

Music information: towards a converging view of physical, digital and temporal resources

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Resources = documents + events

The ever-widening scope of digitization of all kinds of documents — printed and as well as manuscripts —, and of their increased online availability, whether born digital or digitized, due to ever larger storage space and faster networks, has already had a perceptible influence on once well-defined organizational boundaries between libraries and archives, as exemplified by the merging of the National Library of Canada and the National Archives of Canada in 2004 into one institution, Library and Archives Canada. Earlier in the 20th century, audiovisual archival documents also made their organized entrance into national libraries: the French Phonothèque nationale became part of the French National Library in 1977, while the British Institution of Recorded Sound became part of the British Library in 1983.

To paraphrase Gertrude Stein, a document is a document is a document, all the more so when it becomes a digital file, a series of bits without any distinction in physical form. What matters are its content and its context. This is the case, for instance, for archives of concerts, which may comprise not only sound recordings but also videos (of the performance), various kinds of ephemera (e.g., program notes providing information about the venue, the performers and the musical works in much more detail than the metadata of the recordings), music scores, etc.

But there is an additional context which such documents don't usually provide or make explicit: the temporal dimension. A concert, viewed as an event, may be part of a concert series, of a musical season, itself part of the cumulative artistic history of an institution.⁵⁸ The visualization of relationships between events also provides meaning to the archived traces of these events and allows one to study the cultural history of an institution. This is why, in our view of what "music information" is, we consider events as first-order concepts on the same footing as documents, and speak of resources to refer to either.

In this paper, we will show how such resources are handled within an organization — IRCAM⁵⁹ — and shared among several organizations.

Resource production and consumption at IRCAM

The main operational departments of IRCAM have been producers and consumers of such resources (see Fig. 1 where production is indicated in blue and consumption in red):

- IRCAM's director (who is also its artistic director) plans the musical season (= produces events) of IRCAM, which includes concerts throughout the year and a festival, Agora, in June. These concerts may include works from the repertoire, works commissioned from composers, and works composed by students of the IRCAM Cursus (one- or two-year long course for composers). In order to do so, he may make use of (= consume) assets held by the Multimedia Library, such as musical scores or recordings of works. The Communications Unit subsequently produces various paper brochures (for the whole season, for a particular concert series, for a single concert).

⁵⁸ We will briefly speak of other contexts, see Timeline below.

⁵⁹ Acronym of "Institut de recherche et coordination acoustique/musique". IRCAM is a non-profit research center dedicated to music expression (composition, performance) and scientific research, founded by composer and conductor Pierre Boulez in the 1970s under the aegis of the French Ministry of Culture and in collaboration with the Centre Pompidou (the French National Center for Arts and Culture in Paris).

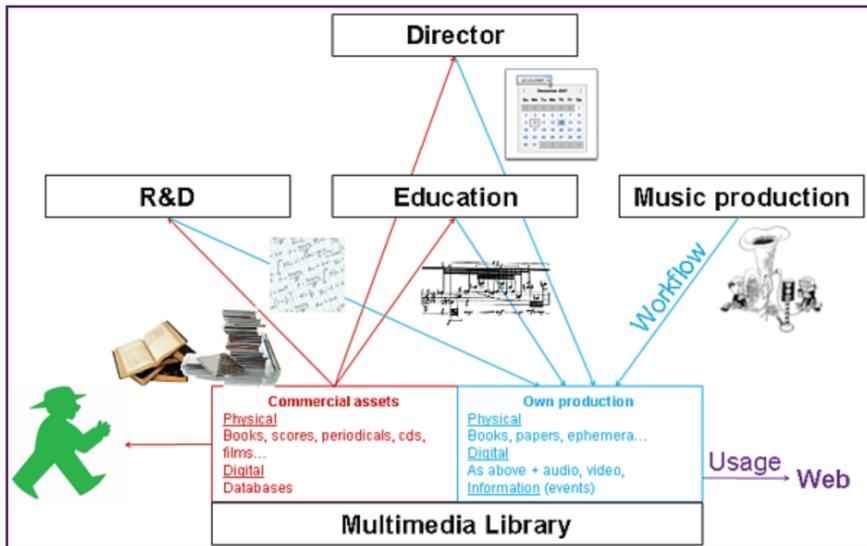


Figure 1. Music resources at IRCAM.

- Students in the Education department compose, as their project at the end of the second year, a work (= they produce a score) which will be performed at one of the season's concerts.
- The Music Production department records the events as they occur (= producer of sound archives).
- The Research and Development department, whose members work in close conjunction with composers, is constituted of a large body of researchers who regularly publish (= produce) papers for conferences and scientific periodicals, whole books or chapters thereof.

The Multimedia Library acts both as a traditional library (acquiring, cataloguing and circulating commercial assets which it provides on demand onsite to the personnel and to any outside patron) and as the archive (preservation and distribution) of IRCAM's scientific and musical heritage in physical and digital forms.

The physical assets (both commercial — books, scores, periodicals, commercial records... and non-commercial — program notes, brochures, etc.) are available onsite (the commercial ones can also be borrowed), as are the digital assets (databases, archive records and ephemera, papers, etc.). The latter may be accessed online depending on the corresponding rights (e.g., up to three-minute long excerpts for sound archives). They are referenced by distinct systems which differ in their specific functions (e.g., lending books for the library software system; search-by-instrumentation in the database of contemporary music composers and their works; auto-referencing, uploading and publishing content for the scientific papers system; preservation and transformations of audio archival content for various types of online access, etc.).

The Engineering Bureau, a unit of the Multimedia Library, has developed most of these subsystems, as well as a one-stop search engine for all the resources they reference. The rest of this paper will describe first Archipro, a specific content management system aimed at implementing the workflow concerning the IRCAM event-related resources (the other ones being handled through well-known types of catalogs and databases), and then the Gateway for contemporary music resources.

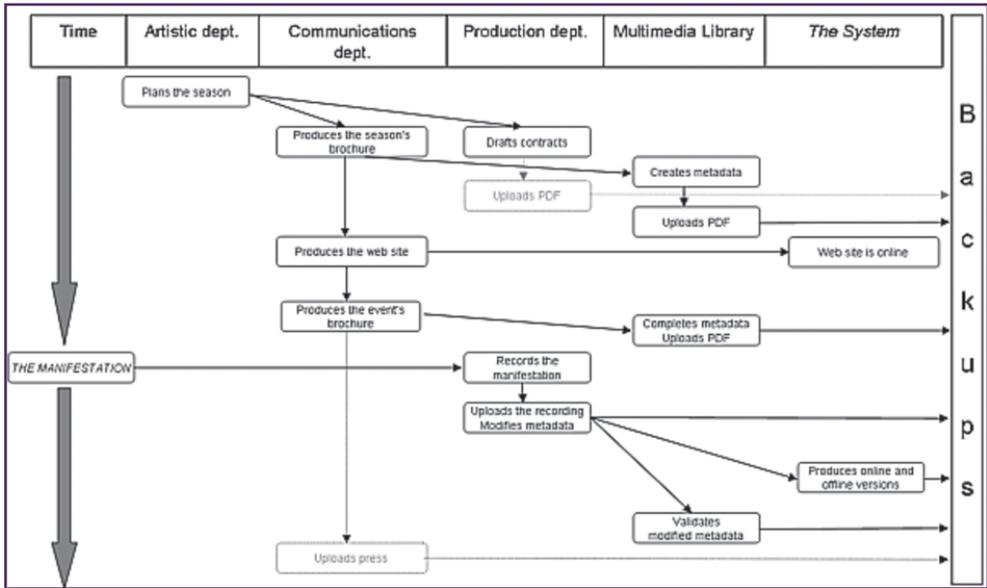


Figure 2. Workflow of IRCAM's documents related to its events.

Handling events of the past and their traces

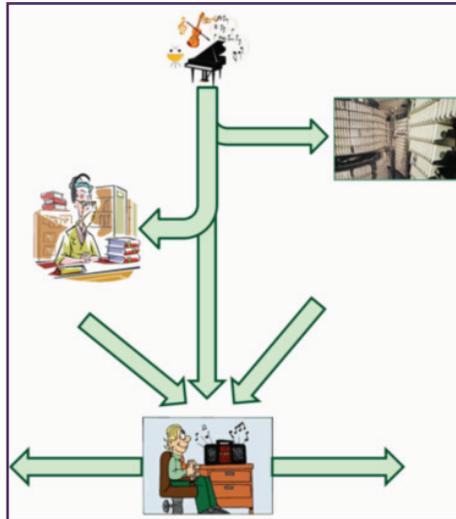


Figure 3. From concert to archive to online

The Multimedia Library has had to handle the digitized recordings of IRCAM's concerts as of 1995, and, later, the corresponding program notes. The sound files were initially recorded on hybrid compact discs⁶⁰ and physically transferred from one department to another to be uploaded in the Multimedia Library information system. The advent of faster networks and larger online storage spurred the development of an increasingly interconnected and automated system.

⁶⁰ Discs whose tracks, to the exclusion of the first one, are readable by a traditional CD player. The first track included a computer-readable text file containing metadata describing each of the subsequent tracks (composer, title, date, venue, performers...). Their life span has shown to be quite high: ca. 99% are still readable 15 years after they were burnt.

Archiproduct, which was developed in-house as of 2006, implements the workflow described in Figure 2 which includes:

- Entry of information about events and their optional modification in time;
- Uploading documents (season's brochure, program notes...) and attaching them to the metadata entered in the previous step;
- Uploading recordings of the event (sound files, and soon video as well) and attaching them to the appropriate metadata.

This system then automatically takes care of storing these resources (metadata and data) in long-term storage for preservation purposes, as well as of deriving one or more versions for online delivery (see Formats, below).



Figure 4. Event tree and attached archives

Additionally, it provides not only standard search, display and retrieve features, but also a structured view of the events along the time axis from the inception of IRCAM to this day: it allows one to browse this tree⁶¹ (Figure 4) and see the artistic (and scientific) structure of the seasons down to a single event and to its traces (recordings, program notes, etc.).

Resource modelization

Internally, Archiproduct implements the following basic entities (which can be thought of as classes):

1. **Events:** identifiable (named, distinctive) time periods. The periods may be disjoint or not, span a year or be just part of a specific day. Examples: a music season (typically spans 10 months), a festival, a concert series, a single concert;
2. **People:** typically, composers, conductors, performers, technicians;

⁶¹ This is actually a directed graph, as an event may be part of two larger events (e.g., a concert in a concert series, which is also part of a festival).

3. Corporate entities: typically, for orchestras, ensembles, etc.;
4. Venues: in which the event is performed;
5. Documents: text, audio, video;
6. Works: typically, the works performed in an event.

In the case where a single event is repeated (for example: a specific concert to be played on several dates), each occurrence is named a **manifestation**.⁶² Each part of a manifestation may be a (musical) work or a talk, a panel, etc. An ad hoc thesaurus, based on the analysis of all the IRCAM past events, was developed to allow for their qualifications (see Figure 5).

While all manifestations of the same event are planned to be identical (and hence share the same program note, which will be attached to the — inner — node corresponding to the event rather than to each of its manifestations, which are leaves of the tree, see Figure 6), they are not necessarily so. The order in which works are played on one date may be inverted, people may be substituted, etc. Hence Archiproduct implements an inheritance mechanism, by which the metadata of a manifestation is that of its parent event, unless it is overridden in one or more fields.

There are three kinds of potential relations between the above entities:

1. **Is part of:** e.g., a concert is part of a festival which in turn is part of a season.
2. **Is a trace of:** used to relate documents to events.
3. **Role:** a named relation between a person or a corporate entity and an event or part thereof. Example: Person₁ is a conductor in Event₁, Person₂ is the solo flautist in a (performance of) Work₂ in Event₂.

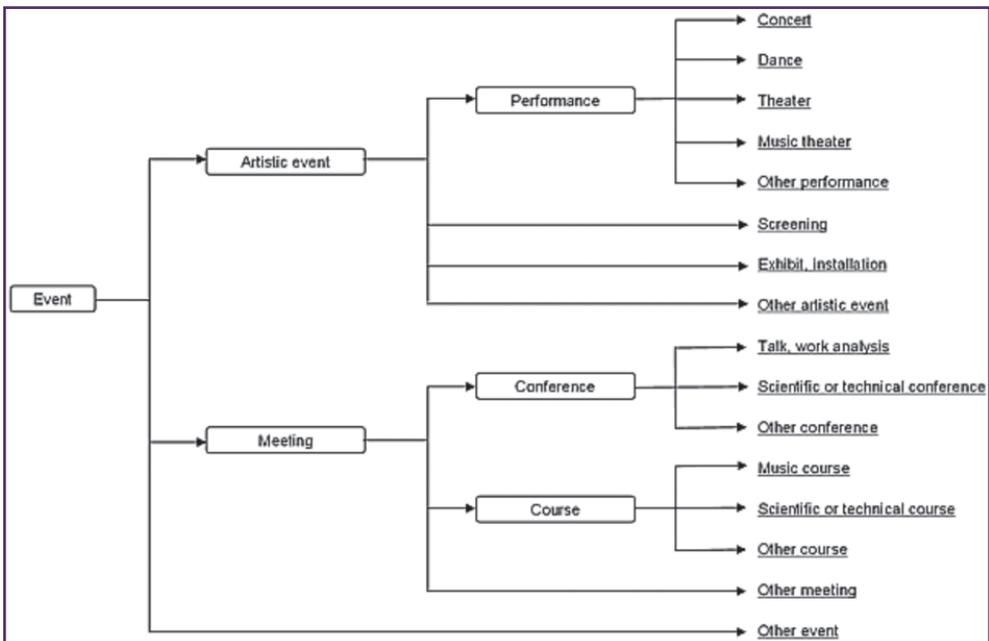


Figure 5. Typology of the components of manifestations

62 Not to be confused with FRBR's expressions-manifestations-items.

Formats

- For preservation purposes, sound data is preserved in WAV or AIFF uncompressed format (at the provided sampling rate), non-digitally native text as TIFF and high-resolution PDF, digitally-native text as provided. Metadata for all these contents is in METS.⁶³
- For onsite delivery, full contents are provided. Audio is compressed in MPEG 1 Layer 2 @ 384 kb/s.
- For free Internet access, excerpts of sound archives up to 3 minutes long⁶⁴ in MP3 @ 192 kb/s with embedded metadata are streamed. PDF is provided in lower resolution with an embedded watermark.

The compressions, excerpt or downgrading production and metadata and watermark embeddings are automatically performed by Archiprod after the source file has been uploaded.

The corresponding formats for video contents are currently being studied.

Common access to scattered resources

As already mentioned, the documentary resources of IRCAM are handled by distinct systems. In addition to the library system, to Archiprod and to the Articles database, IRCAM has been regularly updating and enriching a database containing information about contemporary composers and their works;⁶⁵ the calendar of *future* events is also a potentially accessible database, and a few others are under development.

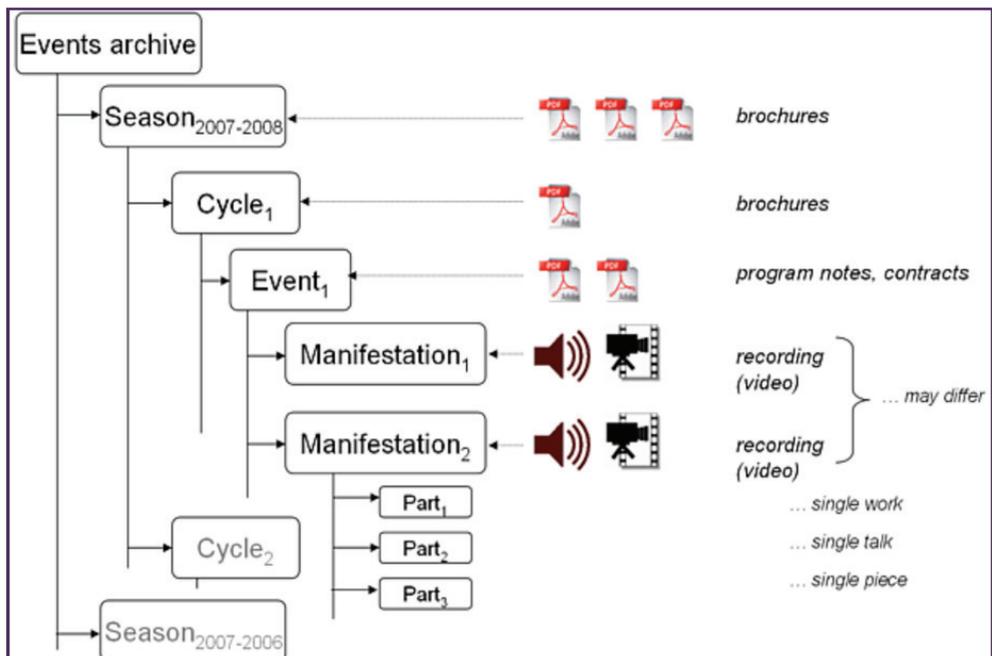


Figure 6. Event tree and attached documents.

⁶³ Metadata Encoding and Transmission Standard, see <http://www.loc.gov/standards/mets/>.

⁶⁴ Or 25% of the recording, whichever is shorter. This is a requirement coming from the appropriate collective rights management organizations.

⁶⁵ See <http://brahms.ircam.fr/>.

Other organizations in France also hold interesting and sometimes unique collections and archives of contemporary music documents and organize events (concerts, talks, etc.) in this domain. These include the French contemporary music information center,⁶⁶ centers for music composition,⁶⁷ music libraries, conservatoires, music ensembles and others. Some of the smaller ones, do not have online catalogs or inventories of their holdings, or, if they do, are under-referenced in the main search engines.

The bilingual Gateway to contemporary music resources in France⁶⁸ aims at increasing the visibility of these resources, facilitating their localization and, more generally, helping to demystify contemporary music: it is a single-stop search engine allowing anyone on the internet to search for or browse resources related to contemporary music held by 28 (at the end of 2009) such bodies (see Figure 7), in one or more of their databases. It currently holds over 170,000 records referencing documents (books, periodicals, scores, commercial and archival sound recordings, movies, program notes, databases, etc.) held by these partners and events (concerts, festivals, conferences, lectures, courses, etc.) they organize or publicize.

For those documents that are available onsite only⁶⁹ (where they can't be digitized or provided on the Internet either for technical or for legal reasons), the site provides the information about the holding institution. But over 12,000 excerpts of sound recordings are freely available through the site,⁷⁰ as well as many program notes and other ephemera, biographies, etc.

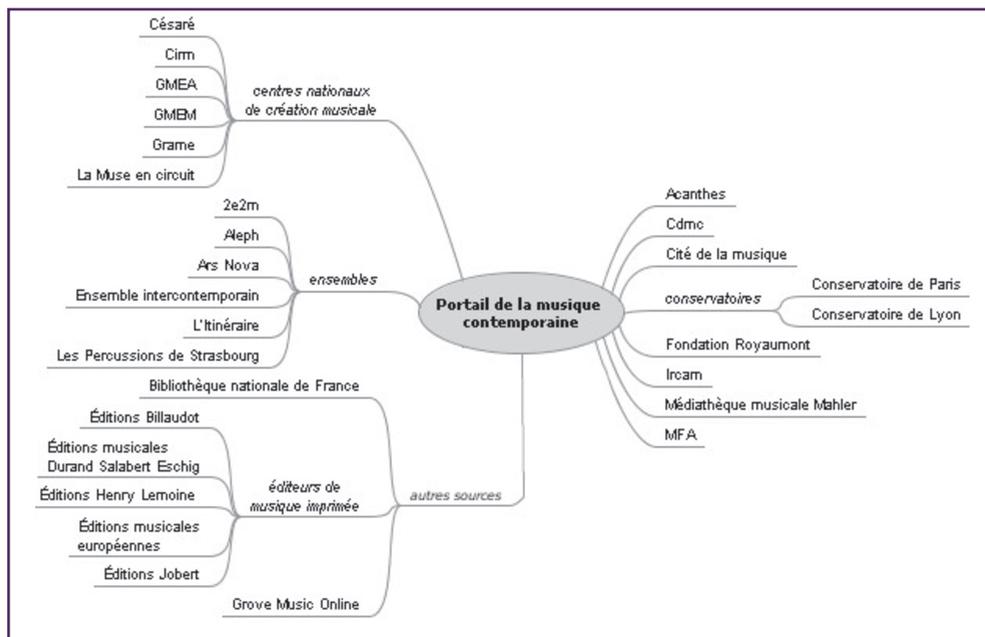


Figure 7. Partners of the Gateway of contemporary music

Additionally, it has a built-in lexicon (see Browsing contents below) explaining the main terms of contemporary music and relating them to available relevant contents.

⁶⁶ CDMC, see <http://www.cdmc.asso.fr/>. It acts as the administrative management of the Gateway for contemporary music resources.

⁶⁷ "Centres nationaux de creation musicale", which are not-for-profit organizations.

⁶⁸ See <http://www.musiquecontemporaine.fr/>.

⁶⁹ Or for interlibrary loan, if available.

⁷⁰ And not from the site: the contents are provided by the holding partner (or by a hosting service set up for this purpose by the project if the partner doesn't have the appropriate computer infrastructure to do so). See below.

Modeling and collecting information into the Gateway

The Gateway is built on simple principles:

1. It does not hold the digital data⁷¹ (i.e., sound recording, PDF text files, etc.), but only metadata about contents and events. Search and browse features are performed on this metadata as indexed in the Gateway's database.
2. It collects the metadata from the partners' databases using the OAI⁷² protocol for metadata harvesting (red arrows in Figure 8): when a new record enters one of their databases, it will be reflected in the Gateway's database as soon as it has "harvested" that database.
3. All the partners have thus to make available exchange records, i.e., "images" of their original records (which may be in any format, represented by distinct colors in Figure 8) to be harvested by the Gateway, subject to two conditions:
 - a. All the exchange records must be structured in XML and formatted in a common way (as defined by the project, see below; in blue in Figure 8), regardless of how they are formatted in their underlying databases. This will allow the Gateway to index and display them uniformly regardless of their origin.
 - b. Each such collection of images (called "repositories", in OAI) must contain records about contemporary music only, or provide the means for the Gateway to harvest only that part (called a "set") which corresponds to contemporary music.
4. When digital data (such as a sound recording or a text file) is referenced by a record in a partner's database, this reference will be preserved in the Gateway's image of the record. The user will then be able to access the content (which is provided by the partner, not by the Gateway) directly from the Gateway's record, without having to go to the original record.

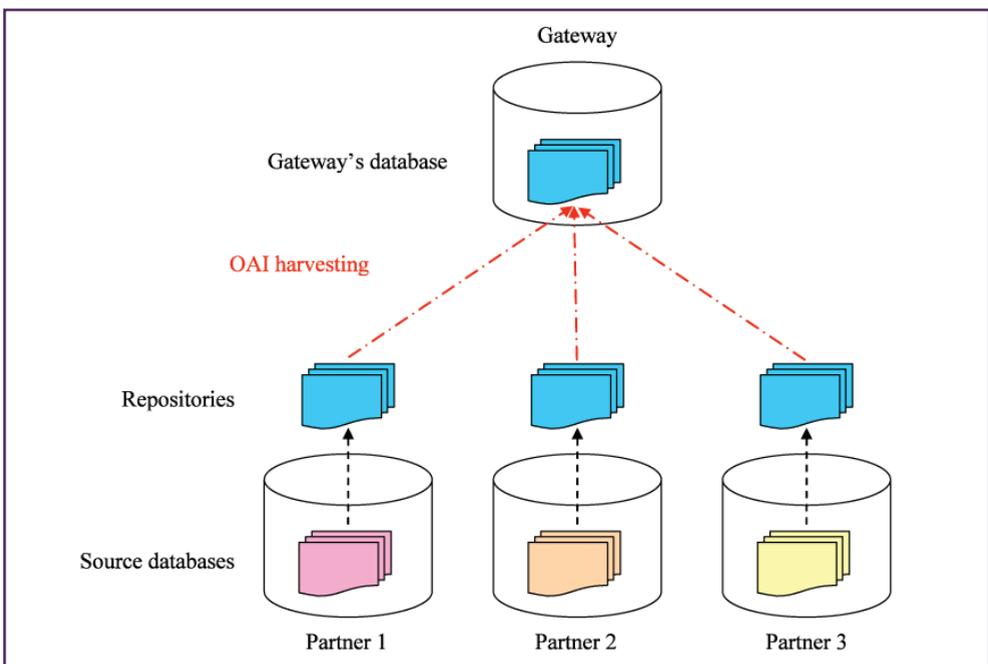
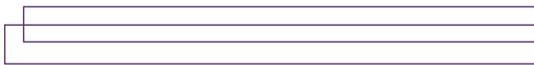


Figure 8. OAI Harvesting

⁷¹ This project however has set up a hosting service for partner organizations which can't host the metadata and/or data for Internet access.

⁷² Open Archives Initiative, see <http://www.openarchives.org/>.



The underlying model⁷³ for the exchange records is derived from MODS,⁷⁴ which has the following clear advantages over simpler, linear models:

1. It allows one to keep associations between different entities, e.g., people and roles.
2. It can easily express hierarchy of structure to any level, e.g., collections and items, compact discs and tracks, meta-events and events. It can do so within a unique record without having necessarily to resort to links to external records.
3. It is extensible, a feature which was taken advantage of in order to differentiate access to content depending on the location of the user (full contents on the premises of the partner holding the document, excerpt elsewhere, e.g.), to describe music instrumentation of scores, etc. In particular, the <role> field was extended to include all possible musical instruments, thereby allowing for the specification of the instrument each performer plays in a sound recording.
4. It allows for a finer description of types of resources through three independent controlled fields rather than provide a single, catchall “type” field in order to do so as simpler formats do:
 - a. <typeOfResource> is used to describe how the contents of a document are “encoded”: text, still or moving image, sound recording, software, map, etc. The Gateway has kept the original MODS terms for this field, and added three: event, which allows for the inclusion of metadata about events in the Gateway; people and corporate, which allows the Gateway to make these entities “first order” elements in the Gateway, in other words provide information about them in the metadata.
 - b. <form> is used for the description of the media of the resource: manuscript, printed document, compact disc, etc, and also includes terms to describe the “form” of an event (concert, conference, exhibit, etc.).
 - c. <genre> describes the nature of the contents of the resource, e.g., biography, program note, etc., and, for events, such “genres” as master class, talk, course, etc.

Adding an OAI access point to a database is a straightforward task in and of itself: there is freely available software which allows one to do so.⁷⁵ The possibly difficult task is the careful mapping of the source records to their MODS images (black arrows in Figure 8), which includes ensuring the target controlled fields (such as those mentioned above) in the exchange records use the vocabulary from the Gateway’s model and not from the source databases.

A by-product of the addition of an OAI mechanism to a database is that it allows it to be harvested by any other gateway (and which may select contents other than those the Gateway harvests using the set mechanism). This is, for instance, the case of the French National Library, whose OAI repository includes many sets. This Gateway harvests only the one claiming to contain the records describing contemporary music audiovisual documents.

Searching for resources

The Gateway provides two fairly common ways to search into its database:

1. Express search, a single box in which one or more words may be specified with optional Booleans and wildcards. But in order to allow for a better selection of potentially relevant types of resources at this stage without having first to retrieve results of a general query and then filter them down, check buttons have been added, optionally allowing the user to select one of several types of documents, and to require only those records which reference online contents. The proposed types are not disjoint: a biography or a program note is a text, a training session

⁷³ See full specification here: <http://www2.musiquecontemporaine.fr/doc/index.php/Accueil#Documentation>.

⁷⁴ Metadata Object Description Schema, see <http://www.loc.gov/standards/mods/>.

⁷⁵ Many of the partners in this project (as well as other OAI repositories on the Internet) have been using the PHPOAI2 Data Provider, see <http://physnet.uni-oldenburg.de/oai/>.

- (or a course) is an event; nor do they cover all types of resources available through the Gateway. These were felt to be the categories most likely to be of interest to people searching in the Gateway.
- Detailed search along several indexes (such as author, title, subject, etc.). A general form is provided as well as three more specific ones: for documents; for events (allowing one to select different ranges in the future, or see only past events); for addresses of people and organizations.

EXPRESS SEARCH online

text
 score
 audio
 video
 biography
 event
 training
 program note

N°	Origine	Type	Nom	Titre	Date ↑	Accès
1	bnf		Kele, Judit	Metallics / Judit Kele, réal. ; Yan Maresz, comp. ;	2009	
2	ircam		ROUSSEL, Guillaume	2008-2009. Atelier du Forum. novembre 2008: F	2008	
3	ircam		MARESZ, Yan	2007-2008. Agora 2008. Atelier du Forum. Juin :	2008	
4	cité		MARESZ, Yan	Orchestre Philharmonique de Radio France: Fe	2008	
5	ircam		STOCKHAUSEN, Karlheinz	2007-2008. Académie Ircam. Concert du 12/04:	2008	
6	ircam		IRCAM-CENTRE POMPIDOU	Saison 2008-2009: Carnets d'études : percussi	2008	
7	acanthes		MARESZ, Yan	Orchestration et nouvelles technologies	2007	
8	acanthes		MARESZ, Yan	Orchestration and new technologies	2007	
9	ircam		BÉROS, Cyril	2006-2007. Agora 2007. Journées professionnt	2007	
10	ircam		MADLENER, Franck	2006-2007. Agora 2007. Technologies du sonoi	2007	
11	ircam			Festival Ars Musica. Maresz, Manlovani, Cendo	2007	

Figure 9. List of results of a query

The list of results (see Figure 9) can be sorted and/or filtered further down along several facets (subtypes, physical location, online only, etc.). If online content is available for any record in the list, an icon allows the user to access it without the need to open the record. It will provide the link to the appropriate version of the content (e.g., for a sound recording, to the full version if the user is in the premises of the content holder, or to an excerpt). A crossed-out round icon indicates there is a full-length sound recording, but it is not accessible to the user who launched the query (as he is not on the premises of the holding institution); a green loudspeaker, when clicked upon, will open an embedded player allowing the user to listen to the recording.⁷⁶

Clicking on the blue text will open the Gateway view of the record describing the resource (see top of Figure 10) and its physical location. If an audio resource is referenced, a player can also be opened from within this record: this is important, as every single such record is also independently accessible from search engines and other sites. The kind of player is different according to whether it plays excerpts on the internet (top of Figure 10) or full recordings (bottom of Figure 10, with access to related program notes). The Gateway record also provides a link to the original record it was derived from (in the corresponding partner's catalog or database) which may hold more information.

⁷⁶ Audio is streamed as per the requirement of the rights holding companies.

Browsing contents: concept map, timeline, cloud, radio

In addition to a browse-by-provider mechanism, the Gateway provides several ways to access specific contents.

One of the starting points is a lexicon⁷⁷ which discusses general and specific concepts related to contemporary music, such as aleatoric, minimalist, post-modern or spectral music, musique concrete, performance and happening; noise, color, real-time, spatialization, etc. Each entry is a rich text providing links to the appropriate references (and contents) available in the Gateway. Additionally, an interactive concept map⁷⁸ (see Figure 11) based on the structure of the lexicon, may be interactively navigated from general concept to more specific and then to instances, by folding and unfolding inner nodes which are linked to entries in the lexicon, to online biographies of composers and to lists of their works which are referenced in the Gateway.

An interactive timeline⁷⁹ displays the composers for whom biographies are available online. It can be browsed along the time axis and zoomed in and out. Each thumbnail displays name, dates and photo if available, and when clicked links to the biography.



A tag cloud (actually, a sphere which rotates at a rate which is dependent on the position of the user's cursor) displays the “top” 150 composers (more would have been unreadable) of the Gateway. The relative size of each name is proportional to the number of entries (mostly: scores and recordings) in the Gateway related to this name. Upon clicking on a name, this list of entries is displayed.



77 See <http://www.musiquecontemporaine.fr/doc/index.php/Lexique>.

78 See <http://www.musiquecontemporaine.fr/doc/index.php/Cartographie>.

79 See [http://www.musiquecontemporaine.fr/doc/index.php/Compositeurs_\(frise_chronologique\)](http://www.musiquecontemporaine.fr/doc/index.php/Compositeurs_(frise_chronologique)).

An internet radio⁸⁰ randomly plays the sound clips (music and spoken word) which are available through the Gateway for internet access. The current volume of contents allows for 25 days of non-stop broadcasting without repetition. Depending on the user's player, information about what is being played (composer and title, or speaker) will be displayed, as it is embedded in the streamed contents.



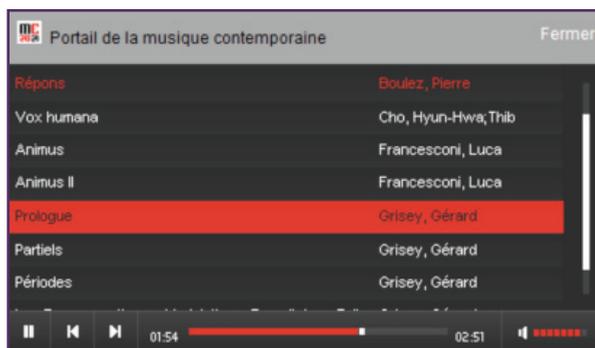
This radio can also be programmed to play specifically crafted programs with preselected files, either from those already available through the Gateway or others specially recorded for the purpose.

This radio is referenced in the Shoutcast list of stations.

Future events can be browsed through a chronological list which is displayed on the home page of the Gateway (and, as mentioned above, searched for through a specialized form).

Access through third parties: external playlists, Wikipedia, Europeana...

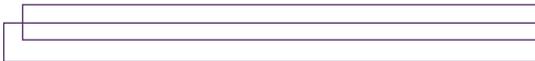
In the spirit of such popular platforms as Deezer, Grooveshark or Jiwa,⁸¹ a playlist editor allows one to select audio contents from the Gateway, to place them in any order, and to produce a playlist. The Gateway will return a widget which, when embedded in an arbitrary web page, will produce a floating player. The contents will be streamed from the Gateway. Registered users⁸² may create any number of playlists and edit them at any later time. A deleted playlist does not cease to exist (so as to avoid broken links on the internet) but is moved to the administrator's account.



⁸⁰ See <http://radio.musiquecontemporaine.fr/>. It uses the Shoutcast free software (see <http://shoutcast.com/>)

⁸¹ See <http://www.deezer.com/>, <http://www.grooveshark.com/> and <http://www.jiwa.fm/>.

⁸² Currently: only partners of the project.



ircam 2021 MUSIQUE CONTEMPORAINE

ircam - multimédia > **notice originale**

2004-2005. Résonances 2004. Concert Ensemble Intercontemporain

Type audio Genre(s) oeuvre(s) musicale(s) Forme(s) document numérique

Accès en ligne [Extraits d'archives en MP3](#)

Accès sur site [Version intégrale](#)

Cette ressource est disponible chez l'organisme suivant : [Ircam - Centre Pompidou](#)

Titre	2004-2005. Résonances 2004. Concert Ensemble Intercontemporain
Publication	13 octobre 2004
Parties	<ol style="list-style-type: none">1 ...Einklang freier Wesen... / Haas, Georg Friedrich (compositeur)2 Ganesha / Schoeller, Philippe (compositeur)3 Droben schmettert ein greller Stein / Jarrell, Michael (compositeur)4 Monodie / Haas, Georg Friedrich (compositeur)
Note(s)	Ensemble Intercontemporain . Cerutti, Michel (percussion) . Stochi, Frédéric (contrebasse) . Nagy, Zsolt (chef d'orchestre) . Nouno, Gilbert (réalisateur informatique musicale) Lieu: Centre Georges Pompidou, Grande Salle

Envoyer la notice

Identifiant OAI oai.ircam.fr/multimedia/AU02012600

Date de la notice 2010-03-16 01:00:00

Identifiant portail [1383761](#)

Contact [Nous écrire](#)

Georg Friedrich Haas : ...Einklang freier Wesen...

Philippe Schoeller : Ganesha

Michael Jarrell : Droben schmettert ein greller Stein

Georg Friedrich Haas : Monodie

The screenshot shows an audio player window with a control panel on the left and a program note on the right. The control panel includes a play button, a progress bar, and a volume control. The program note is for Georg Friedrich Haas's "...Einklang freier Wesen..." (1994-1996). The note is in French and describes the piece's structure and instrumentation. The player interface also shows the title, track, and composer information.

GEORG FRIEDRICH HAAS
«...Einklang freier Wesen...» (1994-1996)

Effectif
Nour Nouno, compositeur basse
Soprano et trompette en soliste
Soprano et basse
Tuba basse
2 percussions
alto
contrebasse

Donné
11 concerts

Éditeur
Universal Edition

Cette pièce a été créée à Graz (Autriche) le 11 octobre 1994 par le Klangforum Wien dirigé par Johannes Kalitzke.

L'impression « ensemble de solistes », par laquelle se défilent le Klangforum Wien, est ce que nous appelons de la « soliste », désignant ainsi de façon courtoise l'ensemble et ses solistes. Autant de titres sont donc attribués à l'ensemble qu'il y a de lignes solistes, entend individuellement mais entendus ensemble dans l'ensemble. On trouve également des pièces « à deux-membres » ou des pièces pour percussion, ou des pièces pour piano, pour violon, pour violoncelle, pour alto, pour trompette, pour trombone, pour tuba, pour contrebasse, pour basse, pour contrebasse basse et deux percussions.

Ces versions, écrites pour un à quatre instruments, sont publiées sous le titre «...Einklang freier Wesen...» (également désignées en anglais par *Ensemble Solists*).

En ce qui concerne les traductions, les notes sont faites par une structure harmonique étrange (à savoir que dans les parties solo, l'harmonie est considérée comme la continuation des voix chantées les uns après les autres, sans que cela soit noté, le résultat est le contre-temps avec une certaine indépendance temporelle des notes successives).

Georg Friedrich Haas
Titulaire de l'habilitation par longue thèse au Centre Pompidou.

Figure 10. Audio players. Top: internet view. Bottom: on-site view (with program note)

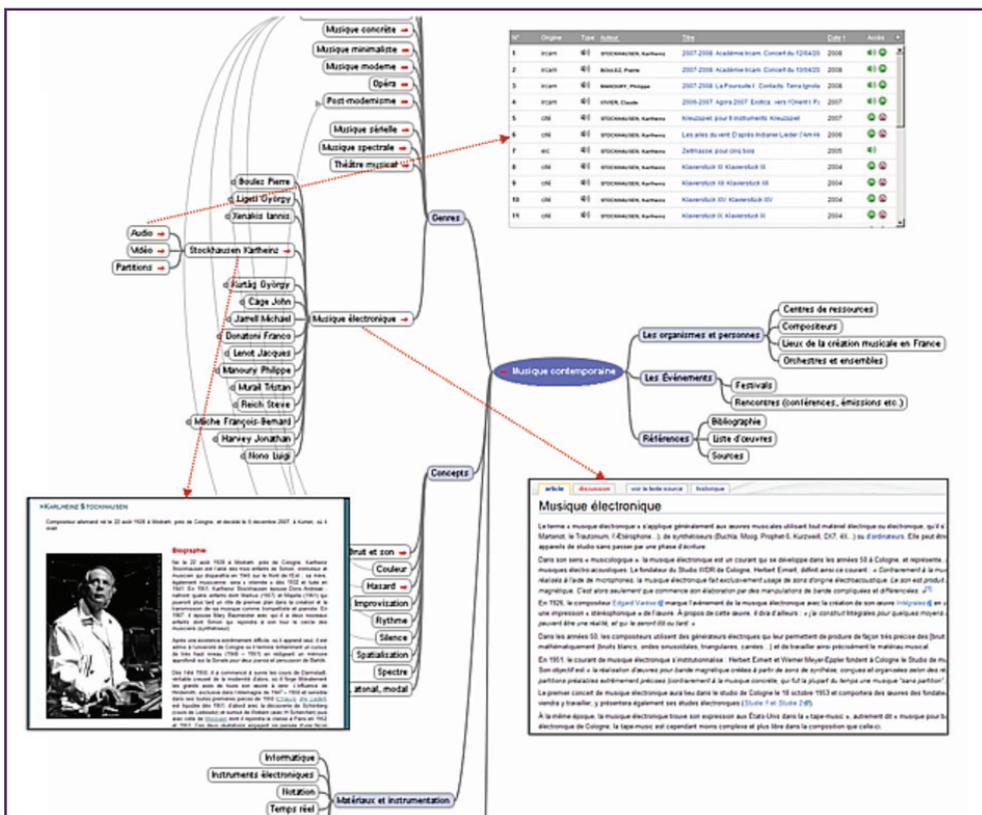


Figure 11. Concept map and links to lexicon, to biographies and to online contents

Like it or not, Wikipedia is a main reference on the internet. Consequently, links were added to contemporary composers' pages in French, English and Italian (and to some in Spanish), allowing the reader to access all audio clips of their works available through the Gateway. As a result, an almost immediate increase of 15% in the numbers of visits to the Gateway was noticed coming from Wikipedia, as well as a four-fold rate of indexation by Google.

The Gateway has implemented its own OAI repositories. Europeana⁸³ currently harvests those of its records which reference digital contents. For this reason, the Gateway is considered as an *aggregator* (i.e., provider of metadata it has harvested, rather than of local metadata) for Europeana and is a member of its Aggregator Work Group. It is similarly harvested by the French Moteur Collections,⁸⁴ which is a search engine for cultural contents available from French cultural sites.

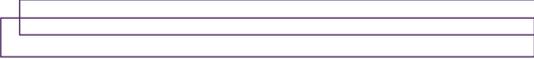
Conclusion

Some indications on the interest for the Gateway come from two distinct directions:

1. As can be seen in Figure 10, every record allows the user to write to the Gateway. These messages are read and answered by a person from the organization from which this record was derived. Messages from many countries with relevant queries of all sorts come in daily.

83 See <http://www.europeana.eu/>.

84 See http://www.culture.fr/fr/sections/collections/moteur_collections.

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2. The creation of many playlists (see Access through third parties above) from the Gateway sound clips.

Full convergence of all the above-mentioned resources has not been fully achieved yet (hence the “towards” in the title of this paper). In particular, the convergence of future vs. past events and the corresponding digital documents has not yet been accomplished. This convergence exists in some of the partners’ databases (e.g. Archiproduct, as shown above) but not in all, hence the need to split an incoming record for an archive into one having the type “event” and the other having the type “sound recording” and providing the proper link between the two. This is currently being studied. Its implementation will in turn allow for the integration in the Gateway of the event browsing mechanisms of Archiproduct.

The Archiproduct project is an IRCAM Engineering Bureau project (design and implementation); it was first launched in early 2007.

The Gateway for contemporary music resources is a multi-year project, partially funded (2007-2009) by the French Ministry of Culture and Communications in the course of their yearly calls for digitization projects⁸⁵ and Sacem, a French company collecting payments for the use of authors’ (and composers’) rights. The Gateway opened in 2007 (9 months after the project was launched) with 6 partners. New partners and small and major features were added in 2008 and 2009 (such as hosting metadata and data, playlist editor, etc.).

⁸⁵ In addition to the development of the Gateway, it provided some funds for the digitization of partners’ archives.