

Transferring Digital Carriers at Cambridge University Library

DPC Digital Forensics Event, 26 Feb. 2024



Leontien Talboom, Technical Analyst

START



UNIVERSITY OF
CAMBRIDGE
Cambridge University Libraries

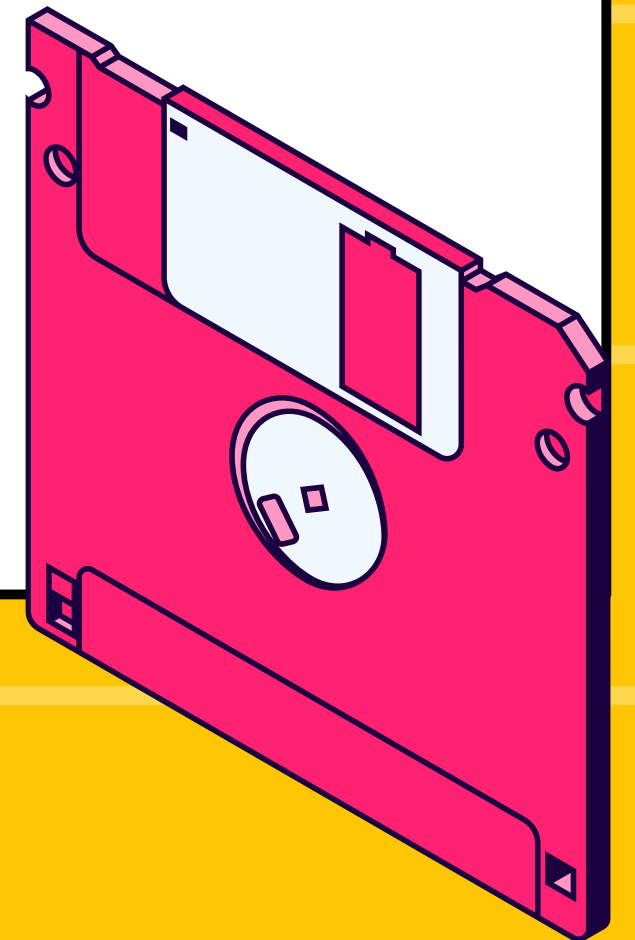
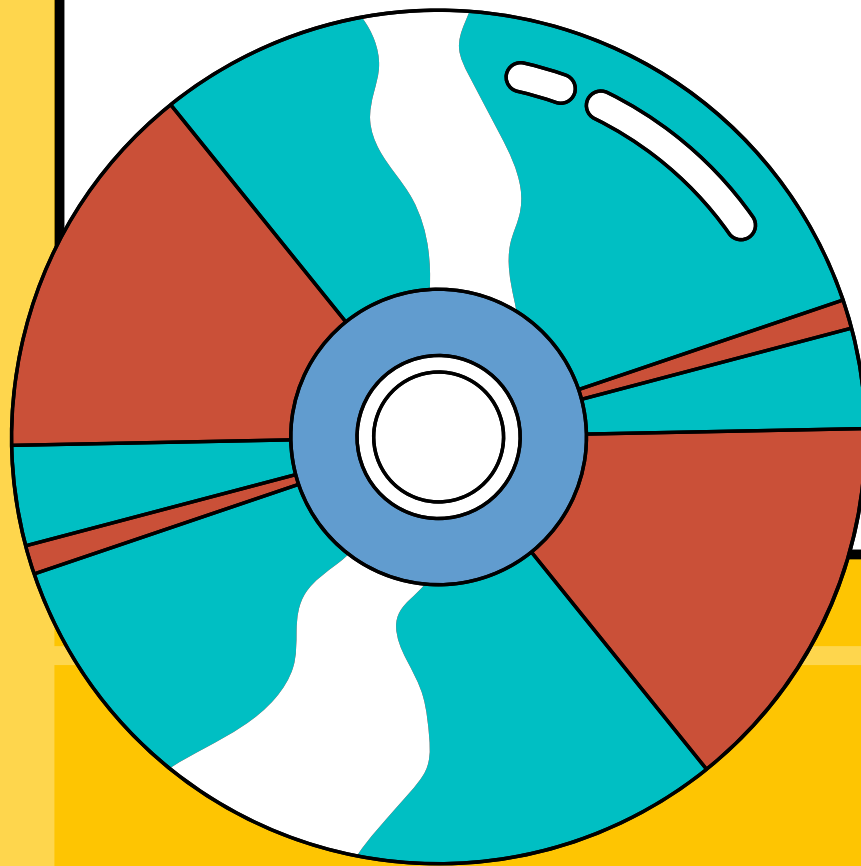
The Transfer Service

- Started running in February 2023
- We have done over 450 processes, mainly optical discs
- Our main workstation is a FRED
- Logical file transfer versus disk image

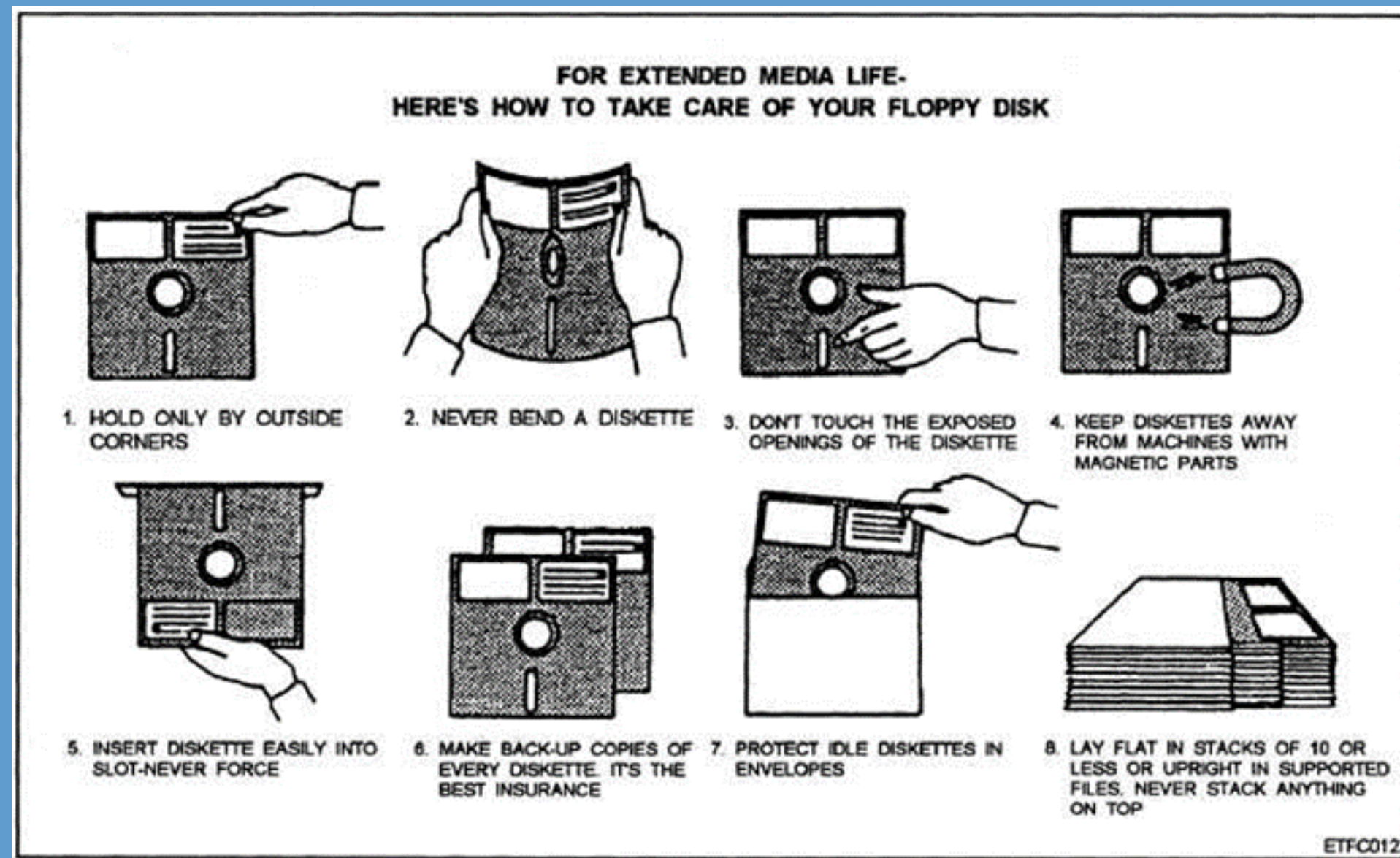




Training



Guidance



Identifying carriers

Assessment Information

Rating	Score	Note
DP readiness	5	
Documentation Quality	4	Unique video footage relating to the RGO grounds, clocks and chronometer workshop.
Housing Quality	1	Item is in paper envelope with torn clear plastic cover.
Intellectual Access (description)	5	
Intellectual Access (historic language)	5	no issues
Interest	4	
Physical Access (arrangement)	5	
Physical Condition	4	
Research Value	8	

DIGITAL CARRIER

HOW TO RECOGNIZE AND INFORMATION NEEDED

Floppy Disk 3.5-inch



The front and back of various floppy disks.

These floppy disks are the most popular and easily identifiable by their size. As the name suggest they are 3.5-inch in length and width. These are the sturdiest of the floppy disks, but please still be careful handling them.

Information needed:

- Format: Floppy Disks need to be formatted before used, however some of them are pre-formatted and this will be indicated on the front of them.
- High Density: This will also be written on the front or be indicated on the right-hand side of the disk with the letters HD. Knowing if this is present will help with the settings when transferring these carriers.

Transfer Service Guide

- **Written for the UL, but with wider audience in mind**
- **Includes pre-transfer, transfer and troubleshooting**
- **Staff can work through the guide by themselves**

- Upload the transfer to the cloud

3.1 Pre-transfer

At this point it is useful to identify what type of carrier and therefore what workflow should be followed. In most cases this will already be clear when the carrier is photographed, but there are [a number of exceptions](#) here to take into consideration:

- **3.5-inch floppy disk:** Is it a Double Density floppy disk? This does not get recognised by the driver at this moment, therefore no transfer is possible.
- **Optical media:** When working with a CD, a different workflow is needed if this CD is an audio CD. Files need to be ripped from these CDs, which is explained in the Ripping CDs section. Audio CDs can be difficult to identify, it could be noted on the CD or the supplementary material. *Specific to the UL:* It could also be in the assessment record in the AMS. It may not become clear that it is an Audio CD until plugging it in to the FRED, if [.cda](#) files are present on the CD, this is a clear indication of an Audio CD and therefore a different workflow. Also, there is no clear workflow for [LaserDiscs](#), which are an analogue optical media form that needs specialised hardware.
- **Mac Formatted:** Currently there is no clear workflow for Mac formatted material. A workflow and Mac workstation can be considered as part of the Transfer Service in the future.

Outside of this, there is also a limited [amount](#) of carriers that can be currently processed:





Floppy Disks	5.25 -inch, 3.5-inch High Density and Zip Disk (if not formatted for Mac)
Optical Media	CD, DVD, Audio CD, Video DVD, and Blu-Ray
Flash Storage	All flash storage (<i>UL only: an extra flash storage connection, Forensic Card Reader, can be found in the FRED toolbox</i>)
Hard Drives	Internal and External

UL Only: Also, additional information and context can be found in the Assessment Records filled in by the library staff.



Documentation & Analysis

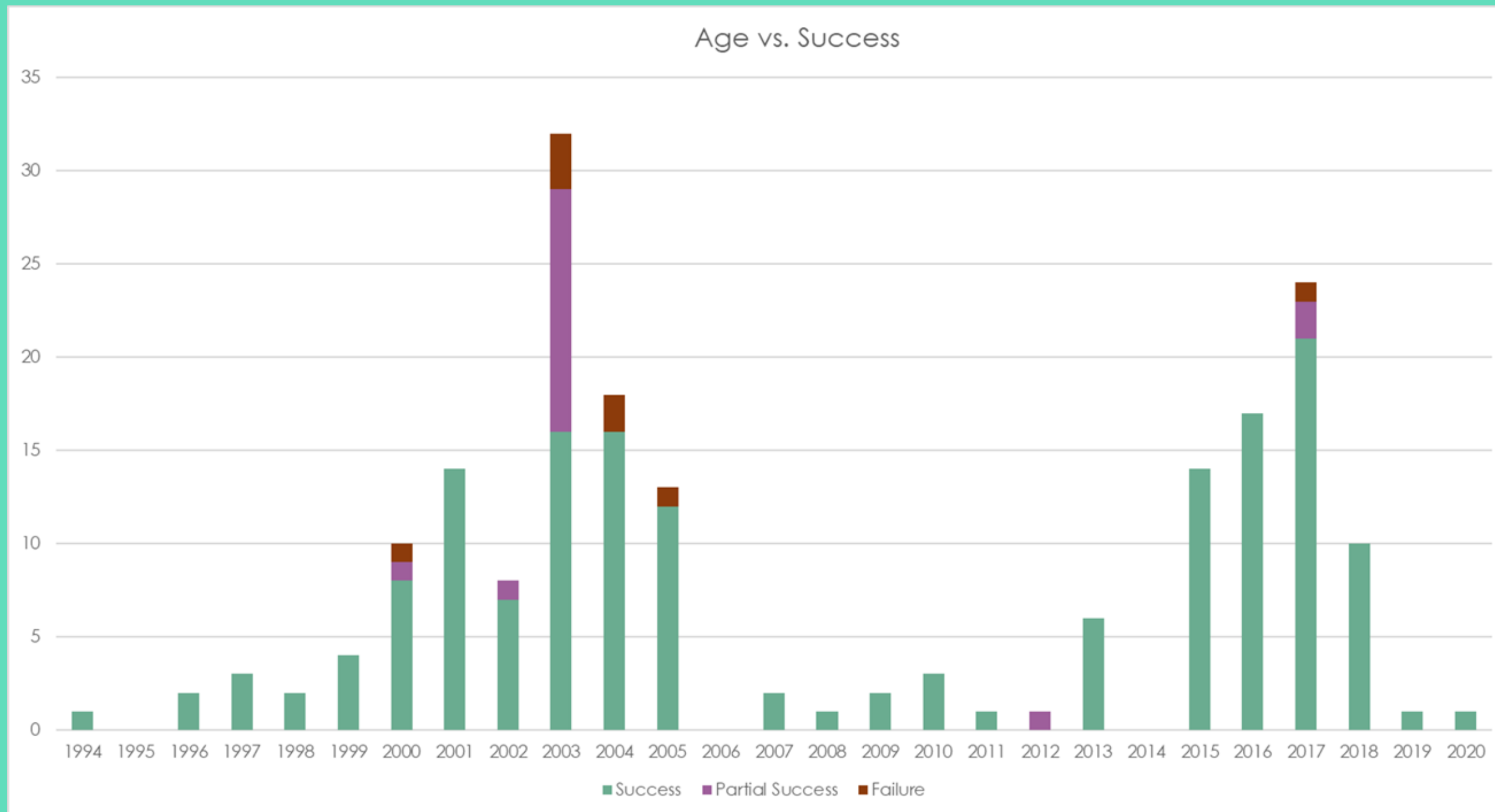
Documenting the process

<div><div></div><div><div>+ Create new carrier</div><div> View / Edit</div></div></div>								
Carrier ID	Carrier Type	Year	Format	Brand	Reflec... Layer	Writing	Created / Modifi...	Notes
<div><div>Ab</div><div></div></div>	<div><div></div><div>▼</div></div>	<div><div>Ab</div><div></div></div>	<div><div></div><div>▼</div></div>	<div><div></div><div>▼</div></div>	<div><div></div><div>▼</div></div>	<div><div></div><div>▼</div></div>	<div><div>=</div><div></div></div>	<div><div>Ab</div><div></div></div>
GBR_0012_2...	Optical Disc	None	DVD-Video	Unknown	Purple	Sticker	01/11/2023, ...	Duplicate of ...
GBR_0012_2...	Optical Disc	None	DVD-Video	Unknown	Purple	Sticker	01/11/2023, ...	
GBR_0012_2...	Optical Disc	None	DVD-Video	Sony	Purple	None	01/11/2023, ...	
GBR_0012_2...	Optical Disc	None	DVD-Video	Unknown	Purple	Sticker	01/11/2023, ...	Duplicate of ...
GBR_0012_2...	Optical Disc	None	DVD-Video	Unknown	Purple	Sticker	01/11/2023, ...	
GBR_0012_2...	Optical Disc	None	DVD-Video	Unknown	Purple	Sticker	01/11/2023, ...	

Success Rate

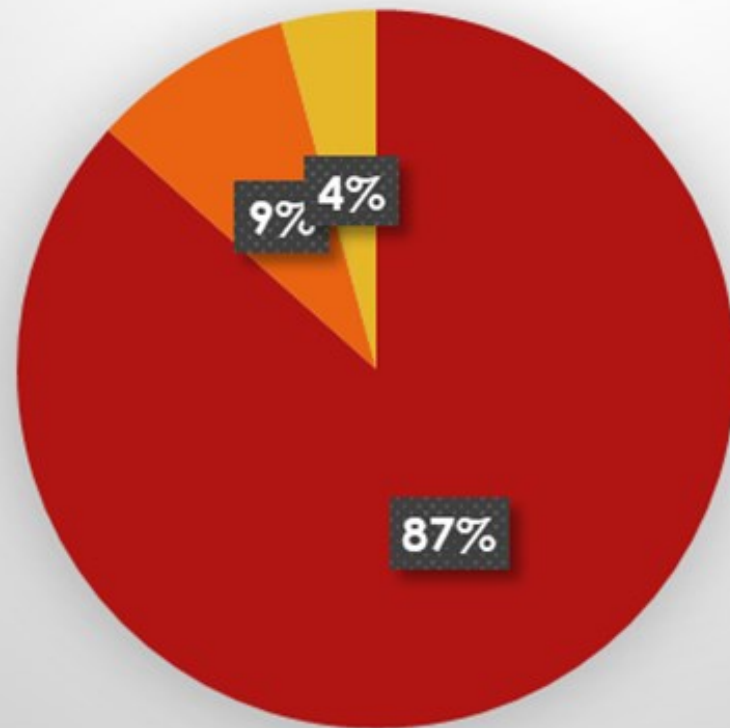
<u>Type of Digital Carrier</u>	<u>Failure Rate</u>	<u>Partial Success Rate</u>	<u>Success Rate</u>
Optical Disc	4.2%	8.8%	87%
Flash Storage	0%	25%	75%
Floppy Disk	0%	0%	100%
Total	4%	9%	87%

Age of the Carrier

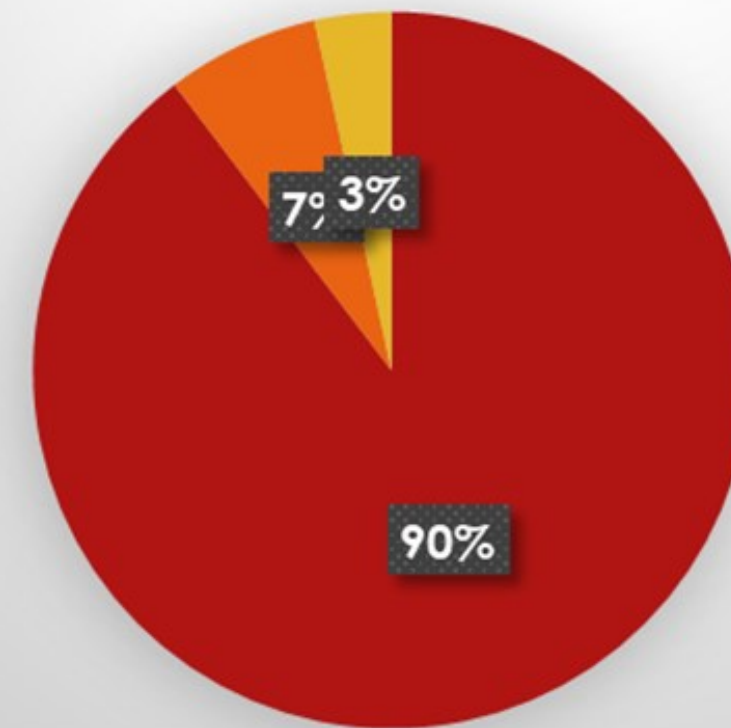


Carrier Type

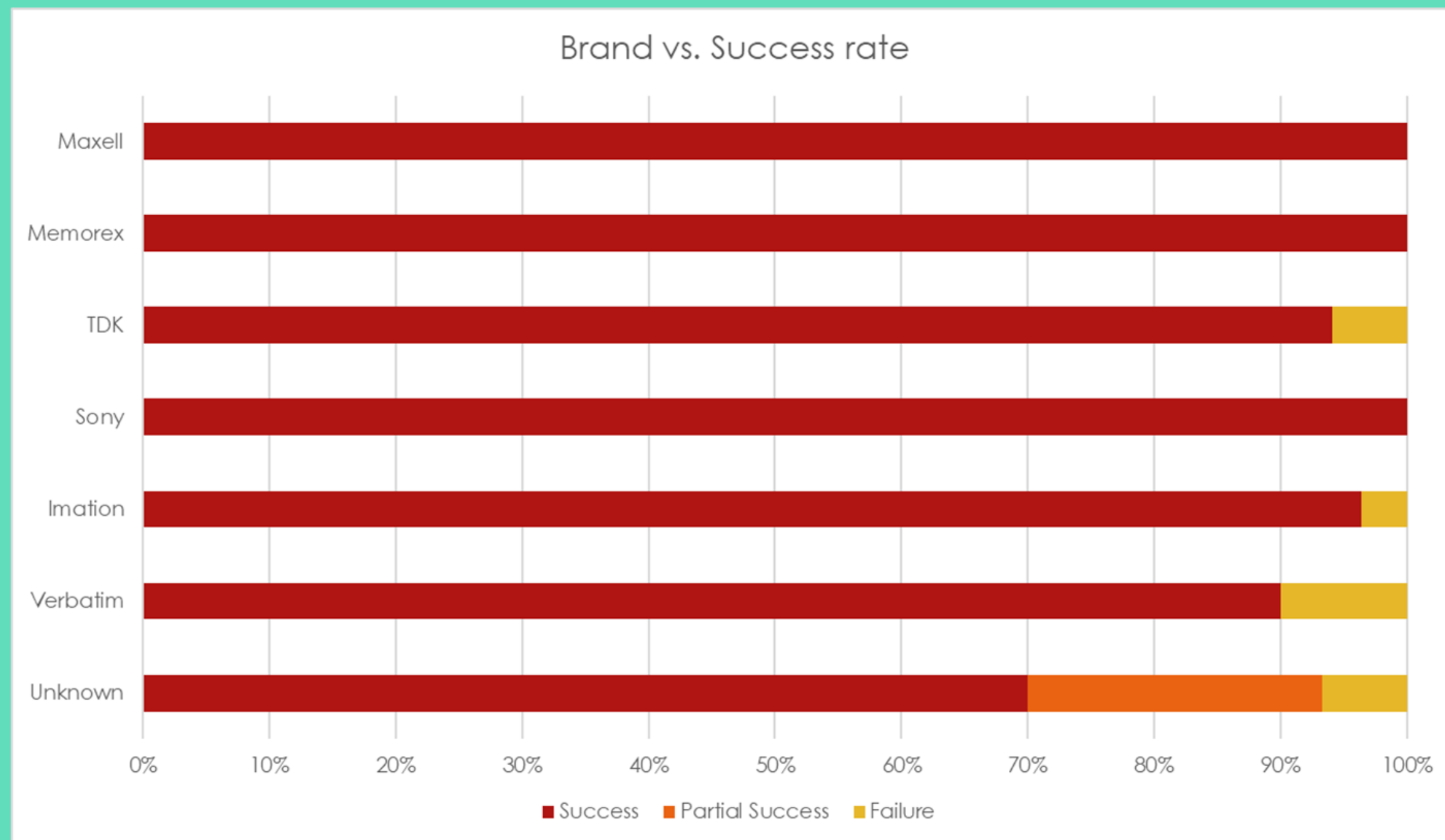
CD



DVD

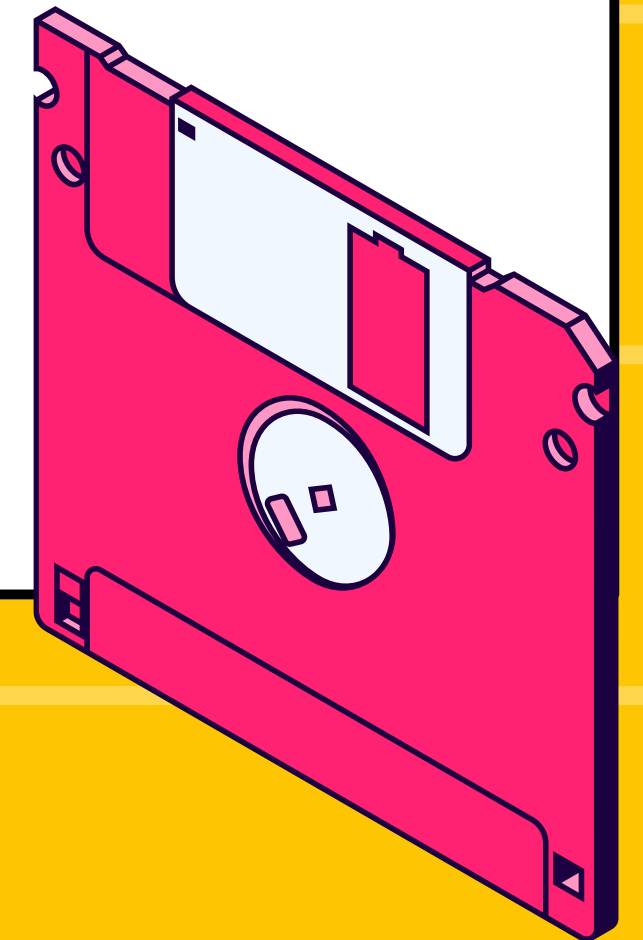
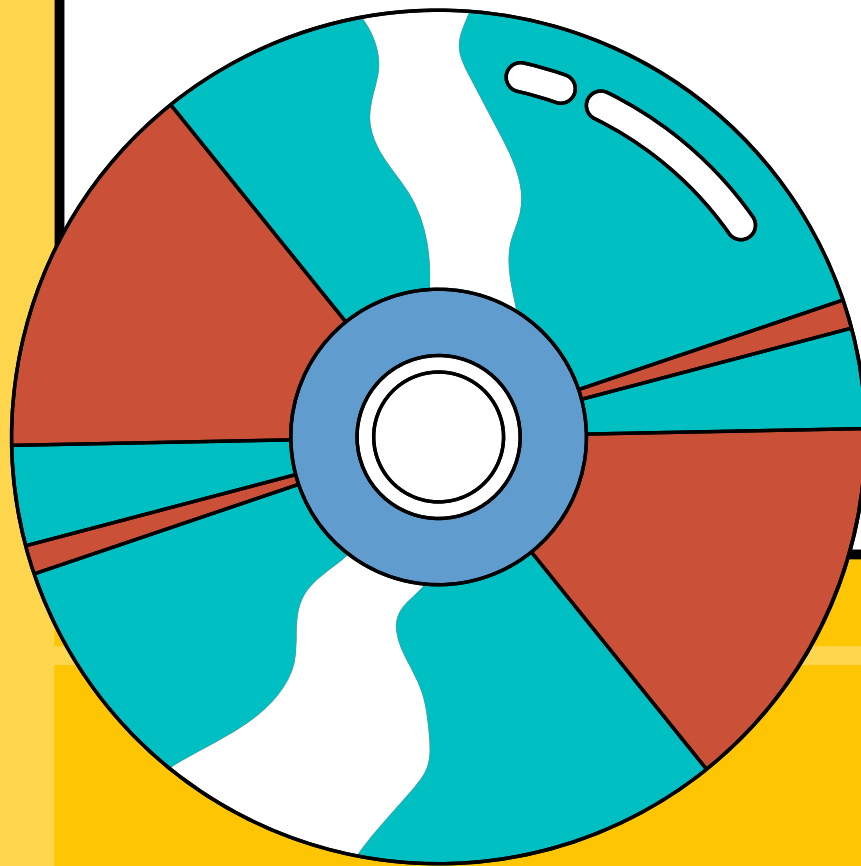


Brand of the carrier





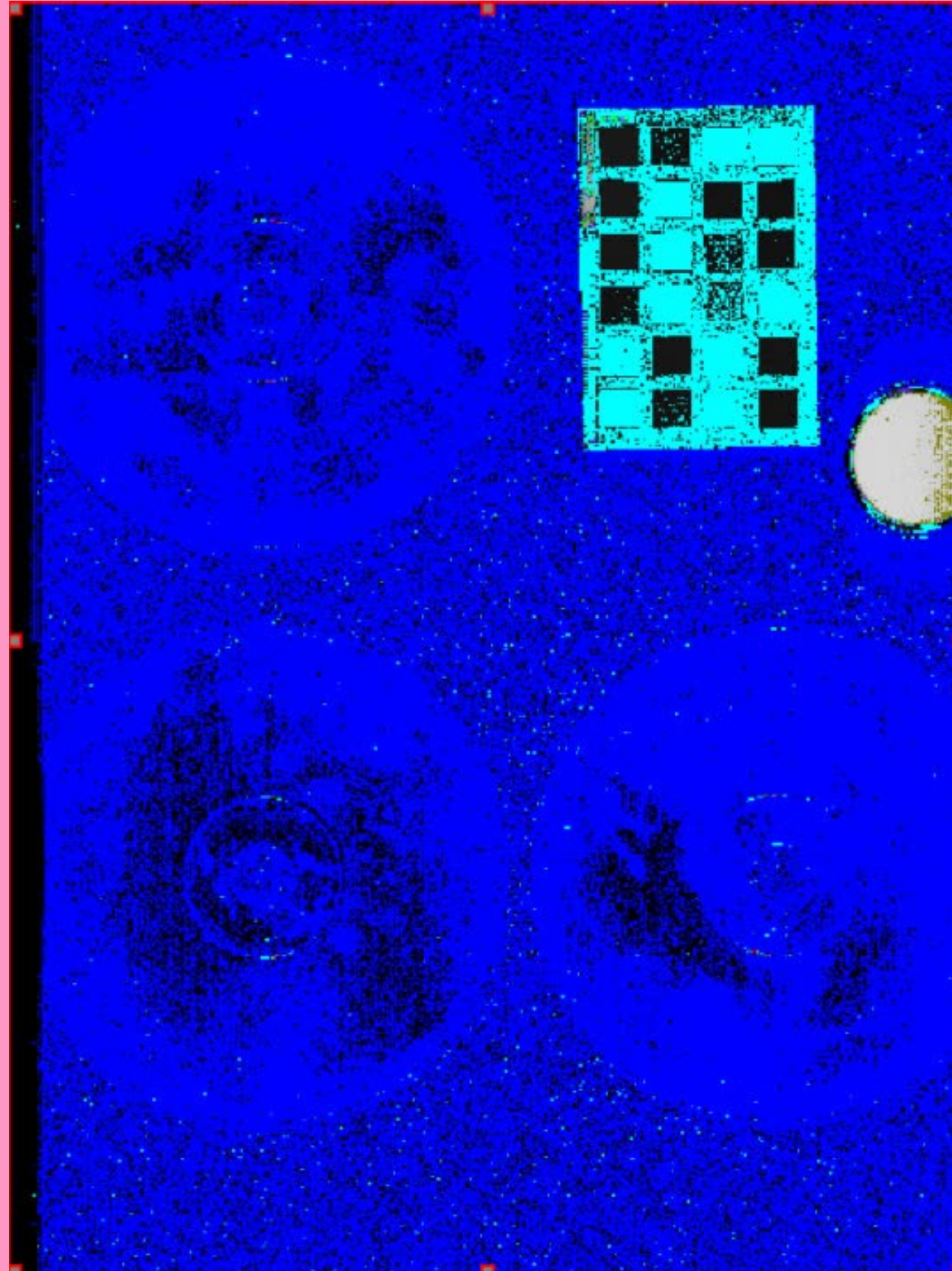
Collaboration



Churchill Archives Centre

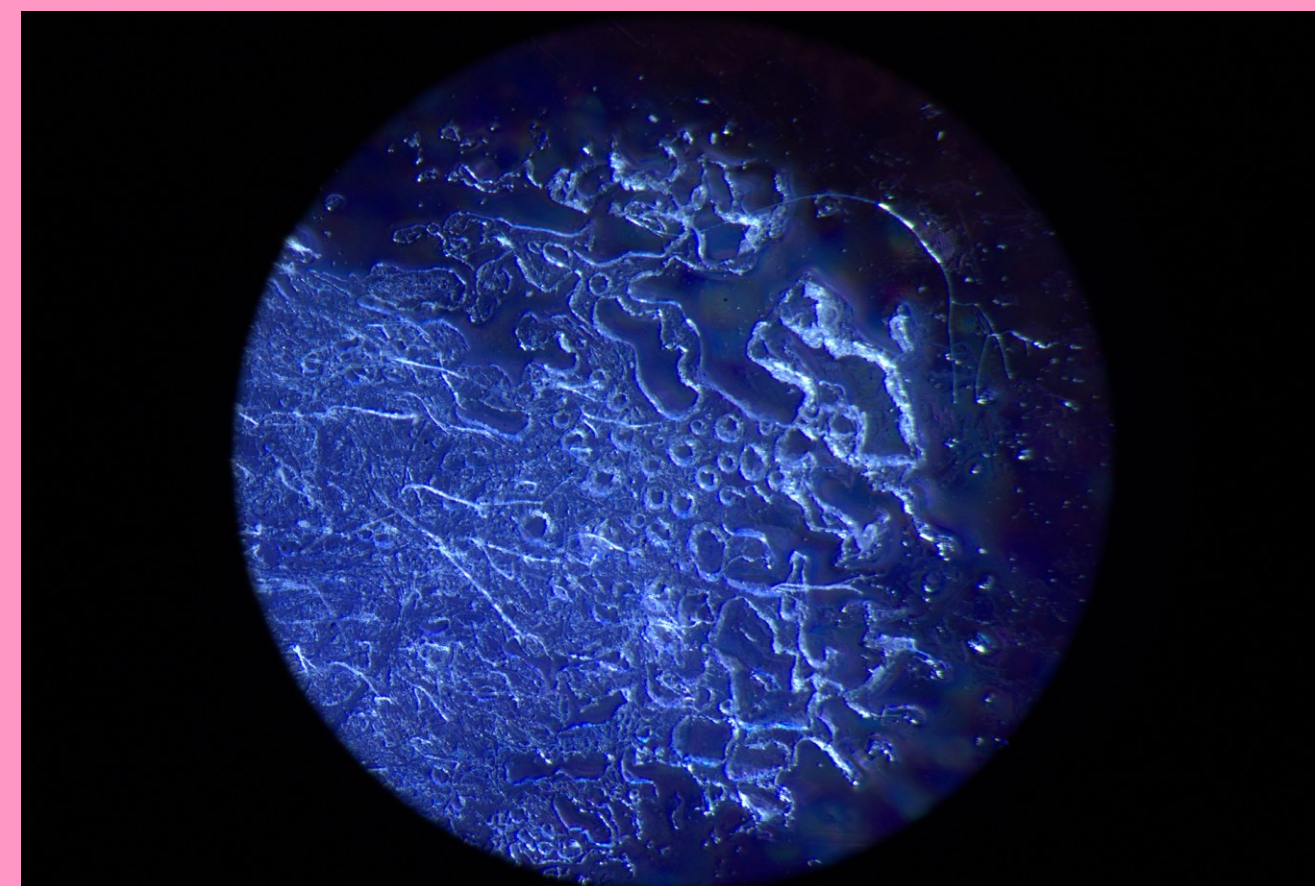
- 5.25-inch floppy disks
- We had the equipment, they had the floppies
- Workflow has been set up
- Troubleshooting for obscure disks

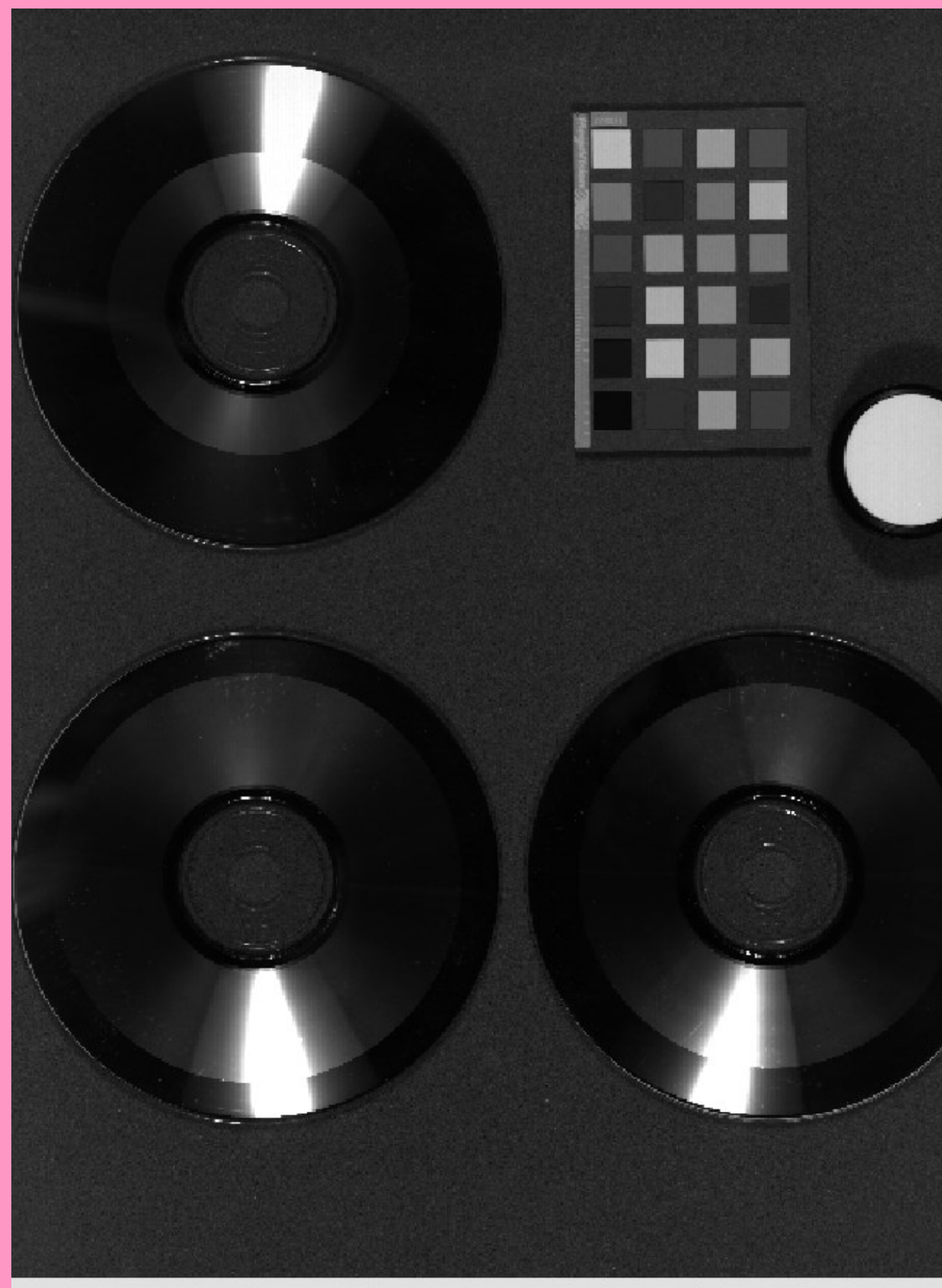




Digital Content Unit

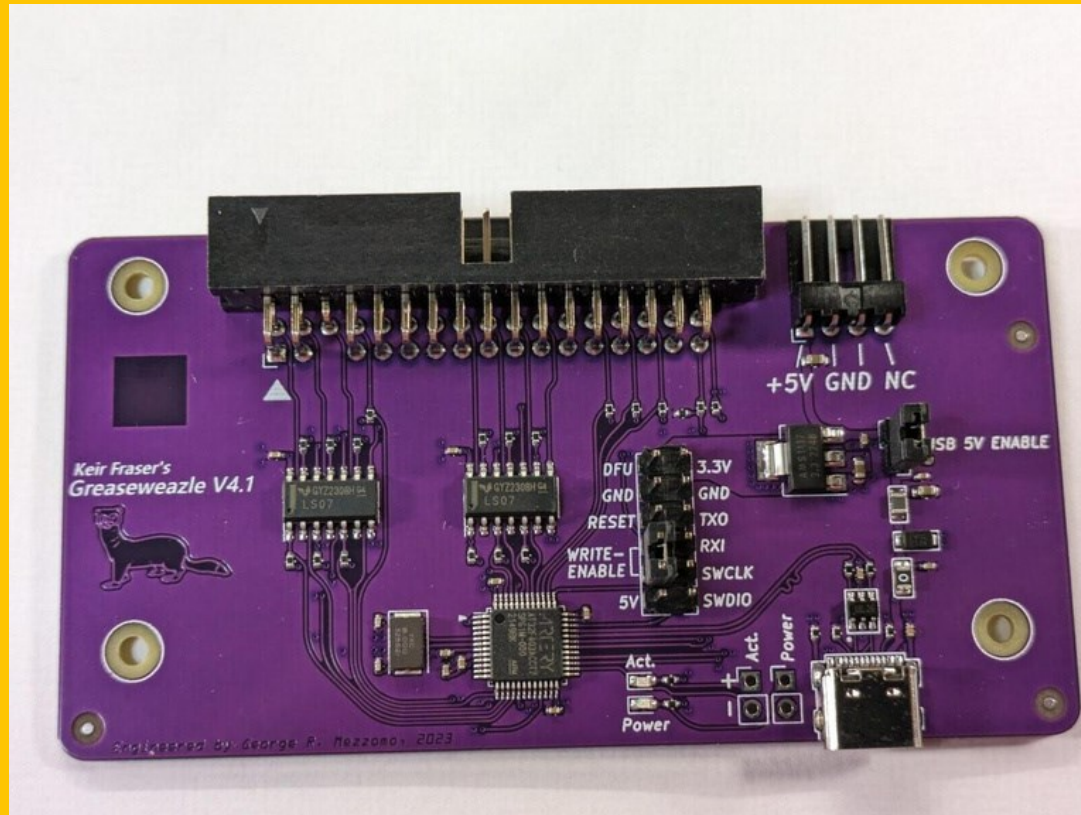
- **Damaged optical discs**
- **Microscope**
- **Multispectral imaging**







Next Steps



GreaseWeazle



**Audio
Workflow**



Good Practice at CUL

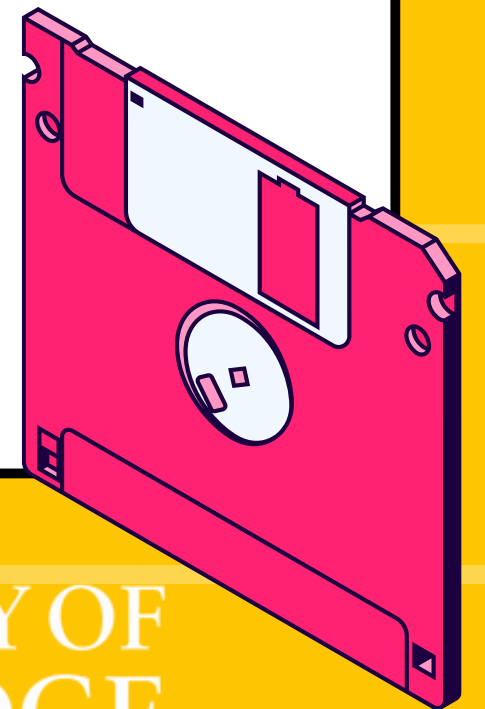
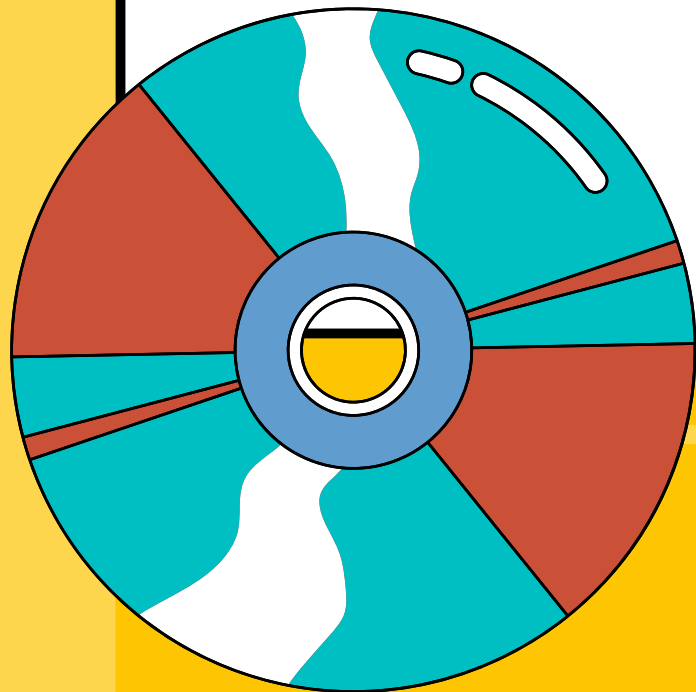
- Documentation
- Training
- Collaboration
- Maintaining equipment





Any Questions?

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Twitter/X: [@makethecatwise](https://twitter.com/makethecatwise)



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