Participatory Digital Repositories for the Curation of Performing Arts with Digital Technology

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ABSTRACT

The complexity of socio-technical systems in artistic production involving digital technology, especially in the performing arts, challenges digital curation models with a potential shift from cycles to networks. We argue that digital curation models need to develop in parallel to interdisciplinary investigations of these systems. These investigations question the conceptual separation of curation stages as well as roles. In this paper, we build on previous curation projects for new media arts and on the historical analysis of a specific work of contemporary music with live electronics to propose future directions for the integration of curation practices, artistic practices and digital curation models.

General Terms

Frameworks for digital preservation; Preservation strategies and workflows; Innovative practice.

Keywords

Digital curation; Artistic practice; Music with live electronics; Participatory digital repositories

1. INTRODUCTION

Abbott [1] emphasizes the relevance of digital curation models in the artistic domain, especially in the domain of performing arts, where the goal is to provide the means for new interpretations. The development of lifecycles in relation to artistic production has long been documented as well as collaborative properties of production processes [3]. From an organizational point of view, Benghozi [4] described the artistic production context as *ad hoc* and building on ephemeral organizations involving flexible collaborations and strong commitment of the agents.

While institutional repositories, in relation to research activities, have developed since the early twenty-first century [17], Molloy [19] argues that in the performing arts domain: "the motivation and the enthusiasm for good digital curation practice are both present; awareness, training and reward structures for improved digital curation practice are currently absent" (p. 19). The situation is similar in the domain of contemporary music involving live digital technologies, despite several pioneering projects such as Mustica [5] at Institut de Recherche et Coordination Acoustique/Musique (IRCAM). One reason might be the inadequacy of curation lifecycle implementations with regard to work practices, involving ephemeral organizations but strong commitment.

2. CREATIVE PROCESSES AND LIFECYCLES

Creative processes have gained research attention in various disciplines in relation to diverse artistic domains. Prior [23], investigating experimental practices in avant-garde electronic music from an actor-network theory perspective, states that "[...] it is certainly not the case in music production that sociological questions are more relevant at the point at which the product finds its way through distribution processes, leaving the creative process itself to aesthetics or musicology" (p. 315).

Generally speaking, in a work community, work practice involves repetition and adaptation. Nathanael and Marmaras [20] describe practice adaptation with a situated action and cognition angle: "practice adaptations will typically involve both the minds and bodies of people participating in the community as well as their tools and other material arrangements" (p. 365). In the contemporary music context, Donin and Theureau [10, 11] discuss the temporal aspects of compositional processes in relation to the development of a body of work. They base their arguments, notably, on the study of the work of composer Philippe Leroux and the relations between several pieces, specifically, Voi(rex) and Apocalypsis. They conceptualize the notion of situated composition, in which the tools are critical: "[...] the content and organization of the composer's studio (computer and software included) is a relative invariant built up over a number of years. Long timespan creative cognition, unique individual cognition and situated cognition appear as constituting three related characteristics. In this way, we may speak of a unique individual cognition of a technically situated actor" (p. 247).

Furthermore, from a social perspective on the domain of contemporary music with live electronics, the significance of computer music designers in the creative process has been emphasized in the literature [27]. This situation tends to increase the complexity of the social context of production.

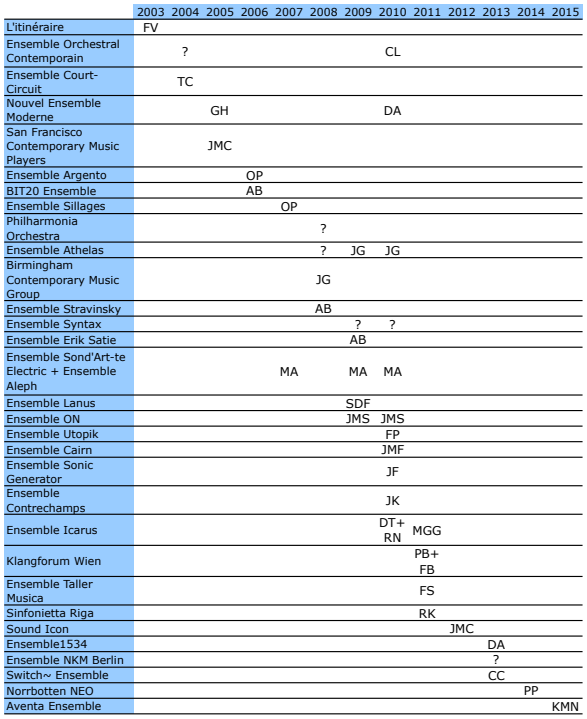

Figure 1: Live electronic musicians (only their initials are provided) involved in the performances of Voi(Rex) from 2003 to 2015 (adapted from Plessas and Boutard, 2015).

Plessas and Boutard [22] distinguish between agents involved in the production of the live software and live performers of the electronic part of the work as those who interpret *the* and *with the* software. They base their investigation of the work of live electronics musicians, notably, on a historical review of the performances of a specific work: Voi(rex) by composer Philippe Leroux. Their case study reveals that the activity of live electronics performance and interpretation could benefit from a complex network of expertise, distributed and developed across time and space, rather than a system defined as a cycle of subsequent improvements. While the electronic part of the work was migrated several times in relation to technological obsolescence, the distribution of human agents in charge of the performance follows a different scheme (see Figure 1). Some of them performed the work several times during the same year, with the same version of the software, but with different ensembles in multiple locations (i.e. different production contexts). Some of them have performed the work at multiple stages of its technological development, sometimes several years after the first performance.
Critically, the modification of the live software is not just related to technological obsolescence but also to the very process of interpretation. Each production of the work is situated in a specific human and technological context (involving performing spaces) and requires a process of interpretation. A parallel view in visual arts is presented by Dekker [9]:

> Important to note in this respect are observations by people who have conducted case studies that it is easier to document a work when it is presented. When a work is in storage it is much harder to talk about specific issues. The installation of a work facilitates the detection of problems and provides a better view on the specific decisions taken or methods used in the creation of the work. It is for this reason that some people argue for more presentations to enhance the visibility and understanding of the way art works (Dekker, 2010). It could be argued that presentation leads to preservation. (p. 163)

From this perspective, use, dissemination and preservation actions collapse into one activity, which, ironically, is distributed across time and space. Plessas and Boutard [22] argue that 1) the non-linearity of the multiple aspects of the production of musical works with live electronics and 2) the absence of a clear separation between bugs and interpretation, question the ways we collect expertise and manage the electronic part of the work over time. We argue that this situation questions the way we curate these works, from the perspective of digital curation lifecycles.

3. PARTICIPATORY DIGITAL REPOSITORIES

Rinehard and Ippolito [25] describe four preservation strategies: storage, emulation, migration, and re-interpretation. Notoriously, Rinehard is a strong advocate for re-interpretation, a strategy which relates notably to the notion of variable media and the Media Art Notation System [24].

> A reinterpretation sacrifices basic aspects of the work's appearance in order to retain the original spirit. Rare for the fine arts, reinterpretation is common in dance and theater, although even in the performance arts its use can be controversial. [25, p. 10]

Reinterpretation is closely related to the notion of performance, and though it is a controversial view, they argue that "[...] society has to move from preserving media to preserving art. In the process, we will have to view change not as an obstacle but as the means of survival" (p. 46). The performance requires re-interpretation of the socio-technical framework with a constant investigation of the boundary between migration and interpretation [22].
According to Caplan, Kehoe and Pawletko [7], "there is wide agreement in the international preservation community that responsibility for long-term preservation of scientific and cultural heritage materials must be shared among many organizations" (p. 35). The distributed property of long-term preservation is not limited to the organizational level. Kunda and Anderson-Wilk [17] state that "[...] digital preservation is only one aspect of the larger, necessarily collaborative role of digital curation" (p. 896). Kaufmann [15] provides an example, in the artistic domain, of distributed expertise at the individual level (the use of forums of expertise for the preservation of artworks in relation to specific digital technologies).
In this context the question of stakeholders in digital curation is critical. Dappert and Farquhar [8], state that "in

the digital preservation context, significance is determined by the stakeholders involved in the preservation process. These include the producer of the digital object, the custodian who holds it, and the consumer who will access it" (p. 302). The sociology of art has brought into light the role of intermediary professions in relation to art production, especially in relation to technology [18]. Konstantelos [16] argues: "viewing software art as a sociotechnical system – where the development of artwork binds people, processes and technology in a joint and collaborative effort – could lead to a (re-)appraisal of our understanding of context" (p. 18-19). Similarly, in the new media arts domain, Obermann [21] proposes to include assistants in the documentation process. On the other hand, creative processes are unique and attempts at modeling roles and interactions, e.g. the Capturing Unstable Media Conceptual Model (CMCM) developed by V2_Organisation [12], have strong shortcomings: "notwithstanding the high value of their theoretical underpinnings, one of the pitfalls of all the models discussed, especially those of VMQ, MANS, and CMCM, is their highly prescribed structures which, as said before, makes it difficult to implement a realistic and easily repeatable documentation project in conservation practice, especially outside the field of installation art" [9, p. 164]. Consistently with their proposition for re-interpretation, Rinehardt and Ippolito [25] go a step further; they "[...] reject the notion that a bunch of preservation experts in a room will someday concoct a one-size-fits-all technical fix to rescue culture from oblivion. Instead, we see rescuing new media as a task that is best distributed across a wide swath of cultural producers and consumers, who will choose the most appropriate strategy for each endangered work, one by one" (p. 10). Rinehardt and Ippolito's statement leads to the discussion about convergence between crowdsourcing and preservation: "this potential for crowdsourcing the preservation of context is one reason that the Variable Media Questionnaire now encourages input on artwork's essence not just from the creators and curators close to a project, but from those with no more claim to authority than the average gallery-goer" (p. 178).
In light of the Voi(rex) case study, the socio-technical system, emphasized by Konstantelos [16], is a complex network of human experience and technological migration and (re-)interpretation (i.e. adaptation of the software to the current production context of the work as described by Plessas and Boutard [22]). The goal to integrate this situation at the curation level has three consequences:

1. the need for collaboration repositories, in the sense given by Treloar, Groenewegen and Harboe-Ree [26], that is to say, as opposed to publication repositories;

2. the need for non-linear curation systems that fit practices; and

3. the need to propose non-prescriptive (i.e., not based on formal models constraining the definition of the creative process) documentation methodologies.

Several initiatives in the artistic domain have built on crowdsourcing and distributed expertise, such as Rhizome and the Archive of Digital Art (ADA). Authors have emphasized the use of new technologies for curation purposes. For example, Kunda and Anderson-Wilk [17] state that "in the last several years, with the rise of Web 2.0 and social computing, our institutions of record are facing a new digital curation challenge: stakeholder communities of interest are now expecting customized Web interfaces to the institutional knowledge repositories, online environments where community members can contribute content and see themselves represented, as well as access the archived resources" (p. 896). In the context of moving image archives, Gracy [13] states: "in some ways, it is inevitable that social networks should extend into the work of cultural institutions, as they have infiltrated other institutions (such as education and government)" (p. 185).
The question is then: which methodological framework for curation fits the need for participatory digital repositories? The Digital Curation Centre's (DCC) curation lifecycle [14] is linear within its circularity; it builds on the Open Archival Information System's (OAIS) input-output/producer-consumer model by connecting both ends with a focus on use and re-use. It lacks potential for integrating lessons learned from these 'last several years' as well as recent propositions based, notably, on interactionism and activity theory [6]. In light of the Voi(rex) case study, new approaches to digital curation require participation and interaction at every so-called stage of the curation lifecycle, creating a complex network of interactions among all the stakeholders. Barry, Born and Weszkalnys [2] describe three modes of interdisciplinarity: 1) integrative-synthesis; 2) subordination-service; and 3) agonistic-antagonistic, where "[...] interdisciplinary research is conceived neither as a synthesis nor in terms of a disciplinary division of labour, but as driven by an agonistic or antagonistic relation to existing forms of disciplinary knowledge and practice. Here, interdisciplinarity springs from a self-conscious dialogue with, criticism of or opposition to the intellectual, ethical or political limits of established disciplines or the status of academic research in general [...]" (p. 29). They further describe three rationals motivating interdisciplinary research: 1) accountability, "[...] breaking down the barriers between science and society [...]" (p.31) ; 2) innovation ; and 3) ontology, questioning models, assumptions and values. The logic of ontology is thus a driving force for a truly agonistic-antagonistic interdisciplinary research. The need for re-envisioning the question of curation lifecycle, stakeholders and creative processes is fundamentally an interdisciplinary question, which requires an agonistic-antogonistic approach.

4. CONCLUSION

The study of artistic practices involving digital technologies, especially in the performing arts, tends to put into a different light the vision of digital curation as a simple lifecycle. The assumption that "the use and interaction that takes place between the community and the digital resources, within the curated Web space, is the breeding ground for new, improved formulations of knowledge, which are then deposited into the IR [Institutional repository]" [17, p. 905], requires to posit an *a priori* conceptual boundary between knowledge production and digital repositories. This position leaves the repository outside of what Rinehardt and Ippolito refer to as the 'essence' of the work. There is an urgent need to question this boundary and, as a consequence, the roles (and the range) of the stakeholders.
The theoretical framework for new models of curation re-

quires interdisciplinary research including: digital curation; computer supported cooperative work, building on its ethnomethodological roots [2]; activity theory and work psychology [6]. The strong commitment of agents in the artistic domain, as described by Benghozi [4], supports the possibility as well as the necessity to do so.

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