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The influence of digital convergence/divergence on digital media business models

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Abstract. The key objectives of this article is to analyze and discuss the influence of digital convergence/divergence on digital media business models. The identification of sustainable and hyper-competitive digital media business models is an urgent priority as continuing decline in audiences, collapse of traditional/old media organizations and the decrease of the economic and social influence of traditional media pose a major threat to media, democracy, ICT and telecommunications industry, with scholars agreeing that further erosion of media industry also have major implications for the advertising industry and a wide range of content producers. The successful digital media and ICT corporations will have to act more as corporate planners, as well as ‘cloud’, ‘on-demand’ and ‘ubiquitous’ content and distributor disaggregators, than traditional content and advertising providers.

In summary, the second decade of the 21st century digital media is apparently becoming increasingly interactive, mobile, immersive, and ubiquitous. Furthermore, the future of the media appears to be specifically oriented towards the establishment of, networked, 3D, on-demand, broadband and unicast as well as multimedia and hyper-media models of distribution, communication and content creation. Therefore, it is crucial that profitable digital media companies realize that media divergence can successfully perform as vendor lock-in a top-down corporate process and a bottom-up consumer-driven process. The digital business models influenced by digital convergence/divergence will focus on aggregate multi-platform distribution, complementarities, vendor lock-in, interoperable and networked media and ICT ecosystem, massive personalization/customization, user interface.

Keywords: digital convergence digital media business models, media market competition.

1 Introduction - Contextual Background: The need for the application of digital media business models

One of the challenges of studying digital media business models in the age of media convergence is that the concept is so multifaceted and broad that it has multiple meanings. As a result, the academic and scholarly literature in this area is diverse and remains under-researched, under-explored and under-developed from both a theoretic and an empirical perspective. This article reviews scholarly studies that identify the range of strategic options available for sustainable business models in digital media industry.

Identification of sustainable and hyper-competitive digital media business models is an urgent priority as continuing decline in audiences and collapse of traditional/old media organizations pose a major threat to media, democracy, ICT and telecommunications industry, with scholars agreeing that further erosion of media industry also have major implications for the advertising industry and a wide range of content producers.

Referred to in the industry as ‘audience fragmentation’ or ‘disaggregation’, this breakdown of large mass audiences of mass media is resulting in both advertising volume and rates falling within the dominant commercial media business model [1]. As Henry Jenkins warns, ‘monolithic blocks of eyeballs are gone’ [2]. Notwithstanding, few media organizations have settled on a viable long-term strategy for making money in a sustainable fashion’ [3]. As a result of this lack of foresight, media organizations – particularly news companies and departments – have not invested sufficiently in research and development to expand or update their product line over recent decades [3]. Importantly, many news media have invested less than 1 per cent of their operating budgets in R&D to develop new products and new business models. The cost of failing to recognize the potential and public demand for new forms of content and distribution methods has been that media organizations have not developed new products tailored to the Web 2.0 and Web 3.0 environment of social media and social networks or the changing media and ICT economy [4] .

2 The decrease of the economic and social influence of traditional media

The lack of efficient development of new business models caused the decrease of the economic and social influence of traditional media (print, radio, TV, and printed books). Accordingly, eBooks (excluding educational publications) reached \$8.2 billion in sales by 2017 and surpassed printed book sales, whose sales fall from \$11.9 billion in 2012 to \$7.9 billion in 2017. In addition, the number of e-books sold in the United States increased from 69 million in 2010 to 221 million in 2016. By contrast, the total weekday circulation of U.S. newspapers decreased during the last two decades for almost 50% (i.e. from 60 to 30 million).

3 Literature review and Discussion on Recent Models of Convergence in Media Research

The concept of convergence is frequently used both in the academic field and within the media industry to denote the ongoing restructuring of media companies as well as to describe the latest developments in media forms, distribution, and consumption [5]. However, there is currently no generally accepted definition of the concept. Depending on the context, the meaning and connotations vary. It is generally accepted among media business scholars that convergence denotes the actual process toward a more efficient management of the media value chain. The use of the concept has therefore developed from being mainly connected with digitalization in media technology to also include elements of integration, combination, competition and divergence.

The digital media convergence is an ongoing and continuous process of media industry development based contrasted and complemented with the process of digital media divergence [5]. In the table 1, the author provides the conceptual and applicative definitions of digital media convergence model.

Table 1. The conceptual and applicative definitions of digital media convergence model

Authors	Main Digital Media Convergence Model
Greenstein and Khanna (1997, pp. 203–204) [6]	substitutes and complements
Jenkins (2001) [7]	technological, economic, social or organic, cultural and global convergence
Lawson-Borders (2003) [8]	7 c: Communication, commitment, cooperation, compensation, culture, competition, and customer
Lee (2003) [9]	Data convergence Structural convergence Application convergence Industrial convergence
Dennis (2003) [10]	“incremental awakening”—the 1980s, “early adoption”—early to mid-1990s, “uncritical acceptance”—late 1990s, and “presumptions of failure”—early 2000s
Huang, et al (2006) [11]	<ul style="list-style-type: none"> - content convergence, - form convergence (or technological convergence) - corporate convergence - role (of producers and consumers) convergence
Meikle and Young (2011) [12]	Technological convergence Industrial convergence Social convergence Textual convergence

Jenkins (2001) [7] divides convergence into five areas, technological, economic, social or organic, cultural and global convergence. Technological convergence is the digitalization of all media content, economic convergence deals with the integration of the entertainment industry and the social or organic version of the process handles the consumers. According to Jenkins, cultural convergence is the explosion of new forms of creativity at the intersections of various media technologies, industries and consumers. Finally, global convergence is the cultural hybridity that results from the international circulation of media content. This definition is in line with the notion that convergence is an ongoing process, occurring at various intersections between

media technologies, industries, content and audiences; it is not an end state [7]. The effects of the process of convergence are visible, measurable and possible to detect, while the actual process might not be [5].

Lawson-Borders (2003) suggests another model of convergence, where the starting point is that convergence is a concept as well as a process. Lawson-Borders has identified seven observations of convergence all beginning with the letter c: Communication, commitment, cooperation, compensation, culture, competition, and customer. These seven areas are partly overlapping and can serve as a guideline for best practices to expound on convergence both as a concept and a process Lawson-Borders, (2003).

In addition, Lawson-Borders (2003) believes that for convergence to succeed, media firms must:

- (a) engage in high quality communication about what the organization is trying to accomplish;
- (b) be committed to incorporating convergence into their organizational mission and philosophy;
- (c) promote cooperation among everyone involved in the journalistic process “to share stories and ideas;”
- (d) revise compensation plans to fairly compensate multimedia journalists for taking on the new roles and responsibilities required by convergence;
- (e) facilitate the blending of different cultures in the newsroom (i.e., print, radio, television, and online) [13];
- (f) develop strategies and alliances capable of allowing media firms to successfully compete in local markets and globally; and
- (g) develop convergence strategies capable of serving evolving consumer needs in a dynamic and increasingly competitive/challenging marketplace (pp. 94–96).

Furthermore, Lee (2003) describes four categories and eight levels of digital convergence:

1. Data convergence (Media convergence and Domain convergence)
2. Structural convergence (Architecture convergence and Infrastructure convergence)
3. Application convergence (Platform convergence and Device convergence)
4. Industrial convergence (Intra-industry convergence and Inter-industry convergence) [9]

Dennis (2003, p. 7) identified four stages of communication industry convergence: “incremental awakening”—the 1980s, “early adoption”—early to mid-1990s, “uncritical acceptance”—late 1990s, and “presumptions of failure”—early 2000s.

Pavlik and McIntosh (2004) state that there are four areas of implications due to convergence:

1. the content of communication,
2. the relationships between media organizations and their publics,
3. the structure of communication organizations and
4. how communication professionals do their work [14] .

Greenstein and Khanna (1997, pp. 203–204) define convergence in terms of substitutes and complements: “Two products converge in substitutes when users consider either product interchangeable with the other. . . . Two products converge in complements when the products work better together than separately or when they work

better together now than they worked together formerly.” Allison, DeSonne, Rutenbeck, and Yadon (2002, p. 61) consider convergence as a “business trend where previously separate industries ... are converging through megamergers, buyouts, partnerships and strategic alliances . [15] Allison, DeSonne, Rutenbeck, and Yadon, 2002 ” Huang, et al (2006) identify four categories of media convergence: content convergence, form convergence (or technological convergence), corporate convergence, and role (of producers and consumers) convergence.

Meikle and Young (2011) observe that convergence can be understood in four dimensions:

- technological—the combination of computing, communications and content around networked digital media platforms;
- industrial—the engagement of established media institutions in the digital media space, and the rise of digitally-based companies such as Google, Apple, Microsoft and others as significant media content providers;
- social—the rise of social network media such as Facebook, Twitter and YouTube, and the growth of user-created content; and
- textual—the re-use and remixing of media into what has been termed a ‘trans-media’ model, where stories and media content (for example, sounds, images, written text) are dispersed across multiple media platforms.

Importantly, media convergence refers to an evolutionary process, not an endpoint. It is not simply a technological shift, but it alters relationship between existing technologies, industries, markets, genres, and audiences [2]. Furthermore, convergence alters the business operation of the digital media industry.

4 Driving forces of media convergence

As the concept of media convergence appears to be multifaceted process there are apparently many driving forces behind convergence and the increased interest in the concept [16]. Most dominant driving forces include, but are not limited to:

- (a) technological innovation, including the rise of the Internet and the digital revolution;
- (b) the exponential growth of internet data, the computational power and the transfer of internet data
- (c) deregulation/liberalization and globalization, including passage of the Telecommunications Act of 1996, formation of the European Union and the privatization of telecommunications and media around the world;
- (d) changing consumer tastes and increased consumer affluence;
- (e) technological standardization;
- (f) the search for synergy (i.e., $1 + 1 = 3$);
- (g) increasing global competition (which has resulted in high levels of merger and acquisition activity among media and telecommunication companies around the world); and
- (h) repurposing of old media content for distribution via various forms of digital media [17].

5 Discussion: The business and technological impact of media convergence/divergence

In order to become flexible, adaptive, immediate and accessible digital media have to develop personalized, immersive, customized, innovative, engaging and user-friendly applications and, services that can be easily accessed as well as shared. Strategic shift of media business moves toward Internet of Smart Things, Web 3.0 and Web 4.0, cloud media, personalized, ubiquitous, software based, on-demand, wearable and database generated media and distributor of aggregated content (widgetization of media), flattening of distribution chain, content aggregators and multiplatform distribution. Content and multiplatform distribution aggregators are the winners in the digital future as the availability and the internet speed significantly reduces cost of media content as well as distribution.

Moreover, in the near future, contextual and behavioral micro targeting in advertising will be more prevalently supported by geospatial tagging, location-based marketing in which social interaction becomes a value. Digital media has to offer at the same time personal and, intimate as well as multifocalized experience firstly attempting to build a community, than a marketplace.

Accordingly, media consumption is not becoming exclusively about demand, but it is also becoming about choice that represents a prospective lock in and barrier entry into a digital media ecosystem. Miniaturization in media production and ubiquitous access will inherently favor usage of social media via mobile phones.

As a result of the digital media audience being more divergent due to the increase of media production and its content, the media market is increasingly fragmented and users' taste is more versatile than ever. Different services and applications on the social networks create their own terminal and multiplatform ecosystem that is becoming increasingly unreachable to consumers unless they pay for premium services/applications. What we are now seeing is the distribution platforms converging while the content diverges.

However, a positive side of digital convergence is that it leads to a democratization of content because of the development of web 2.0; where users generate and upload content for a public access [18]. On the other hand, media convergence represents a risk for content producers and distribution operators since most of digital media companies fear a fragmentation or erosion of their markets. Valerie Feldman in her monographic publication 'Leveraging Mobile Media: Cross Media Strategy and Innovation Policy for Mobile Media Communication' further substantiate the competitive and technological advantage of media divergence over media convergence by stating that:

“Multiple utilization of content in the divergent media is one possible leverage for media companies to raise revenue potentials from existing media content and establish multiple revenue streams. The precondition is the production of platform – neutral content that enables repurposing of content according to the syntax specifications of different distribution platforms. The profitability in the media divergent production and distribution is achieved as the content becomes disaggregated and re-bundled according to the characteristics of the medium.” [19].

Thus, the development of multiple utilization of content decreases the technological and economic importance of media convergence. The proliferation of channels and the increasingly ubiquitous nature of computing and communications rather contributes to media divergence. Even on the device level, the plethora of specific devices does not suggest convergence, either, albeit digitization enforces technological convergence to some extent [20]. Yet, consumers' demand for context specificity as well as parallel media usage at the intersection of various media access modes, devices and contents rather suggest increase in media divergence [21].

Nevertheless, Enlund and Lindskog (2000) describe how the range of information from a consumer perspective has widened, as content now is available in many more media channels than before [22]. In this manner, interactivity and online media encourage divergence, but at the same time the technology behind the service and the production work flow, prior to distributing and broadcasting in the different channels, are converging [5].

Another important characteristic that further favours the media divergence over media convergence is the fact that in the digital media distribution channels and platforms the importance of intermediaries is largely minimized. However, one of the few media industry sectors that need media convergence in order to distribute efficiently its media content is IPTV. The reason for increasing interest in media convergence from IPTV industry viewpoint consists in the fact that IPTV channels are dominantly distributed to prospective subscribers via telecom multiplatforms. Despite its reliance on media convergence the industrial sector of IPTV has achieved limited commercial success as presently only 6% of the global TV viewers are pay IPTV subscribers. Moreover, the global future of IPTV market appears to be relatively uncertain as major international consulting and telecom agencies project that until 2018 the number of pay IPTV subscribers will increase approximately just 19 million per year. Moreover, with network providers pushing towards new digital payment models, and the idea of prioritizing consumer traffic related to online paying services, network neutrality seems to be an issue of the past, while the time of managed internet services has come [23]. This revenue business model trend will further diverge the audience market.

It is advisable to point out that media divergence is particularly profitable if the media company decides to use the 'cloud' vendor lock-in. The main competitive advantage of 'cloud' vendor lock-in is that it makes a customer dependent on a content producer/service/application or distribution channel/platform. This is explained that typical customers are unable to use another vendor without substantial switching costs or inconvenience. This is predominantly a case when there is a lack of compatibility or, interoperability between content producer/service/application and distribution channel/platform.

Although, both the old/traditional and digital media can reach small or large audiences, there are many fundamental differences in terms of the competitive advantage in distribution, production, technology, market targeting that favor digital media over old/traditional media. In the tables 2 and 3 these marking differences are exposed in order to more effectively outline the major conceptual differences between digital and old media.

Table 2. The common denominators of major paradigmatic shifts in media business models before and after the digital convergence-divergence

Media business models before the digital convergence-divergence	Media business models before the after convergence-divergence
Industrial media dominantly produced by large multinational corporations	Personal media primarily produced by internet users
Top-down content production	Bottom-up content production
Centralized framework for organization, production, and dissemination of media One to many content distribution	Decentralized (network and on-demand) based media Many to many content distribution
Linear, One-way media communication	Interactive and immersive media communication
Reaching the audience	Connecting the audience
Passive users - Users as Recipients	Active users - Users as participants
Static media	Mobile media
Economies of scale	Economies of scope (Long tail Economics)
One-sided platform distribution	More diversified multi-platform (hypermedia and multimedia) distribution, less hierarchical, and distinguished by multiple points of production and utility
Less available and accessible to the public, distribution costs and viewing is more expensive	Generally available and accessible to the public at little or no cost
The time lag between communications produced by industrial media can be long (days, weeks, or even months)	Capable of virtually instantaneous responses; only the participants determine any delay in response
Once created content, it cannot be altered (once a magazine article is printed and distributed changes cannot be made to that same article)	Easily altered content by almost instantaneously editing and writing comments
Less creative content creation	More creative content creation
Storage capacity for media content is relatively low	Storage capacity for media content is very high Acts as an online database
Low level of content categorization and sharing	High level of content categorization, annotation and sharing: Widgets, collaborative tagging, social classification, social indexing, and social tagging, folksonomy
Less peer-to-peer power Publisher-Centric	More peer-to-peer power User-Centric Model

	UGC – User generated content
Analogue	Digital media Digital convergence Mobile and wireless media Ambient media Augmented media Widget(ized) media Tagged media

Table 3. The common denominators of major paradigmatic shifts in media business models before and after the digital convergence-divergence

Two-dimensional media	3D media
Traditional market targeting (B2C and B2B marketing)	Better and more efficient market and consumer marketing (B2C and C2C) Nicheization Social network and online communities
Web 1.0 and Web 2.0	Web 3.0 (semantic web) and Web 4.0 (symbiotic web)
Value chain	Value network
collaborative consumption	collaborative creation
producer	produser
broadcasting	Narrowcasting, microcasting and egocasting
Interactive media	immersive media
consumerism	prosumerism
top-down organizational structure	bottom up organizational structure
Upstream supply chain (Push marketing, low-cost producers)	downstream supply chain (customization, targetization, high margins)
one to many distribution	many to many distribution
symmetric information flow	asymmetric information flow
First build a marketplace, than a community.	First build a community, than a marketplace.
Attention span is longer	Attention span is shorter
Owning the accessed content	Sharing the accessed content
Searching the data	Searching the metadata
Hardware based media	Software based (cloud) media
Demand is the king	Choice is the king
Industrial, Tangible Economy	Information, network, intangible, experience economy
Connect individual with the information/content/product	Share applications and experience among groups
Information based service	Conversation/Communication based service
Partial information access	24/7 information access

Place bounded media	Space bounded media
Individual/one screen media	Multi-screen media
Value is contained in transaction	Value is contained in relationship
Information based service	Conversation/Communication based service
Usage-based pricing	Access-based pricing

5 The future research perspectives, outlooks and implications

Importantly, the future application of business models in digital and ICT media will be focused on the following technologies: the Industrial Internet of Things - Industry 4.0 with its major five components: 1. Cyber-Physical Systems, 2. Internet of Things, 3. Smart Factory, 4. Internet of Services, 5. Smart Product, Internet of Services, autonomous vehicles, 3D printing, Smart Cloud, Quantum computing, nanotechnology, Big Data (Analytics), Smart Cloud, 5G, Cloud computing, edge and fog computing, artificial intelligence, collaborative robots (cobots), industrial robots, augmented reality, digital billboard advertising, USSD – Unstructured Supplementary Service Data, Predictive analytics, Quantum algorithm, Cognitive Computing, Quantum Computing, Cloud Computing, Biointerface & Gestural Interfaces, Quantifying Emotion, Geo targeting, Wearable technologies with biometric sensors, AI Art, Drone Journalism, Li-Fi, holography, smart grid, smart/intelligent city, Micro-electromechanical systems (MEMS).

6 Conclusion

The successful digital media and ICT corporations will have to act more as corporate planners, as well as ‘cloud’, ‘on-demand’ and ‘ubiquitous’ content and distributor disaggregators, than traditional content and advertising providers. Moreover, with all these changes, media will need to accommodate various consumer lifestyles. In an increasingly global and mobile digital media landscape, it is easier than ever to reach a large audience, but it is harder than ever to effectively connect with it. Therefore, old media traditional preoccupation was to reach the audience, however, in the age of digital media globalization, digital media companies have a twofold task to reach and connect the audience.

In summary, the second decade of the 21st century digital media is apparently becoming increasingly interactive, mobile, immersive, and ubiquitous. Furthermore, the future of the media appears to be specifically oriented towards the establishment of, networked, 3D, on-demand, broadband and unicast as well as multimedia and hyper-media models of distribution, communication and content creation. Therefore, it is crucial that profitable digital media companies realize that media divergence can successfully perform as vendor lock-in a top-down corporate process and a bottom-up consumer-driven process.

The digital business models influenced by digital convergence/divergence will focus on aggregate multi-platform distribution, complementarities, vendor lock-in,

interoperable and networked media and ICT ecosystem, massive personalization/customization, user interface.

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