From Content Warehouse to Content Producer: Libraries at the Crossroads

By Joseph Sanchez

Abstract: Libraries face significant challenges, as services like Spotify offer larger, more accessible, and more comprehensive collections of content than libraries. Licensing costs for digital content means less content at a time when our patrons are being conditioned by Hulu, Pandora, Crackle, YouTube, Netflix, and Amazon to expect more content. One approach to rebranding and rebuilding services has focused on “Maker Spaces”. This white paper will explore the potential of Maker Spaces as multimedia production studios, and collecting that content for circulation.
Introduction

The term “Maker Space” can conceal more than it reveals, as it has an organic lineage. In short, it means different things to different people. Currently, much attention and energy is dedicated to 3D printing and other high tech services. While this thinking falls in line with the historical uses of “Maker Spaces,” the culture and history behind Maker Spaces lends itself to a concept of permanent flux and evolution. Libraries might be better served using a more descriptive and accessible term like “Media Lab” or “Production Studio.” The problem with such a designation is that it draws definite boundaries that could exclude new and unique services. For the sake of clarity, this paper will use the term in as broad a meaning as possible. Maker Space will essentially be used for any nontraditional library service that focuses on two components:

1. Physical and human resources dedicated to patron creation.
2. Library supplied resources for the purpose of creation: computers, cameras, tools, etc.

Practically this could be anything from sewing machines to computer programming, bicycle repair to game development. The other qualifying factor is that these efforts are supported by library staff and policy. Many of these things have been happening for years, and in some ways are natural extensions of the research and writing libraries have supported for years, but they are also significantly different and raise serious questions about the future role of libraries. Many librarians do not even consider the intellectual property issues and potential copyright breaches Maker Spaces can support, or the fact that weapons could be printed. Like so many other aspects of the digital revolution, Maker Spaces raise more questions than they answer.

The answers depend on the questions asked. One of the most critical questions facing libraries is whether or not libraries have a future as circulators of commercial content: books, magazines, DVDs, etc. The question may seem absurd at first, but it is a serious one in light of the current trend to digitization. This is primarily because the First Sale Doctrine applies only to physical formats. This simple, seemingly innocent reality has disastrous implications for libraries. When content was limited to physical containers it was subject to what economists call “scarcity”. There are two components to scarcity: quantity and desirability. By default, physical goods like books and DVDs are limited in their quantities, and subject to desirability. In such an economy, under the protection of the fairness doctrine, libraries were able to thrive by providing access to scarce physical resources. In this light, the problem of digitization is obvious. The quantity side of the equation no longer applies as, digital files remain “perfect” and can be replicated to meet demand at the moment any consumer wants the file. The epic battles over file sharing during the 1990s resulted in a series of laws that protected copyright holders from illegal file sharing, but it has not stopped file sharing. Moreover, legal, low cost (often free) alternatives like Pandora, Spotify, Amazon Prime, and Netflix are adding to the pressures libraries face as content providers. Our patrons expect more content with no wait at exactly the time when we are offering potentially less content to one patron at a time.

Libraries are organized, both legally and financially, for a completely different economic environment. First sale allowed us to thrive and occupy a unique and almost monopolistic niche.

Wessels, W. J. (2006). Economics. Hauppauge, N.Y: Barron's. Ironically, anyone with an internet connection could type “define scarcity” into Google and get the same definition faster than it took me to search a library catalog and pull this book off the shelf. Digitization throws the quantity side of the equation out of its historical scale.
in an economy of scarcity, but the digital economy operates under completely different rules. Without the protection of first sale, we face steep licensing costs and cannot distribute those costs across millions of users (or advertisers) the way commercial vendors like Netflix or Spotify. Any library with an Overdrive subscription understands how different the cost curve is. We pay more for less on an annual basis. If even 50% of our content were to go this route, we would face an apocalyptic scenario where we offer fewer resources in an age of super-abundance. Libraries cannot survive in such a scenario. As copyright and technology expert Ken Rosenblatt recently argued, “Libraries will be ‘eliminated’.”

While the Owner’s Right’s Initiative is fighting for some kind of digital first sale, there are no guarantees. The battle that began in the 1990s will continue and libraries should be involved, but they should also be looking into alternatives. “Library as Place” is one such alternative, and the concept of Maker Spaces fits nicely in that framework. This paper seeks to add a unique concept to both those ideas: “Library as Producer”. Maker Spaces are by default production centers, but not in the same way Nashville record labels or Hollywood studios are. Libraries are not cataloging or distributing the content created within their walls. The obvious question is, “Why not?” Academic libraries have often been involved in scholarly publishing, and a few public libraries are exploring publishing. For years, authors and creators have relied on libraries for the resources needed to write and nurture ideas. Producing their content seems a natural evolutionary step. Moreover, such a concept fits the nature of libraries, as the word “library” comes from a French term for “collection of books”. Historically, those collections represented collections of human knowledge and creation. Books were simply the most useful format available. As the format becomes less relevant, focusing on the knowledge and creation itself allows libraries to get to the heart of what a “collection of books” represents in the first place. This paper will also contend that producing and distributing content could fill a valuable and needed gap in the digital economy. It is possible that libraries could fill an empty space where museums, schools, universities, arts centers, galleries, archives, and other institutions are peripherally involved. In the empty space between all these overlapping services libraries could use their active local network to create discovery, distribution, and availability.

Of course, many questions need to be answered. This paper will focus primarily on core issues, since it cannot hope to address all the issues and questions such a concept raises. Foundational concepts and application are the main focus. For practical purposes it is divided into two parts. The first focuses on theoretical components and seeks to establish a case for such a venture. Readers already convinced may choose to skip to part two where the practical application begins, although they might find useful arguments in part 1. Within each of these larger sections smaller chapter divisions are organized for utility and quick reference, as the paper is intended for reuse and easy application.

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What is a Maker Space?

The term “Maker Space” can be both illuminating and obscuring. This irony derives from human diversity. Ask a computer programmer and he will think of a place with lots of power outlets, laptops, low light, and a group of techies coding, hacking, and building. Ask a carpenter and she will tell you it is a woodshop. This simple reality demonstrates both the challenge and difficulties inherent in planning such a space in a library, for the space will initially develop around the interests of people; administrators, staff, or patrons. As institutions with services for all, libraries face a fundamental challenge, since their Maker Spaces cannot service every potential Maker’s needs and interests. Moreover, Maker Spaces are often organic and home grown, and evidence suggests this experiences the greatest success. Because of this there is not set standard or approach to developing one, which offers its own set of challenges and opportunities.

Historically, between the programmer and carpenter described above, the programmer has the more accurate perception of the concept. Maker Spaces grew out of hackerspaces developed in Germany during the 1990s. They were loose associations of hackers, the most famous of which, the Chaos Computer Club, was formed in 1981 and has been involved in high profile publicity stunts like exposing security flaws at NASA and major banks. Due to this historical association with hackers the culture that evolved around hackerspaces and this new version of “Do-it-Yourself” thinking is heavily involved in the Open Content movement. Loosely speaking the movement focuses on fewer barriers to information, content, and technology. This may sound good in theory, but in practice it has often meant hacking, file sharing, and opposition to traditional copyright and intellectual property, not to mention illegal activity.

At first blush, the broader concept seems like a natural fit for libraries, and many librarians are deeply involved in supporting the movement. There are problems however, beyond those described above. For the purposes of this paper it is critical to note that Open Content advocates have traditionally been associated with the tech community, and have developed a long-standing animosity with traditional cultural institutions like Hollywood, the publishing industry, the Authors Guild and other supporters of traditional intellectual property rights. Currently the two sides are involved in a long standing battle over copyright reform, intellectual property, and even the concept of “ownership.” The battle is being waged at every level of western society and misinformation abounds. More importantly, libraries’ traditional role as content providers will be critically undermined no matter which side wins. This troublesome reality will be examined in the next chapter.

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Many librarians have probably not made this connection between digitization, content, Maker Spaces, and our traditional services. Rather, Maker Spaces are developed as stand-alone services, great for programming, fun and interesting, but disconnected from our core identity and need to reinvent ourselves for the Digital Age. However, Maker Spaces’ origins in hackerspaces and open content tech culture places them at the center of this question. Moreover, their amorphous nature means that we cannot standardize and replicate them in every library very easily. Instead, libraries face one of two alternatives: fragmentation or thoughtful differentiation. It is critical to recognize this opportunity as an either/or scenario. Fragmentation is not good; it is random, disruptive, and would further undermine libraries’ cultural and social standing. Differentiation, however can be positive, as it indicates careful consideration and strategy behind the differences. Fragments inherently suggest brokenness, something that should be whole but is not. Differentiation communicates thoughtful distinction and conscious order. In many ways, this is what hackerspaces subversively create. Their entire nature is fragmentary and nonlinear (see attached photo), but for attendees, the goal is always order. Whether order in code, programming, or security, the underlying goal was collaboration for a common goal of order. This should resonate deeply with librarians whose profession was founded along similar goals. Extent chaos is acceptable, as it serves a larger goal of allowing hackers to differentiate commonalities among fragments and develop order. This is a critical consideration for any librarian considering a Make Space. What factors should be considered in differentiating one Maker Space from another? Obviously, the patron base. Demographics are critical. Many libraries have been pursuing Maker Space activities already with sewing classes, tool circulation, and other similar activities. This programming is a response to a community’s needs, and the core consideration all librarians must make when building a Maker Space.

Other clues to success can be found in the cultural factors that influenced the development of Maker Spaces. Due to their connections with tech/hacker culture, Maker Spaces and Make culture tend towards a flat or horizontal organization hierarchy. No clear leadership or management is visible in early Maker Spaces, which allowed them to be responsive and flexible to the constant change and flux inherent to the digital world. Successful tech businesses have adapted this type of management structure for similar reasons. Maker Spaces are messy and fluid, as the previous image suggests. This represents a clear challenge to librarians with traditional management systems and slow response to change. First, libraries have a traditional top down decision-making process. Second, they are not structured in ways that allow quick response and adoptions of patron suggestions. This is not just a theoretical difference between tech culture and libraries; it represents historical and organizational reality. Ironically, Maker Spaces historically have been open arenas of information exchange, but nowhere near as open as libraries. Libraries serve larger, broader, and more diverse patron bases, resulting in different organization and management structures. It is simply impractical to create a culture that responds to every individual’s interests or suggestions when there are thousands of individuals involved. Libraries adapting Maker culture to their broader and more diverse patron base face quite a challenge.
The most critical take away from this brief survey of Maker history and culture is differentiation. Currently, libraries are fragmenting services as they experiment with the concept of Maker Spaces. This type of fragmentation is unavoidable, since libraries must develop new services. However, it must be balanced by a shared vision so order can eventually be created from those fragments. That shared vision should center on developing traditional content in a nontraditional manner. Producing much of the content previously purchased seems like a natural evolution, allowing for a flexibility and adaptability libraries need as they wait to see what the future holds. This vision connects Maker Spaces to the core, historical role libraries served as collections of human knowledge and creation. It also positions libraries to serve both creators and consumers in their communities in an age of content abundance. From this shared vision, libraries can differentiate their Maker Spaces to the unique needs of their communities as necessary.
Does “dark matter” exist?

For many years physicists were aware that the mass and gravitational effects of the universe did not fit the observable record, and postulated that a critical amount of the universe was filled with “dark matter”. By this they inferred the missing matter that by necessity must exist, but to date has not been detected. Dark matter has entered popular culture because of the obvious fascination such a concept entails, and also as a useful metaphor. This paper uses it as a metaphor for artisans and creators of valuable content who exist outside commercial markets. It refers to those serendipitous moments when one encounters an amazing work of art or musician in the least expected place. The question is, “How many artisans, artists, and creators are scattered across our communities, and can libraries step into this vacuum with a valuable service?”

Anyone familiar with the music or movie industry is familiar with the problem. Discovering the next great hit is not formulaic. Instead, it can happen a million different ways. Since the twentieth century monetized and commercialized the arts, producers and executives have searched for ways to streamline the process and capitalize on talent. Stories about J.K Rowling or Norman Maclean’s publishing struggles have developed their own mythologies, and the question that haunts us is, “How much undiscovered talent actually exists?” Is there more talent or less? Arguments abound, and the digital revolution has only compounded the problem, as the tools of creation have become more accessible than any time in human history. While there is little evidence for the more hyperbolic claims about an age of creativity, it is also safe to assume that technology is enabling creation more than ever before.

The subjective nature of “good” art makes the question even trickier, but not necessarily central to this paper. Libraries circulate items that are undeniably bad, and everyone reading this has wondered at some point how a certain artist gained worldwide success in light of much more talented and creative under-appreciated ones. Therefore, the question is not whether art is good or bad in any subjective sense, but if it has the potential to resonate with enough of our patrons. In east L.A this might take the form of graffiti, while in Montana it could be a series of paintings about fly fishing. This harks back to differentiation, and the possibility that far more dark matter may exist than one might have previously imagined.

Moreover, a growing body of evidence suggests that the transition to digital is not going well for artists. The open content tech crowd has dreamed of a world where content is free and monetization comes from new sources. The usual solution is advertising. Services like Pandora and Spotify sell advertising but pay artists pennies. For at least a decade, the open content community has held up this model as the potential mechanism for converting us to an open content society. However, the evidence from the music industry is telling another story. In spite of recent good news (2012-2013), the first decade of the twenty first century is often referred to as “Music’s Lost Decade.” The revenues were cut in half during that decade, and recent reports of growth (first time since 1999), must be taken in the broader context of the ten years of lost revenue. At this point, it is difficult to predict what will happen with the music industry, because...

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of the volatility inherent to digital economies. It is reasonable to believe that revenues may
never return to predigitization levels.

The music industry is a leading indicator of what could happen to other traditional entertainment
markets as they go digital, because music entered the digital economy first. This is why
librarians should be watching it as carefully as Hollywood and the publishing industry are,
because as has been suggested earlier, whoever wins the battle between open content advocates
and industry insiders, libraries will not benefit. If open content wins, libraries can give up on
their commercial content collections because it will be available on the web. This is probably
why many libraries in urban areas with wealthier demographics are already seeing CD
circulation drop, as services such as Spotify and Pandora outmode library services. If
Hollywood wins, libraries will not be protected by first sale and cannot afford to license large
amounts of content, as has been maintained throughout this paper. Budgets are not designed for
expensive licensing contracts. As a result, library collections will shrink while patrons expect
more. Either of these scenarios could play out in many different ways, but the outcome will
most likely fall somewhere along this spectrum. No matter what happens, digitization of
commercial content is a game changer for libraries.

This battle and pressure on artists has resulted in an industry vacuum where artists exist in a state
of flux and uncertainty. One of the best resources for getting a sense of the situation from the
creator’s perspective is the Trichordist blog. A collection of artists dedicated to “an ethical and
sustainable internet,” the Trichordist catalogs a bleak reality of artists struggling to survive in the
new economy. It tells the uglier side of the IFPA report, which tends to focus less on the artist
and more on the industry, which are often two different things. Independent artists are especially
uncertain about their future, as the internet offers more avenues of possible discovery, but greater
competition as well. Artists without big companies backing them find themselves adrift in a
large ocean hoping someone will discover them among the millions of other artists struggling to
be discovered. Tech pioneer Jaron Lanier describes the situation in bleak terms, “Creative
people- the new peasants- come to resemble animals converging on shrinking oases of old media
in a depleted desert.”6 The dark side of digital is that even while it offers more opportunity for
creation and distribution, it is also driving prices down and increasing the competition. For
every PSY, Susan Boyle, or Justin Beiber how many are left behind? It seems safe to assume
that dark matter exists, but to date no institution has demonstrated its viability or built an
ecosystem that can sustain it. In this vacuum, Maker Spaces focused on production may offer a
more sustainable alternative.

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The Library as Experience

Libraries poll extremely well among the general population. People feel that libraries are safe, helpful, and supportive places. Authors, Hollywood, and the music industry have more mixed feelings. Successful artists feel that libraries cut into their profits, and there is certainly some truth to this. At least some of the pirated music that cut into industry revenues during the lost decade came from library collections. Librarians counter with studies and polls that demonstrate our ability to support sales. Nevertheless, this argument will not matter if libraries are priced out of the digital economy.

Libraries can leverage their existing goodwill to manage the transition from warehouses for books to a place where patrons come for support, production, and distribution. Such a course of action solves two potential problems. It manages a transition to new services, and offers the possibility to create alternative content streams for libraries and their patrons. By turning the library into a place where they have access to high quality production as many Maker Spaces are already doing, libraries can place themselves in a position to continue building and developing the goodwill they currently have. What has been missing from most of the discussion in the profession is the possibility of using Maker Spaces to support the discovery of dark matter, and begin creating and filling the vacuum that currently exists in the arts community.

Currently, libraries have a number of advantages over other institutions that would step into this empty space. This paper will focus on two: hyperlocality and superfans. Like many urban terms, the definition of these concepts is somewhat amorphous, but they seem to have settled into a few core concepts. Hyperlocality refers to strong geographic boundaries for a particular community. In the internet age this is a rare thing. Even though the primary effect of the internet has been to break down geographic boundaries, instances remain where hyperlocality has been enhanced by the internet. Library website traffic tends to be hyperlocal, since so much of the content by law must be limited to local patrons. A superfan is exactly what the term indicates, someone with an above average interest or commitment to an idea, institution, artist, etc.

More critically, it is important to understand both terms in light of their digital context. While the internet has fragmented geographic boundaries and created a much larger ocean for artists to compete in, in certain cases it has also resulted in the opposite. Some in the world of arts and entertainment have noticed this, and have conjectured that it might be possible to flip the old economic model on its head. That is, rather than focus on building as broad an audience as possible, and monetizing that market on a pennies per person model, instead focus on building a smaller, more dedicated fan base that will spend dollars per person. These superfans will spend more and be more dedicated, so the assumption goes, and actually provide a more stable, richer market. In such a market, many authors and artists are questioning the need for a publisher or record label, since superfans create previously inconceivable market opportunities. The most famous of which is Nine Inch Nails alternate reality game that accompanied and marketed their dystopian album “Year Zero.” In essence, the game depended on the dedication of superfans across the planet collaborating to decode various real and virtual clues to solve a complicated puzzle game that eventually resulted in the new album. Other examples include Cory Doctorow, The Humble ebook Bundle, and even Kickstarter itself. Because the internet has created a much
larger pool, the argument is that an artist can survive simply by finding a small enough pool of people to pay them directly.

The problem is that many of these examples gained fame in the traditional world prior to executing this new economic model (e.g. Pottermore and Nine Inch Nails). Many of the ones who started with the new model work their way back into the old system once they get enough fans to demonstrate market viability (e.g. Susan Boyle and Justin Beiber). Very few examples exist of an artist who started in the new model, has stayed in the new model, and is thriving in it. Part of this is of course the problem that the model is relatively young, but as argued in the previous chapter, there is a sort of Waiting for Godot aspect to the messianic promise of alternate revenue streams. It has been financially beneficial for Doctorow and others to push the concept, but there are not enough successful stories to demonstrate proof of concept yet.

For libraries, however, the superfan concept holds great value. The intention of this paper is not to argue that libraries should focus only on their dedicated users and not expand their base. To the contrary, if libraries pursue the recommendations of this paper, they can expect to see their community alliances and influence expand. The argument is that libraries should find ways to leverage the dedication of their superfans to create the same kind of buzz, interest, and traffic to their websites and buildings that Nine Inch Nails did. While only a few thousand fans were dedicated enough to solve the puzzle, and an even smaller amount received the grand prize of a private concert, the residual benefit for Nine Inch Nails as a band and a brand was overwhelming. In essence, Nine Inch Nails used their superfan base to expand their casual fan base, which is a very different economic model from the one outlined above.

Libraries are already familiar with the concept; evidence has long suggested that our best marketers are satisfied patrons and supporters of the library. However, this is often not connected to our hyperlocality. By nature, ‘libraries are limited in both their physical and virtual traffic to very specific geographic boundaries. While libraries are often not in the habit of comparing their web or foot traffic with other local institutions, what evidence is available suggests that in most communities libraries are one of the most heavily trafficked local institutions. During the course of writing and researching this paper, the author compared web traffic for a well-funded arts center with its suburban library district. The library’s web traffic was 10-20 times higher on any given statistic. To local musicians, fine artists, and performers this hyperlocality is a gold mine of opportunity, if it can be leveraged more strategically. This is because promotion through a library offers an opportunity to solve the age-old internet problem of relevance and retrieval. For users of the internet, this is not a problem, because search algorithms always seem to find something out there that approximates their interests. As we have already seen, however, there is ample evidence that this is insufficient from the artist’s side of the equation. Artists become only one of 4.5 billion Google hits, or they end up isolated on a small website where they have high relevance, but too low of a retrieval to matter.

Libraries have a golden opportunity to offer artists a relatively high retrieval with extremely relevant results. Most libraries have public message boards where local news is posted, but libraries’ hyperlocality and superfan base indicates that they could do much more to support and network local arts and events. For example, libraries could offer professional digitization for local fine artists, but require (or ask) the artists to allow the library to catalog low resolution
versions of the items digitized. In this relationship, the artist benefits from a long-term presence in one of the most highly trafficked hyperlocal institutions, while the library begins developing a new multimedia collection. Another layer of service should be added that includes web exhibitions for especially talented artists. Libraries should be even more proactive and develop proposals for cooperation between themselves and local galleries and arts centers. On their part, the galleries and arts centers find artists for the library to digitize, and the library commits to giving some form of access to its highly envious web traffic. Because libraries tend to have significantly higher traffic, it is reasonable to assume that if artists pull even five percent from this new publicity they can double their attendance. In doing so, libraries would be offering a number of unique services to artists. First, no other institution offers high quality digital production for free. Second, no other hyperlocal institution offers the permanent presence and deeply organized catalog libraries can offer. In this way, a library’s hyperlocality can be leveraged to great advantage for the local artists, the library, and the community. Moreover, as word spreads throughout the community, libraries can expect the same residual benefit, in terms of interest and goodwill, which Nine Inch Nails received from their marketing campaign. Finally, once the model is up and running, libraries can begin exploring sharing that content across our vast national network, increasing the supply for libraries and visibility for creators.

As part of the bigger picture behind this paper, such an approach has great potential for networking libraries much more deeply into their communities and expanding the base of patrons and institutions supporting libraries. It also demonstrates long-term relevance, as no other institution can create this type of “social” archive for its community. This model for Maker Spaces offers a much higher return on investment as well. It does place them much closer to the center of a library’s services and existential nature, but content has always been the heart of libraries. Society has simply been accustomed to that content in the forms of books, magazines, and other physical commercial content. While one can hope commercial content will remain accessible for libraries, this model can function as a compliment and potential replacement should libraries lose access to commercial content. Furthermore, should the model successfully connect artists with new fan bases, libraries can take that success to the large number of independent producers already creating valuable material, and position themselves as a viable network and marketing option for their content. As the Douglas County ebook ownership model has demonstrated, independents are far more open to a sales model along the lines of fair use.7

7 See http://evoke.cvlsites.org/ for more info.
Public access to costly tech

So far, the threads of the preceding chapters and ideas have revolved around the core concept of libraries developing Maker Spaces for producing and harvesting content. While those arguments connect well, there is still one critical issue to be addressed. Technology has trended downward in terms of cost, and outward in terms of public dissemination. iMovie and Garage Band are the most notable examples, but the development of affordable home studios, cell phone HD video, and every other trend suggests that patrons may not need such a service in the near future. Since they may end up getting caught in an endless cycle of repurchasing and redeveloping, is it then wise for libraries to dedicate funds to building Maker Spaces?

It depends. Technology has scales of accessibility, and they are always moving. As certain tech gets cheaper, newer more advanced tech develops to take its place. This is especially true in the case of video and photography. As entry-level video and photography approximates higher-level tech, higher-level simply moves the bar higher. Peter Jackson shot The Hobbit at 48 frames per second, which is not available in entry-level devices. A Digital Single Lens Reflective Camera (DSLR) is still markedly superior to any point and shoot camera, including the new hybrids. Apple’s entire marketing strategy behind Garage Band and iMovie was always to create demand for their professional, and costly, versions.

It seems safe to conclude that this pattern will continue for at least the foreseeable future. However, it has resulted in some unusual changes in the industry. For a number of reasons, the gap between amateurs and professionals has shrunk. In many cases, technology can mimic the quality once limited to professionals. Having access to lower costs alternatives also allows consumers opportunities to expand into the professional realm. A new term has even developed to describe a high skilled amateur, “prosumer.” This development lends itself to the theory that dark matter does in fact exist, as the market is able to support a growing body of consumers and amateurs interested in creating semi-professional quality work without the full cost involved. Prosumers are higher functioning than typical amateurs are, cognizant of professional tools and standards, and want more access to the professional’s tools.

Unfortunately, most libraries seem to approach this development haphazardly. They give little consideration to a target demographic for Maker Spaces (or limit it to teens and young adults). This is not a formula for success. It is understandable given the organic nature of such spaces and services, but unfortunately libraries often lack the technical expertise or production experience to create a functional space. For example, post production in video and audio takes large amounts of time and energy, whereas library services have usually revolved around more casual, short term use. Before developing a plan, libraries should look at their demographics and choose whether to target amateurs or prosumers. Although the amateur market is easier to reach and cheaper to serve, in the long run it does not offer the return on investment prosumers would. It will not reposition libraries in the digital ecosystem for long term social and cultural importance. Strategically, it makes more sense to target prosumers and amateurs, since a prosumer space can serve both demographics. This has been a highly successful model for Apple. Even though they angered many professional videographers when Final Cut X was released, X’s position as a top selling app in the app store indicates that Apple recognized a deep
consumer desire for access to professional tools. For more idealistic reasons, libraries should also be focused on serving the broadest base of patrons possible with the highest quality tools.

There is also a hardware/software divide to consider. Software is easier to focus on, maintain, and house, but this is also true for patrons. Add to this the question of interoperability- will it read or interface with the files and hardware our patrons bring in- and it seems that the challenges outweigh the benefits. This is because libraries have demonstrated a fad-like approach to tech. The current interest in 3D printers is one such example. Justification for 3D printers seems vague and opaque. Why not a zspace interactive hologram instead? It would be cheaper than 3D printing and probably would allow more patron use as well. However, this type of random adoption of the latest tech is expensive and nonproductive. Libraries need to move away from an approach to tech adoption that is reactive and undisciplined, and instead formulate a careful and focused plan. 3D printing may in fact serve one library’s vision (and patrons), but not another’s. Canon EF lenses would probably be even cheaper and more popular, but again these decisions should be guided by a strategic plan. This paper has argued for images, text, audio, and video, because they have been part of our services already. As such, they represent an easier and more natural evolution than things like 3D printers and zspace, in addition to serving a broader patron base. Hardware and software in library Maker Spaces should be industry standard in order to provide value beyond marketing and “wow” factor. The quality and format should be a bit too expensive for the average patron, since the goal is to attract talented prosumers and develop valuable skills and knowledge for patrons.

This is where libraries must learn from the fluid and adaptable nature of hackerspaces. In a rural or low income area, a hybrid camera would probably be an excellent and affordable purchase for both imaging and video, but in an urban library a DSLR is a better choice. But more importantly, libraries need to scale their services; cutting edge tech like zspace, or graphic arts and media for the first few years. Only well funded libraries should attempt both. Most hackerspaces have narrow focuses, and libraries should learn from this example. Our entire profession is built on the concept of a broad, comprehensive collection, making this a difficult reality to absorb. Practically speaking a comprehensive approach is not possible with new ideas and innovations. Instead libraries should focus on learning a new service well, and then develop another once staff is ready. Content better serves the long term goals and needs of libraries and patrons better, so it should be no surprise that this paper advocates focusing on media content rather than 3D printers.

Finally, libraries must consider budget issues. Most libraries are facing considerable budget pressures, and the idea of adopting expensive technologies seems laughable. These questions will be practically addressed in part two, but for the current argument, it is necessary to note that this again represents a major shift in thinking for the profession. Many of us are already paying extravagant amounts to license digital content through EBSCO, Overdrive, and the like. We do this because it is content, and content is our business- or always has been. However, if some of the scenarios outlined in this paper come to fruition, we cannot labor under the illusion that we are content warehouses. Rather, libraries need to begin appropriating many of these funds for hardware and software. Hardware and software are more affordable than many of our digital content licenses, so in some instances, it may actually be a better investment.
As a final note, libraries need to consider the legal implications of Maker Spaces. Offering access to hand or power tools is an invitation to serious injury. 3D printers can create weapons. Artists exercise creative freedom that often insults and offends. These are the simpler aspects of legal liability. Intellectual property and copyright are much more complicated. While not in the purview of this paper, it is critical to recognize the legal challenges inherent in such activity. Waivers, policies, and other documents are only part of the answer. Much of the behavior and activity in Maker Spaces pushes the boundaries of existing legal code not simply in terms of legality, but in terms of existing law’s application to radically new situations. Librarians must be prepared for the ambiguity and challenges that come with such a venture.
Part 2: Plan, Budget, Build

Planning and Workflow

Developing a Maker Space must start with the consideration if it will ever be used to produce music. This is due to the reality that music recording requires the largest physical footprint and significant time management. Post-production gets simpler, but like video it also requires significant time commitments to meet the demands of a critical prosumer’s ear, and soundproofing is expensive. For these reasons, libraries considering a Maker Space must start with this question. If music will be supported, all planning and development must consider the nature and scale of production. Primarily, this will revolve around whether or not percussion will be supported. Since drums are a critical component to a majority of the music produced today, it is difficult to consider how it would not be supported. However, it is not impossible, and in many large urban areas a library could spend years producing quality music without drums. Librarians also need to be aware that programmed drums are not an acceptable alternative outside the electronic music genre, so purchasing drum software will not solve that problem.

Other natural adoptions and workflows fit more comfortably with current library limitations (see figure 1). Planning should focus first on one of two services: images or ebooks. Then either video or audio can be developed, but not both at the same time. Images and ebooks are the easiest and most attainable services to develop. While librarians might be tempted to think ebooks are more accessible, such may not be the case since the amount of work required to create a book is significantly higher than it is to shoot photographs or digitize a painting. In the diagram above, “images” refers to digitizing fine arts and collecting quality local photography. This activity has the smallest footprint and the largest return on investment. A decent SLR, a copy stand, a light kit, color card, and Photoshop are enough to get started. By choosing fine arts and photography, a library can start developing the types of relationships and alliances that are part of the long-term goals associated with this approach. Moreover, this allows libraries to generate enough data to assess and analyze the project in a 12 month budgeting cycle, whereas an ebook program might not create enough content and data for a valid assessment. Finally, although any one of these four content areas could be the sole focus of a Maker Space focused on production, it is advisable that libraries follow the adoption recommended here. Because fine arts and photography are the most accessible forms of creation in any given community, they promise the largest pool of content in any given community.

Audio and video present equal challenges for the nonprofessional librarian. Either could be pursued once the first phase is completed. For technical reasons, it seems evident that video is the more challenging of the two; the technical aspects of quality videography seem more inaccessible to the public than music. In essence, finding a talented guitarist is easier than finding a talented videographer. Video seems to be the one area where amateurs are not creating professional content in enough quantity to generate the kind of return on investment libraries
need to demonstrate viability and proof of concept, and for those reasons this paper places audio above video, indicating it as the more logical choice. However, a particular library may have staff on hand that could affect this formula with their personal skills, in which case it would make sense to pursue video prior to audio production.

An outline of a simple workflow and 4 year strategic can be found in Appendix A. The goal of this plan is to create a workflow and learning curve that is reasonable in terms of staff, budget, and adoption. It has been deliberately designed with flexibility in years 2-3. Depending on staffing, skills on the ground, and budgeting, a library can either conflate those years or expand them as needed.
Facilities Management

While being conceptually straightforward, managing such a facility is rife with questions about the role and future of libraries. Some libraries are experimenting with large-scale change and deployment, but most will only be interested in a small footprint. Regardless, the most critical issue will always be whether the space supports the creation of music. Music production requires a sizeable footprint, and creates a large amount of noise that would be extremely disruptive for all other operations. Quality portable sound rooms can be purchased, but one that would fit a reasonable drum kit and isolate the noise effectively would cost about 10k. Then there is the issue of recording electric guitar “correctly”, that is, from the amp rather than directly from the guitar. Again, this creates sound issues with too many variables to discuss here. Suffice it say, any library considering music production should spend at least six months researching production prior to making a choice of any kind. Visiting studios and learning the craft is critical, as the goal is to attract quality musicians and prosumers interested in professional quality production.

Justifying a large footprint for nontraditional use is another challenge, and library staff and administration should consider this possibility when considering audio production. A back-up plan should be in place in case administration, deans, or boards decide against such a politically risky move. In the case of approval, libraries should consider offsite locations for their long term planning or collaboration with local existing organizations or Maker Spaces. For example, cost and noise issues could be offset by working with a local high school for space and support.

Finally, questions of hours of operation, access, and visibility must be carefully considered. These are extremely labor-intensive disciplines, and libraries are accustomed to casual, short-term use. Success is not possible without large amounts of time dedicated to pre and post-production. The only area where libraries are designed for long-term focus are book stacks and study rooms, and this should be the guiding principle for such a space. Many libraries are mistakenly putting Maker Spaces front and center, making the activities extremely visible, but this is a big mistake if libraries are hoping to attract professional level makers. Video, music, and even imaging require privacy and focus. Distraction must be minimized, not maximized. Serious artists tend to develop habits and work areas that allow for tightly focused creative energy. Libraries cannot place Maker Spaces in locations of high patron traffic if they hope to get full buy in from the local arts community. If the space is designed for stand-alone access with a private, exterior door, one staff member or intern could allow a band in for an entire day of recording and production beyond normal operating hours. Such an arrangement also creates minimal distraction and confusion with normal operations.
Human resource management, staffing (training)

The vision of Maker Spaces as outlined in this paper cuts to the heart of change management for libraries. What skills and talents are necessary for the librarian of the future? How do libraries manage the messy transition from traditional skills and services to new ones when our budgets are constrained and our patron base is so varied and diverse? This chapter outlines and identifies some of the challenges and questions involved rather than answering them, as different libraries will have different options available depending on their individual circumstances.

The skillset and knowledge base of librarians needs significant additions. Programming, multimedia, and graphic design are the most identifiable skill sets associated with current demand and patron interest. Unfortunately, these are extremely demanding and time consuming skills. Realistically, learning a skill like video editing or a program such as Protools requires 5-15 hours a week depending on the learner’s existing knowledge base, sometimes more. Moreover, the skill must be practiced over an extended period (and on a fairly routine basis) or the investment will be wasted. Although entry-level knowledge can be attained with far less time and commitment, that will not set libraries up for success, since Maker Spaces depend on significant knowledge bases. Traditionally this knowledge base was pooled by attendees, but patrons expect libraries to support them, and libraries cannot pretend that such a space can thrive in their environment without significant library supplied support. Patrons have been conditioned to expect this from us, and support is one of the core services we should carry with us into our future.

Obviously, any library embarking on such a venture must be willing to invest significant time and reorganization for some professional staff. However, other possibilities can offset a significant amount of this pressure. Internships with college students and even high school students can accomplish a number of short and long-term goals. First, they can supply the immediate skills and human resources libraries need. Second, they will allow libraries to integrate themselves deeper into their communities and develop stronger alliances and support, developing long-term goals of rebranding and repositioning libraries in their communities. Setting up a long-term internship program requires significant work in the beginning, but offers libraries the potential for personnel and support solutions. However, it is highly recommended that libraries pursue the prosumer hardware and software iteration advocated in this paper, as that adds significant incentive for interns in need of professional experience. This type of personnel arrangement is common enough in academic libraries where a majority of the labor is often provided by interns and students looking for opportunities to apply to skills they are learning in their course of study.

On a more prosaic level, the four-year time line outlined in Appendix A offers some simple and immediate solutions to training and resource management. DLSR cameras have been advocated because of their ability to perform double duty both professional imaging and video functions. Learning how to use these devices and develop professional content has never been easier thanks to a proliferation of free and subscription based online support. Lynda.com is the industry standard for subscription based training and support, offering comprehensive tutorials and trainings that are always up to date. If a library cannot afford to pay for the subscription free tutorials are available through YouTube, Vimeo, and other locations. Indeed, the paucity of high
quality free information infers that the whole scale change suggested in the introduction of this paper will continue to threaten traditional information services- like libraries and universities. Rather than fight the change that seems inevitable libraries can adapt and fulfill distribution and harvesting needs created by these changes.

Another challenge is budgeting. Technology is expensive and constantly evolving. Hackerspaces disperse costs across members who are all vested in tech culture. Libraries disperse costs through taxes, levies, etc, but the politcal nature of their funding creates barriers private Maker Spaces do not face. Again the issue is one of flexibility and scaling. The public funding of libraries inhibits the type of flexibility and responsiveness that has made Maker Spaces traditionally successful. The problem is compounded by the existence of multiple services competing for funding in libraries, and managing the transition from being a book repository to... something else.

While answers may not be clear, there are ways libraries can at least mimic and adapt some of the flexibility and adaptability of traditional Maker Spaces. Maker Spaces can have their own budgets managed by the librarians directly involved in the Maker Space. Westport Public Library in Connecticut has instituted a program of Maker-in-Residence where local patrons with various talents will demonstrate and teach various skills. Libraries can potentially offset some costs by allowing patrons to bring in some of the tools and tech needed.

Under which library department should such a space be organized? Some libraries might see this as an extension of IT, others programming and marketing, and if a library is serious about developing alternative content sources it could even be considered collection development. Each of those divisions will have different approaches to management and use. Ultimately, libraries should remember the organic and flexible nature of hackerspaces and consider their staff at hand as well as future hiring and HR decisions in developing a management plan for the facility and delegating it to a specific department.

Finally, there is the question of the “Maker in Residence.” The idea of a Maker in Residence is finding a local expert willing to donate their time to train and teach. A few libraries are experimenting with the concept, and seem to be experiencing varying degrees of success. Westport Public Library in Connecticut started a Residency program in 2012, allowing a local builder to teach a group of schoolchildren how to build a plane. Instead of building individual model planes, they worked together to build a fairly large model. The program was successful and Westport is continuing the project. The Maker in Residence concept fits well within the philosophical framework of Maker Spaces as collaborative spaces where people pool resources and ideas. It has the added value of leveraging the libraries community in new and positive ways and developing the type of self sustaining energy critical to Maker Spaces.
Harvesting Content

While this concept may seem radical, it is really a natural extension of our oldest services. Unlike our ancient predecessors in Alexandria, we can utilize technology in a more benign way to collaborate rather than forcibly cataloguing content. Some new concepts, however need consideration since this type of organic, local content does not have the streamlined system libraries are accustomed to. First and foremost, all of this content will need to go through some form of collection development. Libraries should not guarantee access to the catalog. The same kind of discriminative criteria must be applied to dark matter as to commercial content. After the content is produced and ready for distribution, collection development librarians will need to assess its value and place in the collection. An added layer of assessment must also happen, as part of the added value for local creators is whether or not the library will promote the content to their community. The best artists, musicians, and writers can and should be promoted through both our traditional services as well as services like the web exhibitions previously described.

In order to make this process as clear, transparent, and legally sound as possible, libraries should develop a policy statement explaining the service and its limitations prior to opening the service. Some type of signed agreement between the library and patron should stipulate certain limitations and agreements:

1. Patron agrees to donate copy of work to library of origin.
   a. Patron agrees to allow other libraries access to work at market value.
      i. Charge same price as individual users would pay.
2. Patron understands that library staff has complete discretion for circulating final product.
3. Patron recognizes library’s right to terminate process at any time.
4. Library recognizes patron’s artistic freedom.
5. Library provides limited production support depending on complexity of project.

These are some of the core concepts that should find their way into the agreement. Others can be added as deemed necessary, but the critical concept is that the patron recognizes the library’s desire to access and distribute their work at a cost similar to a first sale market value. On their part, libraries must recognize the artistic freedom and intellectual property of the artist. Questions of DRM vs. unlimited access can be left for the near future as software such as OCLC’s Content DM continues to evolve and develop. As has been previously mentioned, intellectual property and digital economics is a volatile subject. Many reading this may disagree with item 6 above, but it is advisable to recognize the intellectual property of the artist in some manner. An honest assessment of the current ecosystem must acknowledge legitimacy on both sides of the debate, which is why item 6 is balanced by item 1 above. The goal is to begin developing a proof of concept for the fair exchange of digital materials before Hollywood and its allies close the door completely.

Catalogers will also find their workflow affected beyond even the original cataloguing required for each item. They should consider adding a hyperlink to the artist’s website in the 856 MARC field, as an added incentive for artists. Doing so would strengthen libraries added value as the central hub between creators and communities, and reinforce our first sale claims that libraries
strengthen rather than hurt sales. While the idea cannot be given full treatment here, Douglas County Public Libraries has demonstrated the viability of such a concept in their agreement with the Colorado Independent Publisher’s Association, and it is one worth careful consideration. The challenge of performing original cataloging presents a human resources challenge as well, since catalogers are not subject experts or fine arts critics. Assessing a work will be both challenging and difficult. Indeed, this part of cataloguing may need to become somewhat socialized, as it is highly likely that catalogers will need help from various local resources in choosing appropriate subject headings and genres for each work.

Finally, libraries need to develop long term enterprise solutions for hosting and delivering content. Currently, an ad hoc approach reigns as different vendors and homegrown solutions offer different answers. Ultimately, libraries need a multimedia content hosting solution that has scaled access. In this way, users creating content in our studios can choose from a variety of access options. On a design level, libraries need to remove as many barriers as possible between users and content. Siloing and fragmentation will only hasten the growing impression that libraries are out of sync with the rest of the industry. Currently, we are stuck with this scenario because we are dependent on third party vendors for the content and the software. If libraries can develop more library friendly systems, and demonstrate a proof of concept, it becomes financially and legally possible that even commercial vendors would be willing to bypass the middlemen currently licensing us content.
Equipment Choices, maintenance, refresh schedules.

Note: Each section will begin with a short list intended as a quick reference for core equipment and software, followed by an in depth, narrative version.

It is also critical to recognize that professionals have different opinions about which brands are best. Imaging and video are especially fragmented. Canon or Nikon? Sony or Panasonic? What about Red Cameras and Blackmagic cinema cameras? The possibilities are endless. This paper only intends to make suggestions that are respectable in the industry and capable of providing professional services and support. Individual libraries may choose to adopt different equipment. All of the equipment and software suggested below is stable, industry standard, and can serve a maximum number of patrons.

The following recommendations are not intended to be exhaustive, but rather illustrative of the tools needed to meet the minimum requirements to develop a flexible and adaptive service capable of serving a maximum number of patrons.

Photography/Imaging/Video Equipment

The essentials:

1. DSLR
2. 4 lenses
   a. Telephoto
   b. Macro
   c. Wide angle
   d. Fixed
3. Copy Stand
4. Miscellaneous
   a. Color Card
   b. Lighting Kit
   c. Light Meter
   d. Adobe Photoshop

DSLR (Digital Single Lens Reflective Camera)

Canon 5D Mark III DSLR: $3,000 (body only)
Alternate: Canon Rebel T4i STM kit: $900 (critical to choose STM version with 18-135mm lens)
Third option: Sony NEX hybrid series: $500-800.

Canon’s 5D is the SLR of choice for professional videographers, meaning it can do double duty for librarians interested in both imaging and video. Many libraries are pursuing iPads or hybrid cameras for video. However, they are severely limited in capacity and use by such choices; not only in terms of quality, but also in terms of possibilities. Since the goal of this paper is to allow
libraries to pursue flexibility and adaptability, a professional SLR is highly recommended. If the 5D is not possible, the Rebel T4i STM kit is an extremely versatile option with all the necessary features.

Lenses:

Canon EF or EF-S lenses

Canon lenses are extremely adaptable. EF and EF-S lenses fit both the Rebel and 5D, as well as Blackmagic cinema cameras. Rather than getting caught up in the various options, it is simply advisable to get lenses in four categories:

1. Telephoto
2. Macro
3. Wide Angle
4. Fixed

These represent the broadest categories of professional lenses in use. All four can be purchased for less than $1,000 combined. However, as library services’ and needs’ develop, future budgeting should incorporate the gradual purchasing of higher quality versions. Lens hoods and filters are optional but very affordable.

Copy Stand:

Copy stands are specialized tripods and can vary in price from $100-2,000 depending on various factors. Regardless, they are critical equipment for any library interested in harvesting fine arts from its community. They are preferable to scanners as they protect the integrity of the object being digitized.

The stand pictured here costs a few hundred dollars. It is not necessary to have the lighting directly attached to the stand, as the picture demonstrates. Indeed, for libraries interested in digitizing works of art too big to fit on the stand base a separate photographer’s lighting kit is necessary. In this instance, having a copy stand that allows the camera attachment to flip sides is extremely valuable since an oversized image can be placed on the floor, properly illuminated, and digitized.

Miscellaneous:

Color cards are critical for quality control, since they ensure color fidelity. They will also reassure critical patrons of the quality and accuracy of your work. They are relatively inexpensive and valuable additions. The color card should be photographed in at least one
shot of every digitized image to ensure fidelity. (See example to right)

Finally, a lighting kit and light meter are the last supplies needed to start digitizing. Two lights are minimum requirements. Although filters for the lights are not absolutely necessary, they come with many affordable kits. Low cost light meters are all that is needed as digitization is far more static and predictable than general photography. For libraries interested in developing broader services, higher quality equipment is advisable.

In terms of software, Adobe Photoshop is the only required program necessary, although a host of other options exist.

**Audio Production**

Audio production is both complex and simple. Capturing high quality audio is relatively affordable and easy; the production and subjective aspects are challenging. A studio can be built for a few thousand dollars or a hundred thousand, but the quality of the end product is not necessarily related to cost. Appendix B offers two different studio diagrams of ascending cost and complexity.

The most critical components in any audio set up are microphones, monitors, and a digital audio workstation (DAW). Quality microphones should be the top priority in any budget followed by monitors or speakers for checking the sound. After these aspects, opinions and options fragment into myriad possibilities. Rather than viewing this as a barrier, libraries should recognize this as an opportunity for scalability and adaptability. A DAW is the most complicated piece of equipment, because of its specialized nature. DAWs can be software based and usually include some device for controlling or modifying music input. This can be a mouse or a MIDI controller keyboard. MIDI is a well recognized standard and fairly affordable. The other standard specialized device musicians will expect is a mixer.

Regardless, of set-up, implementation and planning should take into consideration the following:

1. Percussion
2. Electric guitars
3. Sound isolation
4. Privacy

Practically speaking, these are the guiding and defining questions for libraries considering music production. If recording percussion and electric guitar is not feasible (as is probably the case for a vast majority of libraries), libraries should focus on acoustic and electronic music. Even small communities are filled with talented musicians, so such a limitation in no way limits a libraries access to quality content. A studio with these limitations will still have high demand and generate large amounts of content. There are also excellent software alternatives to live percussion and amps like Amp Farm and programmed drums, but many musicians will not use software. Musicians aversion to software alternatives is not simply subjective, since the difference in programmed drums is often perceptible even to casual listeners. However,
librarians will not be surprised to find that technology is changing music culture, and many musicians are coming to terms with the idea of programming drums. Librarians must respect the creative freedom of their patrons and offer them the best options possible.

Recording and production workflows vary depending on the skills of staff. 3-6 months per project is a reasonable assessment for libraries whose recording facility cannot operate during all operating hours. 2-4 songs recorded per day is a realistic goal, and libraries should plan for an increase in output as staff develops their skills and workflow. Setting up for recording can take a few hours or more, but once that is complete the actual recording process is quick. Mixing and mastering can take a day per song, but again this process picks up speed as staff learns the process.

More importantly, the above outline assumes the type of private and focused space found in other studios. Libraries are used to creating privacy in public spaces, but music studios strive for a deeper level of seclusion. While being public performers, musicians are accustomed to a quiet and focused environment for the production of their art. Music recording and production is a valuable marketing tool, but the problem here is one of scope and not kind. If libraries are to evolve into social organizations that capture and promote their communities’ social and artistic capital, recording sessions should be videotaped and archived. In this way, libraries can make short-term promotional use of this video, while ensuring long-term value and use should any of the content ever become genuinely valuable. Should the next PSY or Susan Boyle be discovered in a library, photographs and video of the original production would be invaluable assets. Such an approach balances the private needs of recording with the public need to remember and preserve.

Finally, it is advisable that any studio add some type of intermediary device between computer and audio source. A mixer or audio interface is the most common device that allows for management of audio sources and control. It is possible to go directly into a computer, but this arrangement decreases control of volume and quality and increases the post-production challenges. Protools and Logic both have virtual mixers, so librarians might be tempted to bypass a physical mixer, but controlling virtual mixers is not as linear or natural, which is why professionals still insist on a real mixer. Mixer prices can run from a few hundred dollars to thousands. Affordable ones are excellent, and in most situations can serve the needs of library studios.

**Video Production**

The essentials:

1. 2 DSLR cameras or other HD cameras with audio interface
2. Tripods
3. Universal audio adapter
   a. Audio cables
4. Shotgun Microphone
   a. Windsock
5. Optional microphones
   a. Wireless lavalier
b. Boom pole
6. Studio Headphones
7. Lighting kit
8. Adobe Premiere
9. Final Cut Pro

While the short list is relatively simple, the long version can be almost infinite. Stedicams, software, high-speed cameras, and a legion of other options can become a hindrance. It is critical that libraries follow a strategic plan that is actionable and sustainable. The above list is all that is necessary (aside from talent) to produce professional quality video.

DSLRs have gained acceptance in the industry. In fact, many documentary filmmakers prefer them for their versatility and portability. Canon has even begun solving some of the auto focus issues that hindered their entry level Rebel series. What is more important is to have two of the same models with the same lens, as video quality varies from model to model and lens to lens. While an iPhone (or iPad) may shoot HD in purely technical terms, it cannot match the quality of HD video a DSLR renders. By purchasing DSLRs libraries will have the ability to multitask at extremely high levels. If a DSLR is out of budget, a hybrid like the Sony NEX series is the most affordable option that can still provide the necessary functionality.

HD camera:$500-3,000

Without a good tripod the quality of camera purchased will not matter. This is because cheaper tripods pick up lots of ambient motion from whatever surface they are mounted on, resulting in shaky video. Picking a sturdy, solid tripod is critical. Second, consider whether peripheral attachment will ever be used. If so, purchase a tripod with a higher weight rating. Liquid tripod heads are superior, but not absolutely necessary.

Tripod: $200-1,000

Audio adapters have been developed in response to the popularity of DSLR and camcorders. Quality audio is one of the biggest challenges for amateur videographers, because DSLRs and camcorders cannot afford to build professional quality software and multiple channel audio inputs into their chassis. Audio is also extremely sensitive to ambient noise like wind, ventilation systems, etc. Audio adapters are small devices that screw in between (typically) the tripod and camera. They have multiple audio inputs and typically at least one output to the camera. They also allow for some of the manual control found in high-end video cameras.

Audio adapter: $200-400

Picking a microphone is more challenging and more important than picking a camera, because of a much wider disparity in quality for microphones than cameras. Shotgun microphones are large directional microphones that are very good at picking up sound from a distance. Their popularity stems from the fact that they can be used in a variety of situations. They can also attach directly to a camera or boom pole, directed in the general direction of the desired subject. Lavalier (lapel) microphones are unobtrusive mics that attach directly to a subject. They are excellent for
capturing a single subject. In most cases, it is advisable that libraries seek help in selection of microphones.

Mic: $100-3,000.

Studio headphones are necessary for monitoring audio in real time. As such, they are required for keeping audio levels within an acceptable range. Along with microphones, this is another component, where quality is key. Regular headphones may or may not work in a given situation. Quality, noise cancelling or noise reducing headphones are a necessary and important component for any videographer dependant on quality audio and vocals.

Headphones: $50-300

On the post-production side of video, two softwares dominate the market: Apple’s Final Cut Pro and Adobe Premiere. Although other options exist, libraries should only support one or both of these, as the vast majority of patrons will want to work with one of these two. Each has its strengths and weaknesses, but both are capable of professional editing and production. Final Cut is more of a complete solution, while Adobe has companion software needed for more versatile editing. If Premiere is the software of choice it is advisable to purchase it as part of the Master Collection in order to have access to Premiere’s full functionality.

Software:$400-1,000 (depending on number of licenses)

ePublishing

As a new development, epublishing is the least stable and most fragmented industry. Reading existing licenses and understanding the legal environment are essential.

Two formats dominate the industry: pdf and epub. Both can be produced from a variety of platforms. Adobe Creative Suite has the broadest and most adaptable production environment, and it can produce all major formats. However, smaller, applications like ecub and calibre can produce epub and mobi documents as well.

Since epublishing is software based and can be hosted on existing hardware, it requires less initial financial investment than any other content. Nevertheless the relatively low cost may be offset by staff time and involvement. As noted earlier, writing requires more time and effort than any of the other arts (with the possible exception of video). Any library embarking on such a project must carefully consider the amount of staff time involved. After all the writing and technical support, someone will have to read the books in order to assess them for the collection.

Software needs can be as simple as Microsoft Word and free epub software like calibre or ecub. On the more professional side, Adobe InDesign has developed excellent epub support with export to all major file types. Many other options like iBooks Author and Papyrus offer varying degrees of support and development between Word and InDesign. The major problem is picking something that will have longevity. eBook software is still in its early phases and subject to the
volatility that has characterized software development. Companies will come and go until a few achieve “lock in” and dominate the market.

Another consideration is audio ebooks. Audio production of this nature is relatively easy and accessible for libraries, as it does not require the large footprint or expensive buy in of music production. Moreover, current software allows for easy editing of pauses, stumbles, and errors. Libraries considering epublishing may want to think about publishing audio versions of the better works created in their studios.
Appendix A: Four Year Strategic Plan Outline

1. First fiscal year
   a. Imaging equipment and software
      i. DSLR (preferably one that shoots HD video at 24 or 30 frames per second)
         1. 50mm fixed lens
         2. Midgrade adjustable lens (35-120mm) or wide angle (18-35mm)
      ii. Copy stand
      iii. Color card
      iv. Lighting kit
      v. Adobe Photoshop
   b. Community outreach
      i. Arts Centers, galleries, arts groups
         1. Exchange quality digitization for circulation agreement
   c. Dedicate at least 1 professional staff member 10-20 hours a week
      i. Intern support from local institutions
   d. Photoshop training
      i. Lynda.com- subscription
      ii. YouTube- free
   e. Footprint
      i. Dedicate space- critical step
         1. Dependant on audio support choice
            a. Full band
               i. 400-800 sq. ft. minimum
               ii. High cost for sound proofing
               iii. Offsite location possible?
            b. 1-2 instruments
               i. 200-400 sq. ft.
      ii. Develop final plan layout for all content types library will support
         1. Power
            a. UPS (uninterrupted power supply) for rendering computer
         2. Sound
         3. HVAC
         4. Humidity sensor for instruments
         5. Time management- patron access, limits, hours open, etc
         6. Staff location

2. Second fiscal year
   a. Ebooks initiative
      i. ibooks author
      ii. Kindle support
      iii. Independent support
      iv. Calibre, other
      v. Epub support
   b. Community outreach
i. Local writing groups
ii. In library advertising and book clubs

c. Pick only 1-2 projects- keep it manageable
   i. Limit editorial support
   ii. Technical support
   iii. Marketing, uploading, distribution support
   iv. Agreement to donate copy of final product to library

d. Staff support can be from IT, Reference, Programming, or combination

e. Audio and video preparation (soft launch for training and learning)
   i. Purchase software
      1. Apple software and hardware
         a. Macbook, iMac, or Mac Pro.
            i. Logic
            ii. Soundtrack
            iii. Final Cut
      2. General software
         a. Protools
         b. Adobe CS Master edition (focus on 3 programs below)
            i. Premiere
            ii. After Effects
            iii. Audition
   ii. Staff training and preparation
      1. Focus on basic programs
         a. Audio
            i. Logic
            ii. Protools
         b. Video
            i. Final Cut
            ii. Premiere
      2. Tutorials
         a. Lynda.com- subscription
         b. YouTube- free
      3. Preferably 1 staff for video, 1 for audio
         a. Use DSLR from previous year to shoot video for training
            i. Purchase shotgun mic with windsock for better audio
         b. Use built-in audio tracks or creative commons content for audio training
      4. Formats
         a. Staff must learn basics of audio and video formats
         b. Free web trainings are good and accurate (Youtube, Vimeo, etc)
      5. Community Outreach
         a. Find community members and institutions who can support
            i. Maker in Residence
            ii. Interns
3. Third Year - choose hard launch of audio or video
   a. Base choice on demographic plus community analysis
   b. Purchase audio/video equipment
      i. Extra DSLR
      ii. Audio production equipment (see attached studio diagram)
         1. Purchase core equipment if too costly (save rest for fourth year)
   c. 1-2 projects max
      i. Studio album in 6 months is ambitious
      ii. 10-20 minute video can take 3-12 months in library environment
         1. Time depends on special effects
            a. Motion graphics
            b. Animations
            c. Other.
               i. All heavily increase length of time
   d. Time allotment is hardest to predict at this stage
      i. Staff support will begin to strain traditional roles and time management
      ii. Bring in community support developed in year 2.

4. Fourth year
   a. Launch audio/video support if feasible
      i. Purchase final equipment
   b. Develop refresh schedule and budget
      i. Staff now has knowledge, expertise, and experience
   c. Focus on harvesting quality content
   d. Expansion plans can be developed
Appendix B: Music Studio Diagrams

Diagram 1
Simplest recording set up

Audio Source          Computer

Many libraries are pursuing this type of studio. The problem is that computers are not configured for multiple audio sources, limiting user control of the audio. Usually, different sources (vocal, guitar, bass) must be recorded separately, which makes production even more complicated, since the volume and background noise will vary. This type of audio production should only be used for audio books and others similar projects, but even in those situations it is better to use a DAW and monitor headphones for quality control (See diagram 2).
Diagram 2
Basic recording studio

This diagram shows a basic, but functional studio. The two most critical elements are the Digital Audio Workstation (DAW) and monitor speakers, as those devices allow for control of audio levels and quality. As mentioned previously, good microphones are also critical. Any library considering music production should invest in a set up along these lines. Monitor headphones (not pictured) are also valuable additions. The good news is that DAWs and monitors are affordable and accessible. Prices can vary. The most critical question is how many simultaneous audio channels can be captured.

In most cases, MIDI controllers and other equipment can be added to existing equipment, but it is critical to consider future growth and development prior to purchase.
Appendix C: Library Maker Pioneers

*This is not intended as an authoritative list, but rather a sample of libraries pursuing new and interesting developments. The benefit and challenge of technology is that it has allowed librarians all over the country to experiment. This short list is intended to offer ideas and examples.

**Fayetteville Maker Spaces.** Fayetteville Free Library, Fayetteville, New York. Credited with developing the first library Maker Space.

**LibraryYOU: Sharing Local Knowledge.** Escondido Public Library. Escondido, CA. Video and Podcast collection of local knowledge.

**Westport Public Library Maker Space.** Westport, CT. Innovative work with “Maker-in-Residence” program.

**TechCentral.** Cleveland Public Library. Cleveland, OH. Developed MyCloud for personalized patron computing experience among other Maker type innovations.

**PPLD TV.** Pikes Peak Public Library District. Colorado Springs, CO. Full production studio with local cable channel.

**Provincetown Public Press.** Provincetown Public Library. Provincetown, MA. Publishing venture.
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http://www.westportlibrary.org/services/maker-space Westport Library info page


Makezine. Online community (nonlibrary) of maker space groups. Blog and online zine.

McCue, T.J. First Public Library to Create a Maker Space. Forbes. 11/15/2011.


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Reporting to the Digital Content Manager, you will produce content daily across our websites and social media channels. This will mainly involve the creation of website articles (with supporting graphics), but also includes video, photos, graphics and audio. Digital Content Producer: Desired Skills and Experience. 3 years experience producing web and social media content. Digital Content Producer Salary. The salary will vary based on experience, qualifications and location. One could probably expect to pay full-time candidates $35,000pa to $65,000pa in a big, expensive city such as Sydney. Please check the awards in your local area. Digital Content Producer: Responsibilities. Digital Content Producer: Desired Skills and Experience. The primary Sketchup Content Developer in Northwest Colorado. We provide 3D design services including development of dynamic components for manufacturers and also provide a wide range of IT services to industry, government, and the non-profit sector. Our work is guaranteed, and you are doing business with a Veteran owned organization.