MUSICONIS:

Is an Iconographic Database for Mediaeval Music Relevant to Archaeomusicology?

Frédéric Billiet and Xavier Fresquet

Archaeomusicology is essential to mediae-valists. While providing a diachronic perspective of music, it also offers a precise understanding of its meaning, of the importance of its performance, of its instrumentarium and of symbolical values of representations having reached us.

Thus etymological explanations, excavation reports, text analyses or representations in the light of ancient musical theory are as many informative sources adding to, illustrating or justifying musi-cologists' views for the Mediaeval Period.

Musiconis, which is a Mediaeval musical iconography project, is no exception as new interpretations can sprout from each illustration, each instrument and each character depiction, when placed in a wider historical and cultural perspective.

The lute is illustrative. If its organological variations appear to justify and illustrate various Mediterranean theoretical systems (its internal variations such as the number of its strings, its tuning, the number of its frets, and its external ones such as plectrum playing, or its playing with several fingers, simultaneously), illustrate changes in melodic and later in the harmonic instrumental functions during the Middle-Ages as well as changes in repertoire and in musical language evolution.

In the course of this argumentation we shall explain how Musiconis operates, and in which manner it is original. Further we shall replace it in its technical contemporary context, and promote it among the web of data. We shall examine what is the purpose of archaeomusicology in this project and aim at finding a better research method within the European cultural and scientific communication channels in order to ease musicians' and musicologists' work.

1. Methodological basis for the Musiconis project

Musiconis mainly sprouted from Musicastallis[1] an earlier project devoted to the diffusion of essential musicological data extracted from Mediaeval music iconography, within the framework of French national scientific research[2]. Both projects were initiated by Frédéric Billiet, Dean of Music and Musicology at the Paris-Sorbonne University.

Musiconis originates from the joint work of three university research teams sharing complementary competence and aiming at devising an indexation and a diffusion model of mediaeval iconography.

Accordingly, Musiconis, offers a system which is both 'catalographic' and iconographic. It aims at exhibiting and analysing musical performance (of musicians, singers, dancers), depicted on the mediaeval material (between the VIIIth and the XVIth centuries). It benefits from a network of data partnership open to new exchanges of information. It offers a catalogue of more diversified scenes, with updated and improved descriptions and analyses. Additionally, it is in constant evolution in relation to innovative information and communication technology, as we shall see below.

With its musicological, historical and iconographic dimension, the ANR Musiconis project includes such associates as the research team Patrimoine et Langages Musicaux[3], the Sens, Texte, Informatique, Histoire[4] both of the Paris-Sorbonne University; the Signes, Formes et Représentations Centre d'Etudes Supérieures de Civilisation Médiévale (CESCM) de l'Université de Poitiers - With Isabelle Marchesin's iconographic research work; and propose a system made up from two interactive axes:

musiconis

89 résultat(s)

Affiner votre recherche

ange

Rechercher

⊕ **Champs de recherche**
⊕ **Pays d'origine**
⊕ **Siècle**
⊕ **Objet**
⊕ **Famille d'instrument**
⊕ **Nom de l'instrument**
⊕ **Type principal**
⊕ **Genre**

DIEU LE PÈRE ENTOURÉ D'ANGES MUSICIENS
Notice n°25

Lieu de conservation : Saint-Martin, Bolsward, Friesland, Netherlands (**lieu d'origine** : Saint-Martin, Bolsward, Friesland, Netherlands)
Date : 1480 - 1499
Support : stalles, jouée haute
Objet, technique : sculpture sur bois
Instrument(s) : trompe (1), harpe (1), triangle (1), cymbales (1), luth (1), guiterne (1), vièle (1), orgue (1), flute (1)
Performateur(s) : Musicien (10)
Titre base partenaire : Dieu le Père entouré d'anges musiciens
Base partenaire : Musicastallis

ANGES MUSICIENS AU-DESSUS DE LA PRÉDESTINATION DE LA VIERGE
Notice n°273

1. The building up of a database of mediaeval images with music representations; and the development of online tools for data exchange between the various information systems.

2. The conceptualisation of theoretical tools allowing for a new indexing model able to integrate audible data to relevant images. This will be the starting point of converging scientific researches on the mediaeval soundscape.

From a theoretical standpoint, the focus of the partners' project articulates around the notion of the *'sound of the picture'*. An initial common postulation builds up to an argumentation leading to new iconographic and musicological thoughts:

Notwithstanding the visualisation of its emission, of its propagation and of its perception, the musical sound is visually evoked in multiple manners. These can be observed through arithmetical proportions, through organological choice of materials, morphology and detail configurations which will determine timbres as well as rational sound qualities; but also by means of 'orchestral gestuals' and/or intermingled in the representation field.

Shapes and colours are co-ordinated, significantly, to work together, at the core of the image and within the iconographic programme in which they are contained. The fields of the image as well as their surroundings of inscription, of architecture, of liturgy, of codicology or literacy, can be consi-dered as 'soundscapes' of which parameters and interactions[6] need to be determined.

It is this concept which united French and foreign researchers around the *Musiconis* project, with the intention of moving their thoughts towards musicological description. It must be a flexible, a comprehensive and an evolving data model allowing for accurate indexing of all musical scenes, in the widest meaning that we have just expressed.

After two year's work[7], the *Musiconis* database is in its testing stage. This is undertaken by our partners, in order to best respond to expectations of target users such as musicologists, historians and art historians, researchers in social sciences and humanities, musicians and luthiers...

Partners' Musiconis project databases

Initial (IRHT)	http://initiale.irht.cnrs.fr/accueil/index.php	Enluminated manuscripts of digitised catalogue from the Middle-Ages, kept in French and municipal and national libraries.
Gothic Ivories Project (The Courtauld Institute of Art)	http://www.gothicivories.courtauld.ac.uk/	Carved ivory objects picture database from Gothic and Neo-Gothic periods.
Mandragore (BNF)	http://mandragore.bnf.fr/html/accueil.html	Digitised catalogue of manuscripts kept at the BNF and at the Arsenal Library.
Musical Instrument Museum Online (MIMO)	http://www.mimo-international.com	Musical instrument database kept in public European collections.
Musicastallis (Université Paris-Sorbonne)	http://www.plm.paris-sorbonne.fr/musicastallis/	Picture database of musicians and singers in the choir stalls from Europe.
Romane (CESCM de Poitiers)	http://presnum.mshs.univ-poitiers.fr/romane/	Database of sculptures and monumental paintings of the Romanesque period.
Sculpture (Centre André Chastel)	No link available at present	Database of monumental sculptures in French cathedrals.
Vitrail (Centre André Chastel)	No link available at present	Database of stained-glass windows from French cathedrals.

This database regroups about 500 scenes at present. This number will increase significantly as soon as the indexing system is finalised and will offer new information to the users.

1. Organological data, with descriptions as precise as possible. For example, the lute can be described with no less than 60 different organological fields.

2. New iconological data from two specialised sections:

One devoted to the 'description of sound'[8] and the second to 'analogies'[9]. This will provide with a new interpretation of 'in context[10] representation', for instance illumination in the context of the page or the book where it figures, the stained-glass window in its spatial location, etc.; and other graphic elements which might complement our understanding of the musical performance in context.

In order to best illustrate both information sources, we shall now give two examples of scenes extracted from the *Musiconis* database.

Example 1: Three angels playing the lute and the harp. (Fiche n°41[11])

Information about the scene:

►   Century: 15th
►   Restoration : probably in the 19th century
►   Objet type: Wood carving
►   Support, location: stalls
►   Iconclass: 11Q714531, 11G21, 48C7322[12]
►   Location: Enville, Staffordshire, UK
►   Database partner: *Musicastallis*[13]
►   Original denomination: Trio of angels: lute and harp.

Organological details associated to the lute in the scene:

► Shape of the soundboard: Oval
► Shape of the sound-box: Rounded
► Fret-board: no
► Frets: yes
► Type of nut: not visible
► Strings passing on nut: not visible
► Size of nut: not visible
► Number of strings: 3
► Choirs: no
► Numbers of sound-holes or roses: none visible
► Position of tuning devices: not visible
► Shape of tuning devices: not visible
► Style of tuning devices: not visible
► Level of representation: average
► Atypical: no
► Position of musician: sitting
► Handling of instrument: resting on right thigh, neck to the left.
► Plane of the soundboard: flat
► Soundboard medium: wood
► Plane of strings or bridge: flat
► Strings going through the bridge: yes
► Shape of bridge: rectangular bar
► Location of bridge: inferior part of soundboard
► Openwork bridge: yes
► Position of the bridge: continuous
► Shape of the head: scroll
► String-bearer: yes
► Type of string-bearer: string-bearer bridge or bar
► Shape of the string-bearer: handle-bar
► Attachment of string0bearer: other
► size of neck: long
► Instrument played?: yes
► Playing method: plucked with plectrum, fingers on neck
► Plucked: yes
► Hand position: Close to bridge-bearer
► Plectrum: yes
► Visible strings: yes

Example 2 : King David tuning a harp.(fiche n° 39[14])

Information relative to the scene:

► Century: 12th
► Restoration: none
► Object type: illuminated manuscript
► Type: manuscript 246 D, tome 1, folio 1, A. Augustinus Hipponensis, Enarrationes in Psalmos, lettrine B of psalm 1, Beatus vir
► Iconclass: 11I62(DAVID)33, 48C7322
► Curent location: Charleville-Mezieres, Ardennes, France
► Original location: Belval, Ardennes, France
► Original partner: Initial[15]
► Original title: David playing the harp.
► Commentary: the ten strings suggests the arithmetical and divine law of David and of YHWH (Ps. 144 143) Similar to the first strophe of Ps.1 (reference to the theory and musical perfection, divine arithmetic law, referential sound universe,

music of the law). David being the author of the psalms, his music generates the letter. The vegetal is the ordained and growing shape that the Word takes from the work in its shaping of the world. (Musical inspiration source through the image of the vegetal rinceau). The animal's head prolongs the yoke and symbolically pierces the letter circle.

Analogy section:

Detail of the sections and analogies:
Sound section:

► Action of the sound in the image: creation of the letter
► References to the theory and musical perfection: tuning, arithmetical and divine law.
► Musical source of inspiration in the image: vegetal rinceau
► Referential sound universe: music of the Law, learned music. Propagation of sound and markers of hearing
► Formal analogies: body-instrument, instrument-lettrine.
► Chromatic analogies: body-lettrine, clothes.
► Commentary: the shape of the instrument is copied from David's coat (formal analogy 'body-instrument'). The pattern of white dots associates the body of David, on a blue background from which the lettrine is lifted (chromatic analogy 'clothes-configuration of the image'). The neck of the animal which prolongs the yoke of the harp follows the contour of the lettrine prior to piercing through it (formal analogy 'instrument-lettrine'). A twig bearing three fruits bends down from the lettrine and reaches the tuning hammer.

These two examples have the benefit of demonstrating the added value brought up by the *Musiconis* project, either with regard musical performance description, as well as with the understanding of its graphic and symbolic

organisation. Doubtless this work constitutes an effort of source interpretation which can, and must be reviewed, corrected, emendated by the editors of the database, in order to better confront diverging opinions about an iconographic interpretation, or on the realism of one or another organological detail.

Regardless, this indexing model accomplishment, applicable to any Mediaeval musical scenes and its related material was only possible because of a constant and meticulous work of the project team and by the contribution of the many external partners who have attended various seminars and thus provided with essential organological elements. The organological part work could not have been achieved without the help of Lionel Dieu and Christian Brassy from the association *APEMUTAM*[16]. The iconographical part also benefits from the contribution of other Mediaeval musical iconography programmes[17]. The technical part of *Musiconis* is also associated with French Digital Humanities national partners[18].

2. *Musiconis* and Web of data

Technically, the principal innovation of the project is with the sharing of musicological data from various, and sometimes very different, databases. Some are musicological such as *Musicastallis*, and others, of a more general content such as *Initiale, Romane,* or *Gothic Ivories.* It was therefore appropriate to link the data with automated dialogue system between the databases in order to avoid copying or even multiply identical sources. This was made possible by the implementation of automated updates and fruitful exchanges with all partners.

This was achieved mainly through the use of open source tools and formats[19], as it is often the case with the Web of Data. This European practice was initiated by the WC3[20] consortium, thanks to the Europeana project[21].

In computing, linked data (often capitalized as Linked Data) describes a method of publishing structured data so that it can be interlinked and become more useful. It builds upon standard Web technologies such as HTTP, RDF and URIs, but rather than using them to serve web pages for human readers, it extends them to share information in a way that can

be read automatically by computers. This enables data from different sources to be connected and queried[22].

The British researcher Tim Berners-Lee is currently Chairman of the WC3 consortium which provides us with four leading elements to sustain the Web of data[23] initiative with its elements in concordance with *Musiconis*.

1. Usage of unique URI addresses for the identification of musical representations[24].

2. Usage of URI, HTTP addresses which are live on the Web (as an Error HTTP 404 which is interpreted as an unreliable URI and must not be re-used to describe other data).

3. Extraction of human and machine readable data with URI. In our case, titles associated with representations.

4. Addition of external URIs to the data in order to improve the the web indexation of the data. In our case, links towards different partner databases as well as URIs of images on our partners' databases.

So, each site following these rules both harbours external addresses and provides new links. These are mutually synchronised, allow updating and collaborative evolution of shared contents.

Therefore, this system allows to access the same information from different sites, and in the same way, while benefitting from complementary data should any be available.

For example, a representation synchronised from the Initiale database, and accessed through *Musiconis*, will show a certain amount of identical information (date, location, manuscript reference, etc.) and provide a specific musicological content allowing for a better analysis of a scene for the user (names of instruments, organological descriptions, iconographic analysis of the audible elements of the image, etc.

With this system, unique in the field of Mediaeval music, the *Musiconis* project is increasing its potential to reach levels comparable to the Musical Instrument Museums Online *(MIMO)*[25] and by extension, to Europeana.

MIMO was initially founded by a group of 11 European musical instruments museums[26] with the aim of sharing their collections and make them available principally through the *Europeana* portal.

During the financing stage of the project(2009-11), museums undertook photography, descriptions and digitization of their collections. As a result, they offer a search engine with over 50,000 musical instruments from all continents and of various periods. *MIMO* uses a comprehensive search engine[27] which has adopted the Sachs-Hornbostel[28] classification which *Musiconis* also uses. The engine allows for a search of all the instrumental files making it possible to look for the name of a luthier or a specific provenance.

Although the objects in *MIMO* and *Musiconis* are different, it nevertheless seems that interesting links may arise from it. For example, the link of given images of instruments sharing historical and/or organological characteristics, would provide great added value to the users. Thus, a first stage of the partnership with the European scientific communication network could be be shortly operational[29]. This partnership would equally be pertinent to users and interesting for the future of the project. In a wider scope, a partnership with the *Europeana* project would enable a wider broadcasting of *Musiconis* and therefore allow for the exchange of iconographical data with leading libraries who are in partnership with the project as well as with institutions hosting numerous Mediaeval musical representations which would, in this case, benefit from an indexing grid which we have explained above.

Bearing this in mind, it should be agreed that the *Musiconis* data, and more specifically the data sharing service as well as the formats themselves be free, or in other terms, that the whole of the metadata should be indexed under a *Creative Commons CC0 1.0 Universel*[30] licence according to the *Data Exchange Agreement (DEA)* as suggested by *Europeana*[31], and then made available with the dedicated[32] API (*Application Programming Interface*).

Notwithstanding the opening that this partnership could bring to *Musiconis*, its integration to the European portal would also be a way in which to associate, in a wider scope, Mediaeval images on various media as witnesses from the largest unified collections. Indeed with the suggested indexing model *Musiconis* images would become representations of a high definition level allowing for new and more focused requests from users.

This may lead to the association of musical scenes, to musical instruments, but also to treatises, related pictures, musical instruments, information about artists, sponsors, individuals, secular or religious contexts of a scene. Additionally, the advanced research of the *Europeana* portal gives access to numerous formats such as texts, images, sound clips, videos. Such sources could help complement in depth our knowledge of a given performance, its actors, its 'performators'[133] and its instruments.

3. Where would archaeomusicology stand in this project?

Coming back to the original idea of this paper, it would now seem interesting, after having explained in details the contents of the *Musiconis* project, to consider archaeology in this sphere and reflect on its relevance, in our project, perhaps as a direct partner, or as a partner through the European portal.

It is certain that archaeomusicology has its place in the field of Mediaeval organology, iconography and generally in musicology. From the organological standpoint, imagining a possible comparison between Mediaeval instruments and much older instruments; using common search criteria on dozens of instruments from different cultures and periods; comparing similar performers in Mediaeval, Roman or Greek scenes, seems quite relevant to the analysis of musical images - for example, the genesis of their iconographic layout - or with an aim at the observation of organological modifications or consistency such as the change in sizes, of the number of sound-holes, of strings, of handling, etc.

Such a change, or rather such an adaptation, or an expansion, would completely change the basic nature of *Musiconis* and make it evolve towards a more complex and pertinent form if it were possible to adapt to the theoretical and iconographic dimension of the project, to more ancient images.

Could the ancient musical images, rich and abundant be subjected to the same theoretical rules to which their neighbouring Mediaevals are? The answer to this question seems obvious since all systems of iconographic representation is ruled by laws or by reasons which infer the meaning of the whole of a representation in order to provide it with a specific meaning.

Which researchers will therefore be able to create, evaluate, complement such an analytical grid? Furthermore, is it not necessary to implement one or more grids according to periods and aesthetics under scrutiny? This question is for archaeologists and ancient art historians to answer.

Otherwise, since images of singing or dancing musical performance appear on mediaeval material, it should be essential to plan for a particular field of archaeomusicology which is the study of ancient musical theory. Indeed this research field is widely represented among scholars, particularly in Europe, and works arising from these researches will, without any doubt, provide us with pertinent explanations on the interpretation of mediaeval images and in particular when these are related to Mediaeval music theory[34] (for example, scene 198 'Pythagoras playing the lute' from the stalls at the cathedral of Ulm[35], or scene 37 'King David tuning a harp, musicians playing chimes' from an illumination of the Angers manuscript MS47, folio 3[36]).

The possibility of such an extension and such a partnership implies a series of methodological questions unavoidable: which partners, - institutional, scientific, technical - to associate to the project? How would the fields already implemented in the indexing model be adopted or adapted? How should we integrate the diversity of supports and techniques arising from archaeological representations?

It would appear reasonable to assume that existing partners, or at least existing institutions currently involved in digitizing work, could help answer these questions.

Indeed, leading European national museums having already part of their collections photographed, could help test the evolutions of extant systems in apposition to examples lifted from diverse cultures or periods and therefore refine and enlarge the extant system.

The partnership in motion with *MIMO* would allow also to deal with the instrumentarium question. Since this portal already regroups a great diversity of instruments from archaeological excavations in world-wide sites, and that these instruments have already been classified according

to the Sachs-Hornbostel system, it would be easier to integrate them to our own extant Mediaeval instrumentarium.

The question as to the relevance of fields appears more problematic. If the current indexing model relies on a description as accurate as possible of Mediaeval images, it would seem difficult to use the same for images arising from diverse cultures and periods. We could suggest a specific indexing for each culture or period, such as Roman antiquities; Greek antiquities; Egyptian antiquities, etc., perhaps with common fields, others would be complementary, within a table of data which would be included into the database. This indexing question infers, obviously the matter of materials and techniques. Here, again, digitization undertaken by leading museums (Base Joconde du Ministère de la Culture française[37], digitized collections of the British Museum[38], etc), allow to focus on such a question.

However, It does not seem necessarily pertinent to enlarge the *Musiconis* project to archaeological iconography.

As we have seen, the contemporary movement of Digital Humanities seems to point out towards a network of specialized partners rather than toward a unique encyclopaedic project. *Europeana* is a convincing proof of the relevance of this solution: it harvests various databases, allowing complex queries, whithout storing each separate data in a single place.

The idea of a great and specific archaeomusicological portal, similar to *Musiconis*, although totally adapted to the needs of archaeomusicologists appears much more pertinent. The linkage, in due time, of this portal within *Europeana*, and by extension to *Musiconis*, would allow each individual user/partner to find what they seek from this shared data.

It seems that this solution should be adopted, especially since archaeomusicology groups expand while sharing their research work as well as their discoveries[39].

Let us come back to the initial question of this short paper: what is the place of archaeomusicology within the *Musiconis* project?

It seems therefore pertinent to propose the following answers:

An important role exists within this project devoted to the analysis of Mediaeval musical performance, for archaeology, because the more ancient images, instruments and performance provide us with an amount of information extremely pertinent for the understanding of a given scene.

This role does not place itself directly in the *Musiconis* project, but it would be more likely that it became a privileged partner, developing with the same standards similar to those of *Europeana*.

It appears equally necessary to create one or more archaeomusicology portals which would regroup archaeomusicologists, musicologists, curators and librarians, art historians, but also music professionals.

This vast project still needs to be implemented and at each of its steps, *ICONEA* could have its central role on the basis of its expertise about these questions and its network of specialists. The association of archaeomusicology to leading institutional partners, will place it in its own sphere in the digital landscape of scientific diffusion. This will be the right time for *Musiconis* and *ICONEA* to share and collectively contribute to their respective projects.

Notes

1. The *Musicastallis* database presents over 850 carved musical scenes on the Mediaeval stalls in European churches: http://www.plm.paris-sorbonne.fr/musicastallis/index.php.

2. Projet chosen by the *Agence Nationale de la Recherche* and benefitting from funding between 2011 et 2015 for the building of a database and related activities to the project such as lectures, seminars, conferences, international colloquia, exhibitions, scientific and technical diffusion.

3. EA 4087, Head of project: Professor Frédéric Billiet.

4. EA 4509, Head of project: Professor Claude Montacié.

5. UMR 7302, Head of project: Dr. Isabelle Marchesin.

This postulate arises from Isabelle Marchesin's researches on the Mediaeval musical iconography. See: Marchesin, Isabelle: L'Arbre et la Cité. Sémiotique du discours visuel de la porte de bronze de Hildesheim, projet de publication accepté par les Editions Beauchesne, forthcoming; L'image organum: la représentation de la musique dans les psautiers médiévaux, 800-1200. Turnhout : Brepols, 2000, http://www.worldcat.org/oclc/406874579; Les chapiteaux de la musique de Cluny: une figuration du lien musical. Les Représentations de la Musique au Moyen Âge. 2005 : 84-90, http://www.worldcat.org/oclc/605414937.

7. The team at the core of the project development of the partnership is composed of two post doctoral scholars benefitting from an ANR contract: Welleda Muller and Sebastien Biay, as well as with Benjamin Pavone, an information technology engineer and web designer Jérôme Parbaille. There are three supervisors who expand the project towards researchers and contributors.

8. The section is divided into sub-sections: action of sound in the image; nature of the sign; visual metaphor; references to theory and to the musical perfection; reference to instrumental classification; referential universe of the sound; propagation of

the sound and markers of audition.

9. They may be chromatic, arithmetic, formal, etc.

10. Support, iconographic programme, literary or histioric reference, etc.

11. http://musiconis.paris-sorbonne.fr/fiche/41/Trois+anges+jouant+du+luth+et+de+la+harpe

12. *Iconclass* is a classification system devised for art and iconography. It is a tool used for the description of represented subjects in pictures such as art pieces, book illustrations photographic reproductions. It is used by numerous museums and patrimonial institutions world-wide: such as art objects, book illustrations, reproductions, photographs, etc. It is used world-wide: http://www.iconclass.org/

13. http://www.plm.paris-sorbonne.fr/musicastallis/fiche.php?id=29

14. http://musiconis.paris-sorbonne.fr/fiche/39/Roi+David+accordant+une+harpe

15. http://initiale.irht.cnrs.fr/decors/decors.php?imageInd=1&id=331

16. Association pour l'étude de la musique et des techniques dans l'art médiéval, http://www.instrumentsmedievaux.org/apemutamsite/ This Association includes organologists, musicologists and archaeomusicologists, historians, luthiers, working on Mediaeval instruments (studies and replications).

17. For example, the association *Misericordia International* including art historians, philologists and musicologists working on choir stalls and their iconography: http://www.leedstrinity.ac.uk/departments/english/misericordia/Pages/default.aspx - la Bibliothèque Nationale de France - http://www.bnf.fr - Centre André Chastel, research laboratory (CNRS) in art hiistory including several teams working on 'thèmes fédérateurs': l'artiste, Paris, iconologie du paysage et l'histoire de l'art et ses limites: questions épistémologiques: http://www.centrechastel.paris-sorbonne.fr - The François Garnier Centre, Meetings with the religious patrimony having several aims: formation, organisation of colloquia, publication, inventories: http://rencontre-patrimoine-religieux.blogspot.fr - l'Index of Christian Art (Université de Princeton), Indexing of Christian art on all types of artistic materials: http://ica.princeton.edu - Institut de recherche et d'histoire des textes, Unité de recherche du CNRS sur le manuscrit médiéval et la transmission des textes de l'Antiquité à la Renaissance: http://www.irht.cnrs.fr - *Répertoire International d'Iconographie Musicale*, index international des sources visuelles de la musique - http://www.ridim.org/title.php

18. This is the case for the 'Cap digital Pôle de compétitivité' which has accepted the *Musiconis* project on grounds of its innovative dimension in the field of human sciences: http://www.capdigital.com

19. Web site and database in the PHP-MySQL format using Framework Symfony. Exchange of data with XML format by webservice and automatised updates programmed on a daily basis.

20. http://www.w3.org

21. http://pro.europeana.eu/linked-open-data

22. Berners-Lee, Tim / Bizer, Christian / Heath, Tom, Linked Data - The Story So Far. International Journal on Semantic Web and Information Systems, 2009 (5/) : 1–22.

23. *Ibid.*

24. Using the redirection tool HTTP (code 302) and the variable User-Agent written in the headings of the HTTP quiries, a serveur can display an XML/RDF page for an engine or for a HTML.

25. www.mimo-db.eu

26. MIMO to this day includes the following: University of Edinburgh, Germanisches Nationalmuseum, Museum für Musikinstrumente der Universität Leipzig, Koninklijk Museum voor Midden-Afrika, Associazione 'Amici del Museo degli Strumenti Musicali,', Cité de la musique, Muziekinstrumentenmuseum, Ethnologisches Museum Berlin, Musik/Teater Museet Stockholm.

27. http://www.mimo-db.eu/MIMO/infodoc/ged/search.aspx?geid=IFD_REFDOC_GR_ADVANCED_3

28. A translation of German into French of this classification is given by Nicolas Meeùs: http://www.plm.paris-sorbonne.fr/IMG/pdf/classification.pdf

29. Exchanges between supervisors of both project have taken place in Paris and will lead to partnership with: the University of Edinburgh, Germanisches Nationalmuseum, Museum für Musikinstrumente der Universität Leipzig, Koninklijk Museum voor Midden-Afrika, Associazione 'Amici del Museo degli Strumenti Musicali,' Cité de la musique, Muziekinstrumentenmuseum, Ethnologisches Museum Berlin, Musik/Teater Museet Stockholm.

30. http://creativecommons.org/publicdomain/zero/1.0/deed.fr

31. http://pro.europeana.eu/web/guest/data-exchange-agreement

32. This API is accessible at: http://pro.europeana.eu/api; for a technical description of the data format, see: https://docs.google.com/spreadsheet/ccc?key=0AsHgkgfrIiQ3dHRNaFpGeHVUNFJMazd6WkVEQ21NeHc#gid=0

33. This neologism has been kept in the project to describe ant individual taking part in a performance with music: musicians, dancers, singers, audience, etc.

34. At present, over 25 representations of the *Musiconis* database refer to Mediaeval musical theory. However, this number is restricted to images which are fully indexed. It seems logical to believe that this number will increase with the expansion of the corpus.

35. http://musiconis.paris-sorbonne.fr/fiche/198/Pythagore+jouant+du+luth

36. http://musiconis.paris-sorbonne.fr/fiche/37/Roi+David+accordant+une+harpe%2C+musicien+jouant+du+carillon

37. http://www.culture.gouv.fr/documentation/joconde/

38. http://www.britishmuseum.org/research/collection_online/search.aspx

39. For projects and groups of researchers posting their work Online, see:

- ICONEA, International Conference of Near and Middle Eastern Archeomusicology: http://www.iconea.org/

- The International Study Group on Music Archaeology *(ISGMA)* : http://www.musicarchaeology.org

- The European Music Archaeology Project *(EMAP)*: http://ambpnetwork.wordpress.com/2013/06/06/european-music-archaeology-project-emap/

- The Moisac Society (International Society for the Study of Greek and Roman Music and Its Cultural Heritage) : http://www.moisasociety.org/

- Lucy to Language: The Archaeology of the Social Brain Research Project : http://www.liv.ac.uk/lucy2003/