

The Technology Disruption Conundrum

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ABSTRACT

During the 20th Century, the filmed entertainment business evolved from a regional studio factory system into the global media and entertainment industry we know today. Once controlled by a handful of powerful and creative entrepreneurs (the studio ‘moguls’), the seven major studios are owned today by multi-national corporations, transformed into finance, marketing and distribution entities, content owners and licensors, network operators, recording companies and producers, Internet portals, game producers and publishers. Some companies are vertically integrated in many or all of these businesses (e.g., Walt Disney, Time Warner, Viacom, NBC-Universal and News Corp.) Although they may differ in scale and corporate culture, the common thread among them is an economic model that relies on the ability to control levels of presentation quality, and when, where and how consumers access entertainment content. Traditional peripheral constituents supporting this supply model are the post-production and distribution service providers, and the systems/equipment suppliers that comprise the industry ‘ecosystem’ for content production, preparation and distribution. This paper presents an argument that evolving media consumption habits are fueling technologies and innovations that threaten the ecosystem by disrupting the studio’s control and empowering consumers. Moreover, the authors contend that technology disruptions are becoming increasingly more insidious and occurring at faster intervals. Information lags create missteps and confusion between the constituents that negatively impact the entertainment industry’s ability to manage change. To eliminate the effects of the “Technology Disruption Conundrum”, the authors call for greater transparency and shared strategic planning between studios and their suppliers along the post-production and distribution value chain.

AN INDUSTRY PRIMER: FROM “GOLDEN AGE” TO “DIGITAL AGE”

Historically, the entertainment industry enjoyed relatively long periods of business stability between short periods of upheaval. In the early to mid 20th century, the economics of the filmed entertainment business were largely under the control of a few “moguls” who owned or controlled practically every component along the value chain, from script to theater. The studio moguls built their own production factories staffed with creative and craft resources at controlled wages and terms. Even the most popular (and profitable) actors were held to exclusive, long-term contracts that dictated terms and wages favorable to the moguls. To complete the monopoly in the United States, the major studios also owned extensive national theater chains that bore their names (Warner, Paramount, Fox, etc.).

Over time, this “studio factory system” collapsed under the weight of government regulation, organized labor and disruptive technologies. Two outstanding examples of government intervention are the 1948 ‘consent decree’ which divorced the major studios from their domestic theater chains (Aberdeen, 2000); and, the embracing of television production by the major studios in the 1970’s, when the original three U.S. networks (NBC, CBS and ABC) were banned by the Federal Communications Commission’s Financial Interest and Syndication Rules (Fin-Syn) from financial interest in their productions, beyond first-run network broadcasts. The rise of professional creative unions such as the Screen Actors Guild and the Director’s Guild of America fundamentally changed the economics of movie and television production and distribution. Actors, directors and other creative artisans organized to negotiate performance and participation terms that significantly differed from the previous long-term individual contracts.

In the early days of the filmed entertainment industry, professional advancements to the technical tools of the trade (e.g., color, audio, optics) were commonly developed through industry-centric companies such as Technicolor, Deluxe, Todd AO and Panavision. These improvements were not disruptive because they enhanced the movie going experience to the benefit of the studios. Technologies create disruption when they empower consumers with products that a) reproduce creative experiences of a quality similar to those offered by studios (e.g., video cameras, editing software) or, b) challenge the studio’s control over when, where and how consumers access

content (television, VCRs, Internet). It is interesting to note that professional innovations in the filmed entertainment industry have almost always migrated from expensive professional products into low-cost consumer products; for example, photography, phonograph, film projection, radio, computers, video cassette recording, etc.

The major filmed entertainment companies react negatively to disruptive technologies until they better understand how to incorporate the technology into their business model and regain stability (see Figure 1). In fact, the entertainment industry has typically and significantly prospered by adopting common technical and business standards and practices around new technologies and innovations that initially threatened their control over content consumption. The best and most recent example is the multi-billion-dollar windfall from catalog sales and sell-through due to VHS machines and DVD players.

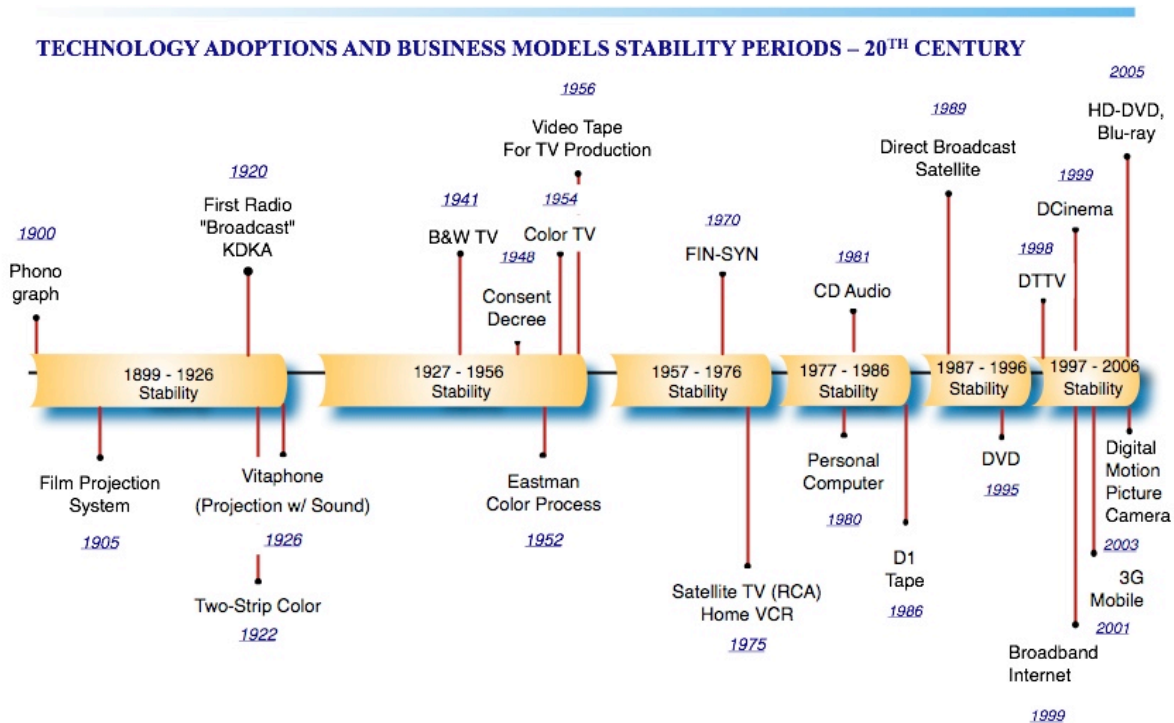


Figure 1 - Evolution of technology adoptions and subsequent stability periods

During the first half of the twentieth century, and still in a monopolistic context, the cycles resulting from successive disruptions characterize a relatively benign and stable environment. It is possible to illustrate this using Figure 2, a 'systems map' inspired by Dr. Peter Senge's novel *The Fifth Discipline*, which employs the notion of system dynamics to examine the interactive actions and reactions occurring between constituents in a dynamically complex social system (Senge, 1990). A high-functioning system continually exchanges feedback among its various parts to ensure that they remain closely aligned and focused on achieving the goal of the system. If any of the parts or activities in the system seems weakened or misaligned, the system makes necessary adjustments to more effectively achieve its goals (McNamara, 2006).

In this first example, we use systems mapping to visualize the adaptation and improvements following a potentially disruptive technological invention in the early to mid 20th century. The wheel represents the event of a disruption and the subsequent reactions from a single constituent, a major motion picture studio. By moving the system at a certain speed, one can represent the pace at which the reactions occur. Set in the context of monopoly, the 'impact' and 'panic' stages occur when studio chiefs realize that a technology or innovation could disrupt their control over the consumer's interest or access to their entertainment products. As they came to understand the technology over time, the studio chiefs adapted their business models to embrace and manage the technology to their advantage. For the better part of the 20th century, technologies and innovations that disrupted the filmed entertainment industry occurred far enough apart to enable reasonable, studied analysis and business adjustments.

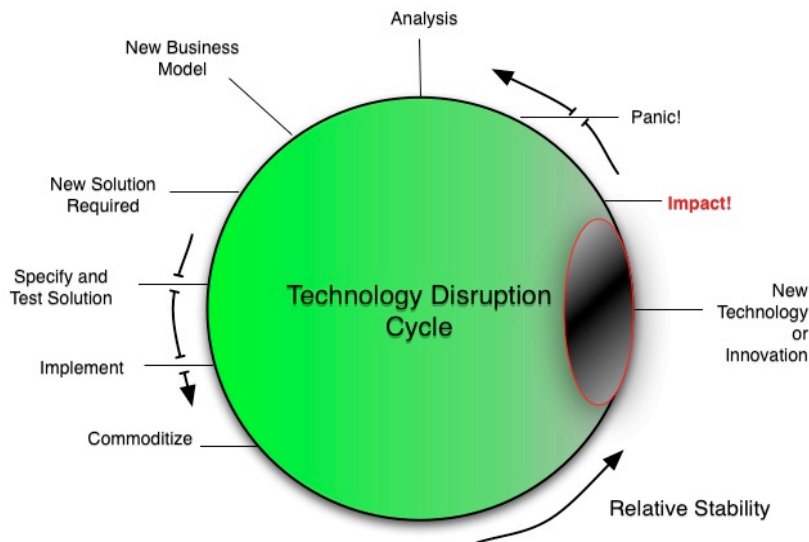


Figure 2 – Hollywood as a monopoly - early to mid 20th century

From a systemic point of view, technology innovations cause continuous adaptation and improvements to the model. True, filmed entertainment product no longer had a single exhibition at a company-owned theater, but content owners could generate incremental revenue through licensed exhibition on multiple access platforms for discretionary consumption by the same audience. Consumers were afforded some choices on how and when they accessed filmed entertainment; first by theater, later by television, cable and satellites; still later by video tape, CD, DVD, computers, Personal Video Recorders, portable devices, the Internet and so on. To compete on a global scale, the industry structure evolved into vertically and horizontally integrated behemoths, companies that continued to successfully expanded control over huge chunks of entertainment we listen to, view, or read.

Two fundamental forces are at work in this system: first, the speed and frequency of new technology introductions, and second, the relationship between the observation of a new technology and its level of disruptive impact. Historical data suggests that the amount of time between the introduction of a truly disruptive technology and the return to a relative stable business environment is linked to the degree of effective cooperation between constituents. The effectiveness of cooperation is tied to stakeholder transparency; that is, the ability of the constituents to share strategic information regarding forthcoming products and services that impact the ecosystem as a whole. Less transparency equals greater guesswork and risks of getting it wrong.

During the 20th Century, some of the most successful examples of transparency in the media space occurred when key constituents were conglomerated. An excellent example of successful conglomeration, RCA Corporation of America controlled or influenced nearly every link along the value chain from content production and delivery to consumption. In its heyday during the 1930's, 40's and 50's, RCA owned the means of production and distribution (RKO Pictures, NBC Radio and Television), the underlying production technology (RCA professional products), and manufactured and sold the leading television, radio and other products through their vast network of retailers and distributors. The fact that RCA invented most of the underlying technologies and standards associated with the value chain created competitive barriers to entry and added to the company's success through patent licensing programs. Modern examples of conglomerates that participate in entertainment and consumer products include General Electric and Sony Corporation. Although conglomeration may be an attractive solution to the Conundrum, the authors contend that conglomeration alone does not guarantee success or improved interoperability. Stakeholder transparency and joint strategic planning are the key success ingredients. Management can use these ingredients with appropriate incentives to create the same benefits today that RCA once accomplished on its own.

The millennium ushered in the most disruptive period in the entertainment industry's history. Computers give consumers the ability to capture analog and digital content while software enables them to compress, copy and

manipulate that content to suit their personal tastes and consumption needs. As the Internet became more ubiquitous through wider and cheaper broadband availability, consumers sought the ability to exchange content with their peer networks. Technically savvy entrepreneurs and technicians created on-line distribution models and applications to meet the growing demand, ushering in the age of digital piracy. Despite legal, regulatory and educational countermeasures, Pandora's box was completely unhinged and consumers experienced a new sense of control over their entertainment consumption habits. The entertainment industry is experimenting today with risky new business models designed to (once again) embrace and control consumer tastes and habits in the context of non-traditional methods of consumer access. The unique aspect of today's context is that consumer habits ("access what I want, when I want, where I want, and free or cheap") are further apart from the industry's traditional distribution models than ever before ("I decide what consumers can access, when and where this can occur, the quality level and at the price that I define").

The industry continues to tinker with the original economic model: control consumer access to entertainment by licensing exclusive exhibition time periods across multiple consumer platforms - some of which are owned, wholly or partly, by the content owners themselves. The model correctly assumes that multiple exhibitions across different platforms at staggered time periods will find consumers willing to pay for the same content multiple times. Each platform describes a level of presentation quality with the highest quality image and sound delivered through theatrical exhibition, and the lowest through low bit rate Internet delivery. The studios are not generally the creative 'factories' they once were, preferring instead to outsource the creative process (and financial risk) to independent production companies. Likewise, the studios outsource all or part of the post-production and distribution activities along the value chain; the cost of which is ultimately commoditized to the studio's favor. Today, the studio's primary business is licensing content to third parties and their income is tied to managing consumer access to the content they control through these licensing activities.

Since the 1980's, post-production service providers, hardware and software suppliers responded profitably to technologies and enjoyed significant growth. The invention of time code and standard machine interfaces, for instance, led to editorial shops, duplication and distribution factories and high-end graphics companies. The consumer videotape recorder preceded the home entertainment business, which begat the video rental and sell-through businesses. Consumer demand created the mass duplication business, new retail channels and efficient supply chain logistics. These developments enticed the studios to mine their vast film and television libraries for product opportunities - just in time to exploit the invention of digital component video, digital audio and the image and audio processing tools, 'restoring' catalogs to new levels of marketability.

Operating margins in post-production, distribution and other outsourced services reached a zenith in the early 1990's. The economic model was simple – target a niche activity the studios chose to outsource, then, develop a trusted relationship with the studio gatekeepers, price the service at market rates, and differentiate on talent or technology or both. The beauty of the model in the 1990's was that service providers could negotiate with separately managed distribution 'silos' at every studio, confident that the competitive executive culture within the studio structure would resist harmonizing prices and activities across distribution lines. Over time, the studio customers began to sense this disparity between internal business units and took efforts to leverage their aggregate distribution volume in exchange for favored terms. This led to downward pricing pressure on the supply side and forced consolidations in the search for sustained margins and growth.

The service providers became systemic, co-dependant constituents with their studio customers. Figure 3 illustrates the addition of post-production service companies to the system where the two entities respond in their own way to disruptive technologies or innovations. Note that both participants in the system are able to simultaneously view the disruption (the conjoined area) as the system spins through periods of stability and upheaval.

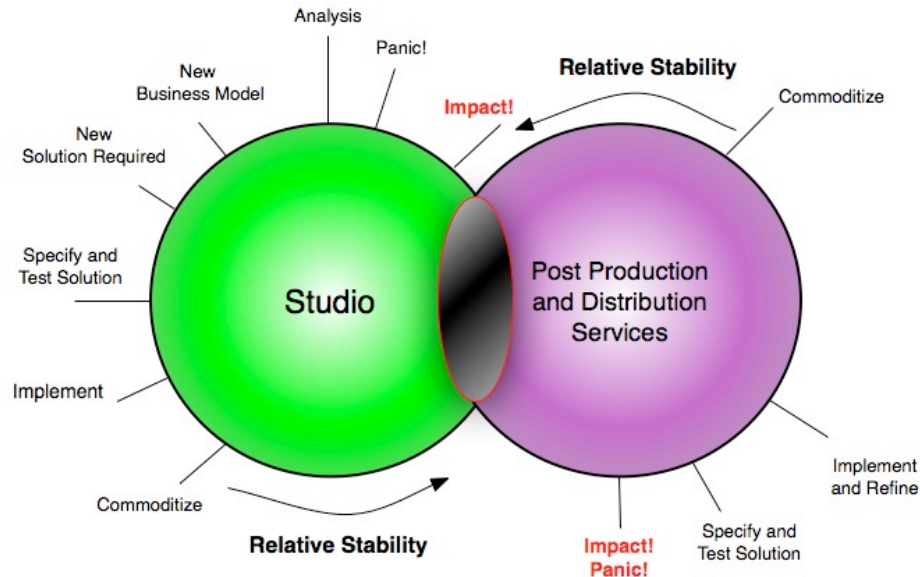


Figure 3 – Hollywood’s reaction to technology disruption with service suppliers, mid 20th century – present

The constituents may view the disruption simultaneously, but they tend to react to the disruption at different points of time. Service providers can justifiably “lag” behind studio reactions to disruptive technology because (1) the studio feels the impact first, (2) predicting studio business reactions to technology is difficult, and (3) planning investments with little transparency is risky. This response ‘lag’ was acceptable to studios as long as the periods between upheavals were lengthy. The problem is that the pace of disruptive technological change has accelerated over the past ten years, causing periods of upheaval to last longer and periods of stability to shorten. The authors argue that we’ve entered a period of continuous change and ‘lags’ between these constituents are working to their mutual disadvantage. It’s interesting to note that service providers generally experience both impact and panic simultaneously, stemming from the customer’s decision to scale their new business model as quickly as possible. Consequently, the service provider enjoys a period of higher-than-average margins stemming from the esoteric and labor intensive nature of the new solution, which often involves stringing together a combination of know-how, experimentation and capital expenditure. Studio executives know this, and will deploy the solution to as many service providers as possible to drive costs downward as quickly as possible.

ENTER THE HARDWARE AND SOFTWARE SUPPLIERS

Generally speaking, the migration of expensive and bulky technologies from professional to similar consumer products took several years, if not decades, during the 20th century (e.g., film and video cameras, video tape recorders). This gap between professional and similar consumer products was large enough for content owners and their service providers to analyze and adjust their business models with minimal disruption.

Today’s technologies are more silicon and software based which reduces the cost of implementation and the gap between professional and similar consumer products. When a manufacturer of professional products implements new inventions, many of these same capabilities can be found in affordable consumer products, giving consumers the means to economically participate in content creation and distribution. Consumers have become tacit competitors in the global entertainment environment.

The same accelerating disruption dynamic influencing studios and their service providers is relevant for hardware and software suppliers. These suppliers traditionally react to the technology needs of the service providers who seek solutions to meet the demands of their studio customers. This causes a different cycle lag between hardware and software suppliers and their service provider customers, who are already out of step with the studios. Many hardware and software suppliers serve the needs of professionals and consumers alike. The irony is that the

hardware and software segment is providing professional tools to an industry beleaguered by the disruptive effects of a consumer product from the same segment.

In the revised system involving three professional constituents, Figure 4 shows the forces leading to the Technology Disruption Conundrum – a cacophony of actions and reactions between studios, service providers, hardware and software suppliers that is exponentially exposed to unsynchronized lags. In this systems map, note that service providers and hardware and software suppliers share the same impact period, but not the same panic period. This is because the studio places new demands on each within a relatively short period of time, one to the other, for solutions and tools to facilitate the new business model. The service provider responds to the studio's solution requirement, and in turn, the hardware and software supplier responds to the service provider's tool requirement. The problem is that the 'feedback loop' between the needs of one constituent (the studio) to the decisions and actions of the others is out of sync, causing counter-productive missteps, misunderstandings and confusion.

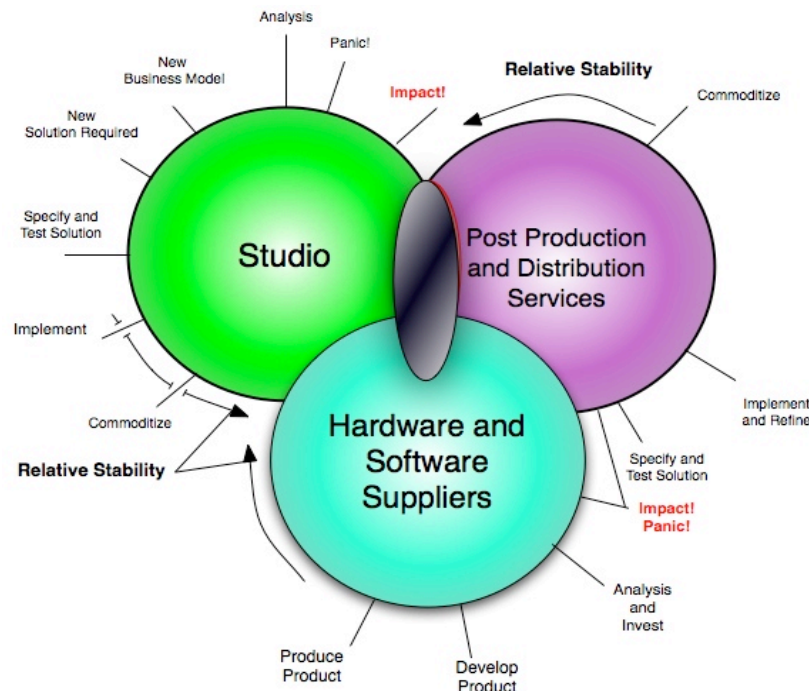


Figure 4 – The Technology Disruption Conundrum –

In the face of uncertainty, the authors contend that the studios will seek guidance on emerging disruptions before they occur from leaders who understand the consequences. The studios will naturally seek this leadership among their traditional suppliers, who may lack sufficient information to respond or be reluctant to invest before gaining deeper insight into the studio's emerging business models. This lag aggravates the ecosystem and opens the door to non-traditional competitors who sense an opportunity. The speed of the Conundrum will ultimately decide the winners and losers, but the only identifiable winner with any real certainty is the consumer.

A CASE EXAMPLE

Outside the professional pirate networks, it didn't take long for consumers to learn how to rip and burn copies of rented DVDs using free or inexpensive software on their home computers. This practice is illegal and disrupts the studio's economic model, particularly when consumers share the pirated content freely with known and unknown peers through the Internet or by propagating additional illegal copies to friends or family. The introduction of portable video media players only compounds the problem because consumers now seek to put the content in their pocket.

Reacting to this disruption, the studios implemented a number of countermeasures in the early millennium including accelerated licensing of video-on-demand (VOD) through legitimate Internet portals (e.g., Movielink and CinemaNow). In 2006, however, the studios took a dramatic turn by revising their VOD model to include download-to-own and burn (Thompson, 2006). This new model created demand for secure, scalable mpeg encoding services causing pressure (time, money and quality) on providers to quickly respond.

In ‘bleeding edge technology’, there is typically no single product solution or tried-and-true workflow available in the marketplace, forcing service providers to assemble a patchwork of proven and unproven technologies together with engineering know-how to solve the problem (occasionally with the assistance of key hardware and software suppliers). Global service providers ultimately refine the approach to a point where the solution may be deployed to other sites. In these early stages, however, the service offering is very labor intensive and can include a combination of electronics, information technology, graphical user interface, connectivity configurations, physical manipulations, and visual quality controls.

Competing providers assemble solutions that may or may not resemble one another depending on the equipment they chose, the approach they design, or the human resources they employ. Studio customers benefit from this activity, since each approach is subject to the same requirements of turnaround, quality and price. At some point, the ‘esoteric’ nature of the solution is widely understood and standardized, presenting opportunities for hardware and software suppliers to enter the market and drive commoditization.

Meanwhile, the increasing use of software and silicon intensive products is creating new challenges for traditional suppliers. The shift from film and video tape-based workflows to IP workflows is leading to greater flexibility and faster time-to-market. These silicon solutions pose a potential threat to suppliers that don’t participate in software. Software companies (large and small) become a threat to traditional studio suppliers; using compelling software solutions that can very quickly change the service economics by utilizing less costly silicon based equipment. Consequently, the studios may seek to implement these same solutions internally or allow their licensees to manage this aspect for themselves. In either case, the traditional service provider is cut out of the value chain.

To secure their spot in the value chain, traditional industry suppliers of services, software and hardware must answer several key risk/reward questions:

- What strategic partnerships do we need and are those companies willing to participate?
- Does the combined hardware, software and service solution address a short or long-term market need?
- Does the solution have a channel outside our traditional segment (e.g., broadcast, Pro AV, consumer)?
- Does the solution ‘fit’ with existing product lines or with existing services?
- Does the solution require a complete re-tool, or can available products be modified to meet the need?
- Where do we belong in the value chain and do our constituents agree?

This is the point where the Technology Disruption Conundrum can become particularly frustrating for the studios. If constituents are unaligned during the analysis and innovation phase, the solutions will be delayed and costs remain high. Meanwhile, the next disruption is already brewing and the cycle begins anew without a sufficient long-term solution for the previous disruption. New solution requirements begin to stack on one another, with the only logical outcome being the studio’s selection of partners to openly plan a strategy and vision that serves the studio’s interests.

CONCLUSION

Resolving the Technology Disruption Conundrum will require stakeholder transparency, trust and shared vision. New technology and disruptive innovations are at the core of the Conundrum and fueled by changing consumer habits. The most significant disruptions are those that co-opt the audience and fundamentally impact the industry’s ability to control when, where and how consumers access their products. It’s clear that these change dynamics will remain valid for the foreseeable future, and that any company which seeks a role in the media and entertainment industry will face the Technology Disruption Conundrum to one degree or another.

Consumers are seeking more choices and flexible access to entertainment content on a wider range of platforms and devices than ever before. These new demands create technical and distribution challenges involving new services, hardware and software solutions. The authors contend that media and entertainment companies are seeking levels of technology and innovation leadership that unintentionally challenge traditional suppliers and drive studios to expand the segment to include non-traditional suppliers. Ironically, some of these ‘non-traditional’ suppliers are the same companies that are fueling disruption with innovative consumer products, enticing the studios with strategic partnerships that help mitigate surprise and anticipate consumer trends. The space between ‘supplier’ and ‘competitor’ becomes murky in this environment, and the studios will remain hypersensitive to business models that compromise their control over access to the content and pricing. Meanwhile, the Conundrum continues to spin as the constituents grapple with their changing relationships in the context of consumer empowerment.

To effectively address this problem, the constituents will be challenged to move more in tandem, grasp the emerging implications of the entire content value chain and align their plans accordingly. This effort will require a greater level of transparency than any single constituent has traditionally endorsed, and challenges management to re-think the rules of engagement. There are significant business obstacles to increasing transparency, however. How would increased transparency affect the competitive dynamics within the supply-side segments, and how are the existing service and equipment contracts impacted? In other words, where do the constituents draw the line on transparency?

The studios will consider the risk and reward associated with favoring outsourced service providers over building (or buying) internal post-production and distribution infrastructures. As expensive and bulky bricks and mortar services give way to cheap silicon based systems solutions, does outsourced ‘niche’ expertise become more or less relevant to content owners? How will the studios choose between strategies to reassert control over the forces of disruption, versus strategic engagement with competitive external forces that may ultimately offer greater innovation and lower costs? Do traditional assumptions regarding risk and opportunity require review in this digital environment?

Ironically, the effects of the Conundrum may cause the studios to re-tool themselves as they once were during Hollywood’s “Golden Age” and take greater control over post-production and distribution in the “Digital Age”. How does the studio’s cost structure change when product exhibition periods and territories merge together and product distribution is reduced to moving bits rather than cans of film or videotape around the globe? In this environment, what value-add and lower cost activities do outsourced services provide that significantly offset the studio’s cost structure? Perhaps the entertainment conglomerates will take a cue from other industries where vertical integration includes direct control over core manufacturing capability.

These and other fundamental questions must be answered soon since the Technology Disruption Conundrum continues to spin and accelerate. The authors contend that greater operational transparency and joint strategic planning are the key leadership components separating winners from losers in the digital age of entertainment.

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