In March 2009, the Museum of Modern Art opened its doors for a unique event. Premiering the music video for Brooklyn-based band Department of Eagles’ song “No One Does It Like You,” the museum confirmed the odd status of music videos in today’s culture. Special event video premieres were once the reserve of popular artists, such as Michael Jackson’s multi-network premiere of “Black or White” in 1991, and they certainly didn’t take place at an art museum. Was this video, directed by Patrick Daughters and Marcel Dzama, considered a piece of art, a marketing tool for the music it accompanied, or something inbetween? With the endorsement of an institution such as MOMA, the music video moves beyond the designation of a product of pop commercialism and becomes art.

The following afternoon, the video made its online premiere across multiple music and news websites, where remarks on the peculiarity of the event’s setting undermined the significance of the moment. Since the beginning of its mass marketing by MTV, in the 1980’s and 90’s, the music video has remained what Saul Austerlitz describes, in his history of the music video *Money For Nothing*, as, “Coming at the intersection of art and commerce, somewhere between avant-garde film and television
advertisement;” a form ubiquitous with the crass commercialization of the music business. But regardless of the music video’s perceived superficiality, visual accompaniment has been present since the nascent days of rock and roll and the music video is often used to explore innovations in the aesthetics of moving image making.

The last decade of music videos saw the space between art and commerce shrink. As MTV and VH1 continued to abandon the presentation of music videos in favor of reality television, the form found a home in the Internet music culture. A constant stream of independent audio-visual content grows daily on blogs and news sites; videos that serve, like “No One Does It Like You”, as a visual counterpart to the musical work, not a mere advertisement. In the ever-evolving world of popular music consumption, the independent music community has reclaimed a form that was previously the province of the privileged and wealthy major record labels.

Independently produced, these videos are still often treated as ephemeral materials despite their aesthetic merits. Preservation of new audiovisual works is not often a priority for record labels and directors of limited means. To show the cultural importance of music videos and advocate their preservation, this paper will trace the evolution of the music video, and other visual depictions of music performance, from early representations on film and television to its current ubiquity on the Internet. It will also address the difficulties facing independent creators and, through a supplemental pamphlet, offer ideas for low-cost, undemanding methods for preserving their work.

Since the earliest days of sound film, music has been a vital part of moving image culture. Introducing the sound to the masses, Al Jolson’s performances in The Jazz Singer
—being the only moments of synchronized sound in what was otherwise a silent film—altered the way the audience experienced musical performances. The popularity of the movie musical ensured the success of the sound film and stimulated the development of the music recording industry. An exhilarating musical performance onscreen spurs the moviegoer to purchase a recording or sheet music of the song, or vice versa, the song or performance attracts a patron to the film. The marriage of sound to visuals was a commercially beneficial relationship from the beginning.

Musical performances in early musicals exhibit an aesthetic relationship to the music videos that followed decades later. The hyper-realistic elements of movie musical numbers stand apart from their surrounding sequences with their fantastic costumes, dramatic camera angles and movements, and intricately choreographed dances. Pieces like Busby Berkeley’s “We’re in the Money” from *Gold Diggers of 1933* or the Technicolor MGM musicals of Vincente Minelli, display fantastical audiovisual elements, distilled into short autonomous sequences. Situated between innocuous sequences of plot development, the grand musical numbers were the real attraction of these film, an example of the magnetism of musical performance piece that later became the music video.

Movie musicals’ success led to the separation of the musical number performance into short films. Musical shorts were a popular form of pre-show entertainment at movie houses; these films featured popular singers, such as Cab Calloway in *Jitterbug Party*, in three to eight minute sequences. These short films see the musical’s representational form refined to its essence, combining narrative and performance in the short span of a few
Following the war and the introduction of television, it was a new form of music that took the form to a new level. In 1956, rock and roll was introduced to the masses and the musical short became a product directed at the burgeoning youth culture. The performances of Bill Haley and the Comets in *Blackboard Jungle*, Little Richard in *The Girl Can't Help It*, and Elvis Presley’s appearance on *The Ed Sullivan Show* placed rock and roll at the forefront of popular music. The popularity of performances on film and television tied together the music and an artist’s visual presentation for the entirety of rock and roll’s history. Rock and roll presented an image of fun and danger that easily translated to the short performance films and television appearances.

In television, rock and roll found an ideal visual medium. Whether in performance or short musical films, later known as “promotional clips,” television became the visual destination of this new, exciting musical form. Early rock music performances on variety shows present a counterpoint to the staid style of popular music artists of the era. Viewing a clip, such as Elvis Presley’s frenzied movements on the Milton Berle Show in 1956 or Eddie Cochran performing “Summertime Blues” on KTTV’s Town Hall Party in 1958, reveals an electrifying genre in its nascent stages, developing a new reckless style of music performance.

As rock and roll and popular culture converged into big business, visual accompaniment took the form of promotional clips: short films featuring performances and antics of popular bands. Hit parade shows like Britain’s *Top of the Pops*, and its U.S. counterpart *Shindig!*, filled the airtime between performances with these pre-recorded songs.
segments. The Beatles latched onto this trend early, creating promos that mimicked the tone of their popular films *A Hard Day’s Night* and *Help!* Following their retirement from live performances, the band hired Michael Lindsay Hogg, director of the popular musical program *Ready Steady Go!*, to create promo clips for their singles “Rain” and “Paperback Writer.” The shorts show the Beatles in a slightly more mature, but still exhibiting the same acerbic sarcasm present in their previous films. No longer a touring band, the clips allowed the Beatles to manage their representation to a wide audience without making public appearances or performances.

Imitation films by other popular bands, such as the Kinks and the Who, displayed a similar style featuring the bands taking part in serio-comic situations. Even at this early stage in its evolution, artists and musicians created counterpoint films to challenge the form and meaning of visual supplements. In their clip for “Subterranean Homesick Blues,” a piece of high-art satire, Bob Dylan and D.A. Pennebaker skewer the intent and function of the music promo. Standing, with a droll, unamused expression, in a New York City alleyway as poet Allen Ginsberg carries on a conversation in the background, Dylan flips through cue cards featuring the lyrics of the song. Neglecting the trend of lip-synching, he drops the lyric cards one-by-one often out of time with the playback creating a juxtaposition of visual and aural cues. The film presents an image of the, “avant-garde counterpart, unabashedly intellectual and cool,” pointing the finger at the asinine clips of Dylan’s contemporaries and heightening the art of the music promo in the process.

The following paved the way for the onslaught of videos via MTV, as the music
promo followed to diverging paths, one commercial and the other aesthetic. Popularity of the form among recording companies was cemented by the most successful film of the era, Queen’s epic promo for “Bohemian Rhapsody.” The song, considered a novelty and not projected as a hit single, catapulted to number one on the UK singles charts due to the popularity of the promo. In this case, it was the promo, not the song that popularized the single and record companies took notice.

A separate trajectory saw the music film championed by innovative artists David Bowie and Devo. Bowie described the music video as, “the logical fulfillment of art and technological destiny…I see it as an artistic extension.” To him, the video worked in tandem with the elements of his persona, of which music was only a part, not the whole. Inspired by the conceptual celebrity of Andy Warhol, Bowie strived to create a cult of personality, where the musician’s entire oeuvre was the product not just the album. The band Devo employed promos in a similar fashion. Band member Gary Casale described them as, “an integral part of our overall artistic and marketing approach. To us, it was a very quaint, obsolete, holdover-1960s Utopian idea to keep the music and marketing separate. This is the music business, and its business is music. You can’t separate the two; they’re parts of the same whole.” This convergence of art and commerce in Devo’s music and imaging was innovative, but is itself Utopian when considering the effect of the launch of television’s first music video network.

MTV’s launch in 1981 fundamentally altered the business of music and music video consumption. In a larger sense, the network influenced the trajectory of popular culture for nearly two decades. The popularity of the network coincided with the change
in marketing strategies for new music. Similar to radio play, the music video was provided to MTV free-of-charge from the record label in return for the publicity airplay on the network could generate. The music video quickly established its importance as the foremost marketing tool of record labels. MTV provided a 24-hour loop of commercials that “required no commitment by the viewer: just like radio, MTV was meant to be left on all day as background to other activities.” The disposability of the form grew prevalent as record labels pushed video aesthetics to the lowest common denominator in an effort to increase the marketability of their artists.

As MTV’s brand developed into its own form of popular culture, incorporating original programming into its broadcast lineup (i.e. Real World and Remote Control), the stratification of musical genres into specialized programs increased. What Kevin Williams once described as MTV’s playlist of “‘the most popular of popular music,’” was increasingly codified into specific programming slots such as the heavy metal program Headbanger’s Ball or Club MTV’s showcasing of dance music. The codification of music videos was instigated by MTV’s growing devotion to their original programming, which by the 1990’s received equal airtime with music videos.

The independent music scene was well represented by MTV in the 1980’s and early 1990’s, as the network introduced many innovative artists from the underground such as R.E.M. and Nirvana. By the mid-1990’s, following the decline of the popular grunge music movement that brought so many independent artists to the masses, the independent or “alternative” music videos no longer fit into the programming formats of MTV. The network created MTV2 in 1996 as a destination for those audience members
who missed the predominately music video format of early-MTV, a channel for “serious music aficionados…devoid of teenybopper popular culture.” MTV’s little brother station became the platform for a new generation of videos and video makers that preceded the modern music video.

Emerging from the alternative music culture and the edgy programming of MTV2, was a new group of iconoclastic directors—Michel Gondry, Spike Jonze, Chris Cunningham, Mark Romanek, Hammer and Tongs, and Jonathan Glazer—who realized the full potential of the music video form. Finding the perfect balance between artistic and commercial, they fueled their own auterist visions through videos. In clips like Spike Jonze’s “It’s Oh So Quiet” for Bjork and Michel Gondry’s “Star Guitar” video for techno group Chemical Brothers, the mischievous spirit of the director’s images in tandem with the music or artist to create a unified work. These are images were not meant to be played in the background, in their videos this group achieved what musicians such as David Bowie and Devo looked to in their early videos: a form of video that was at once an artistic representation of the musician’s work and a savvy marketing tool due to its artistic merits.

These videos were also the first to expand the market of the music video to the Internet; the first to be passed around by music enthusiasts over websites and file sharing software. In the early-2000’s, as the music industry attempted to adjust to new digital distribution formats and previously “alternative” television channels such as MTV2 began to present fewer videos, a large community of independent music fans grew. Pitchfork Media, Tiny Mix Tapes, and similar music news websites presented daily news
updates of underground music bands and record labels, an outgrowth of the popular zine culture of the 1990’s. As both an innovator and imitator in the trajectory of the online independent music culture, Pitchfork Media’s relationship with the music video form is an ideal example of the gradual development of the audiovisual culture of independent music.

Independent record labels and artists neglected the music video in the first part of the decade. A search of the Drag City Records website circa 2001 would find no links to music video content. Labels of Drag City’s size rarely received airplay on MTV and in the network’s waning days video presentation, there was still no incentive for this independent labels, and others of its kind, to spend their limited funds on a music video production. The Pitchfork Media news site’s lack of audiovisual content reflected this outlook, presenting only news, reviews, and editorial columns.

The development of social networking and the outburst of the mp3 format changed this viewpoint quickly over the first five years of the 2000’s, as music enthusiasts and artists took to websites like MySpace where new tracks could be sampled or even downloaded for free. Music journalism on the Internet developed a new facet, the mp3 feed. Pitchfork mimicked this blog trend by posting daily collections of new and popular independent songs for free. In this new, egalitarian community, the music video saw resurgence. Social networking spawned a generation of savvy musicians who were capable of marketing themselves without the guiding hand of the record label that distributed their music and the music video was, as always, a perfect opportunity to expand the artistry and image of their music. In 2005, Pitchfork compiled its first year-
end best of music videos list, featuring only five videos. The list provided links to
downloadable Quicktime files of each video, a soon to become antiquated distribution
strategy.

In 2004 and 2005, video-hosting sites Vimeo and YouTube launched. A space for
vast collections of audiovisual content, the independent music video quickly took
advantage of the free screening capabilities of streaming video. Like MySpace’s free
track sampling, streaming video allows fast access to a wide array of videos. Lowering
costs of digital video equipment and free video hosting meant musical artists or labels
could afford to produce a video. As the decade progressed, Pitchfork began featuring
video releases in its news coverage, mimicking the ever-growing blog culture, and its
yearly best of list continued to expand from five videos in 2005 to forty videos in 2010.

2008 saw the launch of Pitchfork.tv, an Internet television site featuring music
videos and original programming produced by Pitchfork Media. This new venture,
marketed as a “visual extension” of the site’s daily news content. To date, the websites
success can be measured in the shear amount of content collected in the time since it’s
establishment on April 7, 2008. On average, the site posts 3-5 videos to Pitchfork.tv daily,
plus the stories posted in the website’s blogroll Forkast highlighting videos hosted
elsewhere. Pitchfork.tv’s original programming is an active part of the venture’s success;
predominately performance-based, the website also features comedy and interview
segments. Shows like Tunnelvision, Cemetary Gates, and Surveillance complement the
music video content, accentuating the act of performance while contextualizing it through
the unique capabilities of video recording.
Pitchfork’s adoption of this format points to a larger trend in Internet music video making. Since the introduction of free video hosting sites, videographers have presented a continuous stream of unique performance videos. The trend, started by Vincent Moon in 2006 with his Take Away Shows series, relies on the portability of video equipment to record guerilla performances. Moon’s videos place the performer in unfamiliar settings—Paris streets, empty apartments, a McDonalds—to create distinctive images of artists in performance while adapting to their changing surroundings. The videos often feature interviews with artists or show the interactions of band members with their audience and each other.

Another form of the performance video continues a movement, started in the 1980s and 1990s, of recording live DIY shows for posterity. This current generation of videographers, such as Ray Concepcion and McGregor of Chocolate Bobka, heighten this form by incorporating their own visual aesthetics—owing a debt to concert films like D.A. Pennebaker’s *Monterrey Pop*—in their videos. Creating at a breakneck pace, these videographers consistently post fascinating documents of the developing music scene on a weekly basis. Pitchfork latched onto the performance video trend as an aggregator in 2009, with the premiere of their series Tunnelvision, which collects the best videos of Concepcion, Chocolate Bobka, Acid Marshmallow, and YoursTruly.

Despite the artistic freedom and egalitarian nature of the independent music community, the scene is still part of the music business and thus, the music video continues to cater to the marketing needs of the business. The beginning of video production begins with a single or sample track, chosen by the artist or label. Independent
record promotion begins earlier than mainstream music, relying on word of mouth and live performances to produce interest in a band and their music. Promotional campaigns vary in length, occurring rapidly over the course of a week or stretching out over the course of a year. In the case of the San Francisco band Girls, an mp3 of their song “Hellhole Ratrace” was released in June of 2008. Following a year of widely documented shows, the band premiered a video for the song, directed by the Focus Creeps duo Aaron Brown and Ben Chappell, in July 2009, a week before the “official” release of the single of “Hellhole Ratrace.” This video illustrates a typical occurrence in the creation of modern music videos; the relationship between director and the band results in a collaborative effort between the artists, creating a video that “captures the spirit of the band in the video, rather than the video being [an] interpretation of the band.”

Experimental music group Animal Collective collaborated with video artist Danny Perez over the course of three videos, which led to an original long-form video art piece titled ODDSAC that saw limited release and festival screenings. Many bands have generated career-spanning relationships with directors—for example Grizzly Bear and Patrick Daughters, Bjork and Michel Gondry, and No Age and Andy Bruntel—that define the work of both the musician and video director.

Performance video production is more impromptu. The videographer arranges the recording with the band during a tour stop and improvises the shooting location or arranges with the band to record their performance at the concert venue. Speaking to videographers, their intent is finding locations that “speak” to their music, or sometimes
more practically, “…a place that we can get away with making a ton of noise for about an hour, without people getting upset, and, fingers crossed that it looks good as well.” The performance video, like music videos, relies on the collaborative effort of the videographer and the musician, to create a document that serves the music artist’s work and the videographer’s aesthetics.

Record labels and publicists handle video distribution, in the case of music videos. Submitted to music news websites and blogs, marketers rely on embedding of videos and word-of-mouth buzz generated by comments and peer-to-peer distribution. Videographers are free to post their performance videos directly to their blogs and receive wide coverage across the most popular music websites. Pitchfork.tv, as the community’s main aggregator of video content, receives submissions from record labels and selects videos to post based on the music associated with the visual content. Directors, musicians, and publicists submit work to Pitchfork.tv from time-to-time, but the policy of the website is to license all videos through the record label. Performance videos collected for the Tunnelvision series are typically generated through assignments completed by videographers separate from the productions posted to their respective blogs. The website undertakes a screening process of these videos to ensure variables such as lighting, sound quality, and artist performance, and often retain approval from a band prior to uploading.

The distribution and consumption of independent music videos is still growing within the online music community, but little or no attention is paid to the preservation of this work. It is assumed that a music video is property of the record label that produced it.
Directors are contracted on a work-for-hire basis that relinquishes their ownership over the artistic images they generate. The egalitarian spirit of the Internet community creates a disregard of copyright or ownership on behalf of the music video director. Many directors maintain copies of their work and distribute them through their websites as something akin to a visual résumé. In determining who the stewards of this work should be, it is this indifference on the part of creators and labels that confuses the issue. It is unclear if independent record labels exercise much jurisdiction over the use of their music videos as they are often released for free online. Because of the heightened collaboration and artistic freedom granted to music video directors, the common perception is that the music video is co-owned. Regardless of this confusion, it is imperative that at least one party preserves the work.

Modern music is widely neglected among archives collecting popular music and music related ephemera. Rock and roll music, especially within the independent community, has little place in the popular music collections of Middle Tennessee State University’s Center for Popular Music or Bowling Green University’s Browne Popular Culture Library and Music Library & Sound Recording Archives. The Rock and Roll Hall of Fame’s Library and Archives, opening in 2012, may provide a home to music video works, but the organization’s interests tend to skew towards the history of mainstream commercial recording artists. In finding an institutional home for the music video format, it is more likely that the form be considered art instead of historical documentation or ephemera. The Museum of Modern Art takes a progressive stance on the perception of the music video as art, including videos from throughout the history of
rock and roll in its video art collection. In the last decade, the institution presented multiple exhibitions that, in some facet, examined the music video as an art form. Exhibition literature points to music videos collected by the museum, but it is unclear if the collection policies of the organization encourage the continued intake of contemporary music videos. Events, such as the “No One Does It Like You” premiere show an active engagement between the museum, which acknowledges how “they continue to influence the Internet today.” MoMA’s advocacy for the music video as art should extend to their collection, as the stimulating art of independent music videos develops, the preservation of the form is imperative.

An effort is being made by Pitchfork.tv to maintain their collection of music video and original programming content indefinitely. The varying terms and conditions of their licenses for music video content may inhibit their ability to maintain this library. Original programming is currently stored in “uncompressed, full resolution, Quicktime files,” and compressed to .mp4 formats for presentation through their website’s Flash player. Managing a collection that spans multiple formats—Bentler described formats that varied from $19 surveillance cameras to HD digital video cameras—and expanding collection of digital video content, it is unclear if Pitchfork.tv’s will be capable of successful preservation efforts.

As there is little indication that the preservation of music videos is a priority for any parties beyond the director or creator, it is the opinion of the author that responsibility for preservation of music and performance videos is theirs. Unfortunately, the artists’ perception of preservation is limited. When asked whether they expected their
videos to be available on the Internet in five to ten years, most responded affirmatively. Brett Hardy Blake of Brooklyn-based video production company Bluebeard Productions stated, “It's hard for me to imagine a time when YouTube and Vimeo won't exist anymore. I expect that if I upload them to these sites that they will most likely still be around in ten years.” Similar statements, like Nate of YoursTruly’s “I expect the videos to be up there as long as the Internet exist,” proved the false conception that their videos were safe once uploaded to video-hosting sites.

Vimeo and YouTube’s terms of service prove a different point. Both websites include clauses exonerating them from responsibility for both short and long-term storage of uploaded video. Vimeo’s policy states the following:

Accounts may be archived, or materials may be purged at such time intervals as VIMEO or its third party service provider(s) determine in their sole discretion. Some materials may not be stored, served or processed due to space constraints, serving/bandwidth limitations or disruptions in the system(s). You agree that VIMEO is not responsible or liable for the deletion or failure to store, serve or process any materials or other information.

YouTube’s terms include similar indemnification of liability for the hosting site. Video hosting sites are not repositories, their service is limited to access purposes and distribution across the Internet. As such, they’re use for long-term storage is imprudent.

The majority of modern music video creators are recording and distributing their work in digital formats. Among the creators interviewed for this project, footage was commonly shot directly to storage cards or portable hard disks. Those recording on film transferred and distributed these works in digital formats. Most artists chose to import video in uncompressed or lossy file formats, such as Apple ProRes 422, for editing, and
compress further for uploading to the Internet. Sean Stout’s workflow is indicative of the artists interviewed: “I don't compress the [Panasonic HPX 170] footage when ingesting, but for the [Canon 7D] footage I compress to ProRes 422. As for compression bit rate for uploads to web, I usually keep the bit rate around 5000 [kbps] (I use Vimeo and 5000 seems to work best).” All artists acknowledged retaining a copy of their final project, but did not refer to whether this was in uncompressed or lossless file formats.

Most artists described remarkably diligent organizational systems, using naming conventions to identify files and at times compiling databases. Vincent Moon’s intuitive naming format includes the project name, band name, camera used, and take#. Back-up copies are kept often on external hard drives or storage area networks like Apples Xsan, by each artist interviewed. In compiling suggested preservation methods for these artists, it was apparent that the workflows of most already included a preservation element.

Foremost among the recommendations made in the first draft of the ‘Preserving Your Digital Music Video Works’ pamphlet is maintaining detailed metadata and the archiving of all production elements. The pamphlet calls for the creation of a database, such as an Excel spreadsheet, to keep track of all preserved content and vital metadata associated with each. Suggested metadata fields include both technical and contextual information: records of equipment used to record footage, file format and name of footage, artist or songs featured in clip, location of shoot, and compression rates. Keeping records of this information will ease identification, protecting against the misplacing of intangible digital files.

Based on consultation of the Library of Congress/NDIIP file formats description
page, the pamphlet recommends saving preservation copies of all content in either uncompressed or lossless formats such as Apple ProRes or MotionJPEG2000. The pamphlet encourages the artist to retain all materials despite the storage difficulties presented by these large file formats. The lowering cost of external hard drives, now able to store up to 3 terabytes in the most expensive models, means storing personal collections is viable in the home or workspace. When asked whether they would be willing to pay for preservation of the work, the responses of the directors were evenly split. Taking this disparity into account, the pamphlet encourages the artists to store their materials through online services that require payment, such as Amazon’s S3 system, or for free on the Internet Archive.

The final section of the pamphlet addresses maintenance of archived files. Industrial literature points to higher failure rates in hard drives following five years of use, for this reason, the pamphlet encourages migration to new storage mediums at least once within a five year period. During all migrations a checksum comparison should be completed to guarantee no data loss has occurred. Finally, all files should be checked yearly to ensure their playback capabilities. This first draft of the pamphlet contains only the simplest methods of basic archiving practices. Further efforts and improvements to the pamphlet will refine the technical aspects of the suggested methods and include a digital video preservation workflow to guide the artist through preservation practices from beginning to end of the production period.

The music video’s contentious designation as a piece of pop culture ephemera has long done a disservice to an entertaining art form. As a forum for off-the-wall
experimentation and a document of performances serves a valuable role in audiovisual culture. New video making techniques and the evolution of a new generation of iconoclastic directors deserve preservation as works of art. Minor efforts like the at-home preservation pamphlet are only stopgap methods. Whether by the record labels or directors, an endeavor needs to be made to preserve this element of independent music culture’s legacy.

Bibliography


1993.


As performance videographers and music video directors, your works are vital documents of the changing independent music culture. Preservation of your music videos, or any work you endeavor in, begins with record keeping and at-home preservation efforts by you, the artist. The tips below provide an overview of simple, yet effective, methods for preserving your music video works at home or in your workspace.

**Keep Everything and Create an Inventory**
- Identify vital elements to keep (outtakes, alternate takes, etc.)
- Create a database of materials from every project, i.e. an Excel spreadsheet or FileMaker Pro database
- Use naming conventions to easily identify files and directories
  - For example: projectname_bandname_recordingdate_take#.dv

**Describe Materials in Your Database**
- Write a descriptive synopsis of each file
- Identify file formats, compression rates, camera equipment used, locations, checksums, and any other pertinent information to the production

**Keep Multiple Copies of All Footage Captured**
- Keep uncompressed or lossless files of all raw footage
  - Possible file formats: Apple ProRes, MotionJPEG2000
- Make compressed copy for production elements
- Save high-quality/lossless version of audio
- Retain high-quality or lossless compressed copy of final video production

**Storage and Maintenance**
- Make at least two preservation copies of all files
- Store copies in multiple locations
  - External harddrives
  - Internet storage repositories (Internet Archive, Amazon S3)
- Check playback capability of all files once a year
- Transfer files to new storage device every five years or when necessary
  - Generate and compare checksum after every file transfer