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## **Day 2, Part I: Sustainable Storage of Digital Art**

March 23, 2018

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### **Sustainable Storage of Digital Art**

Moderated by **Marcel Ras** (NDE)

**Patricia Falcão** (Tate), *Digital Archival Storage: The View from the Conservation Studio*

**Yves Bernard** (iMAL), *The ResurrectionLab Project*

**Morgane Stricot** (ZKM), *ZKM – Strength in Numbers*

**Wiel Seuskens** (LIMA), *Support and Services for Preserving Online Artworks*

**Jim Wraith** (LIMA), *What's After WatsNext?*

### **Marcel Ras**

Marcel is the program manager at Dutch heritage network, an organisation which aims to improve visibility, sustainability, etc of collections. He previously worked at the NL coalition for digital preservation which try to collect information on what institutions are doing.

DHN is truly a network, not an organisation in itself. Institutions part of the network are trying to make their collections more visible, preservable and accessible. They share tools, knowledge, infrastructures...

There are solutions (storage, emulation, reinterpretation and so on), but they aren't super mature.

In the beginning of this week, at the Nieuwe Institute Born-D architecture archives??

These archives are a bit comparable and worth taking a look at because of their complexity and interdependencies, which threaten long term access.

The session is about how to take control, solve problems, and so on.

5 speakers in the session from different approaches but all are about to expose the practical steps to take control, institutional approaches.

**Patricia Falcão** (Tate), *Digital Archival Storage: The View from the Conservation Studio*

Preservation of digital component, she worked at Tate for 10 years and have observed that technologies of preservation have changed a lot. The conservation practice also evolves.

Tate is huge : 1000 people working, 12 departments. They have issues with resources, time, management, budget and so on. They have planned to have a digital repository, but for it to happen it means organising people working together so it's complicated on a management level. The project has been going on for 5 years and it's not quite done yet.

First questions for Patricia to answer : why they need a repo? What will go inside? Why is it valuable? How much stuff must go in there? What does the storage need to do? How should it do it?

**Actions that have been taken :**

- The storage space has been calculated (growth in year)
- A survey of similar institutions projects have been done.
- Tools and systems have had to be identified
- Researching best practices? -> A lot of work for not much benefit
- Other fields with similar problems, architecture, administrations and so on.

**Presentation of a tool for archiving :**

Archivematica : open source software (MoMA is using it, Ben Fino radin obsvs), apparently it's easy to use.

- Generates system independent archival info
- Calculates and records checksums info
- Technical metadata is extracted automatically and can be exported
- Digital files are packed along with technical metadata
- Web based dashboard allows control and monitoring of ingest and preservation micro services

Most things done manually usually get automated. It cleans up names and so on...  
(although it would be good to see what are the potential flaws)

### **Like with every software there is a learning process**

- It really helps understanding the basic principles in digital preservation
- Understanding how manual workflow vs software processes compare
- Locate the bottlenecks- network speeds and limited availability of IT staff (human resources)

### **Discussions**

- What goes in, where should the documentation go? (*how should it be labelled, what is the link with the repo*)
- Metadata : what is it capturing, should it be also captured manually should it be somewhere else?
- Ingest processes : ingest is the last moment should there be a workflow? What happens in the file has a problem?
- Who do we need to work with? Collection management system chief was very involved.
- Who else is using it and what have they learnt? MoMA has been very helpful. Online community that is very knowledgeable and supportive. (*perhaps there should be more exchange of knowledge???*)

It is still no fully integrated system :

They started a manual to transmit information across departments

Updating the workstations and testing for software based artworks and film file formats

→ interesting mentions : Familiarisation with the tools is helping develop a comprehension, documentation status is not always easy to establish, collaboration between different departments can be problematic, collaboration outside the walls of the institution (digital preservation community).

### **Yves Bernard (iMAL), *The ResurrectionLab Project***

How to preserve more than 20 years old born digital arts and their complex web of history?

It started from a collection of floppies and cd roms: around 300 pieces coming from everywhere. Huge variety of content about the emerging digital world.

### **Welcome to the future exhibition**

Using vintage computers (pc and mac), with packaging, documentation and so on. Making the exhibition was instructive. They contacted artists, editors and so on, everyone was very enthusiastic in general and easy going. There was also a lot of interest from a young audience and helped make the issue of preservation better known.

→ An effort had to be made on new methods and long term public access.

### **2014-2016 (POC phase) :Experimentation with emulation as a service and so on.**

- Very promising for these types of works.
- A lot of difficult cd roms managed to be run.

First future library prototype during WTTF.

First tests using the cloud servers from Freiburg

But emulators are complex softwares.

They need a new environment for managing the collections and resources.

### **The solution was developed through cross institutional collaboration :**

Between Imal and Packed (digital culture and cultural management in Molenbeek)

Also Rhizome who are also using the same framework, and Freiburg

### **Development of capture workflow : see slides**

There are many large institutions giving access to cultural material

- Internet archives
- Rhizome net art anthology

To maintain access to to pieces over time you have to be able to compare the current state of the work with the original one to assess quality... and get rid of the data carriers???

The goal is to give access to public through an emulation based system, through a csm and bootable USB sticks.

Main archival software is archivematica. There is also a small data centre at Imal (2 servers with redundancy and so on, more or less safe). The project is quite small.

Collective access to the system

Emile : you have a disk image, you chose an environment and then you can see it working. Generate design and test. It would allow for collections curated by different organisations/individuals to be online, with full description and documentation to be accessible online and list of exhibitions

How will this system be preserved :

All the systems used will become obsolete, but most open source. **This is an endless process.**

→ Emulation is endless and doesn't really put the works in a safe place (life prolongation under altered conditions) so is the goal to renew interactions between people and the pieces so it is further memorized and acknowledged?

**Morgane Stricot** (ZKM), *ZKM – Strength in Numbers*

She is linked to Pamal (Lionel machin, Emmanuel le Guez...). Ecole d'Art Avignon? 120 digital artworks have been collected and produced by ZKM. At ZKM they are following a cross disciplinary model and have established a flat hierarchy, everyone can be involved in decision making process. The workflow strategy has to be improved to face problems of obsolescence, formats, dependencies and so on...

They have determined 3 states of artwork : original, repaired (with any changes), updated.

They try to keep the works as much as possible in their original state. Lots of copies keep stuff safe is their mantra. They have back ups on dedicated computers.

**To rebuild the artwork is to learn from the process.**

Plotting licence? Stand alone licence is the worst case scenario.

If the company is closed then the software cannot run any more.

**More attention has to be directed towards folk preservers :**

Cracked software, process description. Hackers create offline activation.

They use illegal procedures when the software is not supported any more by the company. So hackers anticipate on their needs. Now companies are starting to be aware of that.

'music getting lost' - so a version was released?

**In the case of the creation of updated version → most of the time it is created with the artists**

All versions are stored with appropriate comments.

A Git repo is used for software change.

When the original version really doesn't work they attempt to rebuild from scratch.

**They put the emphasis on the need to experience original state.** Cultural, economical and political implications. Material approach is needed because otherwise digital art is ???

**Technologically :**

Online works of ZKM : most of them rely on third party

Only workflow is technological watch and regular inspection, new code if needed and cross fingers,

**The case of a Net art generator**

→ reliance on Google search API in 2009 the authentication procedure is not free any more for more than 100 requests. They had to pay for the exhibition, but the idea of the work didn't work with paying with Google (political strategy)

So a workshop was made to hack the google restriction. Raise awareness

<https://zkm.de/en/event/2017/12/workshop-netart-generator-generating-discourse>

Addition of multiple brains, communities and so on to strengthen preservation

> a free solution was developed

→ The workshop approach to overcome term of service changes and the acknowledgement of online "hacking" communities activities value is cool. Bit less sure about the need of "intact" experience of the piece though.

**Wiel Seuskens (LIMA), *Support and Services for Preserving Online Artworks***

A house has a lot of doors which symbolise the ports of the router. Apache web server is the doorman at the cinema and it tells you to a place or another. Schema for the

redirection from the port to the right artwork. The artists access through a different port to edit the artwork files (personal door). SSH (secure shell) port is different for each artwork because of firewall.

**Arthost.li-ma.nl/wiki/arthost**

**my.101domain.com**

The domain names have to also be maintained

- Disk image on server
- Keeping the server is OK

**How about the browser for an old fashion website that doesn't look good in a recent browser?**

So emulation oldweb.today

Not alone :-) ?

We do storage and you can find it in the CMS :

- Digital system and database
- Different tools to extract metadata and preserve the website.
- It is made with tools in the repository and building the system.

It's in house not in a cloud, there are about 20 websites for now, max is 100 per server.

**Jim Wraith** (LIMA), *What's After WatsNext?*

Surveying the community of practice on typologies and topologies, standards, handling online works and archival storage. Network elements are so prevalent that the question shouldn't be limited to how we archive these things but also what do we archive? How do you consider these objects? What aspects of being online are being actually taken into account when storage is envisioned?

There are different approaches everywhere, no standardisation right now, some systems are not built to welcome software art. A lot of collections were started before there were actual tools for that.

It is less a matter of a top down system than agreement between colleagues. And there is no real common agreements. A lot of choices are made by the software, so the archive becomes dynamic, it works on the material, through the material.

What we know from the talks is that change is constant, mutability poses the question regarding what is the object (what are we preserving), the question of dependencies which goes against the archiving traditional approach.

What is the master version if a work is not designed to be shown in a museum?  
Regarding online works, it becomes meaningless to think about structure without thinking about content. In an ideal world preservation would be less reactive and more about maintenance.

SO WHAT IS after Watsnext ? Proactive preservation? Multiple perspectives? Who cares?

Systems need to be dynamic in the way they have to serve different functions and works?

It should be more integrated...

When is the paper gonna be finished? Early summer hopefully...

#### **Q&A**

ZKM have too many tools now it's a mess. Patricia is keen to find the right people to work with.

Wiels thinks that for a small structure such as LIMA you need a network to be able to do as much as you'd like to do.

When would emulation be preferable over migration? Migration is very expensive and time consuming because you need access to all source and it's super time consuming. So emulation is always "easier" (it's more systematic). It's also very invasive for the work. Sometimes people are embarrassed to give the code also. Migration can be about a thousand things. It's also not a duality between emulation and migration.

Of course any project cannot be emulated, it's far from perfect. If you have complex installation it might not work at all. Gaming engines also cannot be migrated.

Recoding practices, how does that fit?

There is the example of the digital snow dvd rom and then foundation Langlois spent time recoding it in flash and flash is dead.