How to digitize a musical instrument collection

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Digitizing an entire collection of musical instruments is a big challenge, but provides chances for presentation, collaboration, research and many other fields that have been virtually unimaginable until the end of the 20th century.

Digitizing an entire collection of musical instruments is a landmark in its history. If it is done well by every trick in the book and in a sustainable way, it is so complex and expensive that it is done once in a lifetime – followed by maintenance, addition of new data and objects, amendments etc. It provides a precious resource for the future, enhances visibility, raises the collection's importance and thus can be a good means to prevent a collection from being buried in a reserve.

This guide is a first attempt to lay down experiences made during the EC-funded project MIMO – Musical Instrument Museums Online –, running from 2009 to 2011, and of the author's experience as head of a research services and photo department. It has been written on occasion of a MIMO workshop having taken place in Fryderyk Chopin Institute in Warsaw, Poland on 6–8 April 2016 with kind support by the COST Action FP 1302 WoodMusICK.

Part A: "Before" – the most important

Once the actual digitization process through photography will have started, it is too late to sort out instruments, worry about intellectual property rights, run for nylon wire to secure instruments and to discuss image formats with the photographer. The preparation of the digitization process is more than half of the entire work. This is especially true if we consider that unforeseen things will always happen, and the trick is to keep their quantity and impact as low as possible.

The actual digitization workflow (Part B.) is mentally and physically challenging for all persons involved. The better it is prepared, the better are the results, the better the motivation of the team and the better the perspective of doing it only once in a (curator's) lifetime.

The very first step is: Study the MIMO digitization standard and use it as a Vademecum. It contains a lot of technical and practical information that can't be displayed here.

Then care about:

1. Intellectual property rights (IPR) management
   1.1. Photo: Usually, the photographer has the intellectual property for his photos. You have to get an (exclusive) exploitation license for all times, all countries, all usages and all present and future media. If the photographer is permanently employed in your

institution, this license should be (tacit) part of his contract, according to the laws of your country. – When using the service of an external photographer, this license must be specified in the contract. You can propose to mention the photographer's name with every publication of the images, but you have to be sure that this is technically possible (e.g. in your database), and you and the photographer have to be aware that there is no guarantee that a third party will always do the mention, even if stated in rules and contracts.

1.2. Audio: For new recordings, try to get a license comparable to the photo license. However, commercial use might be excluded by the rights holder (musician, music label). For older recordings where there is no such contract, check the legislation of your country. E.g. it might be possible to provide short chunks of less than 30 seconds or so as a citation free from rights.

1.3. Video: as for audio, but with supplementary attention to personal rights of people being depicted in a video footage.

2. Prepare the instruments
   2.1. Do all instruments have an ID (Inv.No.)?
      2.1.1. ID firmly attached, but removable for photo if desired?
   2.2. Have a list of all instruments, preferably with storing places (e.g. Excel sheet[1])
      2.2.1. Add photo parameters
         2.2.1.1. Size: 5 to 7 classes (piano/organ to jingle/jew's harp) are useful
         2.2.1.2. Surface reflection: heavy (metals), medium (varnished), low (dull)
         2.2.1.3. Presentation: e.g. floor vs. tabletop
         2.2.1.4. Mounting: needs support vs. self-standing/lying
      2.2.2. Sort list according to photo parameters
   2.3. Check instruments for accessibility (transports between reserve/exhibition and setup)
   2.4. Check instruments for conservational conditions and cleaning needs
   2.5. Double check instruments for possibly harmful substances (e.g. cadmium red, lead white, DDT and other pesticides) in order to provide protective measures for the team

3. Prepare digitization by photography
   3.1. Be aware of the team that will do the work and motivate it
   3.2. Run trials to test logistics with different types of instruments according to the photo parameters (transport – presentation – fake photo – return transport). Note which materials and transport facilities you use
      3.2.1. Use a stopwatch and document the times
      3.2.2. Retry some of the tests with a cluster of same class instruments, and document times
      3.2.3. Try to calculate how much time you need for the whole collection
         3.2.3.1. Be pessimistic!
         3.2.3.2. Then add at least 10%
      3.2.4. No professional photos need to be taken at that moment

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[1] Maybe awkward to handle, but more transparent and more flexible than the database where the sheet may be exported from.

    3.3. Contact a photographer[2]

        3.3.1. Show him/her collection and facilities

        3.3.2. Describe what you want and how you want to proceed. Show your time calculation

        3.3.3. Take your time with the photographer to evaluate your time calculation

            3.3.3.1. Be pessimistic!

        3.3.4. Do not try to save money at all costs, as this can become very costly

    3.4. Make a digitization plan (photographer + team)

    3.5. Begin to gather all material you might need (supports, small Plexiglas pieces, nylon wire, notice books, cleaning material, tables, many pairs of gloves, waste paper baskets ….). For this, use your experience from the tests and the MIMO digitization standard. Document the list of materials

4. Digitization by audio

    4.1. Check which recordings you already have

    4.2. Check IPR issues

    4.3. Document the metadata

    4.4. Digitize if necessary (from Vinyl discs, analogical tapes etc.)

    4.5. Cut music to IPR-appropriate and hearer-friendly chunks if needed

5. Digitization by video

    5.1. As for audio

6. Prepare the metadata acquisition

    6.1. If your collection shall appear in MIMO, download the documentation on the MIMO-website

    6.2. Use the counseling capacities of the MIMO core management group

    6.3. Have an appropriate database

        6.3.1. LIDO export must be possible

        6.3.2. OAI-PMH interface must be possible

        6.3.3. Alternatively: Export into the MIMO Excel sheet must be possible

    6.4. Check the format of your metadata

        6.4.1. Analogical (card files, inventory books): Prepare precise written instructions how to have this information typed into your database

        6.4.2. Digital: Check with IT-staff if there is some mapping to do and which. Document it

B. "During" – the most interesting, most challenging part (photography only)

1. Beware of traps

    1.1. Insufficient motivation – have your team prepared

    1.2. Unclear procedure – have your procedure accessible for all persons concerned

    1.3. Too high expectations – be realistic in terms of quality and quantity

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[2] You may have to provide several different offers for legal reasons.

1.4. Scientific interest – do not interrupt the process if you see something interesting, but take notes; you will never have this opportunity again

1.5. Conservational issues discovered too late – double check the procedure with the conservators on beforehand; have emergency plans what to do if an instrument can't be handled for conservational reasons

1.6. Too tight or to loose planning – Provide intense sessions of one or two weeks with sufficient time between for preparation of the next session, post processing and quality control

2. Have your material ready

    2.1. Use the documentation you made during the preparative tests

    2.2. If you want to have the inventory numbers, a color target or your institution's logo in the picture, have them ready and rehearse the procedure to have them at hand in an efficient way

3. Have your digitization space ready

    3.1. Keep the space clean

        3.1.1. Remove dust from instruments far from the digitization space

        3.1.2. Do not simply blow dust away from the instruments – use a vacuum cleaner and appropriate brushes

        3.1.3. Make sure that people who are cleaning are sufficiently trained and protected from harmful substances

    3.2. Keep the space safe

        3.2.1. Make sure that transport and handling ways are free

        3.2.2. Make sure that there is more space for stocking carriages with instruments than you have calculated

        3.2.3. Make sure that there are more tables than you have calculated

        3.2.4. Have the space checked for climatic conditions

        3.2.5. Check for access for the external photographer (car parking, trolleys, doorways)

    3.3. Keep the space comfortable

        3.3.1. Have enough space to move without danger of stumbling over wires etc.

        3.3.2. Have something to drink far away from the instruments, but close enough for not interrupting the workflow

        3.3.3. Have basic seating facilities for everybody during waiting times

4. Document what you are doing

    4.1. Best, fastest and most versatile is to use a simple paper notebook and a pencil instead of sophisticated electronic methods, unless there is an established workflow using QR codes etc.

    4.2. Before taking instruments from the reserve or the exhibition, make a snapshot of the drawer, the shelf or the showcase, print it out and put it in the place where the instruments shall go back to

    4.3. Write down day per day which instruments are photographed and in which order. Inventory numbers should be sufficient

    4.4. Write down when an instrument is withdrawn for conservational reasons

    4.5. If something should go wrong with an instrument, write this down, too

4.6. Mark instruments that have been photographed in a conservational appropriate way
    4.6.1. Most instruments can be marked by a colored woolen thread loosely knotted around
    4.6.2. Large instruments as keyboards can be marked by a (printed) sheet under the lid
4.7. Regularly take snapshots of every action in the procedure and take notes for them, if necessary.[3] This is an important period in the history of a collection

5. Use trained staff. A conservator should be present all the time to monitor and give advice
    5.1. For cleaning and preparing the instruments
    5.2. For transporting them
    5.3. For presenting them

6. Put instruments into clusters
    6.1. Use the photographic classification in your overall instrument list
    6.2. Seek the advice of the photographer for the actual order of instruments within a cluster, e.g. from small to big or vice versa
    6.3. Start the entire procedure with instruments which are likely to go fast and are simple in handling. This gives an initial drive to the team and permits to install a good routine. Moreover, it is more motivating being halfway in time, having done two thirds of the collection and maybe miss the last ten difficult pianos, than being halfway in time with one difficult third of the collection and miss the last hundred woodwinds.

7. Control quality
    7.1. With digital photography, it is possible to have a quick look on the photographer's screen when he is working with a remote controlled camera (preferable). Do this, at least for every start of a cluster or sub-cluster. Fetching instruments again to redo photos is time consuming and demotivating
    7.2. Between working sessions, have the photos checked and put in the appropriate storage. When the photo campaign is over, it is too late for quality control

8. Close the photographic digitization process
    8.1. Bring the instruments back and have the space cleaned up
    8.2. Thank everybody who has contributed in any way
    8.3. Share your pride of a well-done project with the team
    8.4. Invite the team for a drink or for dinner to close this unique shared period

C. "After" – don't lean back yet

Even if organized as perfectly as possible, a complex undertaking like the digitization of an entire collection will produce errors and less desirable results, e.g. accidentally assigned wrong inventory numbers, forgotten objects, objects retrieved for conservational reasons and the like.

The permanent quality control and the thorough documentation during the actual digitization process (Part B) will have avoided or have at least pinned down such effects. However, photos

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[3] If you are planning to publish them in reports etc., make sure you have the team's authorization

taken at an early stage of the project might please less now than they did in the beginning and can't be taken again in the near future. It is then wise to judge quality by objective technical criteria rather than by personal taste.

If the collection is rather small, one or two persons can go each through the entire production (photos + database) and check for errors and questions. Document.

For larger collections, this should be done by a greater number of people through spot tests. The best way to do this is publishing the entire collection on the web, preferably beyond your own website on MIMO, too. Document the feedbacks.

Fix all errors and undesirable results you can.

The last schedulable step is to store all the documentation you have made during A., B. and C. in a safe place and keep it for reference.

D. "Ahead" – The future

Now you could lean back, but you won't want to do so. For you will have an access to your collection from your desk that will save you lots of time, and this time you will spend with people having discovered your collection on the web, especially on MIMO. This is by far much more gratifying than stepping down to the reserve to look up for tiny details that you can see as well on a good photo.

Welcome!

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Any constructive feedback welcome: f.baer@gnm.de

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