Shifting technology paradigm for the film and entertainment industry: Interface modalities

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ABSTRACT

As technology evolves, so does the use of technology in the film and entertainment industry. The purpose of this research is to examine and analyze the use of different technology modalities and how they interface with the various stakeholders in the film and entertainment industry. Since this is a dynamic environment, the models will reflect the most up-to-date information about technology in the industry and show how the shifting technology paradigm is affecting the industry, both currently and predictively in the future. New technological interfaces with stakeholders such as distributors and customers will be a focus of this research. These interactions are changing and the authors will demonstrate how they are already affecting processes and business strategies in the industry in a profound way.

Keywords: technology, film and entertainment industry, ambient media, digital, internet, stakeholders

INTRODUCTION

"Change is inevitable. Change is constant" (Blake, 1998, 53). For firms who are in these constantly changing and uncertain business environments, the "most innovative firms achieved the best industry performance" (Aragon-Correa & Sharma, 2003, 71). Since there have been major changes occurring in the film and entertainment industry, particularly affected by the technology transformations going on in the industry over the past decade, firms need to take a proactive stance towards change.

LITERATURE REVIEW

Stakeholders in the Film and Entertainment Industry

In the Film and Entertainment industry, the stakeholders are numerous. Of course, the audience or customer is one of the major participant groups as they are the end users of the products and services in the industry. There are a number of stakeholders who can be described in general as "distributors" including domestic distributors (US), international territories (overseas distributors), retailers and licensed media, distributor subcontractors and ancillary media/licensees. "Retail and licensed media" is a huge area encompassing a number of distribution windows including electronic games, books, theatre circuits, home entertainment (rental, internet streaming, DVD/Blu Ray with extra features), the video on demand segment (VOD, digital rental and retail from companies like Apple iTunes and Microsoft Xbox Live Marketplace), premium cable, network TV and syndicated TV. Distributor subcontractors (manufacturers of CD, DVD, or Blu-ray, media planning and buying agents, sales and licensing specialists) and ancillary media/licenses (licensed rights for games, publishing, merchandising, sound tracks and clothing, media such as in flight movies, education, and prison) are also major distributors (Lee and Gillen, 2011, 14-16).

For some films, the "major consumer brand" area includes company products being used in a particular film (James Bond -007 using Mercedes Benz sports car) or use of a brand's name of a picture to promote its name or products in print or TV ads (i.e. fast food chain like McDonald's selling Star Wars figures with kid's meal) (Lee & Gillen, 75-76). Three categories of critical participants are the producer, talent with their representatives, and the financing partners, who can make or break a picture. Lastly, there are governments (local, state, federal, international) who are involved in the film and entertainment industry through nationalistic protectionist programs, tax credits, incentives and regulations.

Types of Technology

This paper uses five categories of technology types: 1) interactive technology; 2) ambient media; 3) digital technology; 4) social media; and 5) data mining. Each type will be described and then analyzed for their impact on different stakeholder groups. The relationships will be explained in terms of interfaces.

Interactive technology

One of the most innovative technologies facing the film and entertainment industry is the interactive technology that has been used in video and electronic games for a while. Movie producers are starting to see the huge draw of customers to gaming due to this interactivity and realizing the profit potential available in the industry. Interactive technologies allow the user to change the game or movie with their hands on the joystick, mouse or even wearing a holographic hat. Although this technology could be considered a subset of ambient technology, it is given as a separate technology category, since it is one of the most challenging technologies to integrate into the film and entertainment industry. New direct marketing technologies using "mobile phones, personal digital assistants (PDAs) and telematics" are emerging with opportunities for customers to choose to interact (using hashtags or SMS text messaging) with the event, media or entertainment venue (Mort & Drennan, 2002, 9). Film festivals are starting to use the same type of text message for "voting" for their favorite film and this engages the audience.

Ambient media

Ambient Media or Ambient technology is broad based and covers a variety of topics including wireless connectivity, mass hardware storage, new hardware technologies (silicon, radio frequency identification – RFID, and holograph), polymer or printable electronics, and advanced displays like high definition digital TV. Ubiquitous technology is broad based "human computer interaction" and includes "search and retrieval, interactive interfaces, designing experiences, applying new interaction concepts, the design of experiences, and educational issues" (Lugmayr, Stockleben, Risse, Serral and Stojmenova, 2014, 1).

Digital technology

Digital technology refers to any content or product that is in digital form or on the internet. In the Film and Entertainment industry, most content is being digitalized to increase the quality, sustainability, endurance, ease of transporting, consistency and accessibility of media transfers. It was very difficult to get a film to the distributor in a timely and inexpensive manner in previous decades. Even indie film makers are appreciative of the ease of uploading a short film or documentary to the film markets and festivals today. Being able to quickly and easily share trailers and other content about a film with customers is due to the digital technology. In addition, the digital age brought media businesses from the paper or hard versions of media to the soft or electronic versions of media as well as instantly changed all paperwork and documentation including deal memos, letters of agreement and contracts. For the film and entertainment industry, many of the templates for forms are found on the Independent Film & Television Alliance website (www.ifta-online.org),

Social media

The creation of "buzz" in the online environment was enhanced by the use of social media networks where customers interact with friends, family, celebrities and other peers as well as marketers/directors/producers/businesses/agencies. Sites such as Facebook, twitter, and Instagram started the networking phenomenon that spreads news like wildfire. You Tube, TV.com and FilmNet are especially helpful to share videos and music content with the world and

in creating social communities. Smart marketers saw the potential for "branding" a film and media products with this social media creation. New social media sites that allow customers to vote for a particular film, music venue or other entertainment group to come to their city can be found at Eventful.

Data mining

In the world of digitalized sources, big databases and networks, it was only a matter of time before businesses learned how to "mine" the information that was collected. They were able to learn about the lifestyles, preferences and characteristics of customers and users. The film and entertainment business, like any big business, also uses data mining to target film content to consumer groups in the regular marketing channels and on social media. In addition, talent and agents are learning that data mining can help them to increase their brand awareness and better market their assets (Trappey, Trappey, Chang, Lee, Hsieh & Chao, 2012). As more innovative uses of direct marketing occur, it is important that databases are "developed in tandem with this new technology to ensure customers receive welcome information" (Mort & Drennan, 2002, 11).

Impact of Technology on Stakeholders

Interactive technology

Virtually unknown in 1985, the video gaming or entertainment software business has become a high growth industry, with sales rivaling or outpacing "Hollywood movie box office sales" (Alpert, 2006, 87). In fact, "blockbuster video games often outperform blockbuster movies for opening week sales" (Alpert, 87). In fact the industry is as "central to the pop-entertainment universe as movies or music" and has caused a "cultural sea change" with this "new rise of interactive entertainment" (Alpert, 87). This rapid change affects all of the business (B2B) participants, who are often lagging behind in their knowledge of this technology. Customers in the entertainment software industry are surprisingly versatile; anyone over the age of 6 and the average age is in the thirties. Many of the business participants have not made or brokered this connection to their customers, many of them who love movies but spend more time and are more engaged by the interactive technology of games (B2C).

Ambient technology

Ambient technology affects most of the stakeholders, but more particularly affects the "consumer and enterprise space" (Lugmayr et al, 2014, 4). This means that audiences ("customer to business"- C2B), distributors ("business to business" - B2B), and international territory (B2B) relationships with producers (B) are most impacted. As Payne and Macdonald (2004, 129) describe ambient technology or "ubiquitous computing" – it "creates ways that you are connected all the time" and is an "invisible pervasive environment", the technology readily can impact all stakeholders in the industry. This takeover of entertainment content in all facets of life is talked about ty Fraim (2000, 13)(B2C) and determines "which stores we shop at, what airlines we fly, the restaurants where we eat, what clothes we wear, which pots we cook with, which computers we use."

O'Reilly and Kerrigan (2011)'s research on film brandscaping shows that it is important for film participants to learn about consumers' (B2C) choice of a film, to make decisions about products placed in films or products sold using the image of the film (B2B) and for celebrity endorsements of films and products (E2B). In the in-flight entertainment arena, revenues of over $200 million per year show the significance of this non-theatrical window and how the industry is adjusting (B2B) by shortening time frames for release of in-flight films or other non-theatrical venues and even changing content of films to meet the World Airline Entertainment Association guidelines by "shooting separate scenes" such as the ending for the movie *Speed*, where the "bus does not crash into an airplane" (Groening, 2008, 5). Ambient technology and pervasive computing technology make these interfaces easy to implement.

Digital technology

Digital technologies are now a threat to governments who have been attempting to protect their domestic cultural industries with quotas, tariffs and subsidies. Customers can outrun the quotas by downloading digital versions of foreign entertainment programs via the Internet (Cheng, Feng, Koehler and Marston, 2010-11). The digital technology impacts government to business (G2B) and government to customer (G2C) relationships as well as business to business (B2B) linkages.

Digital and interactive technologies can pose challenges overseas. For example, the use of 3D or hologram helmets may also be limited in some international territories (due to lack of these technologies in some businesses such as theatres – B2B), which could change the product content. Given the huge increases in revenues coming from overseas territories (often 60-80% of domestic box office receipts), digital and media content in the industry is strongly impacted and must be planned carefully between the affected players – producers, international distributors, government and international customers (B2B, G2B, C2B). Laws in a particular country (G) can limit the sexual content or the way in which children are used in a film as well. Adapting to international customer preferences – such as "dubbing or subtitling" or a desire for a particular star, can impact choices that producers make in the development of a film (B2C) (Lee and Gillen, 2011, 46). The society as a whole, its cultural environment and an individual customer's perception of a film can influence which movies become blockbusters overseas (S2B, C2B) (Moon & Song, 2015). In certain large overseas markets such as Japan, there is a "wide range and diversity of audience taste" which allows producers and distributors (C2B, B2B) to find genre and content matches easily (Movies…, 2015, 2).

Businesses who sell downloading or streaming service of film and TV content are held responsible for their customer's (B2C) actions if there is repeated copyright infringement by their customers (P2P sharing and copying). They are compelled to remove these customers from their service, thus severing the "business to customer" (B2C) relationship. In these ways, digital technology has directly impacted the stakeholders in the customer (B2C), peer to peer (P2P), ancillary media, licensees, and distributor spaces (B2B) the most with indirect impacts in industry stakeholders such as the producer (B2B) and international territories (B2B).

Social media

The use of social media to market film and entertainment content and products has expanded greatly in the last decade. Brands of "films, producers, talent, and directors" are all marketed using social media (O'Reilly &Kerrigan, 2013, 770). Consumers are influenced by their interest in learning new topics, cultures and languages (C2S), by tie ins to other cultural products such as books, music, and TV (C2B), by their attraction to the cast and awards a film has (C2E)(C2B) and by what marketers, critics (B2C) and peers (P2P) say about the film through social media (O'Reilly & Kerrigan, 2013). Small independents first used the do-it-yourself (DIY) features of social media but smart producers and studios are now hiring internet marketing talent to take advantage of the tremendous opportunities to reach customers (B2C) through the social media channels.

Data mining technology

New big data mining technology is being used to track the internet media for talent. With this information, talent can show how well known and how successful they are, which in turn impacts their interactions with fans ("employee to consumer" - E2C), agencies ("employer to business" - E2B), producers (E2B), merchant distributors (E2B) and other film participants (E2B) (Trappey, Trappey, Chang, Lee, Hsieh & Chao, 2012). Mort & Drennan (2002, 11) cautions industry players to focus on "how individual consumers will want to interact with their selected brand or content" rather than just adopting the technology (B2C). Please see Figure 2 in the Appendix for a summary of technology interfaces with the stakeholders mentioned in the current research.

THE MODEL

Shifting Technology Paradigm

As technology changes, so will the industry. What are some of the changes predicted for technology? In the next decade, technology will become more "ubiquitous" by reducing manufacturing costs, miniaturizing all parts of the products/process (making it more invisible), increasing the power of the process, creating more transparency between consumers and machines, and finding ways to decrease negative perceptions and resistance of the consumer (Payne & Macdonald, 2014, 129). This, in turn, will increase the technology convergence already happening in the film and entertainment industry. Lee and Gillen (2011, 61) call this "supermedia" and see five factors leading to this deep convergence: 1) mass migration to internet-connected devices; 2) bandwidth increases for downloads of movies and content to home/phone/computers; 3) wide number of devices that have internet connectivity; 4) traditional content being digitalized and 5) unique user devices to create new content.

There is a growing awareness of the "multiplicity of new cinematic spaces: movies on television, film on computers, portable DVD players, seatback screens in minivans, and handheld digital media players" (Groening, 2008, 4). This "convergence culture" means that motion pictures are seen as merely one "choice in a menu of digital entertainment options" and "a piece of intellectual property that converges with other cultural commodities" such as in-flight technology (Groening, 2008, 5).

As mentioned earlier, talent is profoundly affected by these changes. For example, talent agencies and the artists themselves are developing ways to use data mining of all internet sources to compare talent, measure brand, exposure and success due to big data technology advances (Trappey et al., 2012). These can be leveraged with producers, directors and financing partners to create a more profitable career (E2B).

Shifts are taking place from traditional structures and processes in the film and entertainment industry to more innovative structures and relationships among players. Traditional marketing is evolving to a multi-channel marketing mix using internet marketing and the big data segmentation now available. To meet these challenges, a firm like GiantSteps Media Technology Strategies helps studios and other "content owners" manage "digital media applications" and find the "right vendor" partners to "implement the solution" (B2B and B2C)(Rosenblatt, 2008, 112).

Social media channels and ubiquitous computing are powering up the interaction customers will have with film content, choice and film participants. Paper copies are becoming a thing of the past with digitalized documentation and processes taking over in all functional areas of the industry from marketing, management, pre-production, production, distribution to financing and post production.

The industry is becoming a truly global one. This shift has the potential to increase the status of foreign producers, directors and talent in addition to changing the content of entertainment. To appeal to the world market is to find a story that hits the heart of its audience across cultural values. With digital technology, the "pricing of distribution" has decreased rapidly (B2B) and governments are unable to protect their domestic film industries due to "internet leakage" (G2B) (Cheng, Feng Koehler & Marston, 2011, 270). With the growth of the entertainment market to a global market and what Cheng et al. (2011) call "entertainment without borders)", there are many ways to build global relationships yet also find niche markets across international borders that will play to particular film content as data mining and segmentation are further developed.

FINDINGS AND RESULTS

Strategic Implications for the Industry

Vertical integration and strategic partnerships

"In this market, there are some companies present with vertical integration from production through to exhibition or retail. One example is The Walt Disney Company, which produces motion pictures (including through its Marvel, Pixar and Lucasfilm brands), distributes DVDs to retailers and also sells through its own-brand Disney stores, as well as being a part-owner of the online streaming service, Hulu. In the United States and many other countries it is common for a company to operate in both production and distribution areas, distributing both its own films and those of other filmmaking concerns" (Movies…, 2015, 14). Firms who are willing to collaborate in strategic partnerships will gain valuable resources and this is especially true in international markets (Palmer, Dunford, Rura-Polley & Baker, 2001). Pixar has successfully used its expertise to become the expert in film animation and often partners with other producers in development of films (Eliashberg, Elberse & Leenders, 2006).

Domestic to Global worldview

Even when technology is present, film and entertainment products retailing in international markets must also be cognizant of the different cultural environment. That is, in order to be successful overseas, the movies or shows produced must be more "universal" culturally in order to appeal to both domestic and international audiences (Moon & Song, 2015, 154). The use of 3D or hologram helmets may also be limited in some international territories (due to lack of these technologies), which could change the product content. Given the huge increases in revenues coming from overseas territories (often 60-80% of domestic box office receipts), content in the industry is strongly impacted and must be planned carefully between the affected players – producers, international distributors, government and international customers (B2B, G2B, C2B).

Laws in a particular country can limit the sexual content or the way in which children are used in a film as well. Adapting to international customer preferences – such as "dubbing or subtitling" or a desire for a particular star, can impact choices that producers make in the development of a film (Lee and Gillen, 2011, 46). There is a delicate balance needed between globalization and customization to the local market. The in-flight entertainment and nontheatrical distribution markets are cases in point.

Hard copies to digital

Companies will change the way they keep records, store content, transfer media and conduct business (online job applications). The film and entertainment industry is adapting to the new digital formats since it is so much cheaper and quicker to use, but will be faced with many more changes in the future. Also templates for online forms provide more standardization to the industry. This trend will only continue and new technologies, such as silicon, RFID and printable electronics, will increase the capacity to store and make the processes faster and easier.

Traditional Marketing Merging with Internet Marketing

Businesses in the Film and Entertainment industry who fully integrate their marketing in traditional channels of print, TV, radio, and billboards with social media channels will have a huge advantage over those who do not. Smaller savvy producers who are adept at social media blitzes have performed exceedingly well with the do-it-yourself (DIY) and internet channels. Major studios still rely heavily on mass marketing with TV counting for 40% of marketing costs (Eliashberg, Elberse and Leender, 2006). Internet marketing is combined with all other marketing channels for another 40% and the remaining 20% is spent on event marketing and promotions. This mix should be broadened, more systematically analyzed with more emphasis paid to the word of mouth advertising taking place online (Eliashberg, Elberse & Leenders, 2006, 648).

Customization and niche market segmentation

Lee and Gillen (2011, 61) predict that distribution costs will decrease as more content is digitalized which will allow more "audience defined niche programming" and "length of programing" will be deregulated as consumers can watch on their own time and in their own

way, "much like they read a digital book" today (on their kindle, phone, computer) pausing, rewinding, clicking on highlighted content with new information about the movie, and fast forwarding. In this new model, the consumer will control the length and quality of the interaction with the movie. However, this opens up a new production space for industry stakeholders (B2B) who create the content and brings stronger consumer loyalty to programming (B2C) (Rosenblatt, 2008).

By using data mining techniques, talent and their agents (E2B) can now demonstrate the "value of artists" and "plan appropriate marketing strategies" to better promote them to producers (E2B) and directors as well as position them for particular films enhancing their careers (Trappey et al., 2012, 274) and visibility to fans (E2C). Film participants will need to increase their interfaces with customers through the use of social media and phone technologies, but with an "understanding of customer habits, consumer patterns of behavior, and data segmentation in order to elicit the necessary level of response" (Mort & Dennan, 2002, 9). Please see Figure 3 for the Technology Paradigm Shift Model in the Appendix.

CONCLUSIONS

This study describes five technology areas and their importance to the film and entertainment industry stakeholders. Technology has greatly impacted and will continue to influence the participants within the industry. As technology changes, so must the players. The authors systematically review the literature and categorize the interfaces of stakeholders with these evolving technologies. Lastly, a model of the technology paradigm shifts is presented and explained while strategic implications for the industry, currently and in the future, are recommended.

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APPENDIX

Figure 1. Stakeholders in the Film and Entertainment Industry and the Interface with Technology

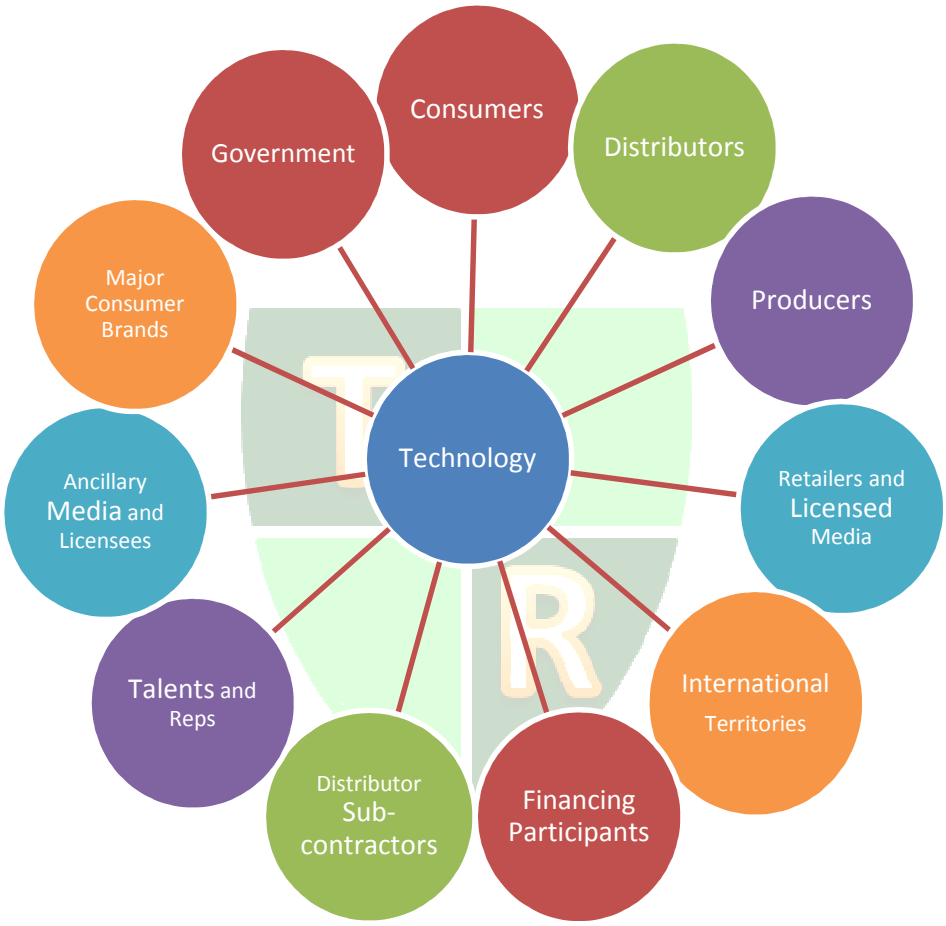

Figure 2. Technology Interfaces with Industry Stakeholders – Peer (P), Customers (C), Business (B), Employees (E), Government (G) and Society (S) in Current Research

TECHNOLOGY CATEGORIES	RESEARCH	INTERFACES
Interactive	Alpert (2006)	B2B, B2C
	Mort and Drennan (2002)	P2P, C2B
	Palmer, I., Dunford, R., Rura-Polley, T., & Baker, E. (2001).	B2B, B2C
Ambient	Fraim (2000)	B2B, B2C, G2B
	Lugmayr et al. (2014)	C2B, C2C, B2B
	Moon & Song (2015)	B2B
	O'Reilly & Kerrigan (2011)	B2B, B2E
	Payne & Mcdonald (2004)	C2B, C2C, B2B
	Groening (2008)	B2B
Digital	Cheng et al. (2010-11)	G2B, G2C, B2B
	Heidmiller (2002)	P2P, B2C
	Lee & Gillen (2011)	B2B, B2C
	Moon & Song (2015)	S2B, C2B, G2B
	Movies…(2015)	C2B, B2B
Social Media	O'Reilly & Kerrigan (2011)	B2C, C2E, C2S, P2P
	Mort & Drenin (2002)	B2C
	Eliashberg, Elberse & Leenders, (2006)	B2C
	Rosenblatt (2006)	B2C
Data Mining	Trappey et al. (2012)	E2B, E2C, E2B
	Eliashberg, Elberse, & Leenders (2006)	B2C
	Rosenblatt (2006)	B2B, B2C

Figure 3. Technology Paradigm Shift Model in the Film and Entertainment Industry