The GRM 'beyond the walls'?

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The technological changes of the twentieth century obliged research institutes to rethink their role in society. A place for invention and reflection, and a centre for the preservation of our musical heritage, the Groupe de Recherches Musicales must open its doors from now on and increase its collaboration with other bodies in an enlarged form: an extended 'group', extramural, which shares its tools and thoughts with others.

1. INTRODUCTION

'Is there a future for the music of the future?' was the title of an issue of the *Cahiers Recherches/Musique* published by the GRM in 1977. Thirty years later, the answer to this question seems to us, a posteriori, evident but permits one to address another question which is a continuation of it: 'What is the place, the function of a musical research institute here at the beginning of the twenty-first century?'

1.1 The material and the immaterial

We will swiftly examine the route taken since the first disturbing question.

- Many social, economic and technological upheavals have favoured the explosion of musical practices in the area of composing with sound. The 'future music' is that of now.
- The transition to digital has afforded us a position of listening to and of browsing deeply into sound. A new ear has developed, more inquisitive, but also more demanding.
- A culture of sound has also become general, thanks to home and mobile equipment.
- The arrival of the home-studio and of musical information technology has encouraged the development of self-production. Everyone currently has his or her own studio, even if one still ignores it. The practices of writing have become unified through software bundles. An audio-digital sequencer is only a 'text processor' specialising in composing sound.[1]
- Finally, the Internet facilitates the diffusion and sharing of knowledge, and communication from one peer group to another. The essential quality of music practice today in the area of sound art is lived outside the institution, outside the scholastic framework, but remains strongly influenced by market tendencies.

We must draw attention to the fact that these two great technological changes have touched first upon the material sphere (the tools of production) to arrive at the immaterial one (the absorption of knowledge). This second wave overturns once more the organisation of society at large and hence equally the way in which musical society is structured.

These evolutions have obliged our institution of musical research to reconsider its position and its social role. For the future we must address and collaborate with a virtual community 'beyond the walls', which has found in the 'concrète' approach to musical creation a practice which is very much that of the present day.

Beyond the wish to open its doors that has been inherent in the musical policy of the GRM for something like ten years, we must at the same time 'take the GRM outside its walls' to latch on to this new public. We have therefore begun a structuring policy for our inherited musical and cultural patrimony so that it becomes accessible to an enlarged community, with partnerships increased in number with the world of education and experimenting with dispositions based upon the possibilities of the Internet.

[1]The mental processes of composition are very close (construction of the tale, dramatic tension, permanent form or variation). The procedures for manipulating the 'text' are the same (copy/paste/delete/move around). Written composition is taught in primary school: may one give in parallel some idea of writing in the medium of audio so that later on one may read it better and be capable of making a choice between those which the musical industry imposes on us?

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2. URBI ET ORBI: FOR THE CITY AND FOR THE WORLD

In order to evolve from an institution of musical research originating from the mid-twentieth century to an enlarged virtual community of those who love 'organised sound', it must pass through mutations and stages of which some are already under way. Below are presented some of these.

2.1. Urbi: inside the profound changes

The work of the GRM has fathered a considerable number of works: radiophonic productions, writings, etc. These documents make up a heterogeneous documentary heritage that, one can be certain, will not stop growing.

This is an important collection of documents, which up till now has resisted dispersion and deterioration thanks to the untiring efforts of those in charge – among others – patiently to keep in place the integrity and the usage of the different '-thèques'. That was an early concern, at the heart of the studio, directed simultaneously towards production within the organization and the communication to the public of its experience and its creations.

Here, from 1977, is a poetic statement relating to the eternal state of its music, indissolubly linked by their support and by the technologies of production and broadcasting:

> A magnetic tape is a ribbon which unwinds, a sort of beach of sounds, where little particles of iron oxide are aggregated and embedded in its magnetic memory. That you know already, but perhaps what you don't know is that in the course of time these particles detach themselves, this beach becomes eroded, inexorably loses the memory of the shape traced upon it – to put it another way, it becomes demagnetised. Paradoxically, the music of the future is written on sand.[2]

Beyond the crucial question of the preservation of documents – this is a task of digitalisation taking many years of incessant work. The accessibility of this mass of documents remains a sensitive point with the GRM; it is to state the obvious to speak of the difficulty of responding to the demands of producers, musicologists, teachers, students, etc.

2.1.1. The introduction of databases at the GRM

Since the beginnings of the studio in the 1940s, the activity of the GRM has been chiefly directed on two axes (research/production), tightly linked to each other. These activities are addressed to the same sources and constituents, and this has been a constant in the working of the Group.

The productions continually feed the heritage of the GRM with multiple elements, and their placement in relation to each other has been made more complex by aesthetic changes and the diversification of supports and technologies.

Knowledge, the capital accruing in human memory, is difficult to hand down in ways that are accessible and usable.

The GRM has therefore used non-relational databases since 1997. Many small specialised databases used to co-exist: organisation of compact discs, organisation of contact lists (composers, performers, institutions, societies), organisation of musical seasons and programming, organisation of the collections in course of digitalisation and so on. All these databases were independent, similar information would be recorded many times over, while it was in addition impossible to obtain several data with one request: to seek out for example information on a composer might require jumping from one database to another.

Faced with this fragmentation of resources, it was therefore decided in 2000 to regroup the bases into a single entity, picturing it with additional functions: the Acousmaline project was born.

When the GRM thus decided to rationalise its system of organising documentation, the idea of a 'made-to-measure' application, designed little by little, one part tied to the GRM's activities, the other from the wish to share the data through the system (Intranet and Internet), enforced recourse to a technology especially adapted to its needs. Similarly, it was necessary to rethink the processes of preservation and of production, thanks to the confluence created by the use of digital. Up to this time, production was compartmentalised in a vertical manner to achieve the function aimed at (radio broadcast, records, print publication, and so on). Henceforth it would become possible to arrive at an editorial element derived from different and complementary supports coming from the same digital database. We must distinguish the way one stores and preserves the contents from their final form ready for publication. To this end, one must think of a data model that describes exactly the constituent parts and enables their re-use. The documentary legacy thus constituted will become long-lasting, for it has been structured is such a way as to remain independent of technological changes and can be re-used in different contexts.

The Information Services Directorate (DSI) of INA (French National Audio-visual Institute) and the GRM jointly wrote the specifications, and the first application started being used in 2001. This first project was created around people (organisation of the list of the GRM's contacts) of the media with which they are associated (sounds, texts, visual information, etc.)

[2]Michel Chion. 1977. 'Écrite sur du sable', *Cahiers recherche/musique* no. 4 (La musique du futur a-t-elle un avenir?), p. 63.

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Media are stored on a separate server, related to their precise description. They can be consulted online, and can be downloaded in their original production quality. Each of these basic building blocks can be represented on a higher level, in function of their consultation use or production needs.

What are the resources that we can deploy on any particular composer? To retrieve an element from one production to use it again in another; to re-assemble the elements in a new production; to communicate a selection of images to the Press etc.

To take the example of a work created by a composer (or 'contact'), the work may exist in various versions. Each version of this work can be linked with several audio sequences, different program notes. The composer has one or several biographies, etc. This work may have been programmed many times, generally photographic documentation exists from every concert, and so on and so on. The list of possible links is a long one.

This information system was straightaway seen as being in a transitional state, to allow the integration of new modules and functions, according to the needs of producers and the possibilities of development. The DSI has taken on this development since 2002, proposing an extended version, working again in collaboration with the GRM to improve the active modules, re-define the interface, add new modules, conceive an external interface.

2.1.2. Acousmaline: a collaborative project?

This sort of arrangement permits one to envisage indexing differently. Usually undertaken a posteriori by the archivist, from now on it can be inserted (in part) during the act of production.

In an ideal situation, the document that is produced ought to be indexed and put into shape for its archiving as a record. It is not the editorial structure accessed to the public, but it is a form of archiving at two levels:

- The archiving of the final production.
- Archiving all the elements, which have served to make up that production and that should be indexed separately.

This process begets constraints: it is necessary to have as priority a formula worked out or accepted by a committee of editors (for example the producers of the content at the GRM). Database functions must be optimised in the future, the user interface has to be improved, and all this to make the stages of indexation as light as possible.

Internet technologies have developed enormously in the last years and from now on will allow retrieval with all the flexibility and ease of working of an interface devoted to an exploitation system.

This improvement foreseen for the tool is an indispensable preliminary step towards the regular indexing of the documents (at key points in their structure), and therefore an essential condition for the continuation of a coherent and usable documentary legacy.

In a production perspective, whatever the form chosen, the fundamental points are to allow the users swift access to information, and the power to arrange it with flexibility. However, the fact of not being restricted during the thought and creativity periods, demand in spite everything that the user of the tool makes a rapid effort to adapt.

2.1.3. Exploitation and valorisation of the documents

The system has been running since 2001 and works internally for storing data, indexing and access to documents. It already facilitates the exploitation and valorisation of resources chiefly by posting online the documents arranged in hypermedia productions.

Preservation of this heritage and the possible usage it generates should not be dissociated (e.g. co-operation, consultation, publication, exhibition). If preservation is not an end in itself, it ought to be seen, as much as possible, as encompassing a reasonable use of the legacy by those working on it, whether within or without the studio.

The editorial and documentation functions still remain too separate to respond effectively to changes in practice inside and outside the institution, despite the development of the Acousmaline project. For all that, we think that their coming together in the creation of a digital document can contribute to organising the editorial holdings in a structured way, and to make easier the access by users to the resources.

2.2. Orbi: the opening to the Internet

Access to the GRM's catalogue of its holdings is the first stage in a publication system, which will add value to its contents. The second stage has comprised the formulation of a clear editorial policy that will permit (by way of adapted interfaces) the envisaging of an intensive effort of production, through many contributors, of highly added value contents. How do we share our culture of sound and empower its diffusion among a public that has become wider and more active? How to strengthen the GRM in its history while at the same time turning it towards new fields of activity?

2.2.1. Hypermedia devices and educational strategies

Since 2001, following the experience of the CD-ROM *La musique électroacoustique*, we have chosen to publish'mini-sites'[3] with multimedia analyses of emblematic works. These online publications used to give us numerous technical problems (sound compression,

[3]Collection *Portraits Polychromes*: www.ina.fr/entreprise/activities/recherches-musicales/portraits-polychromes.html.

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reduced band width) at the time when the system did not have the speeds that are available to users today. This experience has allowed us to test many strategies for publication for the benefit of a wider public. Online production of contents permits, in effect, a flexibility of production and an ability to evolve far greater than the publication of hard copy (books, CDs, CD-ROMs), whose form is fixed.

Proportionate to these appearances we have been able to establish several ideas for hypermedia writing especially adapted to the valorisation of the holdings of our sound heritage. One can group these listening situations into three large categories according to pedagogic concepts and their underlying principles of interactivity. It is desirable to combine these in order to suggest different approaches to the same content.

2.2.2. Guided listening (linear approach)

The 'classic' or 'master' pedagogic model. There is a strong authorial intervention, the transmission of knowledge is top down, but the proposed putting into shape already allows several re-readings. The arrangement guides the discovery of the audio. It compels an idea of order and of hierarchy. One is invited to follow a progression that is one way only. This direction is a given one, revealed.

- This can be through an analytical text that orientates the hearing by suggesting, while reading, audio extracts to discover (guides to listening).
- Or it can be through an animated transcription of music that makes one follow it at once, making it easy to design the sonority graphically and permitting its pinpointing.
- Or it can be by means of a spoken commentary that leads the listener to enter into knowledge of the work that is being studied.

In these three instances, the reader must follow an unfolding, in time or literary, to understand what is sounding. He is guided either by the narration or through the focusing on the environment proposed by the sound-excerpt's presentation.

2.2.3. Browsing in sound (exploratory approach)

There exists readings that are discontinuous, fragmented, interactive (non-linear pedagogic model).

One assumes that the reader is already experienced and has a knowledge of the subject of study. One can therefore suggest to him an agglomeration of documentary elements that will encourage multiple comparative readings (a mapping of sound, sonograms, symbolic or metaphorical representations, pictures, comparison of different constituents). This individual exploration of

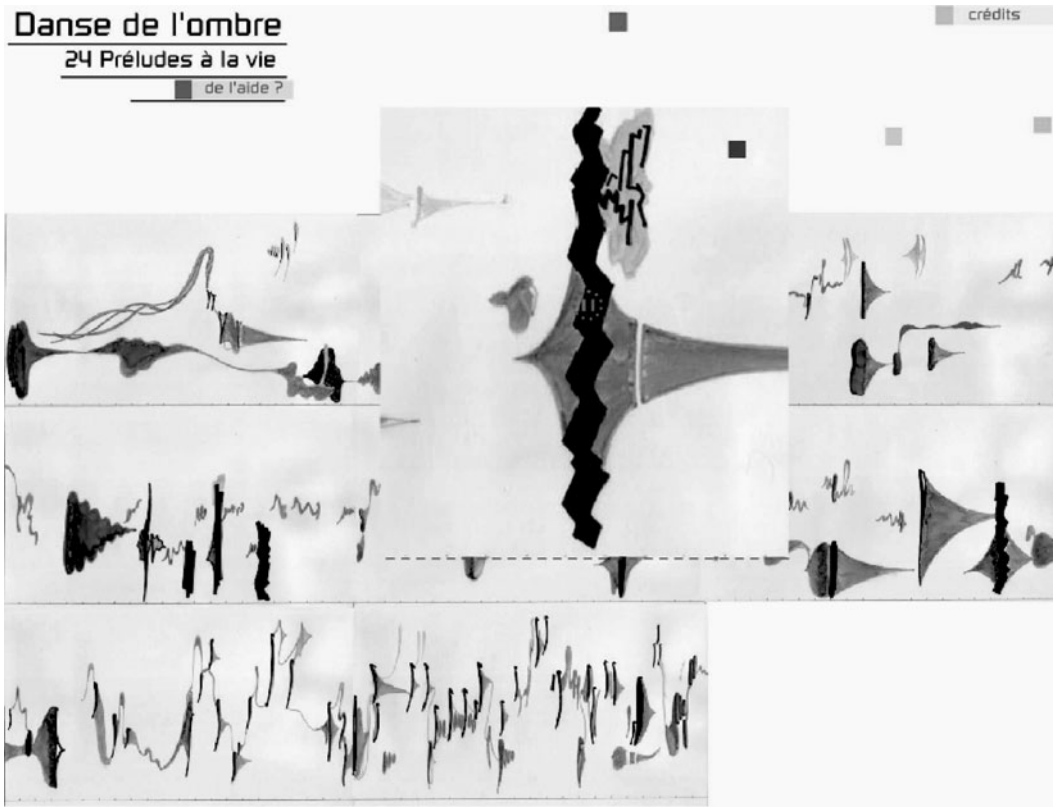


Figure 1. Overview and possibility to zoom in on an extract (exploratory approach). Interactive transcription taken from *Portrait Polychrome* Michel Chion.

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Figure 2. Interface GRM Webradio: time-line, associated media, visual summary, access to asynchronous auxiliary material.

available resources permits the user to construct a knowledge in proportion to his absorption of the document.

The arrangement here favours the exploration of territories of representation, beginning with a general mapping of the music to be discovered and leaving to the user the choice to listen to this or that fragment in making the exploration. One is looking here to give an overall view of the piece and to suggest the mechanisms through which it can be deepened and the information gained placed in context.

The result of this exploration can be committed to memory, and annotated to produce a document which bears witness to the course that has been brought to fruition.

2.2.4. Writing the sound (constructivist approach)[4]

The device allows not only the navigation of the sound, but also the control of it – the manipulation, the moving about. The reader is an agent at the centre of the device. He is in a situation where he can directly influence the production of sound. He must make choices that will modify the sonority 'concretely'. The succession of these choices allows him a better understanding of his subject of study while comparing the original state with that which he has created. He becomes a producer, and can publish and exchange his products with those of others in his peer group.

2.2.5. A new channel of broadcasting: the Webradio device

In parallel with the publication of these hypermedia dispositions exploring pre-organised listening, we have wanted to open a diffusion channel more exactly centred on the audio media. What could be more natural in terms of methods of production than that the GRM, born to radio, should interest itself in the transposition of the ways of listening to this new channel which is offered to it?

In 2003, therefore, we developed a generic Webradio reader that would allow us to publish short reports on the concerts of our musical season very quickly. Other historic contents from the GRM's holdings have followed, republished in this way in the series 'Backup'.[5]

We have thus tried to hold on to all the advantages of the radio medium (lightness, mobility, flow) and to

[4]Theory of apprenticeship developed by, among others, Jean Piaget, who privileged the activity of the subject, permitting the (re)construction of the thing realised by beginning with the elements already compounded. The system permits the enlargement of this strategy of apprenticeship by favouring exchanges among peers. One then directs oneself towards a socio-constructivism (cf. Vygotsky) .

[5]To find the 2005–07 seasons of concerts, and the 'Backup' series, see www.ina.fr/entreprise/activities/recherches-musicales/index.html.

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Figure 3. Two examples of interfaces generated by SCENARI without synchronous enrichment.

complement them with the possibilities of hypermedia (non-linear access, an infinite number of routes through the stored documentation)[6]. The bringing about of this interface tempts us to give back to audio a more privileged place, which makes multiple readings more easy. Some fundamentals are given overleaf.

The medium of communication here remains the audio: all is put to the task of facilitating listening and re-listening with its access, its control, and at whatever moment. The navigation time-line gives an overall view and allows one to leaf through its content, as one would with a printed magazine.

Audio flow is completed by synchronous associated media that enrich its immediate perception during the time of listening.

Certain other, asynchronous and denser documentary media can be founded scripted at certain key moments in broadcasting. They give entry to the deepening that one can consider during the broadcast or outside its time. These contributions to knowledge are accessible all the time, but can be relocated at will in the audio context, which keeps for it the temporal track of an approach – of something structured and inscribed in the time.

The approach centred on enriched audio allows one to hold on to a sensitive approach in the transmission of knowledge, and in particular is adapted to the valorisation of a cultural audio-based holding.

This approach, pursued within the framework of the Écoute project has led us, with our partners UTC (Technology University of Compiègne) and IRCAM, to the development of an editorial chain[7] devoted to Webradio production.

This environment for publication, based on the SCENARI platform,[8] will authorise stabilised produc-

[6]D. Saint Martin and S. Crozat. 2007. Écouter, approfondir. Perspectives d'usage d'une radio interactive. Distances et savoirs. CNED-Hermès.

[7]An editorial chain is a technological and methodological procedure used in documentary engineering. It allows the structuring of a documentary collection (a grouping of contents) followed by automatic publishing, based on this collection, of different multimedia documents.

[8]For more details on SCENARI see http://scenari-platform.org.

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tion for the future, shared by enriched Webradio broadcasts. This arrangement allows one to foresee a publication of multimedia and multi-usage, stemming from the same content.

A broadcasting portal based on the pedagogy of musical creation will be opened at the end of 2007, using the capabilities of this arrangement. 'Back to you in the studios!' will offer access to some twenty broadcasts coming chiefly from the series 'Awake to music', previously presented during the 1970s. These broadcasts will be enriched by witness statements, put into perspective by partners participating in this project. The documentary ensemble thus put together will constitute, we hope, a referent for the thematic treatment of sound creation, of listening and of the making of pedagogic works which are the necessary accompaniment.

The public targeted is that of the educational world, but also the community of those who, often in some way isolated, compose with sound and thus engage with it in an approach of musical creation that might be associated with 'musique concrète'.

3. CONCLUSION

The GRM has found its natural place on the Internet, complementing its opening out. The tools for archiving its holdings, for publication and co-operation are already in place to gather together an entire active community around this unique site, one that claims its own way to create music. This 'GRM beyond the walls' must find in our institution a centre of resources and exchanges, a spot where it can at the same time use its tools of reference and extend a history that from now on is common to us all.

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