of recent heritage. (Photograph by Arnaud du Boistesselin).

Fig. 2: **Arc Deco architecture in Tunis**: Residential building, E. Boccara arch., A. Berté contractor, c. 1927, Tunis. Access to archive material being limited, most of 20th c. buildings in Tunisia are not or ill-documented. Inscriptions on buildings (as in this case) can allow at least identifying their builders. (Photograph by Hajer Mrabet.)

Fig. 3: **Early modern architecture in Istanbul by Turkish designers**: Harikzedegân appartment building by architect Kemaleddin bey, 1919-1922. One of the very first multi-storey appartment in Istanbul for community housing (built to rehouse residents having lost their properties to fire), it is also one of the early structures using reinforced concrete frameworks. Kemaleddin bey (1870-1927) was educated in Turkey and Berlin, and contributed much to develop the profession of architects in Turkey. (Photograph by Mercedes Volait).

Fig. 4: **The current appropriation of "Belle Epoque" architecture in Cairo** : Built in 1935 in Islamic revival style (Hasan and Mustafa Chafei, arch.), the premises of the Automobile Club in Cairo were offered a "Belle Epoque" lifting in 2004, through the replacement of previous decoration by neo-Renaissance moldings. (Photograph by Mercedes Volait).

Scientific objectives and approach

A knowledge-based approach to infrastructure-building...

MUSOMED proposed to address data access deficiencies on Modern architecture in the Mediterranean by using the latest information technologies, within the framework of a EU-Med partnership associating scholars from France, Italy and Tunisia.

The specific objective was the feasibility study (including cost-effectiveness and institutional framework) of a prototype of research infrastructure (digital platform) in open-source, easing remote access to relevant and accurate heterogeneous documentary data, and allowing for their cross searching. The structure and organisation of the platform were to be defined through a series of case studies, consortium discussions and experts meetings. The knowledge-based approach was grounded on the scrutinizing of the current digital offer on the topic, and the study of the legal questions involved in the use of the diverse types of relevant data concerned. The case studies, covering distinct data configurations, were meant to elaborate and test appropriate methodologies for dealing with relevant information, whether it came from European library holdings, Mediterranean archive collections or from field work.

...within a Euromed partnership

The partnership has involved three teams from France, Italy and Tunisia. The former two teams had been partners in a previous 4-year European project, “Patrimoines partagés”[5]; the working relationship with the latter was shorter (one year) and developed through a bilateral cooperation project funded by the French Ministry for Foreign Affairs.

The composition of the working consortium was voluntarily restricted to three research teams. The choice was based on previous experience working with a large partnership: 15 partners from 9 countries were involved in “Patrimoines partagés”, the previous European project managed by Musomed leading partner. For a feasibility study requiring regular meeting and strong involvement in the tasks, a smaller group was considered more likely to implement the workpackages with the expected reactivity and commitment than an extended consortium.

The outreach of the project was much larger from its very beginning, through the other scientific activities of the three partners. The French team was the coordinator of the international research network on the topic, the Groupement de recherche international “Architectures modernes en Méditerranée” (thereafter « A2M »)[6]. Created on 1st January 2006 with 4-year funding from CNRS, the network involved, besides the Musomed partners, 5 further teams from Egypt, Algeria, Morocco, as well as from Spain and Greece. The 8 teams participating to the network had scheduled annual assemblies of 4-day information-exchange and integration activity.

The project manager of Musomed furthermore led, from January 2008, a 3-year collaborative project, funded by the Agence nationale de la recherche on *Architecture, planning and*

[5] 2002-2005, within the Euromed Heritage II program funded by EuropAid.
[6] www.architecturesmodernesenmediterranee.net

archaeology in the Suez Canal Region in Egypt (1859-1956), that could make instant use of the methodologies for processing data established within Musomed. The initiative involved an inter-institutions partnership, associating a Museum (the Musée du Louvre) to 2 joint research units of CNRS (in Paris and Aix-en-Provence).

The Italian partner was involved in a large research project funded at national level on the *Presence of Italian architecture in the Mediterranean in the 19th and 20th century,* within a partnership involving 6 universities. The Tunisian partner had on-going cooperation activities with other scholars in North African countries.

Expected results

Two sets of results were expected from the project. Firstly, concrete expertise on the feasibility of the project and, at technological level, the conception of the preliminary components of the desired tool, as a first step towards the building of a specialized research infrastructure on the topic.

Secondly, a strong impulse to the structuring and strengthening of Euromed scholarship on the topic was also expected from Musomed, as well as significant data accumulation on the research topic.

Preliminary results

Confronting the digital divide

At an early stage of the project, a **major digital divide** was evidenced in the availability, access and use of online sources and resources within the research topic, and beyond in the Arts and Humanities at large. European and Mediterranean scholars appeared to have seldom online access to digital visual material of publishable quality, such as ARTstor[7].

A first, somehow expected, divide opposes scholars and institutions in European countries provided with low-cost access to high-speed unlimited internet connections to those in the Mediterranean region that generally work with low-speed, sometimes controlled and commonly erratic, connections at expensive rates. Both situations obviously generate very distinct working cultures, as could be observed in the interactions with the Italian and Tunisian partners.

Further, and less expected, divides were also identified within Europe itself, between scholars having remote access through their institutions (such as CNRS) to paying journal platforms and databases, and those who do not (in Italy, university subscriptions do not support remote access). The type and scope of databases accessed (i.e. the basic JSTOR and Muse, or a much larger offer, and all possible intermediate situations) also generate a significant digital divide between scholars in the field.

This is true even more with images, a crucial source for research on architectural history. Contrary to resources offered to US academics, Image Galleries, with free publishable visual material for educational purposes (through the “fair use” system), such as the ARTstor initiative, are seldom made accessible to EU scholars in the field of art history and cultural heritage studies. The situation produces a significant scientific lag for EU researchers.

[7] www.artstor.org.

Finally, a last digital divide can be observed between academics in the Sciences and Technology field and academics in the Arts and Humanities. By tradition and limited financial capacity, the latter appear to make still very limited use, for instance, of the collaborative tools commonly adopted by their counterparts in “hard” sciences (i.e. shared bibliographies on the Web of sciences, collaborative writing on line, etc.). Consequently, rather heterogeneous and little innovative scientific working cultures have been identified so far in the field of work of Musomed.

In order to confront, at least partially, the issue, a specific effort was made within the project to design an interactive website (under SPIP open source software), in order to make it act as the portal for the platform prototype, with specific online services and resources offered to users. This first step made in order to address the scientific lag identified in the course of the project includes planning demonstration sessions at coming meetings of the project, to help scholars and stakeholders get acquainted with, and gain familiarity with, the collaborative tools made available.

Further sessions organized on site were considered as well. Experience with previous collaborative projects showed that training needs are always underestimated, time-wise as well as content-wise.

The point raises more generally the issue of developing massive training in Information technology within the Humanities, an important challenge for its future development and its excellence[8].

Managing native data

A second early finding was that the project could not be limited to the conception of a meta search engine able to retrieve accurate information from a mass of heterogeneous online data bases. It should be able to store and manage its **own digital data**. Digital information available on the net on modern Mediterranean architecture is expected to increase in the coming years, particularly the one produced by European cultural institutions that are massively engaged in getting their material available online.

However, consultations and requests made during the first phase of the project showed that the context and demand were clearly oriented towards the production of new digital content through the platform. The experimental tool appeared moreover as an appropriate mean to conserve and allow proper and varied uses of historical data on architectural heritage, as well as to help train local curators.

It was consequently considered that digitizing, standardizing, indexing, organizing new sources and making them available online was to represent a significant part of the activity of the projected infrastructure once in operation. A coherent strategy needed thus to be envisioned towards this end, in interaction with current initiatives of the three institutions involved in the project, and similar enterprises at EU level.

[8] On the future of the Humanities within FP7, see *Report of Expert Group on Humanities : Positioning Humanities Research in the 7th Framework Program*, 2007.

Final results

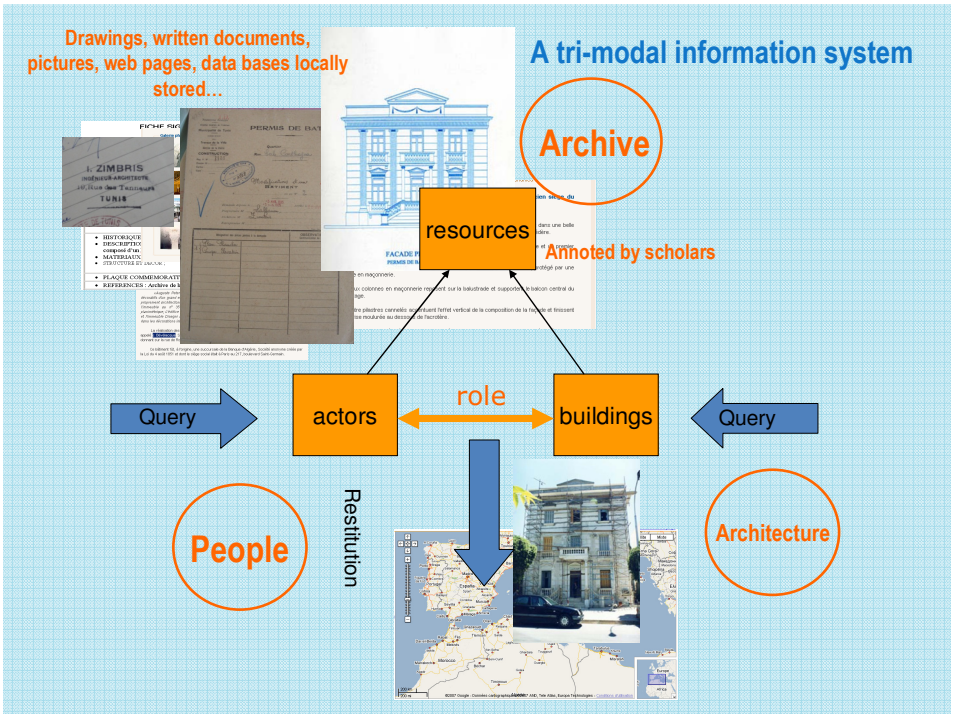
From mediating online resources to self-producing the relevant digital offer

The aim of the Musomed project was to study the feasibility of a virtual tool that could ease access to, and research across, the dispersed and heterogeneous documentation on modern architecture in the Mediterranean. The objective of the project was primarily methodological, with the view of elaborating new tools allowing for the retrieving and cross-searching of heterogeneous data on a given topic, involving visual material and multilingual records.

The envisioned tool, thereafter termed “platform” or “platform prototype”, was initially intended to deal with online sources of various natures (visual, textual, structured or semi-structured), type (collection of images, archives inventories, buildings databases, full-text contents, etc.) and provenance (institutional and non-institutional websites).

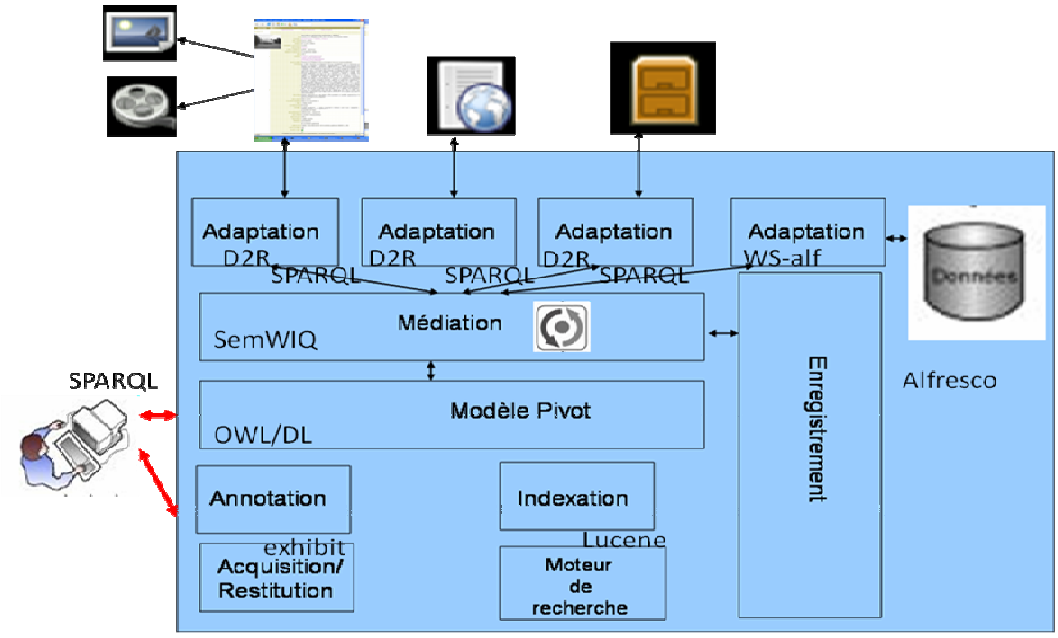
The challenge was to conceptualize a system able to identify, cross-search, give coherence to, and validate a series of heterogeneous, eventually multilingual, online sources of varied formats. It encompassed serious technological challenges.

The concrete testing carried out during the first phase of the project, and the several working meetings held with a number of experts (art historians, archaeologists, archivists, information officers, database technology and system-building specialists, cultural heritage managers), helped establishing the specific data organization model adapted to the topic. A triple-entry model (figure below) was conceptualized.



During the second phase of the project, the specific languages and components of the foreseen platform offering simple and homogeneous access to semi-structured data corresponding to the shared model and based on the principle of data mediation, were selected after a new phase of testing.

The work achieved on the issue of data mediation led to chose the relevant languages for each component of the platform. They combined the approach of DARPA I3 (based on mediator and wrappers), framework RDF and SPARQL language. There is one mediator component and several RDF wrappers which are locally attached to each local data sources.



Feeding the platform

The final results of the workpackages as well as successive presentations of the projected platform to a variety of end-users and audiences during the second phase of the project, led to reconsider some of the functions to be performed by the envisioned platform and its working on the long ran.

The survey conducted on general copyright legislation, case law and literature, referring to the material considered of particular relevance to the project (literary works, architectural works, images and databases), highlighted one issue of particular relevance for the project: the legal constraints restricting the practice known as “deep linking” or “framing” across websites (see *Deliverable 22*, p. 56-57). The issue is to be solved through agreements with concerned institutions. It represents a time-consuming task.

Systematic analysis of a sample of relevant websites showed, on another hand, that online data were rarely accurate, that URLs were not stable, and that the content offered on-line was constantly changing (see *Deliverable 23*). This situation implies a costly data management team in order to keep pace with the change in online offerings.

Tests made in the framework of the project showed that designing and managing the envisioned tool was feasible, although far beyond academic reach at national level, considering the funding needed to develop and install the projected digital platform and the human resources required for its management: performing data releases' watch, checking URLs, adapting new online resources to the platform, etc.

Discussions with scholars in the field helped indeed establishing that to this day, the most relevant data for research on the topic of Musomed lay in the personal laptops of concerned researchers. Consequently, **data sharing** emerged as a track to be explored in order to produce significant knowledge accumulation on the topic of the project.

Research input during meetings of the project revealed that the creation of a specialized digital repository with different levels of restricted access, where willing researchers' could store and share primary information and semi-elaborated free-copyrighted material, was a desirable initiative, and represented a preliminary move towards the collaborative building of digital Archives of Architecture in the Modern Mediterranean. Action in that direction is currently being taken by the leading partner of the project, with the support of the research networks associated to the project. The content management system envisioned (under the open source software Alfresco) is expected to be operative by the end of 2009.

A new technological challenge: adapting search engines to relevant data

A second important related finding is that rather than working towards data standardization – the usual procedure in database making –, what is needed in the field at this stage is means **to adapt search engines to relevant data**, rather than adapting data to search engines. What researchers may be willing to share is likely to be data with basic structuring (word documents, visual material with brief labelling, etc.). Data structuring is a labour-intensive activity that does not fit financial means and possibilities in the Humanities, particularly for non conventional topics.

The finding corroborates new working hypothesis being currently tested in Belgium, at Ghent University.

In other words, the project helped refine new technological challenges: the building of shared spaces allowing for the mediation of information on a distant-access basis and the adaptability of search engines to heterogeneous, dispersed and little-structured data. Beyond the research topic considered here, the perspective should interest the Humanities at large, and in particular the disciplines working with large sets of dispersed visual or multilingual data.

The methodological and technological issues confronted within the project and the solutions devised for each were summarized in a table (*Deliverable 24*, Table 1, p. 13).

Dealing with both tangible and intangible heritage

Another major finding concerns the classification of architecture within Humanities research. In the course of the study done in partnership with the Tunisian and Italian researchers, it

soon appeared that architectural objects are **polysemic items** that receive different labels according to time, place, locutor or source, and indeed language.

These lexical variations are *per se* worth to be taken into account as explicit indicators of distinctive perceptions and representations, although they are meant to be erased by data standardization. The fact may not have been evidenced, has it not been for the collaborative work undertaken with European and non-European scholars. International cooperation proved a crucial experience in this respect.

Put in another way, architecture is not only an object of material culture, it is indeed related to semantic spheres. As such, it is part, not only of tangible heritage (to which it is generally related), but indeed of **intangible heritage**.

The finding has methodological implications; it calls in particular for a content management system able to deal with multiple alternates and multilinguism.

Legal knowledge and digitized data production

Finally, a further direct outcome of Musomed to be mentioned is at empirical level. Through the work carried out within the test cases, the project produced a wealth of new digitized data. This information has been used in a number of publications and productions elaborated by the consortium[9], and will continue to serve further publishing projects. A total of 1200 digitized documents were processed in the course of the project by the partners. They are being integrated in the new Content management system under Alfresco that has been installed on the servers of the Institut national d'histoire de l'art.

The project has produced knowledge on the legal issues associated with the uses of such historical sources (access and uses) (see *Deliverable 22*). Types of access for the platform have been debated (free or not, authorized, full, partial, paying for the general public?). The survey of copyright laws has been also the opportunity to draft adequate cooperation agreements with potential partners and targeted groups.

Institutional consolidation and partnership dissymmetry

The Consortium's organization foresaw a Coordination team, composed by 4 members: the Project Manager, assisted by a Deputy Project manager for the French team (the leading partner), the representative of the Italian partner and the representative of the Tunisian partner.

On 1st January 2008, the project was relocated in a new joint research unit, INVISU, created by CNRS and INHA (Institut national d'histoire de l'art), and headed by Prof. Mercedes Volait, Musomed's project manager. The transfer had no impact at institutional level, since the beneficiary of the project remained the same CNRS regional delegation. The reorganizing in the managing of the project and its financial monitoring produced some slowdown in the activities, notably in the workpackages' finalizing. A 4-month extension was granted in September 2008, with the new ending date of the project rescheduled to February 28, 2009.

[9] Plan for dissemination knowledge, *Deliverable 24*, p. 44-48.

The new institutional context in which Musomed developed from January 2008 onward represented a decisive opportunity for continuing research on the perspectives opened up by the project. It led to expand and pursue the work undertaken much beyond the initial work plan, thanks in particular to the new human resources made available to the French team (2 information engineers). The strengthening of the leading partner was an incentive to envision the projected platform in a larger perspective and longer ran.

A measure of dissymmetry prevailed within the consortium regarding in particular administrative and financial matters. The inexperience of the Tunisian partner, both at scientific and administrative levels, with European projects led to difficulties in the management and final justification of its share in the EC grant, despite the assistance continuously provided by the two other partners. The delays required in Tunisian higher education institutions to settle and use external funding do not appear to be adapted to the specifications and requirements of European grants. In the current state of affairs, it can be concluded that further cooperation with the Tunisian team involving financial transfers to a local higher education structure is not a realistic option. It presents a high rate of risk and unpredictability at the level of financial monitoring and justification. Other ways of scientific collaboration will have to be explored to continue the partnership.

For each partner, however, the project acted as a strong consolidating factor within their own institutional environments.

Outreach of the project

The many events organized throughout the project ensured a large outreach to its results (see *Deliverable* 24, p. 38 sq). The scope and development of the Musomed project was presented and discussed at each annual assembly of the GDRI "A2M": in Alexandria (18-21 April 2006), Algiers (15-19 April 2007) and Malaga (26-28 April 2008), and indeed at large workshops in Brussels (December 2007), Strasbourg (October 2008) and Paris (July 2008, January 2009), with audiences varying from 50 to 100 attendants of diverse backgrounds (students, early-stage researchers, curators and librarians, faculty).

The outreach of the project was also developed through the many informal contacts maintained throughout the project with scholars in France (Musée d'Orsay, Ecole d'architecture de Marseille-Luminy), Belgium (Scholl of architecture, Ghent University), Lebanon (at the Faculty of Architecture and Engineering of the American University in Beirut), Jordan (the Department of Architecture at Jordan University of Science and Technology) and Turkey (Middle East Technical University in Ankara).

Contacts were developed with the « Virtual museum of architecture »,[10] a Turkish organisation with similar focus to Musomed's objectives, and with future projects that could potentially lead to collaboration. The virtual museum is currently working on the topic of « Foreign architects in the late Ottoman Empire and the early Turkish Republic », and has prepared a project for a common initiative within the Istanbul 2010 program.

Relations have also been established with a group of young Egyptian scholars pursuing research on Modern Egyptian Architecture in Switzerland (at the Département d'histoire de l'art, Faculté de Lettres, Université de Genève). Confirmed and early-stage Swiss

[10] www.archmuseum.org

researchers were associated in specific phases of the implementation plan of the MUSOMED project, and indeed in the preparation of a COST proposal for the March 2009 call (see below).

End-users of the envisioned infrastructure

It was assumed from the origin of the project, that the platform responded to immediate needs in the field and could experience instant uses as soon as being operative. This has been confirmed by all interactions with scholars in the field, and beyond with architectural historians interested in non-Western architecture.

As detailed below (see Impacts), end-users of the information provided by the platform are of various types. The number of European scholars interested in colonial architectural history is expanding, as are their Mediterranean counterparts working on "Other modernisms" and "Indigenous modernities", topics that interact with European architecture outside of Europe.

The resources produced by the platform will be of interest for librarians and curators in charge of architectural documentations.

Besides the domain of Modern Mediterranean architecture, innovative solutions devised for dealing with large quantities of visually-oriented dispersed and semi-structured material, are of interest for EU and Med research communities in the Arts and the Humanities, beyond the ones concerned with the specific scope of the project. The use of images in the Social Sciences and the Humanities is increasing, and will continue to expand with the development of digital tools. Besides texts, images represent a major material for research that requires proper treatment in order to be manipulated, retrieved and cross-searched. Establishing innovative solutions and methods in this respect will be of benefit for large research communities within the Humanities.

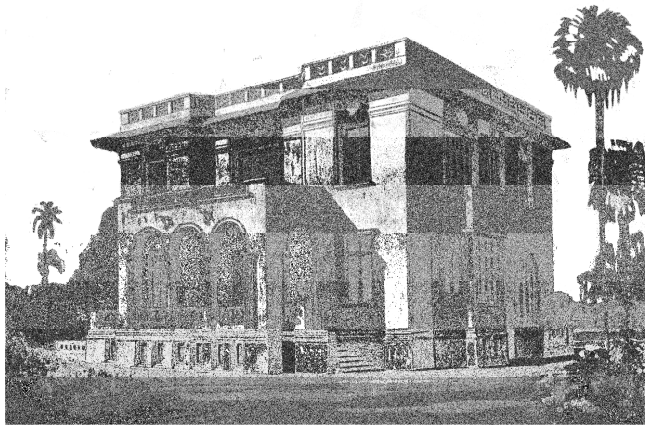
Prospects

Three interrelated topics for future research have emerged from the Musomed project.

Developing open and flexible vocabularies and gazetteers

Existing thesauri and vocabularies for the description of architecture are ill-adapted to architecture outside the West, not to mention transnational forms of architecture; descriptive tools for 19th and 20th century architecture are moreover underdeveloped. Rather than being normative, there is a need to develop flexible systems able to deal with multiple labels.

The example of two Art Deco villas in Casablanca and Cairo may best illustrate the point: the two items can be described as "Western architecture" (they are examples of a European architectural style, and they are designed by architects of French citizenship), they can be defined as non-Western architecture (they are not located in the West), and indeed as African architecture (both are set in the African continent), etc.

Left : Villa Les Jasmins, Casablanca, Joseph et Elias Suraqi, architects (attribution), 1934
Right : Villa Green, Cairo, Max Edrei, architect, 1927.

Allowing for the recording of the range of designations used to describe such architectural objects is a necessary step towards the building of accurate knowledge on the topic, and furthermore for the analysis of, and reflection on, the misconceptions and prejudices attached to the lexica used for their description and critical assessment.

Online gazetteers, on another hand, are poorly developed for Mediterranean geographical locations. Collaborative work on these issues is much wanted. The proposal for a COST Action submitted to the March 2009 call (see *Deliverable 24*, p. 19-20) may offer such opportunity within an enlarged geographical scope.

Beyond the research topic of Musomed, the production of thesauri and methods to deal with Mediterranean objects from the 19th and 20th century, and their varying transliterations over time, are crucial to any European librarian or archive curator keeping Mediterranean material, i.e. related to North Africa or the Middle East, and in particular in middle-size institutions that cannot afford specialized librarians. (In many institutions, such documents are to this day stored apart and left out of indexing campaigns because of these difficulties).

Working with heterogeneous and semi-structured data

Since database-building is a time-consuming activity, and requires a level of funding that is generally not available for academic institutions, the management of semi-structured data (Word or pdf documents with repetitive content, excel files, geo-located images, etc.) represents an alternate that calls for serious consideration. Rather than standardizing data, devising engines allowing for the cross-searching of semi-structured material appears as a promising field for technological research in the field of Humanities at large. Multiple applications can be already envisioned, once a sustainable solution will be operative.

Exploring data sharing

Responses to data sharing in the field have been globally positive so far; documents ready to be deposited have already reached the leading team. Concrete implementation implies however transforming current predominant research practices in the Humanities. They are to this day generally geared towards individual activity, rather than collaborative work. The shift may be encouraged by offering, as a start, remote access to basic collaborative tools, such

as tools for managing bibliographies, as well as continuous training in IT. A step in that direction has been taken by InVisu, through the release of online basic tutorials in new IT for art historians (http://invisu.inha.fr/spip.php?article113). A collaborative bibliography of about 2500 references on the Suez canal region in Egypt is also being tested under Wikndx.

Implementing data sharing has still to be experienced concretely. Starting with already published visual material may be a possibility. This will be discussed within the research networks that have participated in Musomed and in the preparation of a COST Action. Shared platforms are still rare in the Humanities; such following-up is likely to produce feedback on the topic.

Impacts

The impact of such initiatives is many-fold. It concerns both frontier and applied research, and furthermore, IT knowhow, the cultural heritage sector at large as well as policy-making.

At fundamental research level regarding technological and methodological advance, expected results are the enhancement of working methodologies in the field of Humanities and the strengthening of new collaborative communities and of international scientific cooperation. Shared platforms are still rare in Humanities; the project and its following-up are likely to produce feedback on the topic. At empirical level, easing access to data on the research topic and expanding its scope is likely to renew hypothesis and interpretations on the dissemination and appropriation of European culture abroad.

At applied level, the production of thesauri and methods to deal with Mediterranean toponyms, and their varying transliterations over time, are crucial to any European librarian or archive curator keeping Mediterranean material, i.e. related to North Africa or the Middle East, and in particular in middle-size institutions that can not afford specialized librarians.

The technological challenges identified within the project are of interest to IT enterprises, and may result in opportunities for joint work.

Easing access to archive material in the field of architecture and construction has appeared of notable interest for architectural firms involved in conservation and rehabilitation: accessing initial construction plans is useful to establish sound diagnosis of the structures to be restored and to elaborate appropriate scenari for sustainable restoration.

Expanding the available knowledge on the research topic can serve as well educational purposes in schools of architecture: it can in particular provide new research subjects.

At policy level, fostering scientific cooperation on issues of common relevance to Europe and its neighboring Mediterranean countries is fruitful for intercultural dialogue.

Annexes

Annex 1 : Description of the platform's prototype

The platform is built on the principle of data mediation in order to offer a friendly and homogeneous access to information. In terms of data integration, two approaches can be considered for mediation:

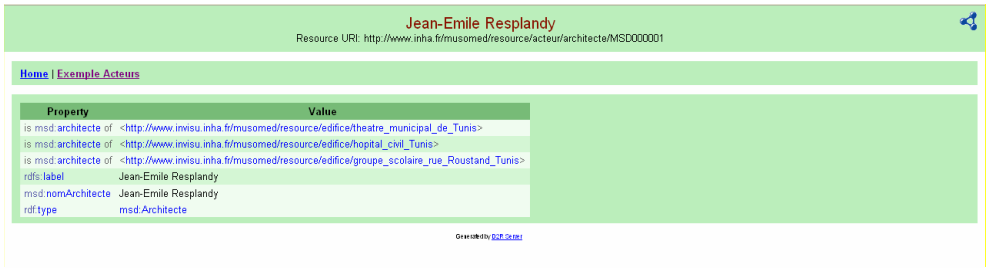
- the approach materialized through the integration of data within a single database or data warehouse,
- or the virtualized approach resulting in the non-duplication of data sources, which are recovered through run-time queries on the virtual database.

The platform demonstrator is mainly based on the virtualized approach without duplication of data sources (except of course for the sources that the platform stores).

Access to sources is carried out through a common and shared model (or mediation model). It is the shared representation of concepts who meet the needs of research in the field of 19th and 20th century architecture in the southern Mediterranean. Visual data resulting from queries are represented geolocated by default whenever possible.

Queries and geo-location

The usual case is the query of sources scattered through the shared model. The only knowledge required is the concepts used for the purposes of the work on the field (Architect, actor, building, date of construction, city, calendar,..) and semantic relations selected between the concepts (architect isArchitecteOf building) i.e. knowledge of modeling the domain or the ontology of reference.



Data confrontation

The previous uses case brings resources from dispersed data, such as a recent picture of a building, or its architectural plan, or buildings to which an actor of the construction may have contributed. In this sense, a puzzle is reconstituted by juxtaposing the various parts. The multiplicity of sources can lead to the confrontation of several identical pieces that could contribute to the recovery of the puzzle. Whereas these situations can be avoided (by the SELECT DISTINCT in SQL or SPARQL) they may be sought to meet the needs of comparison, checking or duplication of research work. The results are presented with their respective sources.

Annotation, comment and validation

Connection and confrontation may lead to comments or enrichment of questioned data. The enrichment is translated by supplementing the meta-data of the model (semantic annotation) or addition of scientific comments. In both cases these elements are made persistent within the platform.

Storing resources

The principle of the plateform is not to impose any strict tools or models but to keep a logic of formulation of a level of contribution to the platform and the model of mediation (finally in a logic “local as view” similar to the model of mediation). Regarding the storing of native data, the experimentation was developed within the Alfresco platform.
Alfresco is an open-source software, multi-platform, using open standards and tools, based on the technology JEE (framework Spring, Java Server Faces (myFaces), Lucene search engine, Hibernate persistence, OpenOffice, ImageMagick…). Alfresco uses the Programming Directed Aspect (AOP), thus facilitating modularity and adaptability of applications. Alfresco spaces and associated regulations simplify the handling, management and processing of documents.

The model of mediation was implemented through a specific model derived from basic Alfresco models. The implementation of Alfresco aspects makes possible to obtain an extensible model. These aspects are sets of meta-data that can be attributed to documents or spaces. Behaviors may be associated with these aspects. Exhibition of stored resources towards representations in HTML, XML, RDF etc, is carried out via REST services (web scripts).

Thus elements collected through fieldwork (photography, archival data, maps,…) gathered and organized in directories and subdirectories can be automatically integrated. Creation of spaces and in spaces is automatic, as the processing of digitized documents into XML and the recovery of meta-data EXIF or IPTC of digitized images.

Then there is the mediation architecture, tools and standards brought by the semantic Web such as RDF, RDF/S, OWL, SPARQL and their extensions but also the structuring of services around technical standards of Web (service REST). This enables to build interoperable systems meeting the needs for confrontation and aggregation of dispersed and heterogeneous data.
The aspects of annotation and of scientific comments could be thorough within a logic of social collaboration in networks. This should allow introducing dynamic criteria of choice of the sources examined depending on a rating of scientific expertise.

The multi-linguist approach can be extended, while being based on the experiments of other projects implementing multilingual interfaces.
A complementary study on the toponyms (exonyms, endonyms) and on the transliterations will help improve the effectiveness of the platform’s tools.

Annex 2 : Overview dissemination table

Dates	Event type	Audience	Countries addressed	Size of audience	Partner involved
Paris, 9 May 2006	A 30mn-presentation at the *Conference on Social Sciences and Humanities within FP6 and FP7*, organized by the Social Sciences and Humanities French NCP and CNRS	Research and Higher Education	France	100	CNRS, leading team
Brussels, 8 & 9 June 2006	Presentation of a 5-slide powerpoint presentation of Musomed at the *FP6 – Priority 7 Project Management Conference* – organized by the DG Research, EC, later posted on http://ec.europa.eu/research/social-sciences/pdf/group_8/musomed_en.pdf	Research and Higher Education, EC officials	European	30 (panel)	CNRS, leading team
July 2006	Abstract of the project posted on the coordinator website (www.architecturesmodernesenmediterranee.net), with a link to the 5-slide powerpoint presentation available on the FP6 website (see URL above)	General public	International	about 3000 counted visits	CNRS, leading team
Barcelona, 15 December 2006	15mn-presentation at the Training course on "Shared Heritage" organized by the Association of Architects in Catalunya	Professional (Architects)	from Spain as well as EU and Med countries	200	CNRS, leading team
Paris, 20 March 2007	Mention to Musomed' scope of work and challenges at the *Entretiens du Patrimoine* on *Heritages from Europe, European Heritage ?* organized by the French Ministry of Culture and Communication (the paper presented will be posted on the website www.culture.gouv.fr)	Professional (Curators and cultural heritage specialists and officials)	International	200	CNRS, leading team
Casablanca, 24 March 2007	Participation to the round-table on *Recent heritage in Morocco* organized by the NGO Casamémoire, in cooperation with the GDRI « A2M ». (review posted on	Professional, general public and media	Morocco	150	3 partners involved

	http://jeunesdumaroc.com/breve5630.html)				
Tizi Ouzou, 15 avril 2007	A brief presentation of Musomed at the Annual assembly of the GDRI « A2M »	Students and Faculty of a School of Architecture	Algeria	100	3 partners involved
October 2007	Virtual poster on the website of the international seminar *Architecture in a Digital Age : an Issue of Memory* organized with the support of the European project GAU:DI (Culture 2000 program)	Professional public	European		CNRS, DSI
Cairo 12 November 2007	Seminar on *The 1894 international competition for the Egyptian Antiquities Museum* in Cairo at l'Institut français d'archéologie orientale du Caire (IFAO) (WP6 Musomed) Proceedings to be published by Picard editions (France) in fall 2009.	Miscellaneous (Research, Higher Education)	Egypt, France, Italy		CNRS, DIPSAC
Alexandria 15-16 November 2007	Presentation and due reference to the Musomed project within the International seminar *The presence of Italian architects in Mediterranean Countries*, held at the Bibliotheca Alexandrina, organized by Prof. Godoli (25 papers selected) Proceedings published by Maschietto editore, in Italian and French in April 2009	Miscellaneous (Research, Higher education)	Egypt, France, Italy	200	DIPSAC
December 2007	*Architetture italiane d'Oltremare*, thematic issue of the journal *Opus incertum* (Florence University), no. 3, with contributions of Ezio Godoli, Milva Giacomelli, Anna Nuzzaci (Stefano e Pietro Molli architetti dell'ANSMI).	Research, concerned public	Italy	Print run of 2000	DIPSAC
Lebanon and Syria April 11 - April 25 2008	The WP5 researches provided a crucial support to the implementation of an exhibition organized and financed by the Italian Ministry of Foreign Affairs, and displayed in 2 venues in the Near	General Public	International		DIPSAC

May 21 - June 3 2008	East *Architetti italiani per la Siria e il Libano nel ventesimo secolo / Italian architects for Syria and Lebanon in the Twentieth Century,* Lebanon, Beirut, University Saint-Esprit; Syria, Damascus, Al-mazzeh Arab Culture Center, The catalog of the exhibition was published by Maschietto Editore, Florence, 2008.				
Malaga 28-30 April, 2008	Presentation of the platform development Musomed during the Annual assembly of the GDRI "A2M".	Research, concerned public	Greece, Spain, Italy, Algeria, Morocco, Tunisia	15	Three partners involved.
Paris, 2 July 2008	Presentation of the project Musomed during the launch of IN VIsu (CNRS/INHA).	Research , University	European, Tunisia	150	CNRS, leading team
Septembre 2008	Drafting of a presentation of Musomed and of its preliminary results for the EC publication *Preserving our heritage, improving our environment, an overview of EU Research into cultural heritage,* vol. II (forthcoming)	Miscellaneous	Europe	Print run of 1000	CNRS, leading team
Strasbourg, 8-9 october 2008	Presentation of the results of Musomed at *European diversities - European identities*, the 4th HERA Conference and 1st European Conference for Collaborative Humanities Research (ECCHR).	Research, Higher Education, Scholars and officials	European	500	CNRS, leading team and FLAHM
Paris, 28 January, 2009	Final event of Musomed : presentation of the results of the project and of similar initiatives	Research	France, Turkey	70	CNRS, leading team
Egypt	The WP5 researches provided a crucial support to the implementation of an exhibition organized and financed by the Italian Ministry of Foreign Affairs, and displayed in 2 venues in Egypt :	General public	International		DIPSAC

Oct-Nov, 2008 January 2009	*Architetti e ingegneri italiani in Egitto dal diciannovesimo al ventunesimo secolo / Italian Architects and Engineers in Egypt from the nineteenth to the twenty-first century*, Bibliotheca Alexandrina, Alexandria (inaugurated by the President of the Italian Republic, Giorgio Napolitano). Italian Institute of Culture, Cairo, Catalogue published by Maschietto, Florence 2009.				
June 2009	Drafting of a synthesis of Musomed for the EC *Brochure on Humanities Research*, prepared by the DG Research (forthcoming)	Miscellaneous	European		CNRS, leading team
Rotterdam, 10-12 June 2009	Presentation of the Platform prototype of the Musomed project in the conference *Hybrid Architectural Archives : Creating, Managing and using Digital Archives* held at the Netherlands architecture Institut (NAI)	Architects, librarians, curators, researchers	International	150	CNRS Invisu
In progress	The disseminating of the research results, carried out within WP6 include the publication, in print, of a book authored by Milva Giacomelli, *Il concorso per il Museo di Antichità Egizie del Cairo e il caso Basile* (editions Polistampa Florence), which presents and analyzes a collection of unpublished documents found in the diplomatic archives of the Ministry of Foreign Affairs in Rome		Italy		DIPSAC
In progress	The results of the scientific research carried on the European quarter of Tunis will be presented in a tour guide, published in Honoré Clair Editions, in Arles, France.	General public	France		All 3 partners