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(R)Evolution in the Information Industry: What the Information Industry Can Learn from the Music Industry

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Abstract:

A failure to adapt to and adopt new and changing technology caused the music industry to crash, a fate that the information industry currently faces. This paper is an overview of the music industry's crash, as a result of emerging digital technology, and the lessons that the information industry can learn from the music industry's mistakes in order to avoid its own crash now that technology allows for quicker, easier, and cheaper publication. In the 1980s and 1990s record companies refused to effectively adapt to and adopt the new digital technologies of CDs, MP3s, and digital recording. This resulted in a slow downward spiral toward the demise of major record companies. Though the music industry has recently embraced digital technologies and is trying desperately to catch up, it is much too late for them to return to their former power and economic status.

Today the information industry (including publishers, vendors, libraries and universities) faces a similar struggle with new digital technologies, especially institutional and digital repositories, which could result in publishers and vendors facing the same fate as record companies. This paper will give an overview of both industries as well as the mistakes which the music industry could have avoided and that the information industry should take as cautionary tales. It will also look at potential solutions, or ways to circumvent the music industry's mistakes and consider the future of publishing, vendors, libraries, universities, and institutional repositories and offer ideas for the success of the information industry as a whole.

Why is the analogy, the connection, between the music and information industries important? Because it just might save the information industry.¹ It is important to note that I am not trying to be an alarmist. The sky is not necessarily falling, but conditions are ripe for change in the information industry *now*. We are on a precipice, what Andrew S. Grove calls a “strategic inflection point,” or the “time in the life of a business when its fundamentals are about to change. That change can mean an opportunity to rise to new heights. But it may just as likely signal the beginning of the end” (Grove 3). Significantly, Grove notes that, “strategic inflection points can be caused by technological change, but they are more than technological change” (Grove 4). The funny thing about strategic inflection points is that they are very difficult to predict, but quite easy to identify in retrospect (Grove 32-35). So it is rather easy to look back at the music industry in the late 1990s and identify that time as its strategic inflection point, caused by technology,² and that it signaled the beginning of the end for the music business, because “a strategic inflection point can be deadly when unattended to. Companies that decline as a result of its changes rarely recover their previous greatness” (Grove 4). It is my hope that, because of the similarities between the two industries, in looking at the music industry’s crisis and fall we can better predict the information industry’s own technology based strategic inflection point and use it as an opportunity to rise to new heights.

The music industry and the information industry are uniquely connected as sub-industries of the larger entertainment industry. They are perhaps the only two industries which rely on obtaining the

¹ The information industry is perhaps difficult to define, yet to say publishing industry is misleading. The information industry certainly includes the publishing industry, but it also includes database vendors, libraries and universities. It also necessarily contains some elements of the technology industry. It may be useful, however, to note that this paper concerns itself primarily with the scholarly communication sector, scholarly journals in particular, of the information industry. However, this sector surely is not isolated in the issues it faces. Many of the technological challenges it faces also affect the larger publishing and information industries, hence the inclusive terminology.

² Technology has been around forever. Books were once a technology, an improvement over scrolls. However, for this paper technology primarily means digital technologies, those technologies surrounding computers and the internet, or what Chris Anderson calls the “bits economy” in his second book Free : The Future of a Radical Price (New York: Hyperion, 2009).

rights to other people's intellectual property to make a profit.³ Indeed, the term copyright originated from the printed form and was translated, in a way, for use in the music business with recorded performances and sheet music (Krasilovsky et al. 433). It is perhaps ironic then that the music industry eclipsed the information industry in success and that its fall should now serve as an example for its ancestor. Aside from shared copyright roots, the products of both industries share similar attributes, the industries themselves share similar structures, and their production processes are similar.

Indeed both industries produce a fixed copy of an intangible idea.⁴ The music industry, or more precisely record companies, produces albums. An album generally contains several songs by the same artist, unless of course it is a compilation album in which case the songs are by several different artists and generally arranged around a theme. The information industry produces information, primarily printed information (though this is changing) in the form of books and journals. Generally, books contain chapters written by the same author. Sometimes books, like compilation albums, are a collection of chapters or essays written by several different authors on a particular theme. Journals are also a collection of writings, articles in most cases, by different authors on a particular topic. Both industries have a similar set of players in the creation of these tangible items. The players may have slightly different names, but their functions are similar. Artists and authors both create the parts that make up the products. Publishers and record companies accumulate the parts and make a compilation. Publishing houses, editors, studios and producers help shape those compilations. Printers and

³ This is not entirely true, but they may be considered the original two. It can be argued that all of the industries protected by copyright (art, architecture, drama, dance, music, movies, videos, works of literature, and in this new technological age "code") make a profit by obtaining the rights to others' intellectual property. However, most movies start as either a script or a story board or both and so I would argue that they begin as works of literature and/or art. Music derived its copyright from writing. Protecting copies of written works was the origin of copyright. Monks had been making copies by hand from manuscripts for years, but it was the invention of the printing press that served as the impetus for creating a law regarding making copies of intellectual works. For more on the history of copyright see Alex Guindon, "A Very Short History of Copyright: Adopting the User's Perspective," The Canadian Journal of Information and Library Science. 30.3/4 (2006).

⁴ It is worth noting that copyright does not protect ideas, but the expression of them. For a good review of copyright law see chapter five of Heather Morrison, Scholarly Communications for Librarians (Oxford: Chandos, 2009).

distributors create copies of the compilations to send out into the world. Vendors, book sellers, radio and record stores then deliver the final product to the consumer.

The creation of albums begins with an artist, often also the songwriter, who tries to get a deal with a record company. The record company gives the artist an advance to make the record and sends him or her off to the studio to record the songs for the album (this too is changing). The advance is usually some portion of what the record company expects the album to make in profit. As additional compensation the artist will receive a small percentage of the profit from each album sold, known as a royalty. Once the artist has recorded all the songs, the studio returns the recordings to the record company who sends them out for mastering. Once the album has been mastered it is ready to be mass produced and distributed. Record companies then send copies of albums to radios stations, record stores, and online distributors.⁵

The creation of books or journals begins with authors, generally faculty or researchers (at least in scholarly publications, which is the focus for this paper). Authors, usually in pursuit of tenure,⁶ submit their articles to journal publishers. Journals generally then send the articles out to be blind peer reviewed, or at the very least send them to an editor or editorial board. The article then returns to the author for revisions based on the review. When the final article is accepted for publication, the journal publisher will format it and include it in an upcoming issue of the journal. The journal is then mass produced and distributed to libraries, bookstores, and the like (see Figure 1: Pre-Technology). It is worth noting that unlike the music industry where record companies pay artists, in the scholarly publishing world no money changes hands between journal publishers and authors. Scholars freely give away their

⁵ This is grossly over simplified for the purposes of illustration and discussion in this paper. There are actually many different payment models within the music industry. There are many excellent texts that explain the intricacies of the music business. See M. William Krasilovsky, Sidney Shemel, John M. Gross and Jonathan Feinstein, [This Business of Music : The Definitive Guide to the Music Industry](#) (New York: Billboard Books, 2007) or Steve R. Gordon, [The Future of the Music Business : How to Succeed with the New Digital Technologies : A Guide for Artists and Entrepreneurs](#) (San Francisco: Backbeat Books, 2005).

⁶ The tenure debate is a problem of its own, but one that exacerbates the digital publishing question at hand because universities have yet to find an effective model for evaluating digital scholarship and publication as part of the tenure granting process.

intellectual property in the hopes of one day gaining tenure. Likewise, there is little cost associated with peer review, unlike studio costs, because reviewers generally do not receive compensation.⁷ Thus universities end up paying for information multiple times: first to create it, then to buy it back in the form of journals, books and databases. This is one crux of the impending crisis, to which we will return later.

These are descriptions of the processes before digital technologies were available and prevalent (which we call Pre-Technology) and the processes were both expensive and time consuming. However, technology has changed these processes initially complicating them and eventually simplifying them as well as reducing production costs. In the short term, technological advances have added steps to each process (see Figure 2: Post-Technology Short-Term). Both industries had to add digital conversion to the end of the processes. This meant converting previously analog content to a digital format for further distribution. The music industry started this with CD production in the 1980s and much later when it started offering MP3s. The information industry started it when it began offering full text through databases. In the long term, technological advances have actually simplified the process, eliminated the middle man, and reduced the cost (see Figure 3: Post-Technology Long-Term). Today because of the power and relatively low cost of personal computers, artists can record their own album in a home studio in a fraction of the time and at a fraction of the cost that they used to pay to produce albums in a studio⁸ without having to sell the rights to their works for pittance.⁹ They can then distribute the album or single songs cheaply, or freely, via the internet or other computer networks (Krasilovsky et al. 417).

Similarly, we are approaching an era when the same will be true for scholarly journals and articles. The

⁷ Today at least there is not. At one time, there were printing and shipping costs associated with delivering manuscripts to reviewers, but today it is done digitally.

⁸ Production costs for an album routinely amount to thousands, if not millions, of dollars (\$80,000 was a norm in the late 1990s) for professional production in a studio. By 2007, an artist could produce a professional quality album on his or her computer for around \$2,000 (Krasilovsky et al. 417).

⁹ The current rate for mechanical royalties, the amount the songwriter receives per song per album, for a song running less than five minutes is \$0.085 (Gordon 5). So an artist who wrote (without a co-writer) every song on a CD containing ten songs, will earn \$0.85 per album sold. The record company keeps the rest of the wholesale price to make a profit and “recoup” their initial investment from the advance paid to artists to make the album.

technology exists, in the form of institutional and digital repositories, PDF files, ebooks and print on demand technology, to cheaply or freely create and distribute scholarly articles without the publisher middle man. The music industry, specifically record companies, misemployed and ignored emerging technologies, particularly CDs, and refused for years to believe that MP3s and P2P (peer to peer file sharing networks) would become a viable schema for delivering music; as a result, they missed the opportunity to rise to new heights on the peak of their strategic inflection point. These are the lessons from which the information industry needs to learn.

The music business declined because of a series of mistakes and mishandlings. According to RIAA, the Recording Industry Association of America, income and sales reports, music industry revenues over the last eight years have declined twenty-five percent (Gordon 117). More importantly, according to the RIAA's "2008 Consumer Profile," physical sales dropped from \$14.5 billion in 1999 to \$8.5 billion in 2008, by my calculation, a nearly forty-two percent loss in roughly a decade (RIAA). It is difficult to say if any single mistake caused the collapse, but taken in series the mistakes created a perfect storm that capsized the industry.¹⁰ These mistakes included:

- A shift from culture to commerce
- The slow and ineffective adaptation to and implementation of technology
- A failure to foresee and adapt to new consumers changed by technology, called digital natives¹¹

¹⁰ There are a number of good books available on this topic, including: Steve Knopper, [Appetite for Self-Destruction : The Spectacular Crash of the Record Industry in the Digital Age](#) (New York: Free Press, 2009), Greg Kot, [Ripped : How the Wired Generation Revolutionized Music](#) (New York: Scribner, 2009), Bruce Haring, [Beyond the Charts : Mp3 and the Digital Music Revolution](#) (Los Angeles, CA: JM Northern Media LLC, 2000), and David Kusek, Gerd Leonhard and Susan Gedutis Lindsay, [The Future of Music : Manifesto for the Digital Music Revolution](#) (Boston: Berklee Press, 2005).

¹¹ Digital natives are all born after 1980 and only know a digital world. For more on digital natives and their impact on the music business (among other things) see John G. Palfrey and Urs Gasser, [Born Digital : Understanding the First Generation of Digital Natives](#) (New York: Basic Books, 2008).

Like most of the modern world, the music business has transformed from a cultural model to one of commerce. Music started out as an art – a cultural good – but slowly became a business and came to focus on profit rather than art (Kirk et al.). The music business's first mistake was consolidation into corporations, frequently corporations that knew nothing of music. Until the late 1970s the music business had consisted of numerous independent labels. With a down economy these labels began to merge and be acquired by larger companies. Consolidation continued into the 1990s until there were eventually only a few record labels that were in turn owned by larger corporations like Sony or investment companies. These larger corporations cared more about profit, their bottom lines, than the art being created and suddenly the industry began to change (Kot 5-12; Knopper 1-14; Kirk et al.). This led indirectly, and much later, to its second mistake: the hiring of “no talent talent.” This is to say that the industry stopped investing in talented artists who produced quality music but did not necessarily have the right image or mega-star potential. The result was explosively successful artists who may only have one good song on an album (Knopper 80-104; Kirk et al.). Effectively, the industry started producing more of less instead of less of more;¹² rather, they chose quantity over quality.

The desire for more profit also caused the death of the single. For years singles, in the form of 45 rpm records, had been very successful ways of promoting album sales. However, in the late 1980s and early 1990s with the success of the new compact disc format, the cost of producing singles, in various formats, was much higher than the profit they generated. So the industry stopped selling singles. The death of the single combined with the growing numbers of “no talent talent” forced consumers to pay \$15-\$20 for a CD that usually only contained one or two songs they actually wanted to own, which as one might imagine did not make for happy consumers (Knopper 105-06).

While the corporate run music industry was focusing on the bottom line it turned a blind eye to technology. Dealing with changing technology is nothing new to the music business. It has been more or

¹² This is important because the future of the music industry today is “less of more,” as Anderson outlines in [The Long Tail](#).

less successfully navigating the technology waters since Edison invented cylinder recording. It successfully implemented LPs in the form of the 78 rpm and 33 rpm record and singles in the form of 45 rpm records. Eight-tracks and cassette tapes also had limited runs as successful recording formats, though cassettes were the primary recording technology when the music business experienced a depression in the 1970s (Krasilovsky et al. 5). It was the invention of the compact disc and digital recording that started the beginning of the end. The CD was the first digital product delivered to consumers in the mid 1980s, and it was a huge success. CDs promised a better quality recording, a loss-less recording, that would last longer than any of the previous technologies. By the late 1990s CDs were the dominant format for recorded music (Krasilovsky et al. 5-6). The first problem the music industry encountered with CDs was that the economic boom that CD sales created was a false one. While some new music was released on CD, as well as other formats, the bulk of CD sales came from people replacing their LPs with CDs. The music industry relied on repackaging old content rather than creating new revenue streams (Knopper 34-35; Krasilovsky et al. 419). The second problem was that CDs combined with advances in home computing made music much easier to pirate.

While the music industry was still enjoying the success of CDs, technology was growing at an exponential rate.¹³ The “technology triple play: processors, bandwidth, and storage,” along with networks and file compression (primarily the MP3 standard) became cheaply and readily available to most of the consumer market¹⁴ (Anderson *Free : The Future of a Radical Price* 13). Starting with Napster in the late 1990s, music consumers, notably digital natives, were suddenly able to share songs they had ripped, or copied, from CDs with each other via the internet. Through P2P networks, consumers shared songs without experiencing the loss in sound quality they formerly had with cassette tapes (Krasilovsky

¹³ The general rule of thumb about technology’s rate of growth is based on Moore’s Law and says that technology capacity doubles every two years in effect halving the price. See Chris Anderson, *Free : The Future of a Radical Price* (New York: Hyperion, 2009). 13, 77, 82-84.

¹⁴ Only most of the consumer market because the digital divide, or rather the economic divide which prevents the poorest from acquiring and accessing digital technologies, has always and will always exist, and whether we think of it or not, those who have access to digital technologies, personal computing, and the like are privileged.

et al. 419-23; Knopper 113-49). The music industry's initial response to MP3 and P2P technologies was a dismissive one (Haring 111-12). When it became clear that MP3 and P2P were successful technologies (partly because consumers could once again – finally for digital natives – get a single instead of the whole CD), the music industry's response was to explore ways to stop consumers from making multiple copies of CDs and sharing them; what would become DRM, digital rights management (Knopper 150-56, 222-28, 29-33). When the music industry's attempts at DRM failed and P2P networks became rampant, the music industry, through the RIAA, began suing P2P network entrepreneurs and their consumers for copyright infringement¹⁵ (Knopper 183-89). In the meantime, technology companies like Apple developed better and legal digital music services.

In addition to the dismissal of new technologies the music industry also failed to foresee and adapt to a new customer forever changed by technology, namely, the digital native. Digital natives only know digital music and they want it delivered to them now, online, and for free! They want to remix and edit it, combine it with other media (called mash-up), and share it with friends over the internet (Palfrey and Gasser 131-33). Digital natives in large part do not consider sharing ripped CDs stealing. They have a difficult time understanding the concept of intellectual property rights. Others know that it is considered stealing and illegal, but either do not care or chose to do it anyway because they believe it should be legal and free (Palfrey and Gasser 135-39; Kot 40, 68, 131, 200).

On top of the shift from culture to commerce, the music industry's slow and ineffective adoption and adaptation of new technology and alienation of their customer base were the proverbial nails in the coffin. Not only did the music industry lose out on new revenue streams from digital music, but by alienating its consumer base it alienated future, and some current, artists. Digital recording

¹⁵ For more detail on the P2P lawsuits see Kot, [Ripped : How the Wired Generation Revolutionized Music](#), Krasilovsky, Shemel, Gross and Feinstein, [This Business of Music : The Definitive Guide to the Music Industry](#), Knopper, [Appetite for Self-Destruction : The Spectacular Crash of the Record Industry in the Digital Age](#), and Gordon, [The Future of the Music Business : How to Succeed with the New Digital Technologies : A Guide for Artists and Entrepreneurs](#).

technology had advanced to the point that these alienated artists could create and distribute their own music without using record companies and they began to do so.¹⁶ As a result the music industry has had to find new ways to make a profit after missing several opportunities. Several models are on the horizon,¹⁷ but the most common is the 360 degree deal whereby instead of acquiring an artist's copyright and making profit off record sales, the record company gets a percentage of the artist's total profits from touring, performances, merchandising, and publishing (Gordon 12-13). Some artists are also releasing their music under a creative commons¹⁸ license to facilitate remixing, a new art form for a new generation (Lessig 15-17). Another profitable new revenue model for the music business has been in the ringtone market for cell phones (Knopper 233-37). Today the music industry is changed. The music industry once referred solely to record labels; today the music industry is much more diverse, including partnerships with MP3 player manufactures and cell phone carriers, because it has to be if it wants to survive.

If we think about the similarities between the music and information industries, some of the mistakes the music industry made will begin to sound familiar. While the information industry may not be headed for the perfect storm and capsizing, we are at the very least headed for a significant change in the information industry of the future. Some of the issues the information industry finds itself facing look remarkably like the mistakes of the music business:

- A shift from culture to commerce
- The slow and ineffective adaptation to and implementation of technology

¹⁶ One of the first examples of an artist circumventing the record companies to exploit digital technologies is Radiohead's now famous In Rainbows album. For details see Anderson, Free : The Future of a Radical Price. 153-154 and Knopper, Appetite for Self-Destruction : The Spectacular Crash of the Record Industry in the Digital Age. 244-245.

¹⁷ For more on the different proposed models see chapters nine, fourteen, fifteen, and sixteen of Gordon, The Future of the Music Business : How to Succeed with the New Digital Technologies : A Guide for Artists and Entrepreneurs.

¹⁸ For a good explanation of creative commons licensing and a primer on copyright law see chapter five of Morrison, Scholarly Communications for Librarians.

- A slow adaption to new consumers changed by technology, called digital natives

Like the music industry and the rest of the world, the information industry has transformed from a cultural model to one of commerce. Scholarly communication, indeed most written word, started out as the fulfillment of a need for communication, for learning – a cultural good – but over time has become a business and become profit driven. Scholarly communication and journals started in Europe in the seventeenth century. As education systems grew scholars needed to communicate their findings with each other; so their letters and notes eventually morphed into journals (Tenopir and King 17-18, 55). As universities grew so did the scholarly publishing industry and both became more bottom line than education focused (*Waters Enemies of Promise : Publishing, Perishing, and the Eclipse of Scholarship* 5-6). Like the music industry, the information industry's first mistake was consolidation into corporations, frequently corporations or investment companies that knew nothing of scholarly publishing. For the last decade or so the information industry, especially academic libraries, has been experiencing a "serials crisis."¹⁹ Some argue the serials crisis is a result of mass mergers while others call it a mere coincidence.²⁰ What is certain is that we have gone from thousands of independent publishers to a few corporation run publishers who dominate the industry and may or may not have leadership with knowledge of and interest in the information industry (McGuigan and Russell; Greco ix). Journal prices have increased exponentially while library budgets stagnate or, more recently, decline (Bergman 109). The combination of universities and scholarly journals transforming into businesses and the "publish or perish" model for faculty has resulted in the death of scholarship. Formerly, the brightest and best scholars earned publication in academic journals. Now, however, every graduate student who

¹⁹ In truth the "serials crisis" has been around for decades, at least since the 1970s. For details see National Enquiry into Scholarly Communication and American Council of Learned Societies, Scholarly Communication : The Report of the National Enquiry (Baltimore: Johns Hopkins University Press, 1979).

²⁰ See the "Handling Medusa" sections of Against the Grain, edited by Linda Defendeifer, for September and November 1999 for both sides of this argument: Mark J. McCabe, "The Impact of Publisher Mergers on Journal Prices: An Update," Against the Grain 11.4 (1999). And John Cox, "Mergers in Publishing: Do They Matter?," Against the Grain 11.5 (1999).

wants to remain in research or academia is expected to have a publication, and not just one, but an ongoing series of publications. The pressure is particularly strong for those who wish to earn promotion and tenure, which is to say, remain employed. The result is a market place flooded with journal articles and scholarly books, many of which are not quality scholarship (Savage 2-5).

While the music industry turned a blind eye to technology, the information industry has merely turned one eye toward it. The information industry is aware of technology, but behind the pace of it. It too has fallen into the repackaging trap. Ebooks are the publishing industry's CDs: an incompletely exploited opportunity. For the first several years that ebook technology existed publishers merely repackaged old materials and libraries replaced physical collections with digital ones, often replacing content the libraries owned outright with essentially rented content. Though information publishers and vendors were fairly quick to add full text to databases it frequently comes with a time lag that makes the digital version less useful than the paper version, forcing libraries to buy both. Most recently publishers have refused to fully cooperate with new technologies like institutional repositories and open access publishing – understandably so, because they would lose significant profits. If publishers continue to do so, however, they will have underestimated and failed to adapt to their new technology changed consumer – the digital natives. The digital natives have arrived and they are not just students anymore. The same users, who a decade ago began the collapse of the music industry, are moving into faculty positions and they want their information now, online and free!

While universities have not yet been completely overtaken by digital natives, that time is coming: the tide has forever changed. The information industry needs to pay attention to the new technology dependent user and new technologies that are affordable and pervasive; technologies that allow universities to become publishers and to cut out the middle men. Chris Anderson in *The Long Tail* says, "When you can dramatically lower the costs of connecting supply and demand, it changes not just the numbers, but the entire nature of the market" (*The Long Tail : Why the Future of Business Is Selling*

Less of More 26). The reality is that faculty are the supply and the demand (McGuigan and Russell). For years there have been multiple middle men – universities, publishers and libraries – connecting the supply of scholarly authors to the demand by faculty for scholarly communication. Publishers held this position for so long because they had capital enough to afford access to the expensive technology required for producing publications.

Today, the university, through institutional repository technology like D-Space and Bepress's *Digital Commons* can be the entity supporting producers and consumers directly connecting supply to demand; in other words, a self-sustaining model. These technologies are relatively inexpensive and often operated jointly by the university and the library. In addition to inexpensive, or free, publishing of journals and articles (which can continue to be peer-reviewed) institutional repositories provide an opportunity to capture new kinds of information, from data sets to gray literature; information traditional publishers do not wish to publish. This means long tail economics has arrived for scholarly publishing. If large publishers want to continue to stay in the business they will need to find new ways to do so: new ways to add value.²¹ Much like the alienated music consumers, scholars can produce and distribute their work quickly and cheaply across all geographies without the corporate middle men because of advances in digital technologies. Moving to open access makes sense for researchers and scholars, as well as universities and libraries, since open access gives faculty and researchers a quality place to publish the research they do (the research they actually want to do) and saves universities and libraries money. Open access through institutional repositories can expand niche research markets by providing a place where other researchers with similar interests, no matter how obscure, can find

²¹ It's time publishers and vendors add real value to scholarly communication. Publishers like Elsevier have argued for years that they add value to the information faculty create through the process of peer review, typesetting and the like; however, many are skeptical of this statement including Deutsche Bank who in an equity report claimed that Elsevier "adds relatively little value to the publishing process...if the process really were as complex, costly and value-added as the publishers protest that it is, 40% margins wouldn't be available," quoted in Glenn S. McGuigan and Robert D. Russell, "The Business of Academic Publishing: A Strategic Analysis of the Academic Journal Publishing Industry and Its Impact on the Future of Scholarly Publishing," *Electronic Journal of Academic & Special Librarianship* 9 (2008), <http://southernlibrarianship.icaap.org/content/v09n03/mcguigan_g01.html>.

research that interests them; which is to say, it opens up fields of research and allows researchers to discover and explore much more of our world and reality. Niche markets, niche journals and niche research, will explode in the near future because the future is less of more. Niche journals will fuel more niche research, and they will, in fact, follow Say's Law: supply will create its own demand (Anderson *Free : The Future of a Radical Price* 93).

If long tail economics is right and the future is selling less of more (which so far the online music industry has proven) then digital open access for scholarly communications is the business model that makes most sense (Anderson *The Long Tail : Why the Future of Business Is Selling Less of More* 19-25). The serials crisis cannot continue to exist for the next four decades – libraries and universities are at their breaking points. In the current economic crisis everyone is looking for better return on investments, particularly universities and libraries that can no longer afford to pay for the same content repeatedly. More importantly, libraries and universities are now full of digital natives who play by their own rules, legal or not.

It is time for revolution and evolution in the information industry – in universities, publishing and libraries – and “it’s upon the shoulders of the insiders that the duty to speak up [and to act] falls first” (Waters *Enemies of Promise : Publishing, Perishing, and the Eclipse of Scholarship* 4). Open access and institutional repositories may be the answer, but it will take compromise from *all* the players.

Universities need to revamp promotion and tenure processes to include ways for evaluating digital scholarship on the same level as print scholarship and perhaps to reconsider the tenure system altogether. Only when faculty are certain that their digital creations will be evaluated equally with their print cousins in their tenure portfolios will they feel comfortable placing their research in digital journals and institutional repositories instead of signing over their author rights to prestigious publishing companies. Furthermore, tenure used to serve a purpose – insuring academic freedom – but today the protection it once provided may not be as necessary as it once was. If anything, authors need the

freedom and protection tenure provides before they get tenured. Under today's system, faculty must publish or perish and in the process create scholarship that may, or may not, interest them; may, or may not, be good; and then spend a great deal of time trying to get it accepted to the right publisher in the hope that tenure committees will see their work favorably. As Lindsay Waters states, "When we scholars defer to the demands of administrators and the procedures of scholarly publishers, as when we outsource tenure decisions, we betray a craven attitude to authority that does not become us" (Waters "Scholarship and Silence" 32).

Publishers and vendors need to take lessons from the record companies – become familiar with the digital natives and their desires and limits *before* it is too late. Face the possible reality that open access may be the future and that they need to find new profit models like the music industry's move to 360 degree deals and ringtones. Perhaps this means publishers will no longer make their biggest profit from obtaining copyrights from authors, but rather finding ways to provide better access to freely available content – content originating in digital journals and digital libraries. One opportunity lays in the creation of metadata and cross searching capabilities in relation to the long tail. Frequently the metadata created when an item is added to a digital library is not what the library world expects. It is often less standardized, tagging or Dublin core, which is fine for the short term. The information item is quickly available, because it does not spend so much time in cataloging, while still discoverable. But for the long term – the long tail – publishers and vendors could create better, more standardized metadata to be included in databases, catalogs and finding aids like WorldCat. Another opportunity exists in publishers and vendors finding new ways to package freely available content that saves the time of the user. Anderson's two books are a great example of this. Most of the content of *The Long Tail* and *Free* was available freely online before the publication of the book. Interested readers can still go to his blog and find chapters, but that takes time and effort. Readers can save it to a flash drive or print it out. Then they will have a bunch of files or loose leaf pages in a folder. If they want to save time and like the added

value of having it all bound together in a nice form, then they can simply buy the book, paper, electronic or audio. In addition to repackaging content to save a reader's time and effort, perhaps publishers will find another opportunity in culling together the best content from each niche research pool and offering it as a collection in various formats.

Opportunities abound in this new free economy.²² Perhaps by making it cheap and easy to publish everything, and allowing the information industry to develop ways to navigate and consolidate that information, we will free ourselves to rediscover quality scholarship and awaken a sleeping beauty. This is certain: we cannot go backward. This is our strategic inflection point. Like the indie musicians who took recording and distribution into their own hands, the scholars have spoken. Last February Harvard scholars voted *unanimously* in favor of open access, and they are just the first wave of a rising tide (Van Orsdel and Born 53-54). Eventually, as in all things, the information industry, researchers, scholars, publishers, universities, and libraries, will find equilibrium – a balance – and a new system that works for everyone. We need only to look to the success of iTunes, Rhapsody and ringtones and the decline of Napster, Kazaa, and traditional CD sales to see the logical result. Perhaps someday, we will all settle for a smaller piece of the pie in order to sit at the table at all.

²² For more on the free economy, or “freeconomics,” see Anderson, [Free : The Future of a Radical Price](#).

Figure 1:

Pre-Technology

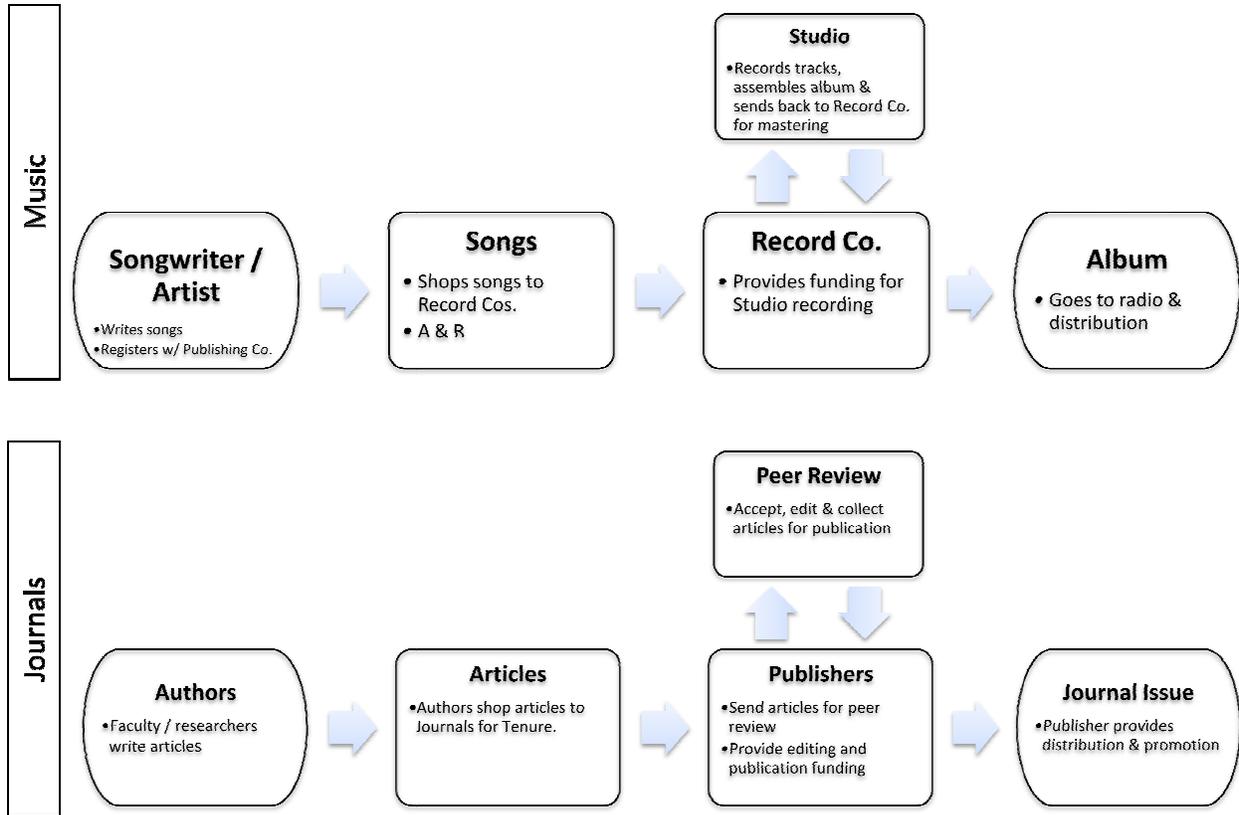


Figure 2:

Post-Technology Short-Term

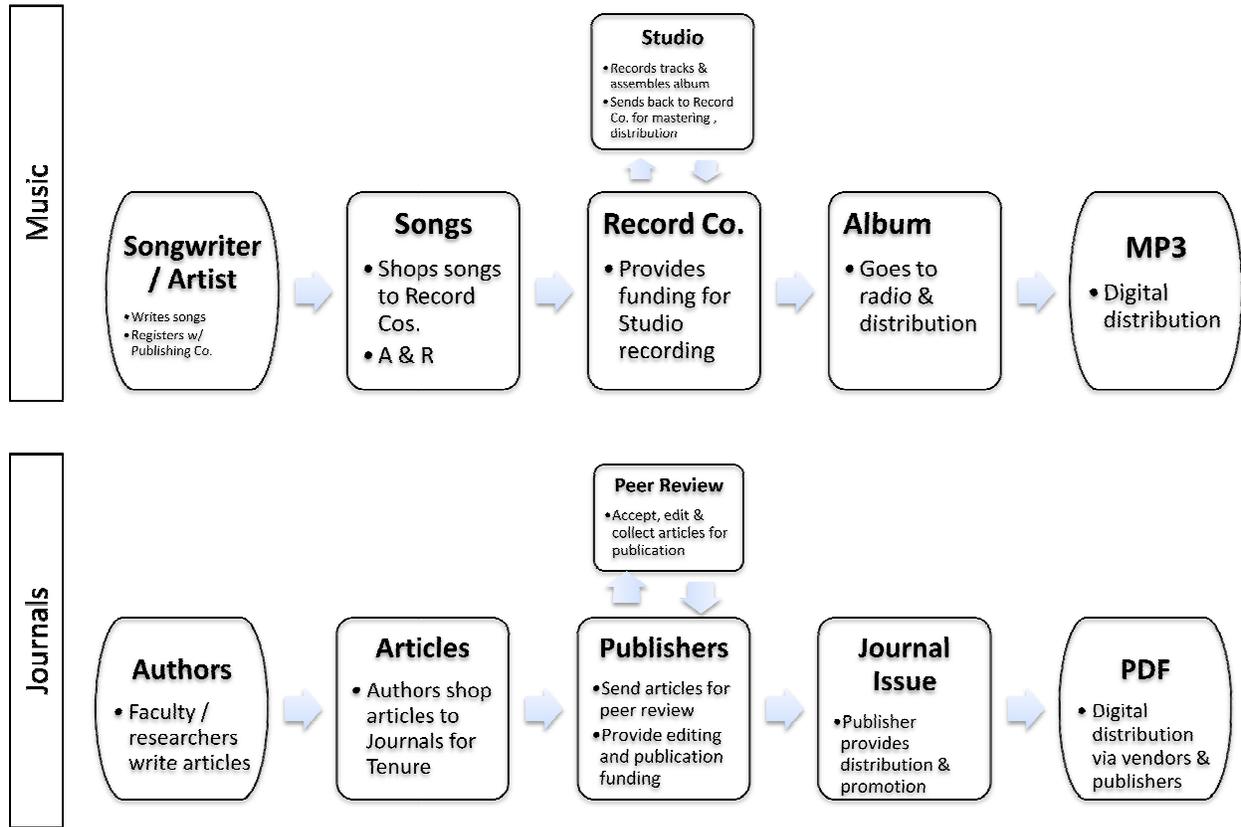
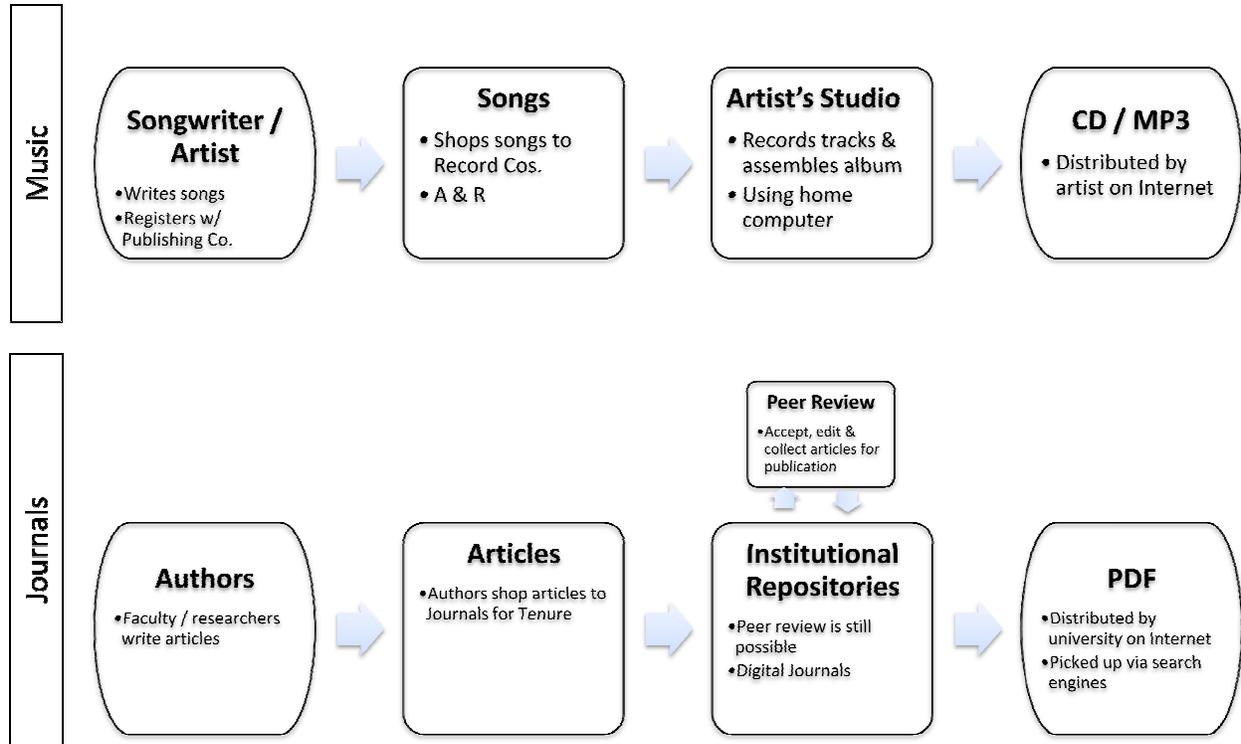


Figure 3:

Post Technology Long-Term



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