

# AV INSIDER

New Challenges for the Audiovisual Archivist

## Let's Grow Together!

Increase Your Digital Maturity Level

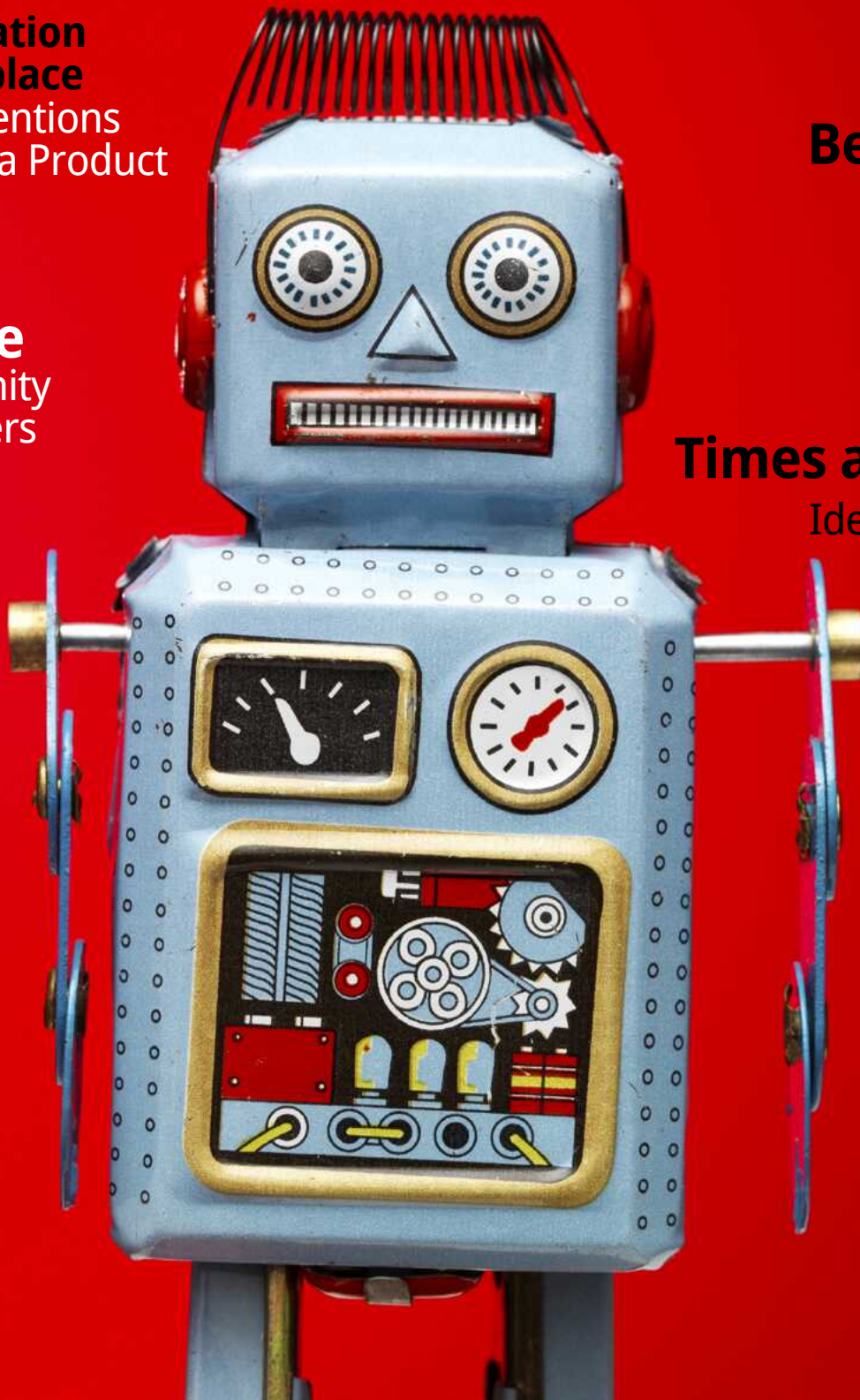
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How Inventions Become a Product

**In the Picture**  
Community Crossovers

**Beyond eBay**  
New Market for Manuals

**Times a-Changing**  
Identifying Future Support Roles

**Analogue Carriers**  
A Digital Archivist's Dilemma



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### The PrestoCentre

The PrestoCentre is a membership-driven organisation that brings together a global community of stakeholders in audiovisual digitisation and digital preservation to share, work and learn. Using free tools and simple strategies we save you money and time, whilst improving long-term access to audiovisual collections. The PrestoCentre works with experts, researchers, services providers and technology vendors, advocates, businesses, public services, educational organizations and professional associations to enhance the audiovisual sector’s ability to provide long-term access to cultural heritage.

Membership is open for organisations across all user communities of practice, including broadcast archives, sound and film archives, national libraries and archives, regional archives, subject-specific archives and special collections, museums, educational institutions, corporate archives, production companies and studios, filmmakers and independent producers, research organisations, commercial providers, as well as funding bodies, standards organisations, and other organisations concerned with audiovisual archiving.

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## The Times They Are a-Changin’

What a world we live in. The things we can do with our devices today are world changing, and would make a person visiting from just a few decades ago squeal with delight or shiver with fear.

At the Association of Moving Image Archivists conference in November 2013, Chris Lacinak of Audiovisual Preservation Solutions chaired a session on “The End of Analog Media: The Cost of Inaction and What You Can Do About It”. A main point was rising costs, so that not spending money this year becomes a ‘cost of inaction’ adding to the eventual cost of any action. The material itself is deteriorating (increasing time-per-item and hence cost-per-item) and skills are disappearing as staff with experience of vintage formats retire or die. You don’t need to know the half-life of exponential models of the life expectancy of every audio and video format to understand that there is no reason to expect affordable transfers for most formats beyond another decade. Except for BetaSP and more recent digital tape formats, the tape-based world ends in a decade.

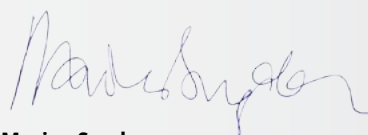
The role of archives and archivists is rapidly changing with this recognition of the need for audiovisual collections to ‘digitise now’. Well-intentioned annual member gatherings and a proliferation of supplier databases will not suffice. While member organisations like PrestoCentre (and a handful other professional bodies and support organisations) have developed and improved their business thanks to a decade of growth in the efficiency of digitisation, we now need to revisit our roles. This edition of *AV Insider* is all about that.

One definite change is in the market for obsolete equipment, as Richard Wright points out in the opening article. Furthermore, Pip Laurenson — from the perspective of a contemporary art museum — explains the importance of the practitioner communities identified by the PrestoCentre, and the need for a better articulation of

their different practices, challenges and requirements. Finally, Simon Factor and Paul Walland describe the increased engagement between both the supply and demand side of the audiovisual preservation marketplace and the role that the PrestoCentre and others should play.

A challenging mission for all of us, in many respects. At the PrestoCentre we have remodelled our membership categories to allow as many archives as possible to join us in this journey. We have lowered the annual dues by as much as 65% and Membership categories now directly reflect your archive’s level of digital maturity and long-term sustainability. Let us know where you are in the equation so we can serve you better. You will find more information on page 13.

Enjoy the ride!



**Marius Snyder**

Managing Director, the PrestoCentre





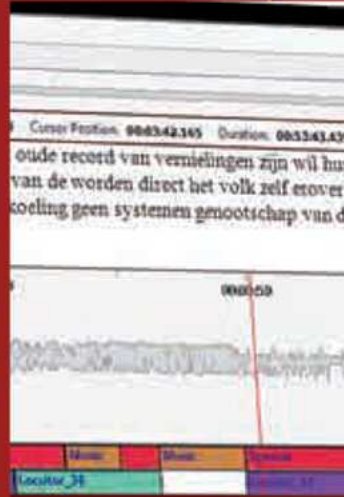
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ARCHIVING SERVICES

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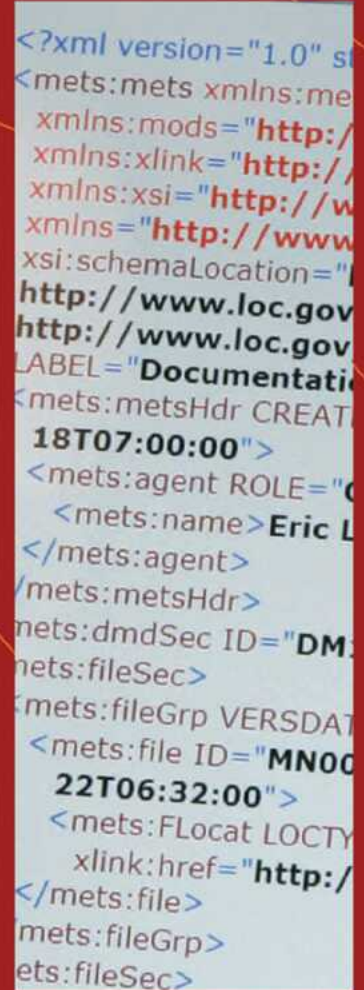
Large scale  
audio digitisation



Content  
enrichment



Mass video  
migration

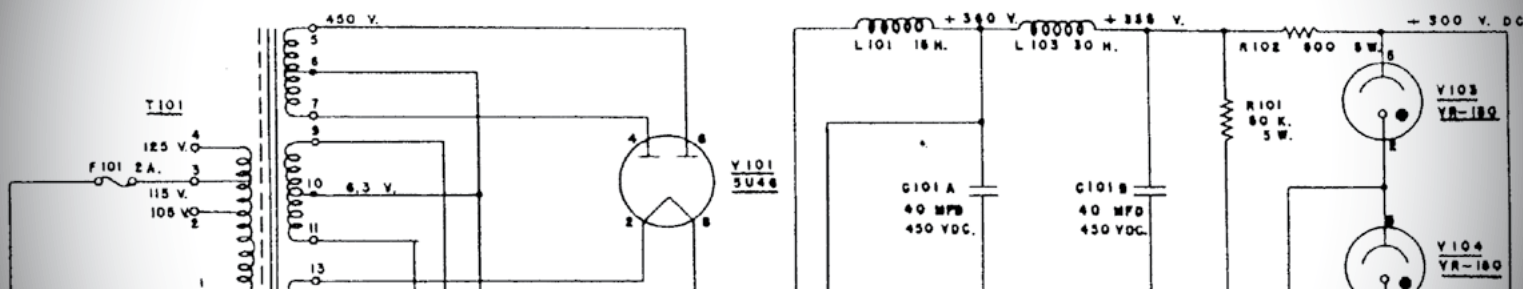


Metadata  
management

Meet us at IBC, Amsterdam - Booth 8.C85

Memnon digitises more than 300.000 hours  
per year of audiovisual archives

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# Beyond eBay — How to Support Access to Technical Documentation and Manuals

By Richard Wright

A central issue for audiovisual collections is obsolescence. Audio and video signals are stored using technology that has changed — sometimes changed many times — over the course of the 20th Century. Wax cylinders gave way to shellac and then vinyl discs, which in turn were replaced by open reel and cassette tape, which in turn were replaced by digital formats: DAT tape, CDs and minidisc being the major examples.

For video, there has been a bewildering variety of videotape formats, from the original 2" reels (that weighed 10 kg and cost as much as a small car) to modern DV formats. Even the current videotape formats are obsolescent as cameras have moved to other storage technologies: DVD, Blu-ray, hard drives and more recently to flash memory or even a wireless connection to external storage.

Each of these audio and video formats had their specific record/playback equipment. At the professional level the equipment could be large and complex, definitely needing a manual for proper operation, and further manuals for maintenance and repair.

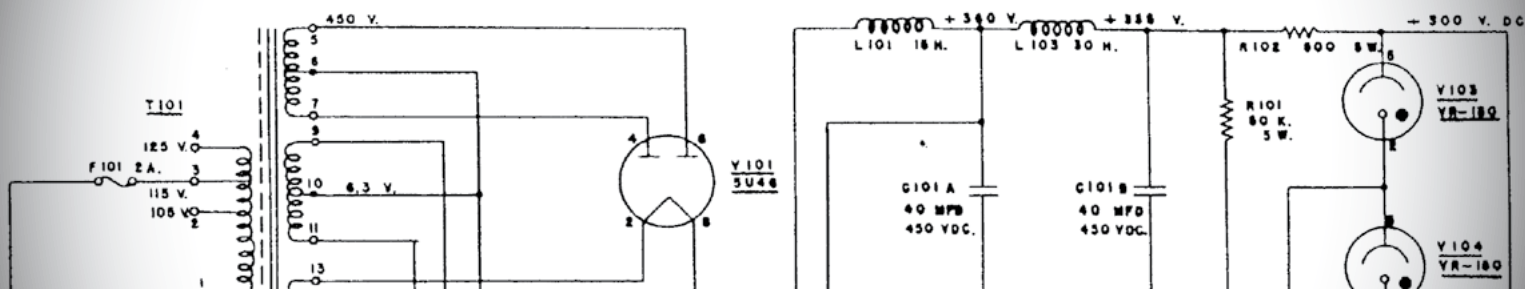
A typical set of manuals for a professional videotape recorder is massive: up to a dozen large loose-leaf binders, each covering one section of the equipment, or a specific operation such as synchronization. There would be schematic diagrams for the electronic circuits, typically on pull-out folded pages that would not

be a standard size, and would not fit on even an A3 scanner. The size and difficulty of scanning have inhibited the marketing of manuals, but the recent increase in competition for used equipment should also increase interest in the relevant manuals.

**Audio and video signals are stored using technology that has changed — sometimes changed many times — over the course of the 20th Century.**

In 2004, the PrestoPrime project produced a document about technical manuals. Our idea had been to locate surplus or unwanted manuals, scan them and place them on the project website. There were several reasons why this plan wasn't feasible:

- Difficulty and cost of obtaining manuals
- Difficulty and cost of copying and hosting the resultant images
- Difficulty of obtaining copyright
- Changing nature of the market in old manuals, with the development of eBay and other Internet markets
- Much information is already available on the Internet, so we would do well to provide a guide to that information rather than duplicating it or competing with it
- The new (as of 2004) Richard Hess collection of technical documentation and the Ampex Museum, both at the Stanford University Library, with plans for placing content online. >



In view of the above, the tables below list online resources by the following categories: General documentation, Specific documentation, Manuals, Parts and Services. In addition, this article also discusses the available offline resources, including the Ampex Museum mate-

rial and the commercial sales of old technical literature. Finally, it attempts to look at 'the market', to see if the increased prices for used equipment really has resulted in increased access (albeit at a price) to technical information. ➤

## Online Sources of Technical Documentation

The online references below can also be found and will be maintained in the PrestoCentre library at [www.prestocentre.org/library/resources/prestocentre-overview-manuals](http://www.prestocentre.org/library/resources/prestocentre-overview-manuals)

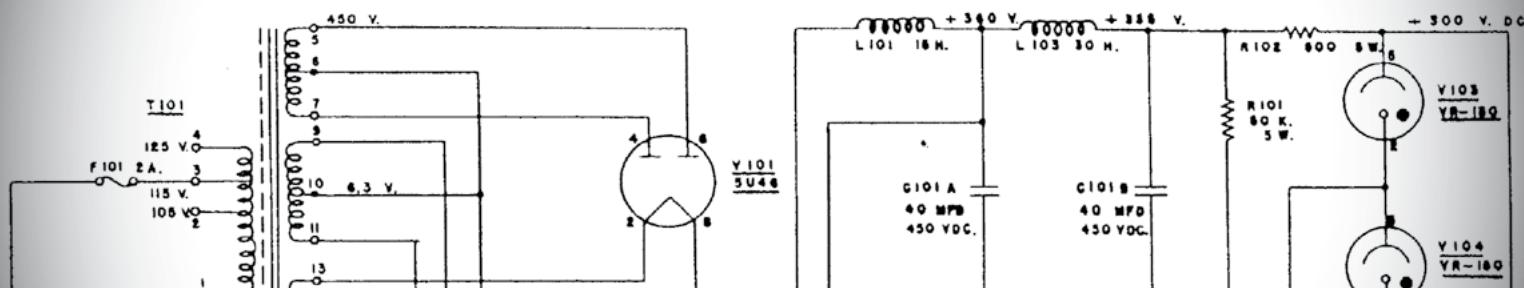
### General Documentation

Format	Organisation	Web address (URL)	Notes
Video	Cyber College	<a href="http://www.cybercollege.com/tpv048.htm">www.cybercollege.com/tpv048.htm</a>	Professional video format information
Video	Video Format Identification Guide	<a href="http://videopreservation.conservation-us.org/vid_id/about.html">http://videopreservation.conservation-us.org/vid_id/about.html</a>	All tapes depicted are from the Vidipax Museum. There is a wealth of information on this website.
Video	Videotape Identification and Assessment Guide	<a href="http://www.arts.texas.gov/wp-content/uploads/2012/04/video.pdf">www.arts.texas.gov/wp-content/uploads/2012/04/video.pdf</a>	This is a 35-page PDF –document covering video formats, with illustrations, technical information and links to further information. It used to be a website, now it's a PDF.
Video	DC Video	<a href="http://www.dcvideo.com/nav-obsolete-video-formats.php">www.dcvideo.com/nav-obsolete-video-formats.php</a>	Remastering obsolete video formats.
Video edit	BBC VT	<a href="http://www.vtoldboys.com/">www.vtoldboys.com/</a>	BBC studios engineers created this site to commemorate 40 years of videotape in the BBC.
Video, Audio and Film Transfers	Video Interchange	<a href="http://www.videointerchange.com/site_map.htm">www.videointerchange.com/site_map.htm</a>	A commercial site with a lot of information in three areas: video, audio and film.

### Specific Documentation

Format	Organisation	Web address (URL)	Notes
Cylinder & disc	Glenn Sage	<a href="http://www.tinfoil.com/">www.tinfoil.com/</a>	General information on "Early Recorded Sounds & Wax Cylinders".
Colour recovery	James Insell	<a href="http://colour-recovery.wikispaces.com/">http://colour-recovery.wikispaces.com/</a>	
Video	NBTA	<a href="http://www.nbtv.wyenet.co.uk/">www.nbtv.wyenet.co.uk/</a>	Narrow-bandwidth Television Association = low definition television amateur group.





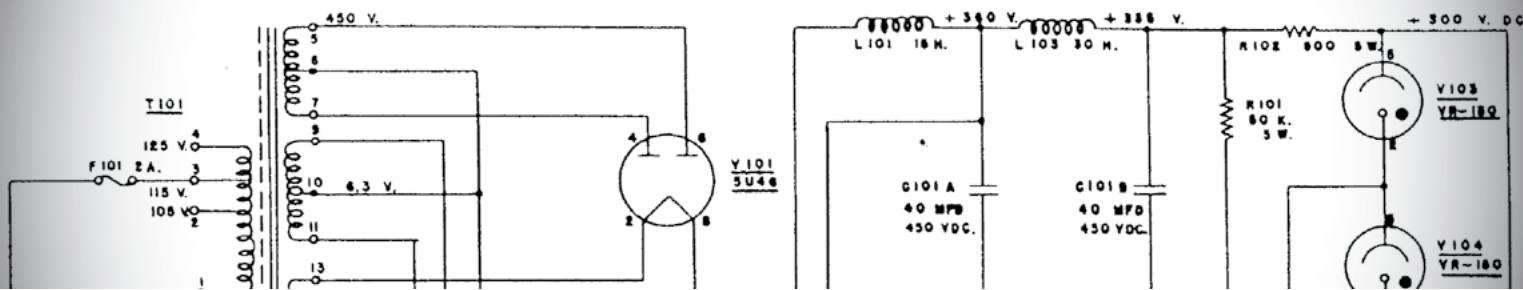
(Specific Documentation - Continued)

Format	Organisation	Web address (URL)	Notes
Video	Total Rewind	<a href="http://www.totalrewind.org/">www.totalrewind.org/</a>	Virtual museum: domestic video recording equipment.
2", 1" Video	Quadruplex Park	<a href="http://www.lionlamb.us/quadpark.html">www.lionlamb.us/quadpark.html</a>	Guide to many models of 1" and 2" equipment; many additions since 2004.
MII	Wikipedia	<a href="http://en.wikipedia.org/wiki/MII_(videocassette_format)">http://en.wikipedia.org/wiki/MII_(videocassette_format)</a>	Wikipedia has much more information on audiovisual formats and their preservation than it had in 2004 – because overall Wikipedia is 20 times larger.
MII	DC Video	<a href="http://www.dcvideo.com/ql-obsolete-panasonic-m-and-m2.php">www.dcvideo.com/ql-obsolete-panasonic-m-and-m2.php</a>	General information on the format by a service provider.

Preservation Panorama

Manuals

Format	Organisation	Web address (URL)	Notes
Audio	The Recordist	<a href="http://www.recordist.com/ampex/">www.recordist.com/ampex/</a>	Online manuals for Ampex audio tape recorders.
Audio	The Recordist	<a href="http://www.recordist.com/studer/technical.html">www.recordist.com/studer/technical.html</a>	Online manuals for Studer audio tape recorders, for download to subscribers to the list (free).
Video & Audio	Sony	<a href="http://www.servicesplus.sel.sony.com/sony-operation-manual.aspx">www.servicesplus.sel.sony.com/sony-operation-manual.aspx</a>	Manuals are at this URL, but there is an annual charge (US\$155) to register for access to technical/repair manuals.
Video	Panasonic	<a href="ftp://ftp.panasonic.com/pub/Panasonic/industrial_medical/downloads/MD830-835_RS232.pdf">ftp://ftp.panasonic.com/pub/Panasonic/industrial_medical/downloads/MD830-835_RS232.pdf</a>	Protocol specification for the AG-MD830 and AGMD835 (S-VHS format); This FTP site may be the only free access to vintage and obscure Panasonic manuals!
Video	Panasonic	<a href="http://www.panasonic.com/business/provideo/support/manuals.asp">www.panasonic.com/business/provideo/support/manuals.asp</a>	More Panasonic manuals
Film	Film-Tech	<a href="http://www.film-tech.com">www.film-tech.com</a>	Select Warehouse from menu and then Manuals; very extensive (about 1200 items).
Video	The Lab Guy	<a href="http://www.labguysworld.com/VTR-Museum_003.htm">www.labguysworld.com/VTR-Museum_003.htm</a>	Extinct video documentation and articles on early open-reel domestic VCR equipment and technology.
Audio	Ampex	<a href="http://www.ampex.com/support/hist-ref-doc.html">www.ampex.com/support/hist-ref-doc.html</a>	Manuals for Ampex



## Parts and Services

Format / Item	Organisation	Web address (URL)	Notes
Videotape robotics	Indelt	<a href="http://www.indelt.it/home.htm">www.indelt.it/home.htm</a>	Various 'cart' systems and similar tape handling equipment, from Italy.
CD, DVD software	Infinadyne	<a href="http://www.infinadyne.com/">www.infinadyne.com/</a>	Diagnostic and recovery products. This area has grown in significance since 2004, with great interest in a forensic approach to data and media archiving.

### Offline Resources: Ampex Museum

Ampex developed the first commercial videotape equipment, and dominated the industry in the first decade of the technology. Gradually Sony, Panasonic, Philips, Thompson and other makers of broadcast equipment produced their own videotape machines, and by 1980 the market position of Ampex was in decline. The company also had a major line of professional open-reel audio tape recorders, but in the 1980s the CD and other formats (DAT, minidisc) were replacing tape. Ampex wound up in the 1990s, and their collection of technical literature — and a large 'company museum' of artefacts — was donated to the Stanford University Library.

A few years later the noted audio expert Richard Hess also donated his lifetime collection of technical literature to the same library.

In 2004, the Ampex Museum and the Richard Hess collection were identifiable in the overall Stanford Library catalogue. In 2014 those links are broken, and there has been a consolidation and it is no longer possible to find the Ampex Museum as such. All that is directly found are photographs of the Ampex Museum and Ampex company records. Further, none of this material is online.

The Hess technical collection can be found as a separate entity: <http://searchworks.stanford.edu/view/5446576>. Again, the description is online,

but the material itself should be accessible by visiting the University Library and speaking to a librarian. There is no indication (in the catalogue) that any of the Hess material — or any of the Ampex Museum material — has been digitised for online access, and sometimes even the offline access does not seem all that straightforward. [When the PrestoCentre informed about a digitised copy of a certain service manual registered in the Library's catalogue, the response from the public service manager was: "If we do find this manual, I will certainly write to you, but at this point we are not finding it." — ed.]

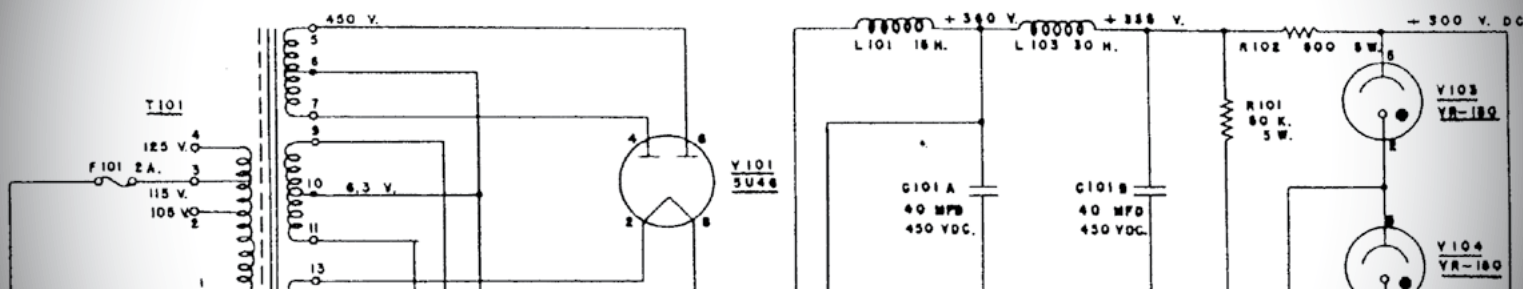
### Commercial Sales of Old Technical Literature

eBay was newer and smaller in 2004 than in 2014, though even in 2004 it was possible to locate 251 manuals on a given day under the eBay classification *Cameras & Photo > Professional Video Equipment > Manuals*.

eBay has reorganised, and no longer has the category *Professional Video Equipment*. It does have a section *Manuals & Guides* under *Cameras & Photography*. As of February 2014 there were about 6,000 manuals and other documents listed for sale in that category, but of course most were for still cameras and associated photographic equipment.

Some professional video equipment on eBay can be found in the category *Video Broadcasting >*





& Recording, a subcategory of *Business, Office & Industrial*. Of the 2,944 entries in *Video Broadcasting & Recording* on a day in February 2014, there were 14 hits on a search for 'manual' — and only 9 were actual documents. Others were items such as a 'manual focus adaptor'.

In searching for a particular manual, probably the best technique is to use a general web search engine such as Google. That way eBay and many other online possibilities will be searched in one go. The problem of course is one that has beset cataloguing and information retrieval since the beginning — people don't use a strictly controlled vocabulary when describing things. Even among video professionals there are various names for the different kinds of videotape formats and players (U-matic could be listed under 3/4", for instance) and even 'the same' name can have variants and spelling variations as well (digi-beta, Digibeta, digital Betacam ...). Also a manual could be a document or guide, it could be a technical or service or repair manual. Or it could be identified by any of its various document numbers, or any of the various numbers associated with a particular piece of equipment. Further, there are terminology differences between Europe and North America: 6mm tape rather than 1/4" or 1/4-inch or 'quarter inch'. The last three are of course trivial differences — to anything smarter than a search engine.

In 2004, eBay listed eight different Sony U-Matic manuals for sale:

- SONY U-Matic BVU-950 Operation Manual
- SONY U-Matic BVU-950 Maintenance Manual
- SONY U-Matic V0-2860A VCR Service Manual
- SONY U-Matic V0-2800A VCR Service Manual
- SONY U-Matic V0-3800A VCR Service Manual
- SONY U-Matic V0-2850A VCR Service Manual
- SONY U-Matic V0-2600A VCR Service Manual
- SONY U-Matic V0-1600A VCR Service Manual

And in 2014, with no defined category on eBay

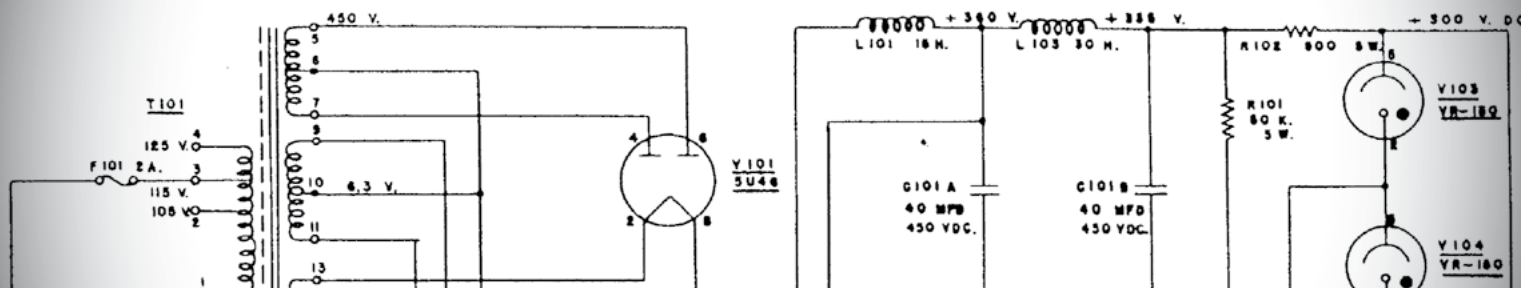
to refer to, a general search for *Sony U-matic manual* found no hits on eBay.co.uk, but five on ebay.com. This led to the discovery that the UK and North American versions of eBay do not use the same classification system. On eBay.com, the old classification of *Cameras & Photo* still exists, and has the subcategory *Video Production & Editing* (rather than *Professional Video Equipment* as in 2004). *Video Production & Editing* has 6 sub-subcategories, but not any for manuals.

The number of items in *Video Production & Editing* in February 2014 was over 23 thousand, with 101 hits on the term *manual*. But the five hits for a *Sony U-matic manual* were not found in the *Video Production & Editing* category. Two were in the *Manuals and Guides* section under *Cameras & Photo* and the other three were under *Consumer Electronics* (in two different sub-subcategories). A hit for a manual from Canada revealed that it was classified under *Vintage Manuals & Magazines!*

The conclusion is that finding technical information on eBay or on the Internet in general can be frustrating, but there are manuals to be found. It is interesting that there appear to be significantly fewer on eBay itself in 2014 compared with 2004.

### A Time of Change

In the last two to three years there has been one definite change in the overall situation regarding audiovisual preservation: it is getting more expensive. The PrestoCentre has been part of a decade of growth in the efficiency of digitisation: the Preservation Factory approach. The concepts of division of labour combined with an efficient workflow (to move materials between the stages required to have a division of labour) were part of the birth of the industrial revolution at the end of the 18<sup>th</sup> Century. Indeed, to this day the UK twenty pound note bears a quote from Adam Smith: "The division of labour in pin manufacturing (and the great increase in the quantity of work that results). >



The actual passage in the work of Adam Smith (*The Wealth of Nations*, 1776) describes how an ironmonger could produce ten to twenty pins in a day, if not specialising in that work. A team that did specialise could produce something like 2000 pins per person per day, a 100-fold increase. This was not as a result of building a machine to produce pins; these results were from 1750 to 1770, and so were based almost entirely on improving the efficiency of hand labour. Special tools and jigs would be made, and would be vital — but the efficiency was gained by division of labour, not by replacing people with machines.

**In the last two to three years there has been one definite change in the overall situation regarding audiovisual preservation: it is getting more expensive.**

In the introduction of the Preservation Factory concept we cannot claim the same 'great increase in the quantity of work' as for pin manufacturing in the 1770s, but 'time per item' was reduced by 50% to 75%. There are hard numbers supporting these results in major broadcast archives, including Sound and Vision, Rai, INA and the BBC. There are also hard numbers from the commercial sector of service providers, where companies reported reductions of 50% to 75% in their prices, over the years from 2000 to 2010.

But by 2011 these same companies were reporting price rises — and were attributing these price rises specifically to a sharp rise in prices for vintage equipment. This author visited several institutions and companies in 2012 in preparation for an invited visit to the Vietnam Film Institute. Professionals at the British Library (which holds the UK national sound archive) and the British Film Institute (which holds the UK national video archive in addition to its film holdings) were clear about three things:

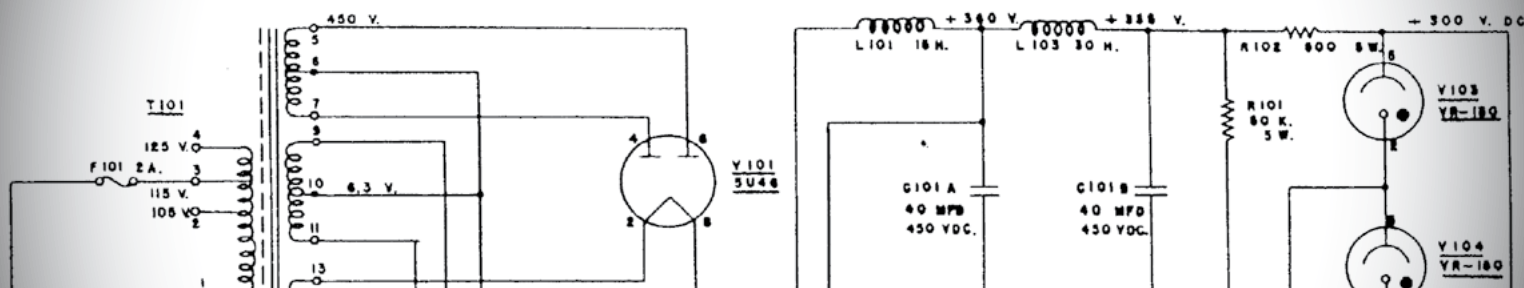
1. Equipment was getting harder to find;
2. The prices were rising; and
3. They were searching eBay (and any other source they could find) and competing with other professionals from around the world for a share in the same diminishing pool of equipment (and spares, manuals and associated materials).

### Market Forces and the Rescue of Technical Information

What has all this to do with technical manuals? Simply this: the increase in the price of equipment is making these manuals commercially valuable. While the marketplace is not (by any means) a solution to all society's problems, in this case the PrestoCentre's view is that the commercial market for equipment will do more to preserve technical manuals than any intervention on a 'good cause' basis by well-meaning institutions such as FIAT/IFTA, AMIA, IASA, or FOCAL.

Two thorny problems will have at least partial solutions because of the rise in equipment prices. We have been discussing the effect on manuals, but the direct effect is on the value of the equipment itself. A limited number of the PrestoCentre members have gone to considerable effort and expense to try to rescue vintage and unwanted equipment, refurbish it, and supply it to areas of need (Balkan states, North Africa, South East Asia, Surinam). The process has been difficult and expensive, and the result has at times been disappointing — a recipient archive loses its budget, the digitisation is halted, the equipment sits idle.

With rising prices, there will be no such thing as completely 'unwanted equipment'. And while there are a handful of major archives and interested professional organisations who could intervene to rescue equipment, there are hundreds of small private companies in the business of supplying audiovisual equipment >



and services to audiovisual collections, and there are thousands supplying equipment and services to the media industries in general.

The PrestoCentre's conclusion is that these hundreds or thousands of local enterprises will do far more for finding, refurbishing and making money (by sale or by use for services) out of old equipment than could ever be accomplished by the interventions of non-commercial archives, professional bodies and support institutions.

### What the Non-Commercial Sector Can Do

The commercial market can be expected to value vintage equipment, because audiovisual collections need to digitise and commercial providers of digitisation services want their business. But still these are niche markets, and a problem with relative specialist collections and equally specialist services is that they need to find each other.

Informing archives about service providers — and vice versa — is an area of technical information activity at the core of the PrestoCentre. The author thinks that the PrestoCentre is making a meaningful contribution to the issues of vintage equipment and vintage manuals simply by doing more of what are already core activities: informing archives about technical issues, informing service providers about the needs of archives, and promoting the activity and commercial viability of service providers as a vital resource for archives and archivists. Specific reasons for a gap between archives and service providers are:

- Service providers are already very aware of the PrestoCentre and of the professional organisations. They have literally 'made it their business' to pay attention to the activities that could provide contact with customers, and to customer requirements. The problem is the other direction: many small audiovisual collections are in

the hands of librarians and archivists who are not audiovisual specialists, who don't join the PrestoCentre, and who don't know about service providers;

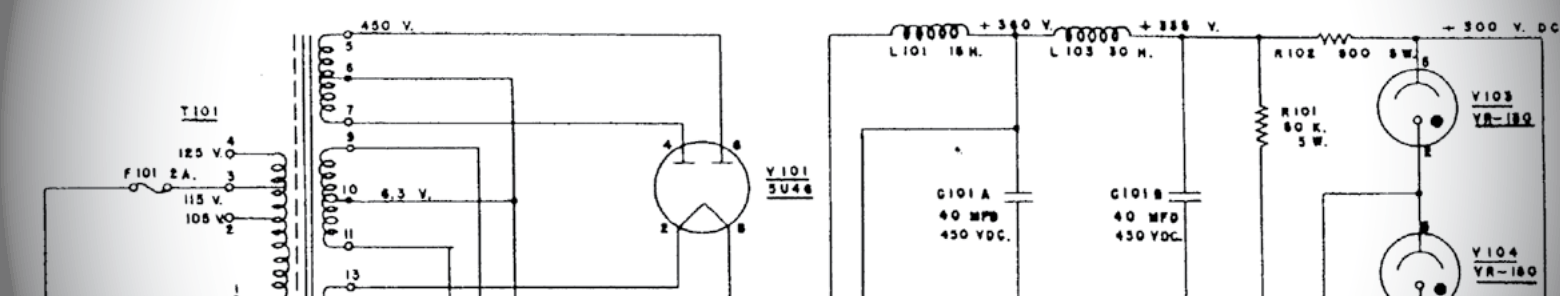
- It is also common to find audiovisual archivists who are specialists and do join the relevant support organisation, but who think of service providers as either 1) too expensive to even talk to; or 2) the enemy — an entity whose existence is sustained only by making profit. As many audiovisual collections (and archive collections in general) are held in non-profit institutions, there is a clash of cultures issue; and
- Service providers can be seen as servicing broadcasting and advertising, and so not interested in archive business, archive budgets and archive quality.

These issues have always been around, and the PrestoCentre has made quite some progress in bridging such gaps. But we need to do more, seeking practical ways to build better links to smaller archives, and better links between such archives and service providers.

Here are some suggestions:

- The PrestoCentre has started a very successful series of webinars. This will be extended to specifically include service providers, and highlight how they can be located.
- Several organisations, including the PrestoCentre and AMIA have launched a directory of service companies. They should find ways to collaborate better so to extend, exchange and promote that information — based on geography for instance.
- Non-audiovisual archivists, museum curators and librarians are still professionals, and have their own professional organisations, along with their regional, national and local structures. How can they be reached? The PrestoCentre's Communities of Practice are intended as ways to reach beyond >





the 'usual suspects'. Each such community should ask — and answer — the question "How can my community promote technical services?"

In summary, rather than collecting online manuals or storehouses of equipment, the commercial viability of both manuals and vintage equipment offers the main chance for protection and continued availability (of the equipment and of the manuals). The equipment will primarily be in the hands of large archives and service providers. Large archives can be expected to

run the equipment until it is worn out, and if not worn out these archives will now have the option of selling the equipment rather than throwing it out — and the purchasers will be service providers!

The contribution that the voluntary, charitable or non-profit sector can provide is to link archives with service providers. What is needed is information (and a range of promotional actions) allowing archives to connect to services, rather than information about where to get equipment or where to get technical manuals. ■



Ampex AVR-2

# Let's Grow Together!

## What Category Are You In?

Good news! We recently remodelled our membership categories. Membership now more clearly reflects your archive's stage of digital maturity and long-term sustainability. Five Membership categories help us develop services better suited to your needs, allowing you and your colleagues to learn and grow towards digital maturity in no time.

## The PrestoCentre's Five Categories Towards Digital Maturity:

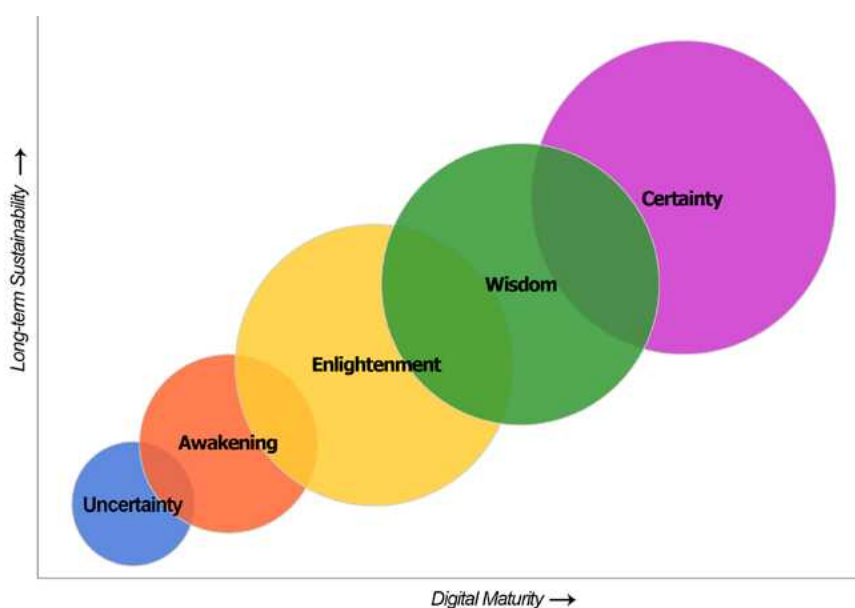
**Uncertainty:** You are starting the appraisal of your analogue archive with a view to digitise. You will need to outline the challenges, identify the required solutions and the related costs so you can do appropriate project budgeting and prepare a grant proposal. *Euro 150*

**Awakening:** You have done your preparations and are about to start your first digitisation project, either large or small. You will need to buy equipment, outsource certain work, understand quality control, and data management. *Euro 200*

**Enlightenment:** You have digitised on a project or programme basis and now need to optimise workflows for digital ingest and transcoding. The number of files is growing and you need to re-think your media asset management and storage. *Euro 250*

**Wisdom:** You have a digital archive with rich metadata and a mission for the long-term storage of your collection. You will need to understand the impact of changing user requirements, establish contingency plans and guarantee resources. *Euro 300*

**Certainty:** You have an in-depth understanding of your designated community. You will need a multi-platform strategy to provide quality access. Rights management is a challenge. You are interested in repository assessment and audit. *Euro 350*



*Non-archives, students and those retired from professional engagement may apply for Associate Institutional or Individual Membership. For commercial organisations who want to promote their company and products, we offer several levels of Commercial Affiliation. For more information contact us at [membership@prestocentre.org](mailto:membership@prestocentre.org)*

## Why You Should Join

Being part of the PrestoCentre means you have the support of an active community that is dedicated to maintaining long-term access to our audiovisual media heritage. The PrestoCentre is a recognised and respected voice, with considerable clout internationally. With your involvement we can continue to strengthen our programmes and develop new opportunities that will serve all stakeholders in the AV archiving community.

## Contact Us For All Your Questions At:

+31 20 894 3570 / +1 347 404 5337 (CET)

[membership@prestocentre.org](mailto:membership@prestocentre.org)

[www.prestocentre.org/membership](http://www.prestocentre.org/membership)



# Cover Story:

## Communities of Practice:

### Acknowledging Context and Building New Areas of Collaboration in AV Preservation

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**In conversation with Pip Laurenson**  
Head of Collection Care Research, Tate

Led by the PrestoCentre, the two year European project Presto4U has convened nine Communities of Practice drawn from nine communities engaged in different areas of audiovisual preservation or production. The concept of a Community of Practice is rooted in theories about participatory learning and was first introduced by the cognitive anthropologist Jean Lave and the computer scientist Etienne Wenger in their 1991 book *Situated Learning: Legitimate Peripheral Participation*. A Community of Practice is essentially comprised of a group of people who share the same goals and focus. They are most commonly formed of practitioners who share expertise or learning goals and they exist over time beyond any particular task. It is possible to be either a core member of a Community of Practice or a peripheral member and most people are members of a number of different Communities of Practice within their lives. The term 'Community of Practice' has also been identified as an important term in highlighting social aspects of how knowledge and expertise are transmitted between practitioners.<sup>1</sup>

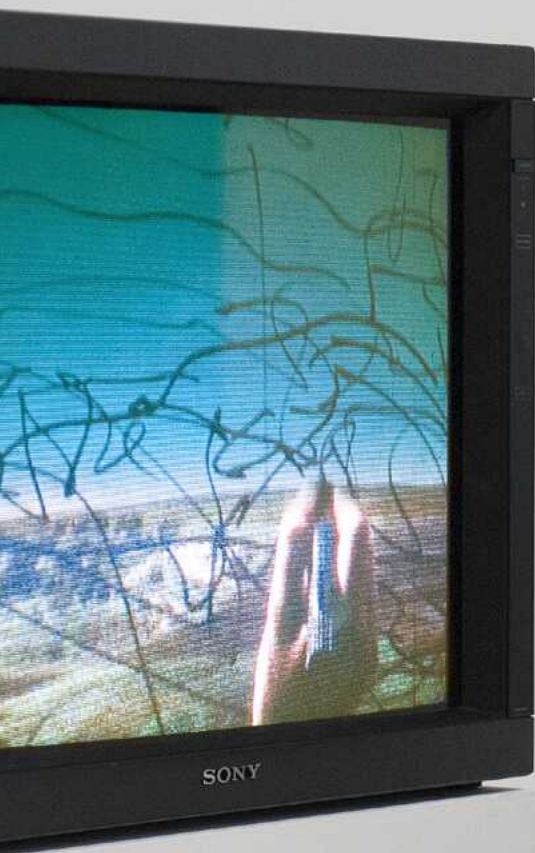
The nine communities identified within Presto4U

are: Music and Sound Archives; TV, Radio and New Media Broadcasting; Video Production and Post-Production; Film Collections and Filmmakers; Video Art, Art Museums and Galleries; Footage Sales Libraries; Research and Scientific Collections; Learning and Teaching Repositories; and Personal Audiovisual Collections. This is not to say that there are not other communities that might be identified as engaged in audiovisual preservation. It may also be argued that some of these communities maybe prove to be less distinct than originally thought. However, the important point is not in the identification of any particular set of communities but rather in recognising the value of exploring and testing the assumption that research into digital preservation that is focused on the challenges of audiovisual preservation for one community would produce results that were readily applicable and transmittable to other communities. The identification by the PrestoCentre of nine different communities is therefore both an important tool with which to acknowledge and research the specific needs and contexts relevant to the implementation of new thinking or tools within these communities, and a mechanism by which to share and nurture knowledge >



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The difference between a contemporary art museum and an archive is, unsurprisingly, not well understood. When commenting at a meeting — where different communities were represented — that I was not an archivist, this was interpreted to mean that I was not engaged in the long-term digital preservation of collections!





and expertise regarding digital preservation. The design of the PrestoCentre's approach is interesting in that it brings together many different participants in complex forms of collaboration. This is achieved in part through engaging with technology partners who are aiming to identify and match community needs which can be addressed with the assistance of software, with software produced as an output of a past research project.

This article considers two questions: firstly, what are the challenges related to building effective collaboration between those within the audiovisual community who are engaged in preservation? And secondly, how significant are different contexts to the challenges of digital preservation faced by these communities?

### **Video Art, Art Museums and Galleries**

The PrestoCentre Community of Practice for which I am the convenor is concerned with Video Art, Art Museums and Galleries. A group of core experts from this community has agreed to focus on a very specific remit and look at the challenges for the community in creating the workflows needed to respond to the move from video tapes to files. This core expert group is mindful of the need to think not only of the larger museums and institutions but also the smaller collectors, galleries and individual artist interested in the conservation of their own works.

### **Building Effective Collaboration**

In January this year the final report was published from a short project within the field of heritage science called *Mind the Gap: Rigour and Relevance in Heritage Science Research*.<sup>2</sup> This project used an attitudes survey to look at the barriers to collaboration between academic scientists and practitioner-researchers in cultural heritage organisations.<sup>3</sup> During the course of this study my fellow investigators and I rapidly began to appreciate the value and significance of the research partnerships that had been built in our field over many years. A detailed account of the results can be read in the final report and

associated paper,<sup>4</sup> however, two of the findings that came through clearly were the following: Firstly, the value of being explicit about the goals and expectations of those coming from different contexts and, secondly, the importance in creating successful collaborations of individuals who can act as a bridge between different sectors.

The types of collaboration explored within *Mind the Gap* were between academic researchers and those who worked within cultural heritage organisations. There are many forms of research collaboration with cultural heritage organisations, ranging from those that simply facilitate access to collections, to deeper research collaborations where researchers jointly determine the focus, direction and methods used in the research and the terms by which the results are evaluated. It is important to be explicit from the outset as to what type of collaboration is being envisaged. The assumption by academic researchers that those who are approaching the research as practitioners or managers are not active partners may create unproductive misunderstandings regarding the nature of the research collaboration.

**My fellow investigators and I rapidly began to appreciate the value and significance of the research partnerships that had been built in our field over many years.**

Practitioner-researchers were found to be less satisfied with research than their academic colleagues, indicating a need to both manage expectations and also the very real challenge of translating research into practice. The study also demonstrated the importance of considering the design of collaborative research projects at the outset. For example, it was found to be valuable to consider the number of participants and the number of different disciplines involved as well as the experience of the researchers. For example, early career researchers found it harder to engage in collaborative research as their focus is necessarily on establishing themselves within their field. >



## About

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**Who:** Pip Laurenson

**Where:** Tate

**What:** Head of Collection Care Research

Dr. Pip Laurenson is the Head of Collection Care Research at Tate. She started work at Tate in Sculpture Conservation in 1992 and went on to establish and lead Time-based Media Conservation from 1996 until 2010. In her current role she is focussed on developing, leading and supporting research related to the conservation and management of Tate's collections and has secured awards for research from a range of funders including private foundations, the European Union and the UK's Arts and Humanities Research Council. Recent projects include leading the UK and Dutch research network Collecting the Performative (2012-2014), acting as co-Investigator for the UK's AHRC/EPSRC Science and Heritage Programme project and Mind the Gap: Rigor and Relevance in Heritage Science Research (2013-2014). She is a founder member of the New Art Trust funded consortium Matters in Media Art. She is coordinator of the PrestoCentre's Community of Practice for Video Art, Art Museums and Galleries, and is currently the lead for Tate on two European funded projects related to digital preservation Pericles and Presto4U. Pip received her PhD from University College London, is an accredited member of the Institute for Conservation, a trustee of the UK's National Science and Heritage Forum and a member of the Steering Committee of the International Network for the Conservation of Contemporary Art.

In the Picture

What within *Mind the Gap* can we learn that is of relevance to Presto4U and the PrestoCentre? Firstly, it has been an ambitious goal to incorporate at least four distinct groupings: a group of core experts from a particular community and the conveners of the expert groups, enterprise technology partners, and the academics. The core experts, who identify as belonging to a particular Community of Practice, will by definition have joint interests and many will know each other. In some cases, they will be building on previous acts of collaboration and relationships that have developed over a number of years. They may represent a mix of institutions of different scales and also perform different roles within that community; for example, within the Community of Practice group focused on Video Art, Art Museums and Galleries, we

have a service provider who works closely with artists.

The conveners of the Communities of Practice are all members of the PrestoCentre and engaged in the Presto4U project. By definition, these individuals come from different areas of practice. Here, there is work to be done to develop an understanding between the individual conveners of the diverse domains represented. What they share, however, is a joint goal of being able to articulate the focus of their community, including any significant differences between it and other communities and also areas of common ground, both in terms of requirements and appropriate solutions.

The third group are academics from technology based disciplines, digital humanities and also specialists in digital preservation. >





The fourth group are enterprise technology partners. The value to the audiovisual community of our building a better understanding of each other, our requirements and goals, is in itself not to be underestimated. The PrestoCentre's 2014 activities concentrate on identifying the needs which might be addressed with the assistance of software, and to match these to the outputs of digital preservation research.

In addition to the different disciplines involved, different sizes of collection and scales of operation are represented; from the individual who wishes to preserve their own artworks or personal records, the small company or organisation with a few hours of video, the large organisation for whom digital preservation of audiovisual content is only part of what they do, and finally the specialist audiovisual archive.

There are also differences in background training and approach between those who represent various professions engaged from within different types of memory institutions (for example museums and archives), those who are interested in preservation just because they are trying to preserve their own work, and those who are interested because it is part of a sensible business model.

### Identifying Difference Between Different Practitioner Communities

The focus of this article comes in part from the experience of encountering some simple misunderstandings between Communities of Practice convenors and also from becoming increasingly aware of my own lack of understanding of the other communities and professionals represented. For example, the difference between a contemporary art museum and an archive is, unsurprisingly, not well understood. Therefore when commenting at a meeting — where different communities were represented — that I was not an archivist, this was interpreted to mean that I was not engaged in the long-term digital preservation of collections. Coming from the background of a time-based media conservator working within a contemporary art museum, I have similarly had a lot to learn

about the differences between my practice and that of an archivist. Both the archivist and the conservator have a particular training and a different professional ethical framework.

### The Archivist and the Conservator

Presto4U, and other projects that I have been engaged with this year, led to a desire to develop a better understanding of the role of an archivist and how it might differ from that of a conservator. The philosophers Foucault and Derrida have both had a significant impact on contemporary archival theory, undermining the notion of the archive as *passive receptacle* and highlighting the way in which the archive both shapes and controls the development of history and our political reality.<sup>5</sup> Contemporary archives are understood to be as much about exclusion as inclusion<sup>6</sup> and are no longer seen as the *pristine storehouses* of objective histories.<sup>7</sup> To understand the significance of these theoretical developments it is helpful to return to some of the basic principles of archival practice. For this, the paper by Anne J. Gilliland-Swetland is invaluable.<sup>8</sup> Her paper outlines the development of archival theory and practice from an historical perspective, particularly in the concern for *Respect des Fonds* (the act of taking into consideration the entire set of materials from the same originator), the original order of information, and also a notion of provenance which has at its roots a strand of archival practice concerned with the reliability of evidence. Swetland quotes Hilary Jenkinson's *Reflections of an Archivist* published in 1944:

*"The perfect Archive is ex hypothesi an evidence which cannot lie to us: we may through laziness or other imperfection of our own misinterpret its statements or implications, but itself it makes no attempt to convince us of fact or error, to persuade or dissuade: it just tells us. That is, it does so always provided that it has come to us in exactly the state in which its original creators left it. Here then, is the supreme and most difficult task of the Archivist — to hand on the documents as nearly as possible in the state in which he received them, without >*



*adding or taking away, physically or morally, anything: to preserve unviolated, without the possibility of a suspicion of violation, every element in them, every quality they possessed when they came to him, while at the same time permitting and facilitating handling and use.”*

This statement provides some indication of the territory in which similarities and differences might be debated between the practice of a contemporary art conservator and the traditional role of an archivist. Contemporary art conservators are part of the active life of an artwork. Whilst governed by a professional code of ethics that requires conservators to carefully document any decisions made or actions taken that change the nature and condition of an object, in a contemporary art context one of the main drivers behind the actions of the conservator is the requirement to be able to continue to keep the artwork displayable as the *artist intended*. Although *artist's intent* is a much debated concept within the profession, it in part explains the importance, within contemporary art conservation, assigned to the conservator's ability to consult closely with the artists or their representative regarding any major decisions about the conservation of their work. This is different from the way the archivist's role has been traditionally conceived, namely, as starting once the active life of the object is over; part of a past history.

In the digital age, however, the role of an archivist is being reassessed and it is likely that a greater convergence of the archivist's and the conservator's worldviews will develop. Although still underpinned by Jenkinson's ideals, archival theory and practice has developed a great deal, particularly in terms of the shift from a life cycle model to the continuum model of records management and archival practice, and in how appraisal is conceived.<sup>9</sup> Archival theory has evolved away from the lifecycle model, in which the archi-

vist remains passive until after the active life of a record, towards a continuum model. In this model the goal is responsible and proactive records management, through the engagement of records managers and archivists during the active life of the records, from creation to their entry into societal memory.<sup>10</sup> The continuum model also acknowledges the different contexts in which an archive will be re-presented and re-used over time. In these ways there are increasing similarities between archival and conservation theory.

Increasingly within contemporary art conservation, artworks are conceptualised as having biographies, existing, often in different forms over time. Aligned to this way of conceiving an artwork, the role of the conservator is thought of as a *manager of change*.<sup>11</sup> As always, language matters; *preservation* is seen as a rather static concept within the context of managing collections of contemporary artworks, whereas conservation is seen as a term that allows for a more holistic and dynamic response to the needs of an artwork.

So — to say 'I am not an archivist' is not to deny an engagement with long term digital preservation but rather to point out that, within the long term digital preservation landscape, there is more than one professional perspective, theoretical framework and history. To develop a deeper understanding of these perspectives can help to provide a fresh perspective to reflect on one's own assumptions and context. >

**Archival theory has evolved away from the lifecycle model, in which the archivist remains passive until after the active life of a record, towards a continuum model. The goal is responsible and proactive records management, through the engagement of records managers and archivists during the active life of the records, from creation to their entry into societal memory.**



## Does a Difference in Context Matter When Thinking About the Preservation of Digital Video?

Within the collections of contemporary art museums there are individual items of video, which have an unusually high monetary as well as cultural value (not that these two things necessarily go hand in hand). Most contemporary art museums have very few hours of video compared to most archives. There is a great deal of concern regarding how the appearance of the video might be changed by processes or tools used to render or transform the file, because it is important to make sure that the work is shown in the way in which it was intended to be seen and experienced. The media element is often only one component in the conservation of the work, which includes intangible elements related to how the work is experienced as well as specific aesthetic requirements regarding its look and feel, complex relationships to meaning which need to be maintained perhaps through the uses of particular technologies or other objects in different media. Although the larger contemporary art museums may have specialist conservators working with time-based media artworks, the majority will not. Given the relatively small amount of material, it may make sense to work with service providers to set up systems for preservation rather than establishing a system in-house. It is therefore important for this community to be able to communicate what is needed in order to continue its work within this digital landscape.

The work carried out within Presto4U will support a greater understanding of whether a difference in context matters when thinking about the preservation of digital video. One place in which the difference of context may be significant is in the applicability of the OAIS model. It could be argued that this model does little to consider the active life of an artwork. Instead, it is far more in tune with a traditional life cycle as conceived for an archival object or collection that is preserved after the end of its active life. Or maybe the OAIS model is simply agnostic on the point? Within the life of an

artwork, the record is still being created; new elements are produced to respond to changes prompted by display, new forms of distribution, or conservation activities all of which are part of the evolution of the work.

In other areas, a difference in context may not be so significant, for example, the bit preservation of our digital data in storage, or the way we might conceive and respond to the notion of file obsolescence within our preservation planning. In other areas minor differences are emerging for example in our needs for meta-data extraction or quality control; these differences are not great enough that we cannot benefit from work developed across disciplinary boundaries. However, these differences do explain a particular emphasis. Take for example quality assessment tools. Within museum or archive contexts these tools may produce information that forms part of the record for an object. For this reason, consistency of vocabulary between tools and over time is significant. Whereas within a production and broadcast environment the quality assessment is far more concerned with whether the material is suitable for immediate broadcast and not a matter of creating a record of a particular audiovisual object at a particular time.

**It could be argued that the OAIS model does little to consider the active life of an artwork.**

## Conclusion

There are strong reasons for developing greater opportunities for collaboration between different practitioner communities. This is not only so that we might address technical challenges, build tools and services that address shared needs, but also so we might share emerging practice around new workflows and formally articulated requirements. In many cases, it is the latter that might most benefit from greater shared experience. Working together within our communities to articulate needs, find solutions and identify what makes a particular Community of Practice, is a signifi- ➤





cant undertaking in its own right. If we can build bridges to other sectors and professional disciplines, and use our communities as a mechanism for shared learning all the better.

## Acknowledgements

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## Biography

Dr. Pip Laurenson is the Head of Collection Care Research at Tate. She started work at Tate in Sculpture Conservation in 1992 and went on to establish and lead Time-based Media Conservation from 1996 until 2010. In her current role she is focussed on developing, leading and supporting research related to the conservation and management of Tate's collections and has secured awards for research from a range of funders including private foundations, the European Union and the UK's Arts and Humanities Research Council. Recent projects include leading the UK and Dutch research network Collecting the Performative (2012-2014), acting as co-Investigator for the UK's AHRC/EPSRC Science and Heritage Programme project and Mind the Gap: Rigor and Relevance in Heritage Science Research (2013-2014). She is a founder member of the New Art Trust funded consortium Matters in Media Art. She is coordinator of the PrestoCentre's Community of Practice for Video Art, Art Museums and Galleries, and is currently the lead for Tate on two European funded projects related to digital preservation Pericles and Presto4U. Pip received her PhD from University College London, is an accredited member of the Institute for Conservation, a trustee of the UK's National Science and Heritage Forum and a member of the Steering Committee of the International Network for the Conservation of Contemporary Art. ■

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# Preservathons: Your New Way of Learning

Ever heard of a Hackathon? — where “hack” is used in the sense of playful, exploratory programming, and “-thon” refers to a marathon (we’re talking about multiple days rather than hours). The PrestoCentre is now introducing a series of Preservathons: two-day, hands-on workshops on digitisation, storage, MAM, procurement, SLAs — you name it.

## What You’ve Missed: Preservathon on Storage Solutions

Last June 2014, the first Preservathon on audiovisual preservation storage solutions took place in Turin, Italy. Attendees worked together in small teams on a self-defined storage challenge and gained in-depth experience in current audiovisual storage solutions and developments.

Each team was assigned with defining an imaginary archive of a certain collection, size, growth rate and use. Each team needed to come up with the unique storage requirements, an identification of appropriate storage solutions and, finally, to agree on a procurement procedure. Experts and moderators guided each group, and participants learned to avoid mistakes that skilled and large institutions have made in the past. Within no time, three imaginary archives were established: one on court records — posing all kinds of storage challenges like authenticity, reliability and confidentiality; one research archive holding a variety of formats; whilst the third group represented an archive of dance performances. The multi-disciplinary character of the teams and the

competitive challenge were helpful in simulating a real world situation. All teams went through a series of processes involved in the procurement of storage technology, as well as the careful definition of the Service Level Agreement with a vendor (including areas as diverse as maintenance, risk of data loss, technology refreshment, contract renewal).



During the Preservathon, we were exposed to the process of how to buy technology and build relations with a vendor, while vendors learned about our challenges and needs related to our mandate and operations.

## Don’t want to miss the next Preservathon? Reserve the date!

On 13 and 14 November, a new Preservathon is scheduled, concentrating on the procurement of digitisation solutions and tools. Digitising analogue AV collections has been a challenge over the past decade or so. Since then, a great amount of knowledge and experience has become available on the technology and format choices and the challenges regarding selection and workflow. The Preservathon will give you a hands-on learning experience helping you increase your understanding of the more obscure pitfalls of preparing a large-scale digitisation project.

Participants may bring their own case to the Preservathon. The location is VRT, Brussels.

Send us an email if you would like to receive more information:

[office@prestocentre.org](mailto:office@prestocentre.org), or subscribe to our newsletter for general updates on PrestoCentre through [www.prestocentre.org](http://www.prestocentre.org).



# AV Preservation Solutions:

## Intellectual Property and Routes to Market

By Simon Factor (Moving Media) and Paul Walland (IT Innovation Centre - University of Southampton)

At the centre of the audiovisual archiving world exists a conundrum: the scale of the technical challenges faced by audiovisual archives is large and permanent but the number of players is relatively small and their budgets cyclical. These are not the attributes of an addressable marketplace that is commercially attractive to many companies and therefore requires that the approaches taken to solving the challenges faced by archives must spread wider to collaborative research, adaptation of useful open source technology and even exploring entirely new 'digital' business models in a drive to offset current costs against future value.

This article explores the mechanisms for licensing preservation research outcomes that meet the needs of audiovisual archives. We explore these mechanisms from the perspective of each of the main stakeholder groups: The Archivist, The Researcher and The Vendor (a company that supplies a product to meet the preservation need).

At a high level we look at the influencing factors that will drive a decision on how to acquire a new technology, looking specifically at the research to delivery chain from applied research projects to open source adoption to buying a product 'off the shelf'. The aim is to provide the reader with a useful perspective that will aid in the decision making process when considering how IP is developed and licensed, the various

approaches that can be taken to acquiring a solution to preservation needs and how to approach such things as commercial license negotiation.

### The Landscape

In recent years, as the professional and consumer AV industry has moved through the digital divide into tapeless workflow and management of digital assets, many technology vendors operating in the Post Production and Broadcast sectors have developed tools that are marketed as 'Archive' solutions. However these products tend to target the needs of television production archives rather than the specific preservation needs of the wider audiovisual archive community, which spans a range of sectors outside of Broadcast, as represented in the several Communities of Practice identified by the PrestoCentre. The digitisation of physical media collections and the development of technology to facilitate ingest, migration, storage and fixity have supported the development and growth of a number of specialised technology vendors in the space in the past decade. Great progress has been made and healthy levels of industrial / institutional collaboration, supported by framework funding from the European Commission, have provided solutions to problems faced by audiovisual archives across a range of sectors. An example is the transfer of research undertaken during the 1990s under the EUREKA and ESPRIT programmes, and later >



the DIAMANT project in 2000 into film restoration technology. These results are now at the core of a Film Restoration system brought to market by a startup company formed for that specific task. The company HS-ART Digital Service GmbH has continued to market these research outcomes through its widely adopted DIAMANT-Film Restoration product line for more than a decade. The timeline of research to adoption in this example highlights the length of time required to undertake research and foster adoption of research outcomes in this sector, and the need for sustained investment over many years.

Within the AV preservation solution development ecosystem we have three main stakeholder groups:

1. Researchers
2. Industry vendors
3. Archive practitioners

Researchers can develop useful IP alone, or in collaboration with industry vendors who will build products that can potentially license that IP. Archive practitioners can choose to develop

or acquire IP or products through a number of routes. Each stakeholder group has a different set of motivations for involvement in the development of solutions.

One challenge faced by smaller archives or organisations (for whom audiovisual archiving may be a smaller component of their available efforts) is in finding and deciding how to implement solutions to the problems they face. Whilst commercial solutions may be available, they may not suit the scale or shape of needs within the organisation or their budget and therefore an organisation must explore the viability of alternative approaches. One such approach could be through the implementation of Open Source technology or, where no suitable commercial or open source solution exists, to engage in applied research activities to deliver a solution.

For an archive considering what approach to take in acquiring a solution to a need there are a number of factors that will influence each path. Broadly speaking we can segment the landscape into three separate focus areas:

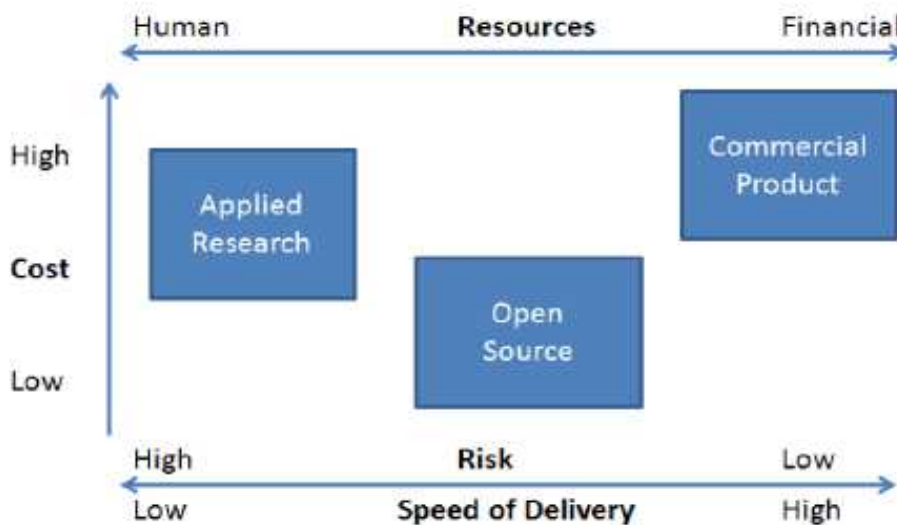


Figure 1: Types of Solution





- Applied Research
- Open Source
- Commercial Solution

Applied Research is an approach to solution development where no suitable solution currently exists or a significant barrier exists to accessing an existing solution (e.g. it is a component of a wider system that is too expensive). Applied research can be a useful way to develop solutions to very specialised needs but requires significant financial resources and access to researchers with the requisite skills and specialisation.

Applied Research may accrue additional benefits to the organisations engaging in the delivery of a successful research outcome as this may provide an opportunity to license the technology beyond the four walls of the organisation conducting the research. However this approach also presents great risk as the outcomes are unknown and success is not guaranteed. Research projects by their nature take time and therefore participants must take a long term view and be prepared to reinvest should results be in sight but further out than expected.

One key consideration for both Archives and Commercial companies engaging in applied research projects is to check expectations with regard to the operational suitability of the research outcome. It will often fall on the organisation applying the research outcome or the company developing a product to bring the research outcome to an application ready state.

Open Source technology is often seen as a low cost means of solution acquisition, however, similar to applied research projects, any institution seeking to implement an open source solution must have the human resources or access to services to support the application of the solution. While open source technology is often well supported by the community who use it, this is not guaranteed, therefore an organisation adopting such technology is well served by having resources available to integrate, modify

and support internally. Organisations that adopt open source technology without having the internal resources to integrate and support may overcome this challenge by outsourcing these tasks; both approaches require both human and financial resources.

A commercial solution can refer to licensing code or specific IP on commercial terms; this is explored in more detail later in this article. In this instance, we refer to the purchase of a shrink-wrapped product such as a piece of software with a defined license and cost. The main benefit in acquiring a suitable solution in the form of a commercially available product is speed of delivery and scalability. A commercially available solution may often be turnkey, subject to a future development roadmap, provide integration with other solutions and the support provided by a commercial vendor can also offset the operational cost of supporting a solution in-house.

### Routes to Market

The Market for solutions in the audiovisual archiving sector is a simple two-sided marketplace with Practitioners on the demand side and Researchers and Vendors on the supply side although there are examples where these lines can blur, which are discussed later in this article. For the supply side of this marketplace, a range of options exist for each of the two groups. Researchers and Vendors can choose to collaborate or to provide solutions direct to the demand side.

Options for the Researcher include:

- Release Open Source (e.g. on SourceForge)
- Release as “dual license”, non-exclusive
- Exclusive license to selected commercialisation partner
- Knowledge transfer agreement with selected partner
- Commercialise through spin out company >



Options for the Vendor include:

- Take and develop available open source code
- Licence code from developer
- Enter into knowledge transfer agreement with researcher
- Develop technology in house

For example, a research group creates a potentially saleable piece of IP and is looking to exploit it, or at least make it available for use commercially. What are their options, and what does each imply?

**A.** Sell the IP outright to a third party. Irrespective of the nature of the third party (who could be a large commercial company, an SME, a third party broker or a newly formed company) the result is to hand over code, documentation and rights to usage. The benefit of this tactic is that a lump sum is received up front without any guarantee of performance of the software or its revenue generating capability (technical and commercial audit and valuation of the IP is the responsibility of the purchaser), and there are no further costs relating to support and maintenance of the software, responsibility for which is taken on by the purchasing organisation. The disadvantages are that the research group creating the IP loses all control, potentially losing the ability to further develop or build on the IP; they lose the opportunity to create future revenue out of the IP and could find that they have under-sold in terms of the return that the purchaser actually makes from its exploitation.

**B.** License the IP to a third party. Licensing has the benefit that the research organisation retains control of their IP and can further develop it or license to others (if they avoid exclusive licensing). The license conditions

can reflect the commercial success of the IP by linking to sales volume, revenue/profit generated or market value of the licensee. The disadvantages are that support and maintenance of the software remains with the research organisation, and there is an ongoing cost of revenue tracking and collection and maintenance of the commercial competitiveness of their product.

**C.** Retain IP and exploit it internally. The research organisation may choose to exploit their IP through a spin-out or directly from an internal group. Exploitation through a spin-out is very similar to the previous sell or license discussions, with the added potential disadvantage that control of the IP can be lost if the spin-out is re-capitalised or liquidated through sale to a third party investor or large company. Costs of marketing and support will fall to the IP holder if they choose to exploit for themselves, which can be a drain on resources and is often incompatible with the normal operations of a research group.

## The Market for solutions in the audiovisual archiving sector is a simple two-sided marketplace with Practitioners on the demand side and Researchers and Vendors on the supply side

When considering the exploitation of preservation research results, there are three principal stakeholders, each of whom has a unique viewpoint on what they want to get out of research tools, and their motivation for using them. These three stakeholders are the researchers (who create the research output and hold the initial IPR), the commercialising entity (that takes and offers the IPR to customers) and the user (who is ultimately interested in using the research output to do a certain job). Each of these stakeholders has their own set of moti- ➤

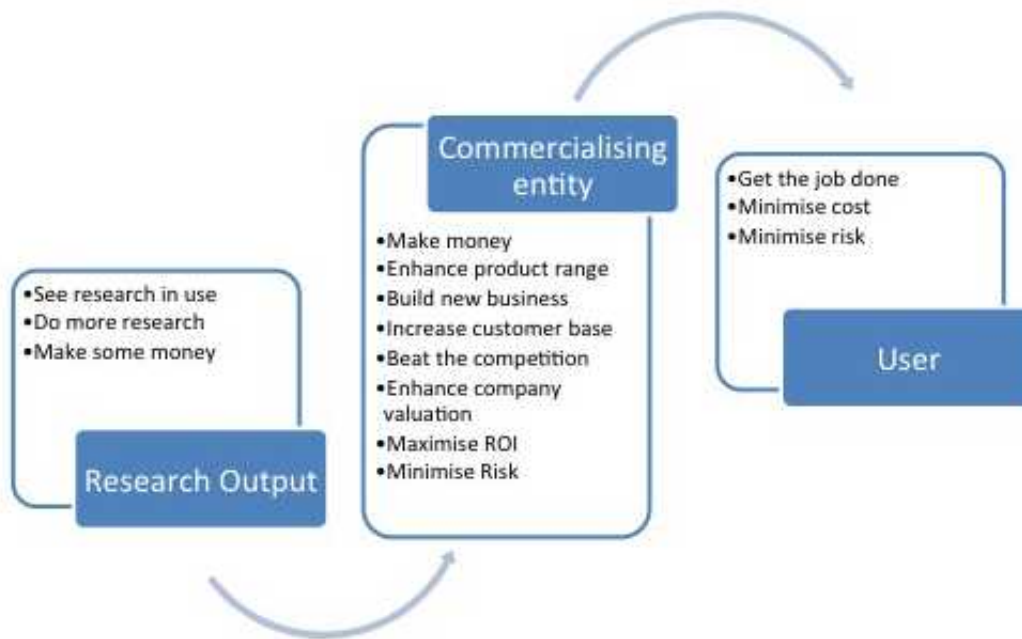


Figure 2: Motivation of Stakeholders

variations for what they do (which might not be compatible with each other of course), but for the whole chain to work they all have to satisfy their needs one way or another.

### The Researcher

The researcher is more often than not driven by a desire to see their work being used in some way or other. Whether that is seeing something on the shelves in the local shops or seeing a product being used beneficially by someone, the result is the same and brings a sense of satisfaction. The researcher also wants to be able to do more research. This may sound obvious, but researchers don't like to be prevented from doing their work by IPR limitations, and they see themselves as free thinkers who come up with great ideas. Of course, money is still a motivation, and a researcher will often believe that their ideas have a high commercial value. This

isn't always true, and it may be that a great idea doesn't offer a commercial organisation the opportunity to make the all-important profit, but this is not always obvious to the researcher owning the IP.

In order to achieve these objectives, the researcher has a number of routes to market that they can take, each with advantages and disadvantages which must be carefully weighed up. On the assumption that the researcher has created a piece of identifiable intellectual property (IP) in the form perhaps of software, algorithm, design or simply unique knowledge, the first decision is whether to make the IP publicly accessible or to retain ownership and aim to gain financial benefit from its exploitation. Software can be made available open source, or knowledge can be published in a publicly accessible forum. This has the advantage >



that there is no obligation on the researcher to maintain or develop the research any further – anyone making use of their ideas might be expected to acknowledge its provenance, but would be free to make their own implementation and would take on the costs of development and support. The disadvantage to the researcher would be a loss of control over their ideas, and loss of any financial benefit that might accrue. A half-way house that is available is to release designs or software as “dual license”. This means that, for certain specified applications such as non-profit research, the IP can be used with an acknowledgement and without compromising original ownership. Any commercial exploitation of the IP would be licensed from the researcher. For their part, the researcher must ensure that the IP does not incorporate any “viral” open source elements (which corrupt the IP they are built into) or any commercial components, which may be used under an academic license during the research phase but which carry their own license conditions for any commercial user of the IP package. If the researcher believes that there is the opportunity to generate financial benefit out of their IP then they have some different options available to them, which will involve a higher investment of time to realise. If a commercial partner can be identified, then a direct, exclusive license agreement may be possible. Ideally this would allow the researcher to retain the ability to further develop their research work, whilst permitting the commercial organisation to take the IP and make the investment themselves to develop and exploit a product on the basis of it. The license can take the form of a one-off payment or a royalty basis dependent on sales revenue achieved (or some combination of the two). The commercial company will be looking to minimise their risk and exposure, whilst the researcher will be looking to maximise their likely income. It is possible to sell IP in its entirety to a commercialising organisation, but this can have the disadvantage to the researcher of losing control over their

research stream, and will very often result in them being unable to continue developments in this area, and should be avoided.

The other option that a researcher might consider would be to create a spin-out company through which they can take their research to market. Although this sounds an attractive option, and has been followed successfully by a number of researchers in a variety of disciplines, there are some fairly stringent requirements that need to be met for this to be a viable route to market. Firstly, the researcher needs to be very confident that their IP is unique and has a genuine market. Simply having a gut feeling that there is a business is not enough — any investor will need solid proof that the IP is ready for market and that there is a significant customer base. The researcher will need to find a source of investment – research quality IP is not of the quality expected for commercial use, and generally needs ruggedisation and support before a user can feel confident enough to use it in their business. Any investor will be looking for a longer term business than a single piece of IP research offers — they will want to know how the business will evolve, what new and unique IP will be added and, crucially, what investment is going to be needed before the business is able to start generating revenue. If the customer base is too small and the investment to bring the IP to market is too high, then the per customer cost may be higher than they are prepared to pay or can justify, and in this case a spin-out company will simply not be viable. This is not to say that a spin-out route doesn't work — in many cases it has done — but that it is a long and difficult road and one that many researchers would prefer not to follow, if it means they are taken away from their primary role of creating IP and into a world of commerce and financial necessity.

### **The Commercialising Entity**

The commercialising entity (which could be a large corporation or a start-up) is driven >





by different motivations compared to the researcher, who creates the intellectual property in the first place. All businesses rely on innovative product offerings to stay in business — and staying in business requires that income generated from sales exceeds costs. In other words, businesses have to make money, and any prudent business will do a thorough cost-benefit analysis before committing to the commercialising of a new product idea. Having said this, it is also incumbent on businesses, particularly those in the technology sector, to innovate and to introduce new or improved product lines in order to retain their customer base and maintain a successful position against their competitors. So the dilemma faced by technology businesses is how to differentiate innovations with the potential to increase revenue from those that are going to lose the company money.

No company can guarantee that the market will evolve in the way they anticipate — if they could, then there would be no business failures and the world would be a very different place. The best that a company can hope to do is to minimise their exposure to the risk of failure. Different sizes and financial bases of companies will approach this problem differently, so let's consider the challenge from a number of different angles.

**Simply having a gut feeling that there is a business is not enough — any investor will need solid proof that the IP is ready for market and that there is a significant customer base.**

#### **The Big Corporation**

One of the principal characteristics of a large organisation is that the corporate management is driven by economic considerations, and is not often so interested in the technology underlying their products. This means that a researcher from their own R&D department,

or a researcher from outside the organisation, needs to make a strong case for new technology development — a case that is built on the financial benefits, not on the cleverness of the technology. This is a difficult role for researchers to play, and to be successful they need to work with the commercial and marketing arms of the company to show an adequate customer take up to justify the investment in development. A big corporation will also have other considerations. Existing customers need to be supported, and existing product lines should be reinforced by any new developments rather than replaced. There is an investment involved in the development effort needed to bring new IP to the market, and for a large corporation that investment will come from company budgets — in other words the cost will come off the bottom line. This means that the management will be looking for a short pay-back period, probably within one or two financial years, a requirement that mitigates against investment in new markets or completely new product lines. It is for this reason that large corporations tend to be risk averse, and will more often buy smaller companies that have done the investment and market development already rather than make the investment in-house.

#### **The SME**

Small and medium enterprises are characterised by having management teams who are close to the technology being developed, and are accessible to the researchers directly. They are far less risk-averse than their big corporate counterparts, but will generally be looking for external investment or capital in order to

invest in a new venture. SMEs may have some of their own researchers, but will also be looking to collaborate with researchers in academia or research centres to identify IPR that could be turned into a product. They need to make a profit, otherwise they will go out of business, but they can be more flexible than a large >



corporation, and with a lower cost base they can afford to work within a more specialised market place. This is not to say that exploitation by an SME is a guaranteed route to market. Whilst they are certainly more prepared and interested to collaborate with IP owners, and are more amenable to supporting knowledge transfer initiatives with academic groups, there can be obstacles to an effective relationship. The typical SME is working in a tough business environment, where sales of existing products inevitably take precedence over new product development. Very often the relationship with researchers is seen as an interesting but non-core activity, and so fruitful engagement with SME management can suffer when immediate commercial demands take precedence. There is also the very real risk that an SME will change its nature mid-course. Either through re-capitalisation or sale to a larger organisation, control of the SME can change from a technical to an economic focus, in which existing product lines are developed and research relationships are abandoned by a new and more financially driven management. Thus the very process of securing funding to invest in bringing IP to market can bring an SME to the point where they cannot go all the way to market, and a very well thought-through costed business plan is an essential part of preparing for a new product development.

### **The Start-Up**

Start-ups are generally built around a particular new product offering, often coming out of a research group, a private individual or sometimes as a break-away from a larger organisation unwilling to invest in commercialisation of research (see discussion above regarding large enterprises). Such start-ups are, by their nature, much less risk-averse than other initiatives. They do not have an existing market to maintain, and are generally trying to create a new market for an innovative product or are trying to take customers in an existing market place from established main-stream products

into adopting their new product offering. From this point of view, a start-up would appear to be the ideal partner for taking on and exploiting a new research output, especially one where the customer need is well defined and the research is well developed. However, there are some considerations that should be borne in mind when following this route. If the start-up is the result of the IP holders setting up on their own, there will be considerable enthusiasm for developing the product, but this enthusiasm may not be matched by the size of the market or the revenue generation potential of the product. The entrepreneurs need to be very focused on the viability of their business rather than the technology, and they need to ensure that the customer base is willing to buy from a new commercial entity, and is prepared to pay enough for the product to cover business costs. Investment costs can be lower for a small start-up, and they should be prepared to work with their launch customers to ensure the developed product suits their needs, but the customer will also want to know that the business is going to be sustainable, and that ongoing support and development for the product will be available over the coming years. This can be influenced by the anticipated exit strategy of the start-up investors. With a strong enough business they can grow the business, taking on new products and extending the range.

The more likely route, however, is for the investors to look for a sale or (if the business is successful) IPO, which may mean that the product will end up as part of the product line of a large established business. Whilst this is not necessarily a bad thing — after all, no one ever got fired for buying from IBM — it can lead to situations where a useful and economically priced product becomes part of a larger, less affordable proprietary system.

### **Commercialising Entities in Summary**

A research output can be brought to market through a number of different routes, and a researcher is well advised to consider the >



advantages and disadvantages of each. But at the end of the day, an effective commercialisation of research is only possible if the economics work out. No matter what size the commercialising entity, the research output they bring to market must return more in revenue than it costs in investment — and the break-even point needs to be reached before the investors lose patience. There is a significant investment involved in developing and supporting a piece of research IP such that it can be presented as a viable product. A market of customers must exist, who need to see a benefit from access to the product, and must also be prepared to pay for it. Effective collaboration between those who want to use the results of the research — the users — and the business looking to make the research available as a reliable and supported product is an essential part of the process of making research outputs useful and usable.

### **The Role of the Broker**

The brokerage function is one in which a third party (the broker) identifies the needs of the demand side of a market place and matches these with the capabilities of the supply side, bringing together both parties, to their mutual benefit and, in certain cases, with some commercial benefit to the broker.

**At the end of the day, an effective commercialisation of research is only possible if the economics work out.**

Within the context of transfer of research outcomes to users in the audiovisual preservation marketplace, there is a strong role for a Broker as there are a wide range of actors to be understood and the connection of the supply side of the marketplace to the demand side (e.g. archive practitioners) has a higher chance of success if multiple users on the demand side can be identified.

In the present day marketplace for audiovisual preservation solutions there are not yet any clearly defined brokers, however the PrestoCentre is fulfilling this role through the development of certain 'brokerage tools' that will match user requirements with potential solutions in the form of research outcomes and software tools. It will be up to the PrestoCentre's members who use the brokerage tools to leverage the information that will be provided through these tools to best effect. It is the aim that an organisation or body fulfilling the role of broker will catalyse the impact of the brokerage tools through proactive use and continued promotion if that broker is motivated in some way. The PrestoCentre is considering whether it can actually take up this role and proactively engage with both the supply and demand side of the audiovisual preservation marketplace, to foster collaborative projects that will see the transfer of research from projects and academic sources to users and commercial vendors.

### **The User**

The user is primarily motivated by a need to 'get the job done'. In the audiovisual archiving space, the job is more often than not a large one, with limited solutions available, so the user must choose with care and perform due diligence upon any solution in light of all industry standards, support and format issues that may influence the outcome. In a scenario where options exist for a solution to be acquired through the purchase of a software product or the integration of an open source alternative, the decision will be driven by a balance between cost or available resources and risk.

At a deeper level, the User's decision may be driven by their need to create or acquire a solution for internal use only, which may mean that certain compromises can be made with regard to the available feature set or the urgency of solution deployment. Where a user seeks to acquire a technology that will aid in the delivery >



of a commercial goal (where the return on investment metrics are more easily identified and measurable) this may motivate the organisation to acquire a solution more rapidly. For example an Archive who seeks to solve a preservation challenge relating to the preservation of a stable medium may not be under time pressure to deliver a solution within a short-term window of opportunity and can therefore explore a wider range of approaches. However, if the driver is to maximise impact during a short window of opportunity to undertake a preservation task or to exploit an outcome in a commercial way such as through the sale or licensing of digital content, the appetite for investment and velocity at which a project will run can increase significantly.

Audiovisual Archives can hold a wide variety of media types and formats and be subject to statutory and legally binding requirements and restrictions on what they must preserve and what the archive can or cannot make available. This means that it is difficult to find a one size fits all solution and the range of variables influencing a decision to develop, acquire or build the solution is highly 'personalised' to that organisation's particular situation. The level of specialisation will also impact the motivation of the User; as many Audiovisual Archives face very particular problems at a large scale there may be no other option but to take the route of developing one's own solution. In situations like these, the Archive is operating in an environment where there may be no commercial upside or measurement available for expenditure by any traditional commercial model which will make it difficult to find commercial collaborators to share the burden of delivery.

While there are emerging business models that can be identified today that allow archives to recoup the cost of preservation through

commercial exploitation of digitised materials, this is not the standard in most Archives. In particular, Audiovisual Archives that are not the producers (or affiliated to the producers) of the content that they care for will not have such options available. Therefore the issue of cost is at the core of all solution procurement and such organisations are highly sensitive to price, as they operate on constrained and cyclical budgets.

There is a misalignment between the cyclical nature of funding made available to Audiovisual Archives in undertaking digital preservation which, by its very nature, must be a permanent undertaking. This can further affect how an Archive may procure a solution as, if there is a significant upfront capital cost in acquiring a solution or license, this may not align with available budgets.

In a scenario where a User can develop a solution to a problem through the use of open source software or the adoption of an applied research outcome, this can alleviate the upfront capital barrier but requires that the organisation also diverts technical resources to the development and integration tasks required, and be able to support the implementation going forward.

**The issue of cost is at the core of all solution procurement and such organisations are highly sensitive to price, as they operate on constrained and cyclical budgets.**

Therefore, the delivery of solutions to Archives in the form of subscription services will serve to alleviate this capital issue. Industry does appear to be moving in this way with the development of 'cloud solutions', which are provided in a SaaS (Software as a Service) or PaaS (Platform as a Service) commercial models; these are designed to enable Archives to access previously capital-intensive applications or functions such >





as transcoding, QA or storage in an on-demand or subscription environment. There does seem to be some movement by suppliers in opening up access to solutions in a “pay as you use it” model. However, for some important functions of the archive, the step to ‘the cloud’ is a difficult one to make. One example of this is in the outsourced storage of digital assets (masters). In this situation, the user is now reliant upon a third party guarantee of future availability and redundancy of data. The market will take a number of years for technological capability, pricing and comfort levels to harmonise to a level at which Users will be able to confidently outsource certain functions of their digital preservation workflow.

### Licensing Routes

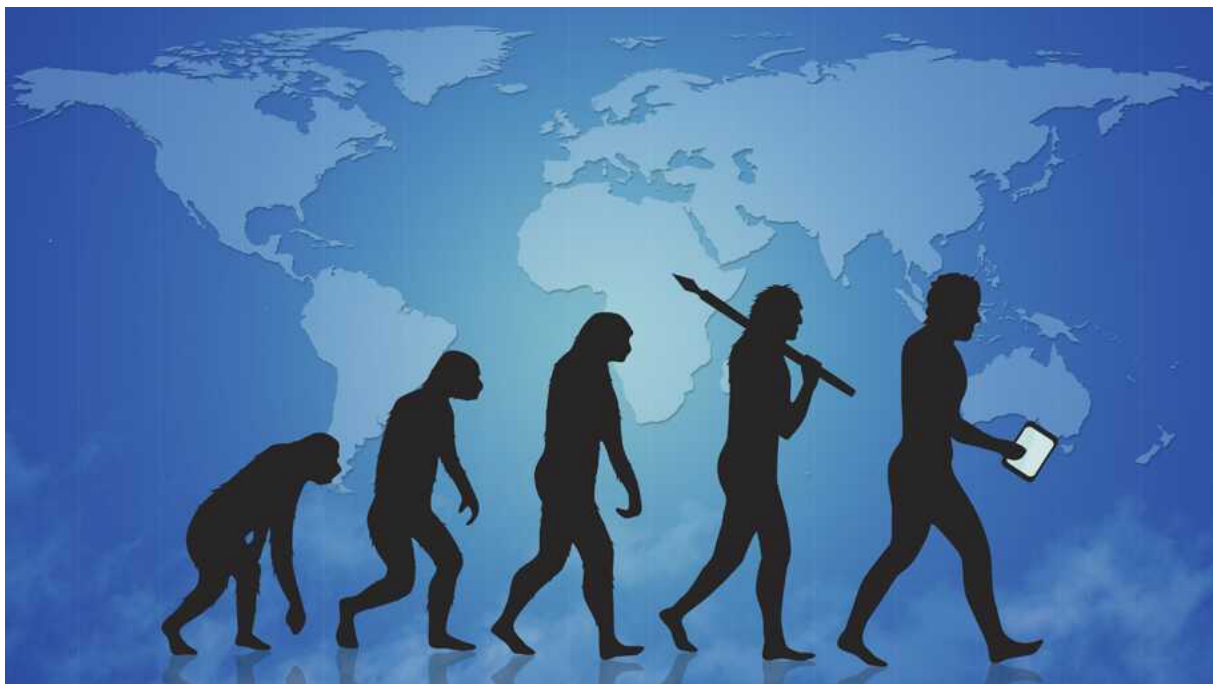
Licensing is an area where the closer you are to a standard product license the simpler things can be. Licensing broader IP can be more complex and will typically require a specific legal document to cover such things as background

IP, scope or use, warranties and commercial terms (which will be project specific). Approaches to licensing IP from research are explored in more depth later in this article.

### General License Agreements

The main types of License Agreements (that cover commercial software licenses for products available to AV Archives) can be differentiated based on their structure. The first group of license types are the ‘out of the box’ type licenses, i.e. for software products that are ready to install and will not have a high level of bespoke integration or testing required.

The End User License Agreement (EULA) is the most common form of license agreement for software products, particularly those used on personal computers and sold for single user applications. The EULA is the most appropriate type of license for applications that an individual (or a small number of staff) within an organisation might use, for example Video Editing Software. Typically a EULA will allow for the applica- >





tion to be installed on a single machine.

A site license is the most common form of 'enterprise level' software license, and allows for the distribution of an application across all machines that are in the user's network or on-site. The decision to opt for a site license is a balance between the cost per EULA and the amount of users on-site. At some point, the site license option will begin to offer value to an organisation. This decision may come into play in the integration of a media asset management system for an archive where desktop access to a digital archive will be provided via an application.

A duplicate grouping or sharing license applies where an organisation might wish for a range of users to have access to a particular application. A floating or concurrent license allows for the use of an application by a limited number of users at one time, useful in situations where a product or tool may not need to be available to all users at all times. Both concurrent and sharing licenses can offer a saving to an organisation seeking to use an application within certain operational constraints. Floating licenses can also apply to an IP address or range of IP addresses as opposed to users; in these cases, the software is licensed to the user to run on specific computer systems which are identified by their IP address. Such license terms are relevant to applications that are run off-site or within elastic computing environments.

The second group of licenses are relevant to scenarios where an organisation is interested in testing a research outcome that is not yet complete, or a software product that will require a high level of bespoke integration, further development or there are other integration risks that cannot be tested by means other than a test installation. These licenses are often referred to as trial licenses and can come in two distinct categories. A beta license is typically designed to foster bidirectional exchange between the developer and the user, in this

case the researcher and the organisation implementing or productising the application. A beta license will allow the user to test an application in its unfinished state with a view to feeding back the outcome to the research team to improve the application in line with user needs. Beta licenses will typically be limited in scope, of finite term and may exclude commercial terms.

A development licence is designed to enable an organisation or commercial vendor to further develop a research outcome. A development license will define separation between what is background IP and what will be created as foreground IP through the development process. The scope of the license, commercial terms and the criteria for the development may need to be negotiated and therefore the formation and agreement of a development license tends to be a more involved process for all parties.

### Licensing of Research Outcomes

The third group of license types covers situations where a license is granted to use a specific research outcome or application. Here, a payment is made to the licensor based on a specific usage or performance metric. Licenses of this type tend to be highly case-specific and typically cover situations where an organisation is licensing a research outcome from a research group for its own use, or where a commercial vendor seeks to productise or commercialise a research outcome.

Concerning the licensing of late stage applied research outcomes (IP) to industry we can broadly categorise three paths:

1. to an existing company who will commercialise the research output through productization,
2. to an existing entity who will use the research output for its own internal purpose,
3. to a new company set up to commercialise the research output through productization,

and three possible licensing models: >



1. A license royalty linked to sales of a product or service dependant on the IP
2. A license fee linked to a benefit value for a company using the IP for internal use
3. A mixture of equity and royalty in return for a license

In each instance a different licensing model may apply, as described below.

#### **To a Vendor**

In this scenario, the most common form of license will be a royalty bearing license. The license can be based on the projected value of the market for the product or service, or the projected increase in actual market value created through addition of the IP. The license royalty will be a percentage of the revenue achieved by the licensee. The following scenarios can apply:

- A license is paid based on gross sales of a product/service
- A license is paid on net profit from sale of a product (which requires a clear definition, as net profit/income/deductible costs may differ from one company to another)
- A license is bought out, based on projected sales (typically at a lower cost than the long term royalty may accrue, but provides the utility benefit of current cash to the licensor)
- Where a license is not bought out up-front the license will include projected royalties and may include penalties for bad performance (sometimes called a 'Use it or lose it' clause)

#### **Direct to a User**

In this scenario, the most common form of license will be a fee bearing license. The value of the fee will reflect the value of the saving or benefit to the licensee organisation. Consideration must be given to the development burden on the licensee to get the research outcome to operational level, and what support the licensor may need to provide the licensee in order to

assist with ongoing usage and improvements to the implementation (support).

In this scenario, an upfront payment from the licensee may also be made to buy out the license or diminish the level of projected license fees.

A situation like this will typically arise for a licensor where the product market fit will not support a commercial intermediary, for example in a market where there is a small number of very large customers.

#### **The 'Start-up' Route**

When licensing a research output to a new entity (i.e. a start-up or spin-out), the license can be a mixture of equity and royalty bearing. Such a deal is attractive to a start-up company as it can trade a value in its own stock in return for access to a valuable research outcome (IP). However, most start-ups do not have much available cash.

If the start-up company is successful, the licensee will achieve a return in the event of a liquidity event (such as a venture capital investment into the company) which will drive the value of the company stock or the public offering of the company stock. The trade off is that the licensee will pay a lower royalty going forward, as it has provided the stock as an 'upfront payment'. A balance needs to be made between the mix of equity vs royalty if this approach is taken.

Considerations for the company and the IP owner will include:

- What investment will be required in order to productise the research? Where will that investment come from?
- What is the projected market value for the product?
- What target does the company have for the sale of the product, and at what level must it deliver in order to retain the license?
- What profit can be achieved by the company >



through the supply of the product and what percentage of royalty will be achievable?

- If the company is acquired, will the IP be a factor in the acquisition and, if so, should the license agreement include provisions for the assignment of the IP to the company in such an event, and what premium will accrue to the licensor (sometimes called a 'drag-along' clause)?
- What will the scope of the license cover? Will it be broad, or limited to such constraints as industry, application, platform, geography?

In summary, the scale and specialised needs of audiovisual archives, the adoption of research outcomes calls for an involved, creative and flexible approach to licensing research outcomes. As many research outcomes will not be at a level of maturity that will fit with the traditional approach to solution acquisition (where clearly defined products with specific license terms apply), the more bespoke approaches explained above (relevant to beta and development licenses) may provide a useful compass to practitioners or vendors who seek to evaluate research outcomes for potential licensing in future products or solutions.

### The Research Delivery Chain

Figure 3 (next page) gives a visual representation of the route and decision points associated to the process of taking a research output and bringing it to a successful commercial product.

There are a number of key milestones in this process, identified by the decision diamonds in the diagram, at which business decisions need to be made which influence the cost and investment of resources necessary to move to the next stage. At the outset of the process it is necessary to understand the commercial objective and the status of the research IP. At any of these stages it must be possible to conclude that the commercialisation is not viable. Once the viability has been established, investment is needed to continue to develop a product, and this is only likely to be forthcoming if a believable business plan has been produced. Only then can license negotiation be undertaken and the process enabled to move on towards developing the technological implementation, testing it in the marketplace as a beta release and ultimately launching the product commercially.

The flow diagram therefore illustrates the size of the task — a research output is never actually ready for commercial launch without significant investment — and also demonstrates that there are a number of key decision points and milestones that are encountered, at any one of which it may be determined that the commercial route is no longer viable, and re-negotiation is going to be necessary to avoid wasting investment on a product which will never ultimately be able to repay the cost of resources that went into creating it. ■



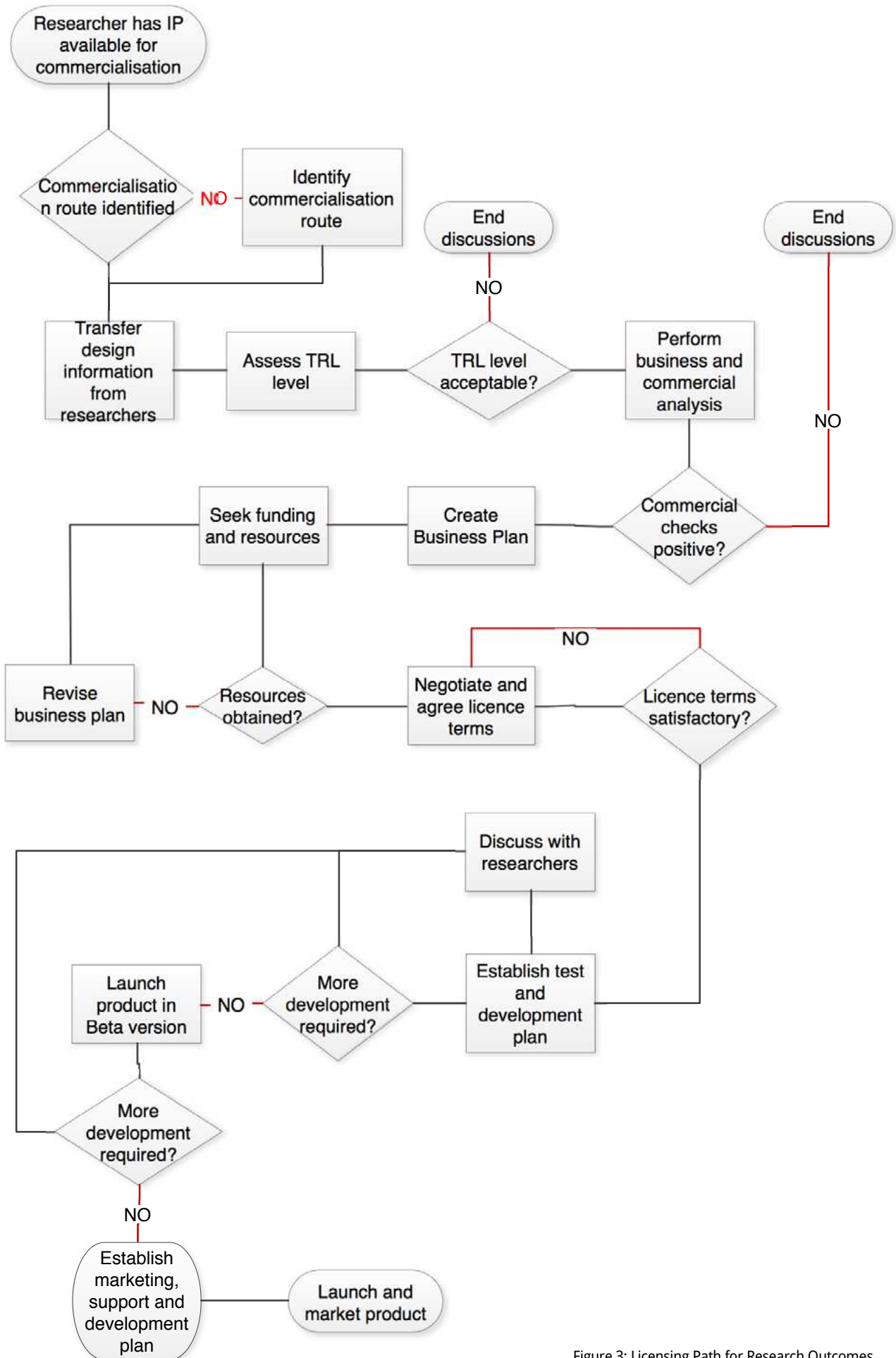


Figure 3: Licensing Path for Research Outcomes



## What To Do With Analogue Carriers After Digitisation? **A Digital Archivist's Dilemma**

By Theo Mäusli, responsible for archive valorisation at RSI RadioTelevisione Svizzera (Swiss public service broadcaster) and lecturer at USI Università della Svizzera italiana

It would be worthwhile if archivists start the controversial but increasingly relevant debate about what our institutions could or should do with their original analogue carriers after digitisation. This article is a first contribution to this debate.

All over the world and in particular inside many of the member organisations of the PrestoCentre, archives and libraries transfer their audiovisual content to digital formats on new carriers. They do this mainly with the scope of safeguarding their institutions' cultural heritage and making it more accessible. The digitisation is a cost and labour intensive process and the expenses will have to be justified at some point in time through a concrete return on investment. This can be measured by an increased use of archive content in programmes, by a quicker and more efficient access to the collection, and not least by the commercial exploitation of archive content. However, for many archives a more evident side effect with quite an impact in terms of resources is the clearing of space and resources that once were allocated to the traditional analogical carriers.

For example, we estimated the cost for the digitisation of 50 hours of content on Betacam at 1000 Euro plus the annual costs for the asset management. The physical space required for 50 hours on cassettes is about 1m<sup>3</sup>. The cost of 1m<sup>3</sup> in a climatized archive room is estimated

at 100 Euro/year. Ultimately, after 10 years, the savings on the physical storage will make up for the related cost of the digitisation.

The Swiss Radio and Television Company SRG SSR has advanced the digitisation of its collections. Half of the 800.000 hours of analogue content from the 1930s has already been transferred in high quality (50 Mbit/sec 48khz/24bits) digital files. All the digitised content is readily available for preview in low-res and can directly be integrated in the high-res broadcast production system. All the production systems have switched to file based. While new projects and initiatives are popping up, exploiting the digital potential and convergence, the limited physical space available in many of the buildings underpins a scenario where most of the analogue carriers may now be simply thrown away. But from experience and also by historical consciousness we, as archivists, know how drastic and problematic elimination of original carriers can be. We may lose authenticity, we may lose the possibility of more quality, and we could lose rights.

### **Authenticity**

In the analogue era, authenticity was linked to a physical original. Every copy was unique in its own right by the quality and technology used and directly related to things like interpretation and time. Likely, the carrier contained also other information than what could be interpreted >



from the essence itself. For example, in case of radio registrations, remarks on the content — mostly handwritten — could be found, often even containing restrictions on the use and other metadata. Another example is our productions made together with Igor Stravinsky — tapes the artist himself will have touched and listened to. Such objects are to be considered artefacts as they contain a value and aura that we cannot transmit via digital file.

### Quality

One of the main arguments for encoding is the long-term preservation of content and the decay of the original carrier. We may not suppose to obtain afterwards a better quality than the highest quality we created in a digital file. However, in the case of mass-digitisation, we may not always be in control of all the quality levels. In such cases, we may want to hold on to the original in the case we

need really excellent copies digitised uniquely and accurately. This concerns especially master tapes of music registrations. In case of analogue audio (vinyl disc) and some film, stability of the carrier is high and the quality loss over time is slow. In such cases, it is not unthinkable that at a later time a better digital copy can be obtained from the original. Technology improvements add to the equation as well. For 35mm film, for example, some material may now be better represented at 4K and at relatively lower cost thanks to new generations of scanners.

### Legal

In countries where a legal deposit for audiovisual publications is in place, the original format may be persistently linked to all kind of rights. Although ownership of the collection does not imply ownership of intellectual property rights, a related property issue is the right of the depository to dispose of certain categories of material under certain conditions. National deposit legislation normally include a commitment by the depository that all possible and reasonable efforts will be made to permanently keep all material deposited. Such statements, however, do not necessarily take into account migration towards digital files and the related right of disposal.

To move these discussions forward, it would be useful to define a set of rules and standards for the management and 'aftercare' of analogue (and some obsolete digital) carriers of audiovisual content in the process of digitisation. Some suggestions based on the Swiss experience:

- Our main criterion is to keep those carriers that may, in the future, be digitised any better than we were capable under the current mass digitisation project. It concerns mainly carriers that are self-produced (film, vinyl). We will also keep master tapes with music or artistic sound of high value that we expect to produce even better copies in the future. ➤



Physical or digital archive: not much longer such a difficult choice



Original content/carrier	What to do	Remarks
Film (35 and 16 mm)	To be kept	Could be outsourced in a shared national cultural heritage depot, taking into account climate control, security (nitrate), and conditioning (vinegar syndrome)
Video, all formats	To be eliminated after digitisation	
Sound vinyl (self-production)	To be kept	Could be outsourced in a shared national cultural heritage depot, taking into account climate control
Sound vinyl (commercial)	To be eliminated, may be donated or sold	Many discs were donated by distributors to RSI. We need to check whether we can sell or donate them, and whether there may be a need still to digitise the envelop and other information
Sound magnetic tape, radio programmes	To be eliminated after digitisation (including digitisation of the container, box or envelop)	
Sound magnetic tape, music- and radio-theatre registration, interviews with particular value	To be kept with their original container	
CDR, DAT	To be eliminated	
CD/DVD commercial	To be eliminated, may be donated or sold	Similar to commercial vinyl

Table 1: Suggested guidelines for the removal of analogue carriers by RSI.

- Basically, we will not keep carriers that will deteriorate or become obsolete rapidly (magnetic tapes for sound, video formats like Beta, U-matic).
- We will not keep carriers containing material that was already digital (CD, DVD, DAT, ...).
- We may need to keep the original of some carriers in order to prove our continued right of ownership.
- We keep examples of carriers functioning as example or as artefact.
- In cases where we keep the analogue carriers, we invest in their conditioning, restoration and readability and we maintain relations with those institutions that

specialise in reading obsolete or decayed carriers.

### Your Feedback

I will be happy to receive feedback from the readers of AV Insider on how your institution is approaching the above challenges and whether you think the guidelines and direction as presented in this article should be changed or extended. In a future issue of AV Insider I will revisit the topic and will address the feedback received. All comments, ideas and good practice can be posted on [www.prestocentre.org/answers/general-questions/what-do-analogue-carriers-after-digitisation](http://www.prestocentre.org/answers/general-questions/what-do-analogue-carriers-after-digitisation). ■



## Reading Room

### AV Digitisation and Digital Preservation TechWatch Report #02

PrestoCentre (2014)



This second TechWatch Report has been written by Members of the PrestoCentre involved in the Presto4U project and was compiled through meetings they had with specialist technology vendors and researchers at the National Association of Broadcasters 2014 Convention (NAB). This TechWatch aims to provide audiovisual archive practitioners with a view of what is relevant, new and 'bleeding edge' in distinct areas of AV Digitisation and Archive technology.

Topics include:

- Workflow Management
- What's happening in Scanning?
- File based Video QC
- Storage and Metadata Solutions at NAB 2014

ISSN: 2352-2941

[www.prestocentre.org/library/resources/av-digitisation-and-digital-preservation-techwatch-report-02](http://www.prestocentre.org/library/resources/av-digitisation-and-digital-preservation-techwatch-report-02)

Building construction is governed by general building code that frequently does not take the specialised needs of Museums and Archives into account. A general system designed to protect one asset may inadvertently damage another. As a building ages, the institutional knowledge of the design may be lost causing a collection to be inadvertently moved from safety to danger. Those in charge of saving life and property may no longer even be aware of the special issues involved. This case examines the multiple challenges of disaster management, from managing communications with press and protection, to proper facility utilisation.

This publication is part of the PrestoCentre's series Preservation Case Studies for Archives.

ISBN 978-94-91873-03-4

[www.prestocentre.org/library/resources/roof-disaster](http://www.prestocentre.org/library/resources/roof-disaster)

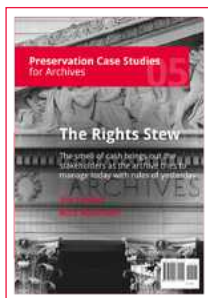
### Roof Disaster

Jim Lindner, Mick Newnham  
(2013)



## The Rights Stew

**Jim Lindner, Mick Newnham  
(2013)**



Most users feel that all content should be on the Internet, and many assume it already is! Multiple barriers remain in the way of taking legacy content online and making it accessible to all. Agreements and laws that no longer make sense may govern content created in earlier years. An archivist is frustrated by content that can not be played back on obsolete formats, eager stakeholders all wanting a piece of nonexistent profits, and a director with a mandate. This case examines the difficulty in providing access to content that was never created when the Internet existed.

This publication is part of the PrestoCentre's series Preservation Case Studies for Archives.

ISBN 978-94-91873-04-1

[www.prestocentre.org/library/resources/rights-stew](http://www.prestocentre.org/library/resources/rights-stew)

The recorded webinar "A new and effective way to teach Archive Management and Preservation" is an online training that explains how to use the Preservation Case Studies for Archives method to assist in the training of audiovisual archivists and other responsible for the care of audiovisual collections.

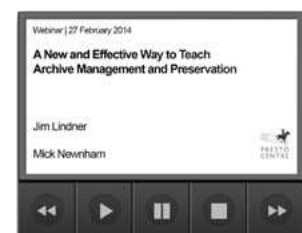
In the video Jim Lindner and Mick Newnham – authors of the series – discuss how they arrived at using the case study format in their teaching and where they have found the case study method to offer the greatest benefits. The authors discuss the multilayer approach that case studies offer whereby a set of circumstances or a particular problem may have more than one solution depending on the priority assigned by other aspects of the organisation and collection management. In the recording the authors also expand on using the case study approach to model solutions rather than arriving at simple untested answers.

The video is aimed at teachers of librarianship and archive studies at all levels as well as people involved with in-house training of staff working in galleries, libraries, archives and museums.

[www.prestocentre.org/library/resources/new-and-effective-way-teach-archive-management-and-preservation](http://www.prestocentre.org/library/resources/new-and-effective-way-teach-archive-management-and-preservation)

## A new and effective way to teach Archive Management and Preservation

**PrestoCentre (2011)**



## Expressing Preservation Requirements on Audiovisual Collections

Carlo Meghini (2014)



This webinar recording is an introduction to expressing digital preservation requirements in the context of audiovisual collections, with a special emphasis on the approach followed by the Presto4U project. The video starts with the basics on what the requirements are, how they are created and for which purposes they serve. The recording then discusses how standards can play a key role in the expression of requirements for digital preservation and exemplifies the concept by showing how to use three standards: the OAIS reference model, the Ontology for Media Resources and the ISO/IEC 25010 System and Software Quality Requirements and Evaluation SQuaRE – System and Software Quality.

The video is aimed at productions and post-production companies with preserved collections and an explicit need of exchanging assets with other companies in business-to-business solutions.

[www.prestocentre.org/library/resources/expressing-preservation-requirements-audiovisual-collections](http://www.prestocentre.org/library/resources/expressing-preservation-requirements-audiovisual-collections)

This webinar recording describes the process of creating a MAP (Master Archive package) JPEG2000 archival element in the Fraunhofer JPEG2000 software suite and discusses the benefits and drawback of this process and the use of MAPs as a standard for the preservation of digital film. While DCP (Digital Cinema Package) is a universally adopted format for digital film distribution, many film archives preserve master elements as digital source masters in DPX or TIFF, while MAP is less widely adopted, despite being an actual well described standard.

This video is aimed at film archive digital preservation technicians and curators.

[www.prestocentre.org/library/resources/creation-master-archive-package-map](http://www.prestocentre.org/library/resources/creation-master-archive-package-map)

## Creation of Master Archive Package (MAP)

Thomas Christensen,  
Lars Karlsson (2014)



## Events (for full information see the PrestoCentre calendar at [www.prestocentre.org/calendar](http://www.prestocentre.org/calendar))

### August 2014

#### **The Reel Thing: Los Angeles**

August 21 - 23

As with all editions of The Reel Thing, the conference will concentrate on the wide range of critical issues facing archivists, technicians, asset managers and curators of image and sound in the new media/digital landscape. Problems and solutions involving digital creation workflows (2K/4K/6K/8K), data storage, access and recovery, image scanning and recording, image resolution metrics, traditional video and audio preservation and restoration issues are requested topics. Of particular interest are the preservation and archiving issues surrounding the current Digital Intermediate workflows for motion picture production.

#### **Also going on in August:**

**August 10 - 16:** SAA Annual Meeting

**August 27 - 29:** Archives and Records Association Annual Conference

### September 2014

#### **PrestoCentre webinar: Essence quality control for AV archive digitisation, migration and exploitation**

September 18

The webinar is an introduction to essence (baseband) quality control (QC) in the context of audiovisual preservation. It will start with the role of essence QC in the use cases video archive digitisation, digital migration, content selection and use. Currently available and emerging functionalities will be presented. Strategies for cost-efficient implementation of essence QC will be introduced, and showing how this can be achieved by automation and efficient interactive essence QC.

#### **Also going on in September**

**September 1 - 4:** The Practice of Film Archiving

**September 8 - 12:** Digital Libraries 2014

**September 9:** Digital Preservation Workshop

**September 11 - 16:** IBC Conference & Exhibition

**September 15 - 19:** ICOM-CC

**September 16 - 18:** PASIG 13th International Meeting

**September 26:** Testing your digitisation plan

### October 2014

#### **FIAT/IFTA Conference**

October 22 - 25

Annual conference of the International Federation of Television Archives. The conference is hosted by the Netherlands Institute for Sound and Vision. The location of the conference is Amsterdam, The Netherlands.

#### **EUScreenXL Conference 2014 Rome**

October 30 - 31

With the upcoming conference "From Audience to User: New Ways of Engaging with Audiovisual Heritage Online" the EUScreen network wants to address the current challenges for online cultural heritage initiatives and discuss these with archivists, scholars of cultural - and particularly audiovisual - heritage, web designers, data specialists and policy makers.

#### **Also going on in October**

**October 3:** Testing Your Disaster Plan

**October 5 - 9:** IASA 2014 Annual Conference

**October 6 - 10:** iPres 2014

**October 7 - 10:** Museums and the Web Asia 2014

**October 8 - 11:** AMIA Conference

**October 8 - 11:** DC-2014 International Conference and Annual Meeting of DCMI

**October 11 - 15:** Archives and Cultural Industries

**October 18:** Home Movie Day

**October 19 - 20:** Linked Learning meets LinkedUp: Learning and Education with the web of Data

**October 27:** World Day for Audiovisual Heritage 2014