Reimagining the Object Record:

SFMOMA's MediaWiki

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STEDELIJK STUDIES

Introduction

Behind the floor-to-ceiling glass wall that separates his book-filled office from the administrative spaces, Rudolf Frieling, Curator of Media Arts at the San Francisco Museum of Modern Art (SFMOMA), still entertains a little viewing station with a DVD and VHS player, connected to a 1990s CRT monitor. The colorfully cabled setup is a remnant of a time when artists and galleries sent VHS viewing copies directly to curators to promote their works. For curators, such a setup provided a practical and necessary portal to accessing their collection. Single-channel video works could easily be viewed or previewed in this way. However, more complex video installations are not as accessible. For instance, to stage Christian Marclay's immersive four-channel installation *Video Quartet* (2002) for Frieling in 2012, media technicians at SFMOMA had to set up four synchronized DVD players and four monitors—the installation art's cumbersome equivalent of pulling out the wire mesh art screen that houses a painting in storage. The four-channel video projection consists of a myriad of found footage segments and is, in and of itself, a musical composition, with the four channels of the work coming together like four different instruments playing in unison.

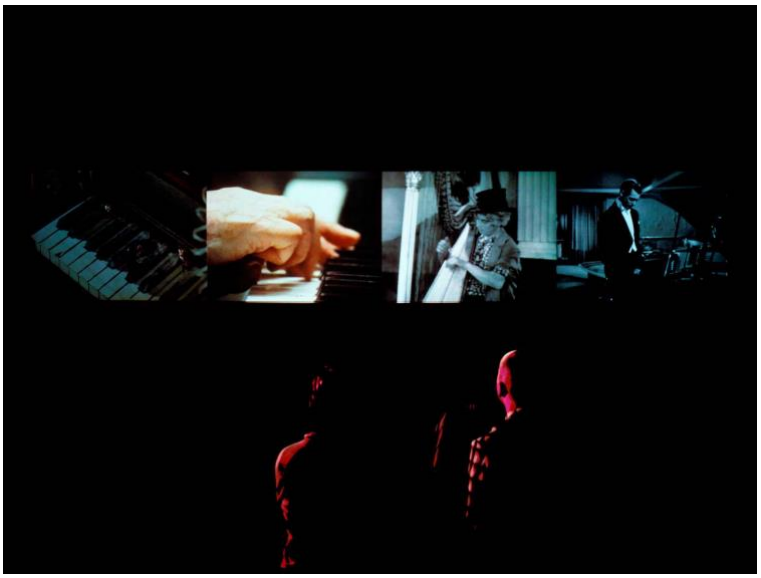

Fig. 1. Christian Marclay, Video Quartet, 2002 (installation view), SFMOMA Collection.

Gift of the artist and the Paula Cooper Gallery; commissioned by the San Francisco Museum of Modern Art and Musee d'Art Moderne Grand-Duc Jean, Luxembourg, with the generous support of the James Family Foundation. Image copyright Christian Marclay.

Like looking at only one panel or sheet comprising a quadriptych, watching each video channel separately will not reveal the work. This somewhat on-the-nose example illustrates the inherent challenge that contemporary art installations—and media installations in particular—pose for institutions at every step of the way: the works only come into existence when installed, and the states of existence can be variable. This paper is an experience-based case study of SFMOMA's adoption of the MediaWiki platform as a documentation tool to help represent the aboutness of contemporary art through reimagined, open-ended object records that can accommodate differing degrees of variability in art, and for which collaboration among individuals and teams is key.

A Commitment to Collaboration

The variable nature of complex media installations has far-reaching consequences for access, documentation, display, and experience. Shifting degrees of variability in a work's display (sometimes stipulated, sometimes by necessity, sometimes by circumstance) create a series of iterations ("manifestations") that over time allow the essence of the work ("score") to emerge.[1] Furthermore, this inherent variability requires museum professionals, in our roles as stewards, to transform our mindset and practices, so that rather than taking the approach of preventing change in works, we are actively managing change, even deliberately

allowing change to happen, and engaging the artist's participation in this process. In this new role, documentation has become a central effort and practice in the preservation of and access to contemporary art, as evidenced by early media preservation initiatives such as the Variable Media Network, Matters in Media Art, and the DOCAM Research Alliance (Documentation of the Media Arts Heritage), all of which address and promote new forms of documentation.[2] Today the Guggenheim's *Iteration* and *Identity Reports* have become standard models for documenting media art installations and have been adopted by most large institutions.[3] Experiments with more comprehensive, cross-disciplinary forms of documentation have surfaced in recent years, with Web-based projects like *The Rauschenberg Research Project* (2014) and *The Artist Archives Project* (2016–ongoing) providing a deep dive into one artist's oeuvre.[4]Most promising and ambitious may be the Andrew W. Mellon-funded project *ResearchSpace*, a platform that utilizes Linked Data to create multi-authored knowledge graphs.[5] What all these documentation projects have in common is an underlying commitment to collaborative practice, which for media art in particular has long been identified as an indispensable ingredient to collections stewardship.

A commitment to collaborative practice also underpins everyday workflows at SFMOMA, enabling a robust culture of interdisciplinary partnerships across multiple departments to take hold. Especially for media artworks, this commitment can be traced back to the early 1990s. The museum's Media Arts department, founded in 1987, was one of the first of its kind in the United States. In 1992, when its collecting of media artworks reached a pivotal point, Jill Sterrett, former Director of Collections, formed a small working group—appropriately named Team Media—consisting of a media technician, a registrar, and herself. Realizing that there were no established methods at the time for stewarding these works—let alone a media conservator on staff—the group began approaching challenges as a team, setting forth a way of working that has continued into the present. Today, Team Media brings together over a dozen colleagues from the curatorial, conservation, exhibitions technical, registration, information technology, and collections information departments, with external specialists joining as regular guests. Media artworks, with their various materials, issues, and needs, rely on collaboration in stewardship among a diverse group of people. Working across disciplines, Team Media fills gaps in information and extends our collective knowledge of individual artworks as well as art practices. This cross-departmental methodology leads to two results: 1) knowledge is dispersed horizontally, leading to a deeper understanding of a colleague's tasks and information needs, as well as a more synergistic system which encourages increased productivity and confidence; and 2) through continuously practicing collaboration, the edges of professional positions begin to blur and a de-siloing of roles takes shape. Knitting a robust support structure within the institution in this way creates a democratic climate that allows for gracious, trusted, and frank dialogue.[6]

With several years of experience stewarding a media art collection in a collaborative work environment, Sterrett has reflected on the ways that variability in contemporary artworks drives museums to shift their practice and has urged contemporary art institutions to lean into the "uncomfortably open-ended" territory that comes with acquiring, loaning, exhibiting, and caring for these works of art.[7] Making this shift depends on fostering interdisciplinary and cross-departmental collaboration; creating physical spaces where complex installations can be staged and studied (spaces such as studios, labs, or mock-up galleries);[8] and developing full forms of documentation to adequately capture the essence, the nature, and the history of these works as they change over time. Furthermore, such a foundational shift in institutional operations needs to be supported by technology that is designed with the same underlying commitment for collaborative ways of working and bolsters museums in documenting the different forms of existence taken by these iterative works. A technological platform of this caliber needs to be a place to capture knowledge from every quarter and spur further research as knowledge is being explored; it needs to be a portal of access and experience for the entire museum staff and external researchers or partners alike. The needs of contemporary artworks and their caretakers go beyond the technological platforms commonly and historically used by museums in documenting objects in their collections. In other words, it may be necessary to reimagine the object record.

Fig. 2. A cross-departmental team examines works on paper by artist Vija Celmins at SFMOMA in 2017.

Looking Back: Framing the Challenge

A collections management system (CMS) is a familiar and common tool for art museum professionals to contribute, find, and distribute information related to art and artists. For most museums, their CMS is seen as the system of record for collection and exhibition information. A fundamental expectation is that a CMS should assist us with activities at

the heart of managing collections (e.g., acquisitions, conservation, research, exhibitions, publications) and should absorb the manifold types of information generated, gathered, and used in the course of those activities. In our experience, many of the well-established, vendor-based collections management systems marketed to museums over the past thirty years have inadequately supported the full range of documentation and knowledge production happening in art museums today.[9]While CMSs can work well in certain areas—such as in helping staff track and report on a work's history of acquisition, valuation, movement, exhibition, and publication—many commonly used systems fall short of supporting the information needs of museums managing complex, conceptual, or cumulative contemporary artworks.[10] We have found that complex works often "defy traditional categories"[11] used by museums in CMSs designed to systematically represent more traditional art forms, such as paintings, drawings, and photographs. The result is that we have been (unsuccessfully) forcing information about complex works into systems that have imposed boundaries on artwork representations, and this can influence how we experience and understand complex works. As Vivian van Saaze describes in the acquisition case study of *No Ghost Just a Shell*, cataloguing the work within a CMS's limited capability "transforms the acquisition and will have an effect on the artwork's future career."[12] Media artworks are particularly challenging for CMSs to represent adequately in object records, given that these works can have different analog, digital, or virtual components of many variations and statuses, may have evolving iterations or varying instances, and—most simplest—media artworks may have more than one location at the same time for the exact same digital object. In addition, the level of complexity that often comes with such artworks makes cross-disciplinary, co-authored documentation and its contextualization essential, given that comprehensively managing and documenting change in complex works relies on a multitude of perspectives.

Adding to the conundrum, many widely used CMSs lag behind in areas of usability, interface design, interoperability, flexibility, and mobility. For example, only within the last few years have we seen vendors of these systems develop browser-based versions, and many of the largest vendors have only recently provided API services.[13]

Generally, museums may be reluctant to move away from their established systems to new systems because of the anticipated costs and the real and imagined levels of difficulty involved in making that change.[14] For SFMOMA this meant using the same CMS for over twenty-five years. That said, we have long recognized the need to take greater control over this situation, in support of our contemporary art collection and collaborative practices. A decade ago, for example, we partnered with a user experience design firm to develop a conceptual framework for collaborative knowledge production in museums, and this framework has offered guiding principles in our search for systems that can support the needs of contemporary art and its caretakers.[15] The framework articulated objectives for an ideal information system, among them: a) encourage knowledge capture from many perspectives and contexts, and b) create an

experience that people will like and want to use. Simply put, good user experience and interface design are fundamental to encouraging and supporting a collaborative, multi-voice approach to art documentation and knowledge production. In lieu thereof, poorly designed or otherwise unlikable, frictional legacy systems (whether digital or analog) can compel individuals to find workarounds and/or to stop using these systems altogether, resulting in hidden or lost information about artworks.

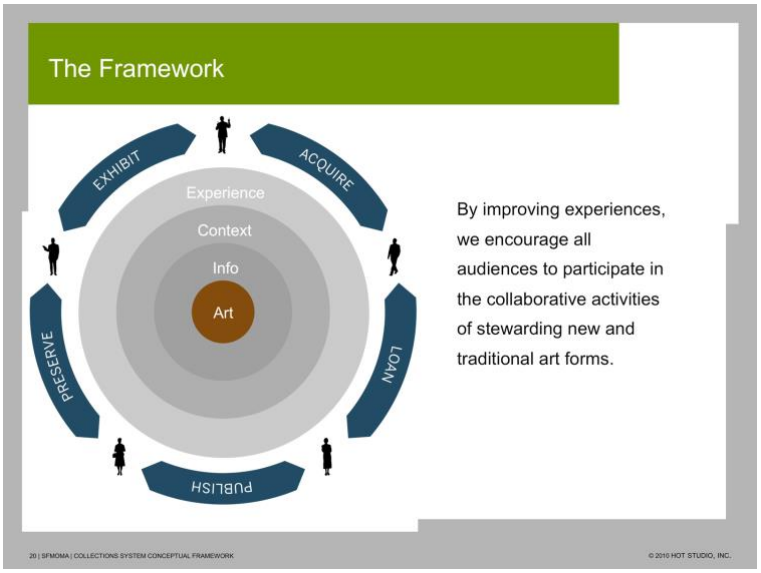

Fig. 3. Conceptual framework (detail) summarizing connections between art, activities, and experiences with information systems.

Comparable to museums of similar size, SFMOMA's ever-accumulating constellations of art documentation are distributed among the collections management system, a digital asset management system, our library and archive, and hardcopy object files maintained for decades by curatorial and collections departments. With one folder per artwork, the hardcopy object files are a micro-constellation of art documentation and have endured as a resource because of their ease of use. These object files contain printed copies of correspondence, contracts, installation instructions, and select publications related to the artwork.[16] Further complicating our art documentation constellations, individuals and departments have maintained separate hardcopy folders for artworks and are compiling (if not managing) digital files—including email—on discrete active or archived network drives, with varying degrees of overlap.[17]

While a certain level of redundancy helps protect information from being lost, the unnecessary repetition and siloing of information hinders collaborative processes, overly complicates workflows, and can result in confusion over which system is the system of record for particular pieces of information. Rather than attempting to identify a single, catch-all system into which to force every piece of art information (such as into our decades-old collections management system), SFMOMA began exploring avenues

for collating activity-based information informed by our conceptual framework. An initial attempt was made in 2011 with the development of a so-called preservation dossier, having the dual aim of expanding on and uniting the hardcopy object file systems historically kept by individuals and departments for preservation-related activities and attempting to address gaps in contemporary art documentation experienced with collections management systems.

For the 2011 effort, we used a small number of artwork test cases to explore making dossiers in the form of physical binders comprising tabs or sections designed to be universally applicable to any artwork in the collection: Curatorial Description, Technical Narrative,[18] Installation Documents, Preservation Requirements, Artist Interviews, Correspondence, Exhibitions and Loans, and Contracts. As noted, documenting artworks benefits tremendously from a collaborative approach. Multi-perspective, interdisciplinary contributions add a broader array of considerations and experiences when updating art records in response to new events in the lifecycle of an artwork, such as the installation of a new iteration of the work within an exhibition. With the preservation dossiers, the idea was for staff in different departments to populate this new record system by simply printing out two copies of a document—such as a copy of a work's installation instructions or the transcript from an artist interview—and file one copy in their home department's filing system and the second copy in the respective tab of the dossier. This system allowed for capturing and combining a diverse set of information from different disciplines into a common art record, which in the past remained dispersed among departmental files, and/or was difficult to place contextually in our collections management system.

Conceptually, the dossier exploration succeeded in helping staff visualize and organize constellations of information into active, multi-authored object records. In this exploration, the preservation dossiers remained analog, living as binders on a shelf in the Conservation department, making these records too far out of reach to be easily accessible. We heard from staff that the effort of printing and filing two copies of documents was too cumbersome. The paper-based dossier system also proved to be a mismatch for making records of media art installations. With their gallery-filling, immersive environments and time-based components, these installations are a challenge in and of themselves to document—a challenge which evades documentation systems limited to textual descriptions, still images, and analog diagrams. Through advances in affordable technologies, video and sound recordings have increasingly become a fixture in documenting media artworks, exposing a big gap in the dossier's functionality. With its punched paper nature and plastic tab dividers, and despite its conceptualization as a combinatorial object record, the analog binder system lacked access, dissemination, and reproducibility possibilities, and was truly impeded by its medium. After a few months of testing, it became clear that the dossier system was not sustainable or adequate. The next logical step was to take this documentation model into the digital realm.

SFMOMA’s MediaWiki: Activating a Portal into Digital Object Records

Set up in 2012 by software consultant Mark Hellar on a small server on SFMOMA’s internal network, a somewhat rogue experiment was launched: was it possible to transform the analog binder system with its universal structure and collaborative setup onto a digital platform and thereby curtail the siloing of information into discrete departmental files as well as address the shortcomings of collections management systems around documenting contemporary art? This new experiment centered on making an SFMOMA instance of the free and open source software MediaWiki and testing it as an artwork documentation and access system.

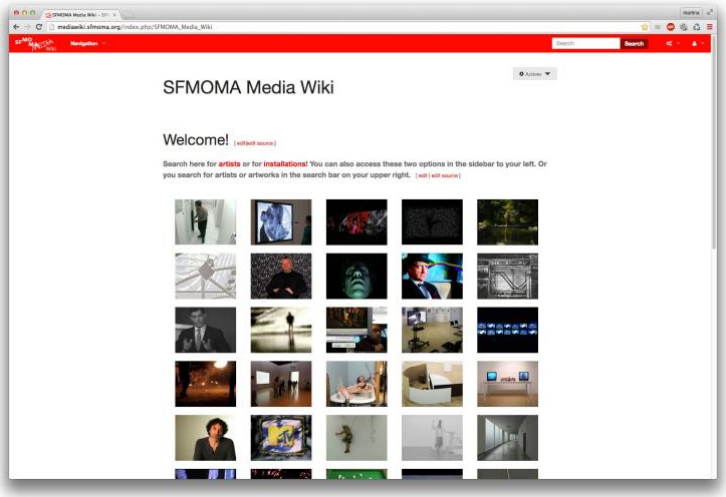

Fig. 4. Homepage of SFMOMA’s MediaWiki after its design overhaul in 2016.

MediaWiki was initially released in 2002 as the underlying wiki engine for the online encyclopedia Wikipedia.[19] The software is a fundamental part of the larger Wikimedia universe, which aims to “use the collaborative power of the Internet, and the wiki concept, to create and share free knowledge of all kinds.”[20] It uses a relational database back end with a page structured front end. This page structure allows for information to be presented in an easy-to-read, contextualized manner. Page entries in MediaWiki—such as for people, places, and things—are fully text-searchable, and pages of similar type can be grouped together by category. For example, in the early stages of our MediaWiki experiment we used categories like artwork, artist, exhibition, and interview to distinguish and sort categorizations commonly used by museums. The platform can host various media, ranging from images to PDFs to audio and video files, and the MediaWiki API allows other systems to easily interact with it.[21] An active user community and a network of developers are continuously expanding MediaWiki’s capabilities; for example, in 2016 the community published a so-called extension providing support for 3D renderings of CAD files.[22] To contribute or

edit content in the MediaWiki, individuals log in with their user names, and a platform-integrated version control tracks every edit, supporting collaborative and research-based record-making. While other wiki platforms such as Confluence[23] come in a frustration-free plug-and-play installation package, we decided that the flexibilities and possibilities offered by the open source, locally designable MediaWiki[24] platform outweighed the initial, though ultimately confining, one-size-fits-all simplicity of proprietary systems.[25]

The scope and structure of our preservation dossiers was the point of departure in designing SFMOMA's MediaWiki. We began by creating pages for artworks, and while there was some desire to carry forward a structure similar to that used with our dossiers into the MediaWiki artwork pages, there also was an appeal to allowing a certain freedom in customizing the representation of artworks.[26] This permission for messiness conceptually jibed with artworks that are variable in nature and often defy traditional museum cataloguing and classification.[27]

Video Quartet - SFMOMA Wiki

Not Secure | mediawiki.sfmoma.org/in...

Apps

Navigation

Search SFMOMA Wiki

Search

Video Quartet

Actions

Artist Name	Christian Marclay
Artist Description	American (San Rafael), born 1955
Title	*Video Quartet*
Year	2002
Description	four-channel video projection, color, with sound, 13 min.
Credit Line	Gift of the artist and the Paula Cooper Gallery; commissioned by the San Francisco Museum of Modern Art and Musee d'Art Moderne Grand-Duc Jean, Luxembourg with the generous support of the James Family Foundation
Accession Number	2002.116.A-D

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Video [edit|edit source]

Curatorial Description [edit|edit source]

Commissioned in 2001, this four-channel video projection presents an intricate montage of film fragments showing people playing instruments, singing, or performing actions that generate noise (knocking on a door, for example). The projections are synchronized to produce a visual-musical composition in which the previously unrelated performers play together — a recontextualization that supersedes the actors' original, fictional context. In this instance, in addition to being a composer, the artist becomes the conductor of a multilayered auditory and visual sculpture, thus offering a unique blend of experiences of recorded time. Constructing a coherent narrative (with music as a theme or purpose) out of found objects, images, or sounds is at the core of Marclay's creative process. From reassembled LP fragments to juxtaposed record covers, from remixes to montages, the artist engages the materials to produce new forms and thus new meanings. While he may appropriate fragments of other artists' work to create his own, Marclay tends to consider this process a form of collaboration.

How Christian Marclay created the ultimate digital mosaic, The New Yorker.

Technical Narrative [edit|edit source]

The work is a four-channel video projection. The four video channels need to be synchronized and visually arranged in a way that the final credits can run across all four screens continuously.

Components [edit|edit source]

4 synchronized video files

Exhibitions [edit|edit source]

- **2012, Video Quartet**

Cantor Arts Center Nov 14, 2012 - Feb 10, 2013

Across a bank of four screens, Maria Callas, Jimi Hendrix, Marilyn Monroe and scores of other musicians and actors make some kind of sound, seemingly in response to each other—much like players in a musical ensemble. This is Christian Marclay's "Video Quartet," a publicly and critically acclaimed 14-minute DVD projection, on view November 14 through February 10 at the Cantor Arts Center at Stanford University.

Christian Marclay, born in San Rafael, California, is a 57-year-old Swiss-American who has enthralled the art community for years with his musical, sculptural and video collage work. He has performed or recorded with Sonic Youth, Kronos Quartet and Merce Cunningham. His pieces are in the permanent collections of the San Francisco Museum of Modern Art, the Museum of Modern Art, the Whitney Museum of American Art and the Centre Pompidou. In 2011, he was recognized as the best artist in the Venice Biennale, winning the Golden Lion for his 24-hour, real-time synchronized video collage, "The Clock."

Marclay created "Video Quartet" on a home computer, using an off-the-shelf editing/composing program. He sampled more than 700 Hollywood, animated or other films—first scrolling through thousands—to collect footage of people singing, playing instruments, tap dancing, knocking on doors or somehow making noise. He then choreographed the snippets into an entirely new, flowing narrative. His governing impulse as an artist, he has said, is to take what people find familiar and create a new experience.

Indeed, Connie Wolf, the John & Jill Freidenrich Director of the Cantor Arts Center, says she's never seen anything like "Video Quartet." "It's absolutely mesmerizing. You're lulled into this enchanting world of beautiful music and favorite films and remarkable pairings of actors and musicians. You won't want to leave."

The work is on loan from the San Francisco Museum of Modern Art. The work is a gift of the artist and the Paula Cooper Gallery; commissioned by the San Francisco Museum of Modern Art and Musée d'Art Moderne Grand-Duc Jean, Luxembourg with the generous support of the James Family Foundation.

This exhibition is made possible at Stanford by the Contemporary Collectors Circle, the Clumeck Fund, and Cantor Arts Center Members.

Anna Koster

Installation [edit|edit source]

Room Requirements [edit | edit source]

Fig. 5. View of the Video Quartet artwork page on SFMOMA's MediaWiki documentation platform.

Over time, our MediaWiki moved from its experimental state to being an accepted destination for information not previously nor satisfactorily captured by our other systems, and for information that benefited from the contextualized, combinatorial presentation of the wiki page. Conservators provide installation instructions and treatment considerations; media technicians upload floor plans and enter equipment lists; curators appreciate the ease of access to their collection and contribute rich descriptions of works and exhibition histories contextualized with images; and registrars use the information to prepare outgoing loans. Digital viewing copies of artworks and other videos are embedded and linked via the museum's digital asset management system (DAMS) by digital asset managers. All players contribute to an iteration's decision-making section inspired by the Guggenheim's *Iteration Report*, and the wiki platform's version control tracks exactly who has contributed what. We stress tested the MediaWiki while engaged in our Mellon-funded Artist Initiative program (2014–2019), a program that supported SFMOMA staff in engaging collaboratively with living artists and working cross-departmentally in collections stewardship and research activities. The program provided the museum's staff with additional resources and content around which to test and review possibilities for documenting complex, variable works.

In particular, the Artist Initiative team's collaboration in 2016–2018, with artist Julia Scher around her work *Predictive Engineering*, pressed us to examine—with the artist—the structure of the MediaWiki as a home for documentation and information about *Predictive Engineering* that is generated by different disciplines around the museum.[28] This examination resulted in expanded artwork pages in the MediaWiki, including a research section containing information on conferences, artist residencies, secondary sources, related artworks, and museum visitor responses to the works. In fact, so many new sections of information had been added to the MediaWiki that the design of the artwork page needed to be revised to continue making it easy to contribute and view contextualized artwork information. This evolution was an ostensive example of two things: 1) how a multitude of voices can lead to richer, more complex, and arguably more comprehensive artwork records; and 2) the intrinsic relationship of functionality and design, and how one could not be tackled without the other.

Documenting an artwork is an active process, and this is reflected in our open-ended records, which are never considered finished. As artworks evolve over time, so does the institution's relationship with them. By taking an inquisitive approach to art documentation and leaving space for uncertainty, we are giving the artworks room to live and expand. While this may be "uncomfortably open-ended," the consequences of the opposite would be a far greater disservice: trying to lock down something that has a fluid existence. In the process of accumulating a micro-constellation of information around an artwork in our

MediaWiki records, we are consciously choosing what we deem relevant or useful to our needs as stewards and researchers of the work. The MediaWiki is a visible example of this editing process. Rather than a collection of *all*information, of *all* images, we pick and curate information (including from our systems of record), placing it into an art-life context as works are activated for events such as staging, research, and exhibition.

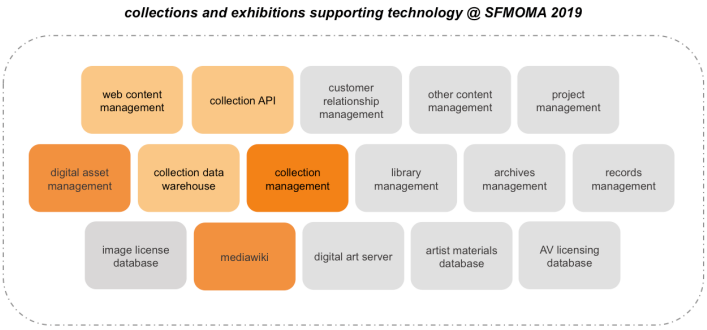


Fig. 6. SFMOMA's art information ecosystem as it appeared in 2019.

On its own, MediaWiki simply presents pages of contextualized information (text, images, videos, documents) readable by people but not machines. To take better advantage of the abundant data flowing throughout the pages, Linked Data could be utilized, which would allow people *and* machines to query, read, and exchange structured data compiled in the MediaWiki with data in other systems. Linked Data is a way of modeling data semantically so that relationships and descriptors between subjects (such as a person) and objects (such as an artwork) are stated explicitly; for example, one can state that Christian Marclay *HasCreated* an artwork, which *HasTheTitle* Video Quartet and which *WasCreatedInTheYear* 2002.[29] In expressing the relationships between subjects and objects, a Linked Data model encourages a semantically connected universe of knowledge that can be understood and used by people and machines.[30]

With MediaWiki as a starting point, there are two ways of expressing such semantic connectivity through Linked Data: WikiBase and Semantic MediaWiki (SMW). WikiBase is the underlying software used by the very active WikiData repository, running as a separate application as of this writing. Semantic MediaWiki, on the other hand, is an extension to MediaWiki, which, once installed, integrates with MediaWiki. After some consideration, SFMOMA decided that SMW was an easy way into Linked Data and would be perfect to use in an initial exploration of semantic statements within our existing MediaWiki. We were also attracted to SMW's PageForms extension, which can be used to design beautiful forms for easy data entry. Through an accompanying template, entered data is automatically transformed into semantic statements.

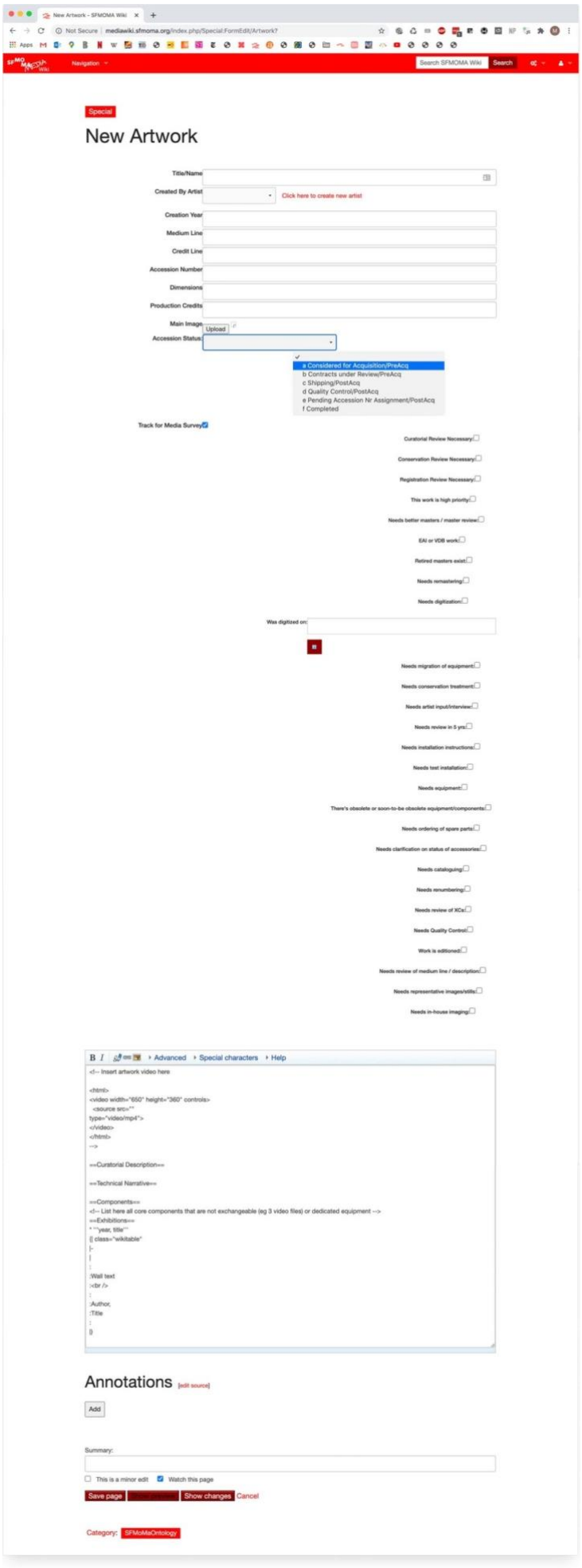
We are at the very beginning of exploring the adoption of SMW into our MediaWiki instance. Our initial data model for use with SMW is more akin to the WikiData model[31] than to the more complex, event-based model of CIDOC-CRM.[32]While we can forecast numerous possibilities for connecting our future Linked Data to external applications—such as the work-in-progress Linked Art initiative[33] or the aforementioned WikiData repository—our prototyping of SMW has demonstrated its value to supporting and improving internal museum workflows. This prototyping is taking our use of MediaWiki into territory beyond making pages for artworks, artists, and exhibitions. As an example, we are exploring use of SMW functionality to help staff monitor our art acquisition workflow; that is, to help staff track and see the status of an artwork as it moves through the various stages of being a proposed acquisition to being acquired into the collection. Additionally, we will be incorporating use of SMW into an ongoing, cross-departmental survey of SFMOMA's media artworks, which allows us to create a living, dynamic status report of the condition of the museum's entire media art holdings via the MediaWiki.[34]

Looking Forward: Iterating on Our Art Information Ecosystem

SFMOMA has been making significant changes to its art information ecosystem with the adoption of a new collections management system in 2020. After a months-long discovery project in 2019, led by a cross-departmental team of stakeholders, SFMOMA selected a new, more contemporary, Web-based collections management system with a native API to replace its aging, decades-old, server-based CMS. The team evaluated systems and vendors against objectives articulated in our conceptual framework for collaborative knowledge production, including the clear-sighted objective of creating an experience that people will like and want to use. Our experience with the MediaWiki informed our evaluation, in that we needed to see that vendors and their products could support our collaborative work around making and using active, multi-voice object records. The cross-departmental team has since engaged extensively with the selected vendor to workshop and test a new art information model to use with the new collections management system. Modeling information about complex, conceptual, or cumulative contemporary artworks for placement in the new CMS has proven effortful and clarifying, and has further validated the distinctive place of the MediaWiki as a good workspace for contextualizing cross-disciplinary, co-authored object records. Simply adding data elements used in our MediaWiki to the new CMS's data model is not enough to simulate the capability for contextualization offered by the MediaWiki. The wiki platform has a support structure not yet seen or available in collections management systems, including our new CMS; a support structure that allows us to clearly represent the different forms of existence iterative artworks can undergo each time they are installed and, importantly, a structure that supports the collaborative assembly of contextualized

information, documentation, and dialogues into digital object records in support of research and collections care.

After seven years of experimenting, testing, and improving, SFMOMA remains committed to situating the MediaWiki in our art information ecosystem for the foreseeable future. To be clear, SFMOMA's MediaWiki is a complementary workspace within a cluster of systems used daily to care for our collections. Fundamentally, we are aiming for frictionless integration into our ways of working collaboratively with art and artists, and that means better integrations between the new CMS, our digital asset management system, and the MediaWiki.[35] By integration, we mean syncing select data and assets between systems using APIs, as well as striving for similar user experiences with system access, protocols, and support. Central to this integrated ecosystem effort, we must clarify for staff *where* to contribute information and documentation so that it can be well managed in a system of record. For example, the CMS is the system of record for core and historical data about artworks and exhibitions; the DAMS is the system of record for assets related to art, artists, and exhibitions. We are acutely aware that we need to be careful not to create isolated constellations of art information in any one of these systems. We imagine an art information ecosystem in which our systems of records are integrated, not fragmented, so that information is easily exchanged between systems and data repositories—inside and outside the institution—and so that we can build digital object records in the MediaWiki by easily selecting, remixing, and contextualizing information, without individuals having to manually add copies of the same information in different places.


New Artwork - SFMOMA Wiki
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Accession Status
a Considered for Acquisition/PreAcq
b Contracts under Review/PreAcq
c Shipping/PostAcq
d Quality Control/PostAcq
e Pending Accession Nr Assignment/PostAcq
f Completed
Track for Media Survey
Curatorial Review Necessary
Conservation Review Necessary
Registration Review Necessary
This work is high priority
Needs better masters / master review
EAI or VDB work
Retired masters exist
Needs remastering
Needs digitization
Was digitized on:
Needs migration of equipment
Needs conservation treatment
Needs artist input/interview
Needs review in 5 yrs
Needs installation instructions
Needs test installation
Needs equipment
There's obsolete or soon-to-be obsolete equipment/components
Needs ordering of spare parts
Needs clarification on status of accessories
Needs cataloguing
Needs renumbering
Needs review of XCs
Needs Quality Control
Work is editioned
Needs review of medium line / description
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Help
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|- class="wikitable"
|-
|
|
:Wall text
:
:
:Author,
:Title
:
|}
Annotations
[edit source]
Add
Summary:
This is a minor edit
Watch this page
Save page
Show changes
Cancel
Category:
SFMoMaOntology

Fig. 7. View of the artwork page form in the MediaWiki, which allows tracking media survey data and accession status. All entries are converted into semantic statements upon saving, which can be retrieved via semantic query.

Over years of developing our MediaWiki, we have multiplied our pathways for working collaboratively and inclusively by inviting external experts, artists, and partners to contribute their knowledge or experiences with artworks to the MediaWiki. Now, as we imagine an information ecosystem integrable with data repositories beyond the walls of SFMOMA, and as we implement systems capable of natively supporting Linked Data—such as our MediaWiki—our intention will be to ultimately offer as much artwork-related data as possible as Linked Open Data. It is anticipated that adopting an open data approach will likewise encourage us to import Linked Data sets from other external sources, such as WikiData or other museums and research partners, into systems like our MediaWiki (or someday even our CMS), thereby enriching our internal records and exposing new ways of looking at our collection, as well as inspiring use of our data by many others, likely in unexpected ways. Easily bringing in and turning out Linked Data is a functionality not yet seen with major CMSs marketed to museums. Incorporating Linked Data into our MediaWiki design could serve to demonstrate to the CMS vendor community the possibilities afforded to knowledge production when data is linked.

Conclusion: It's Open-ended

Our MediaWiki began in 2012 as an experiment born out of frustration with the inadequacies of widely used collections management systems to capture the nature and evolution of complex artworks. In our experience in the intervening years, the MediaWiki has proven to be an invaluable and satisfying workspace for individuals to collaborate on creating active digital records for artworks. For contemporary art installations that come into existence only when fully installed—such as Marclay's *Video Quartet*—these digital records can serve as stand-ins for what has passed and a springboard to managing the changes to come. In this case study, we have situated the MediaWiki within SFMOMA's larger art information ecosystem, where it has filled gaps in functionality and capabilities not yet seen in systems marketed to museums: functionality such as the easy adoption of Linked Data and capabilities such as the freedom to record and contextualize clear expressions of artwork iterations.

The MediaWiki is distinctive within our information ecosystem in that it provides individuals and teams with a likable space for making inclusive, multi-voiced combinatorial records for documenting, researching, and activating artworks. While the MediaWiki has been very well received by SFMOMA staff, the challenges of keeping it lively are similar to other digital environs. Like our other information systems, the success of the MediaWiki as a

satisfying support structure for our work with contemporary art depends largely on its active use. In our experience, the MediaWiki and, for that matter, contemporary art, needs individuals and teams with different expertise and experiences to contribute or link information and experiences to digital object records. In our view, individuals are more likely to collaborate in making digital object records when they respect the expertise, experiences, and voices of their collaborators; when they see the direct value that participating in record-making has to their work; and when they *like* and trust the design and daily operation of the system.

The MediaWiki has encouraged and supported our institutional shift to being comfortable and confident in managing the open-ended nature of artworks and art practices that change. Like these artworks, the trajectory of our engagement with MediaWiki is open-ended and is dependent on cross-disciplinary, interdepartmental collaboration and participation in developing reimagined digital object records, which can be extended outside the boundaries of the institution and connect with a world of resources and people beyond it.

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Biographies

Martina Haidvogl is a lecturer in Conservation and Restoration of Contemporary Art at Bern University of the Arts. She came to the university from the San Francisco Museum of Modern Art, where she was Associate Media Conservator. In this role, she has piloted documentation and preservation initiatives for SFMOMA's Media Arts collection and has lectured and published internationally on media conservation and its implications for museum collections. Martina's research focuses on cross-disciplinary collaboration practice and how it can be fostered through digital tools, serving the needs of the art of our time.

Layna White is Director of Collections at the San Francisco Museum of Modern Art. She leads a division comprised of five departments (Conservation, Registration, Collections Management, Collections Information and Access, and Library + Archives) in cross-disciplinary art stewardship, placed in direct dialogue with art access and presentation. Her interests include developing lively, situational digital records related to art, art practices, and art experiences, towards maximizing access and sharing for staff and public benefit.

[1] Pip Laurenson calls these distillations the core properties of a work, or its score. Joanna Philips then applied this concept to her documentation model for time-based media art, in which she distinguishes between the "score," the identity of a work, and its "manifestations" in the gallery space. See Pip Laurenson, "Authenticity, Change and Loss in the Conservation of Time-Based Media Installations," *Tate Papers* 6 (Autumn 2006), accessed July 12, 2020, https://www.tate.org.uk/research/publications/tate-papers/06/authenticity-change-and-loss-conservation-of-time-based-media-installations; Joanna Philips, "Reporting Iterations: A Documentation Model for Time-Based Media Art," *Revista de historia da arte* 4 (2015): 168–179.

[2] See www.variablemedia.net, www.mattersinmediaart.org, and https://docam.ca, accessed July 12, 2020.

[3] The Guggenheim's iteration report is introduced here: https://www.guggenheim.org/conservation/time-based-media; the iteration report template can be viewed here: https://www.guggenheim.org/wp-content/uploads/2015/11/guggenheim-conservation-iteration-report-2012.pdf, accessed July 12, 2020. Joanna Philips describes the reports in "Reporting Iterations" (2015). The Metropolitan Museum of Art has also published reports based on the Guggenheim's work; see https://www.metmuseum.org/about-the-met/conservation-and-scientific-research/time-based-media-working-group/documentation, accessed July 12, 2020.

[4] For SFMOMA's Rauschenberg Research Project, see https://www.sfmoma.org/rauschenberg-research-project; for The Artist Archives Project, see http://artistarchives.hosting.nyu.edu/ Initiative, both accessed July 12, 2020. The latter was also described in Glenn Wharton, Deena Engel, and Marvin J. Taylor, "The Artist Archives Project – David Wojnarowicz," *Studies in Conservation* 61 (London: International Institute for Conservation, 2016): 241–247; and Deena Engel and Glenn Wharton, "Managing Contemporary Art Documentation in Museums and Special Collections," *Art Documentation: Journal of the Art Libraries Society of North America* 36, no. 2 (Fall 2017): 293–311.

[5] *ResearchSpace* uses the CIDOC-CRM data model. See www.researchspace.org, accessed July 12, 2020.

[6] This team-based methodology has proven so successful that we have adopted it to support the activities of our Architecture + Design curatorial department, which is more frequently collecting, researching, and exhibiting net- and software-based art forms.

[7] Jill Sterrett, "Contemporary Museums of Contemporary Art," in *Conservation Principles, Dilemmas and Uncomfortable Truths*, eds. Alison Richmond and Alison Bracker (Oxford: Butterworth-Heinemann, 2009), 227.

[8] Martina Haidvogl describes the shared media conservation work spaces that SFMOMA designed and built with its 2016 expansion to actively support collaborative workflows between Conservation and Exhibitions Technical. See Martina Haidvogl, “Expanding into Shared Spaces at the San Francisco Museum of Modern Art,” *The Electronic Media Review* 3 (20132014), accessed July 12, 2020, http://resources.conservation-us.org/emg-review/volume-three-2013-2014/haidvogl.

[9] This experience is supported by a number of authors. See Vivian van Saaze, “Installation Art and the Museum: Presentation and Conservation of Changing Artworks” (Amsterdam: University of Amsterdam Press, 2013); Philips, “Reporting Iterations” (2015); Engel and Wharton, “Managing Contemporary Art Documentation in Museums and Special Collections” (2017); and Dušan Barok, Julia Noordegraaf, and Arjen P. de Vries, “From Collection Management to Content Management in Art Documentation: The Conservator as an Editor,” *Studies in Conservation* 64, no. 8 (2019): 472–489, doi: 10.1080/00393630.2019.1603921.

[10] Layna White considers how complex artworks can disrupt museum practices and systems. See Layna White, “Art Information Culture: Contemporary Disruptions in Museums,” in *Organization, Representation and Description through the Digital Age, Information in Libraries, Archives and Museums*, eds. Christine M. Angel and Caroline Fuchs (Berlin: De Gryter Saur, 2018), 130–159.

[11] Engel and Wharton, “Managing Contemporary Art Documentation in Museums and Special Collections,” 295.

[12] Van Saaze, “Installation Art and the Museum,” 168.

[13] API stands for “application programming interface” and is a protocol that allows programs (or parts of them) to exchange “plain data” and as such universally talk to each other. Without one, transferring data between systems can be arduous, if not impossible altogether.

[14] A 2018 survey commissioned by the vendor Lyrasis reports on the state of collections management systems in museums. See Nik Honeysett et al., “Museum Technology Landscape 2018: Discovery and Findings,” accessed July 12, 2020, https://www.lyrasis.org/Leadership/Documents/LYRASIS-Museum-Tech-Landscape-Report-2018.pdf.

[15] In 2010 SFMOMA partnered with the San Francisco-based user experience design firm Hot Studio in this work. A slide deck from a presentation describing the framework, given by Jill Sterrett in Amsterdam's “Born digital art challenges preservation” expert meeting on June 28, 2011, can be found here: https://www.slideshare.net/VirtueelPlatform/agent-ruby-a-case-of-born-digital-art-preservation-by-jill-sterrett, accessed July 12, 2020.

[16] The question of digitizing items in our hardcopy object files arises periodically. As of this writing, we are still straddling analog and digital worlds of documentation. Digitization of analog items is done on-demand or is project-

based, and there are no immediate plans to comprehensively digitize our analog files.

[17] Getting information about artworks communicated via email consistently and easily into our art records is a real challenge and unresolved as of this writing.

[18] For an overview of technical narratives see Mark Hellar, "The Role of the Technical Narrative for Preserving New Media Art," *The Electronic Media Review* 3 (2013–2014), accessed July 12, 2020, http://resources.conservation-us.org/emg-review/volume-three-2013-2014/hellar.

[19] Magnus Manske wrote new software in January 2002, replacing the existing Wikipedia software "UseModWiki." Lee Daniel Crocker further improved it in July 2002. The software was later named MediaWiki, a play on "Wikimedia." The MediaWiki Foundation was founded in 2003. "MediaWiki," Wikipedia, accessed July 12, 2020, https://en.wikipedia.org/wiki/MediaWiki#History.

[20] "Differences between Wikipedia, Wikimedia, MediaWiki, and wiki," accessed July 12, 2020, MediaWiki, https://www.mediawiki.org/wiki/Differences_between_Wikipedia,_Wikimedia,_MediaWiki,_and_wiki#Wikimedia.

[21] For a more detailed analysis of the technological aspects of MediaWiki and other software platforms, as well as a critical examination on the SFMOMA MediaWiki project, see Barok et al., "From Collection Management to Content Management in Art Documentation."

[22] "Extension:3D," MediaWiki, https://www.mediawiki.org/wiki/Extension:3D, accessed July 12, 2020.

[23] For information about Confluence, see the Atlassian website, accessed July 12, 2020, https://www.atlassian.com/software/confluence.

[24] For information about MediaWiki, see https://www.mediawiki.org/wiki/MediaWiki, accessed July 12, 2020.

[25] That being said, Confluence was successfully used to support SFMOMA's Artist Initiative and the Guggenheim's Panza Initiative, and has a much lower user experience threshold, making it ideal for first-time users.

[26] Initial concerns that customizable wiki pages would lack a strict structure turned out to be unfounded. However, establishing a page template can be extremely valuable in guiding users. Today our MediaWiki pages support a mix of structured data, suggested content, and free text.

[27] The authors have presented together and individually on this project on numerous occasions. One example is a presentation of the MediaWiki given at the Museum of Modern Art's 2017 media conservation workshop, which is available as a video here: https://vimeo.com/287112070/7ce7a968e6#t=20m34s, accessed July 12, 2020.

[28] The Andrew W. Mellon Foundation generously funded SFMOMA's Artist Initiative. For a description of the Initiative, see Robin Clark and Michelle Barger, "The Artist Initiative at

San Francisco Museum of Modern Art," *Studies in Conservation* 61 (2016): 24–28, doi: 10.1080/00393630.2016.1193692.

[29] The italicized predicate creations here represent the way properties are expressed within (some) Linked Data systems, connecting subject and object. Compare to https://www.wikidata.org/wiki/Property:P170, accessed July 12, 2020.

[30] For more information on Linked Data, see the website of the American Art Collaborative, accessed July 12, 2020, http://americanartcollaborative.org; see also Dominic Oldman, Martin Doerr, and Stefan Gradman, "Zen and the Art of Linked Data: New Strategies for a Semantic Web of Humanist Knowledge," in *A New Companion to Digital Humanities*, eds. Susan Schreibman et al. (New York: John Wiley & Sons, 2016), 252–273.

[31] Lozana Rossnova et al. conducted a detailed comparison of the two models at the iPRES 2019 – 16th International Conference on Digital Preservation, September 16–20, 2019, Amsterdam, Netherlands. See Lozana Rossnova, Karin de Wild, and Dragan Espenschied, "Provenance for Internet Art: Using the W3C PROV data model", in *Proceedings of the 16th International Conference on Digital Preservation – iPRES 2019*, 297–305, accessed July 12, 2020, https://osf.io/4xyan.

[32] CIDOC CRM is a data framework developed for and by the cultural heritage community. See http://www.cidoc-crm.org, accessed July 12, 2020.

[33] Linked Art is a community working to develop a Linked Open Data model to describe art. See https://linked.art, accessed July 12, 2020.

[34] Surveys in museums are typically done through spreadsheets or PDF documents which, if not regularly updated, soon become dead or inactive. Using Semantic MediaWiki queries, we have designed a Media Survey table in our MediaWiki. The table is populated and updated automatically as we create new artwork pages or edit artwork data in the MediaWiki and shows the current condition, missing information, or future needs of every artwork.

[35] Future integrations with the new collections management system may include our archive management system and customer relationship management system.