

Mystification of the Broadcasting Omnibuslaw for the Media Industry in Indonesia

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Abstract

This article discusses the aftermath of the issuance of the work copyright law, which contains articles on broadcasting with the assumption that the migration from analog to digital technology will occur two years after it was enacted on October 5, 2020. The fundamental issue is more on how to implement this law. Change is talking about technology, adequate regulatory instruments, and a complete supporting infrastructure. Media policy in Indonesia has undergone several phases with many issues arising; the pattern of ownership, program content, to management. The local broadcasting media industry will feel the impact when the forced migration of this technology is not based on the principles of equity, justice, and sustainability. The challenge of digital broadcasting is the key to developing Indonesia's broadcast media in the future. Uncertainty in media regulations will impact the management of the broadcast media industry, so serious efforts are needed to create new regulations as derivatives of the work copyright law. Government regulations as derivatives are expected to accommodate industry and public interests.

Keywords: *Mystification; Broadcasting Omnibuslaw; Media Industry*

Introduction

Broadcasting is increasingly squirming after the fall of the New Order regime. Since the enactment of Broadcasting Law No. 32 of 2002, broadcasting media seems to have become mushrooms in the rainy season. Making laws that seem rushed has resulted in the emergence of problems. The establishment of a new broadcasting institution does not seem to pay attention to administrative or technical principles, so the appearance of the emergence of a new broadcasting institution is being forced. From the point of view of private broadcasting institutions, it makes us think that they no longer pay attention to the public interest. On the other hand, subscription broadcasting institutions and communities seem to be neglected. In addition, public broadcasting institutions have not managed optimally.

According to the Broadcasting Law Number 32 of 2002, article 6 which states that:

1. Broadcasting is carried out in one national broadcasting system.
2. In the national broadcasting system, as referred to in paragraph (1), the state controls the radio frequency spectrum used for broadcasting for the most significant benefit of the people.
3. In the national broadcasting system, there are broadcasting institutions and network patterns that are fair and integrated, which are developed by establishing network stations and local stations.
4. For broadcasting operations, a commission shall be established.

The implementation of the article above seems that it can't be optimized until now. Considering the broadcaster's radio with the network category, which should partner with other radio broadcasting institutions in the regions, has not optimally made adjustments. Network radio that already has a relay in one area should be able to use the station. Furthermore, television broadcasting institutions that wish to network must partner with local television broadcasting institutions. However, what happened instead was that they

bought local television licenses and did not carry out network broadcasts according to the technical provisions that the regulatory authorities had formulated.

The rapid growth of mass media in Indonesia has brought consequences for regulation and implementation. Enthusiasm for solving broadcasting problems: The diversity of owners (Diversity of Ownership) and the diversity of content (Diversity of Content) makes television a mainstream media to be managed in advance in terms of management and operations. On the other hand, the development of local television has also become a breath of fresh air for the realization of democratic broadcasting. Broadcast media management must prioritize aspects of human resources as a superstructure that controls the media to survive more. Problems arise when media Human Resources (HR) do not understand organizational management,

The programs presented by network television media which are increasingly varied, also give their color to the development of local television. Showing television shows closer to where the audience is by specializing in shows that are aired based on specific areas will emotionally impact the viewers. Another problem arises when the concept of network radio is still not accepted, but only at the level of gathering at specific portals.

According to Ade Armando, it must be admitted that the application of the context of a network broadcast system to television media has not shown maximum results.¹ For that, the government, in this case, the Ministry of Communication and Informatics (Kemkominfo), through the ministers in that era, took a strategic step by forming a team whose duties were as follows;

1. We are reviewing the implementation of the Broadcasting Law and Government Regulations regarding private television.
2. Comprehensively review the readiness of private broadcasting institutions in implementing network station systems.
3. Comprehensively examine the interests and capabilities of the regions in implementing the network station system.
4. Conduct consultations with stakeholders, experts, and public opinion polls.
5. Develop alternative policies relating to the transfer of ownership of network stations.

The Ministry of Communication and Information's efforts have been carried out in various ways, both in regulations and implementation. However, geographical constraints and more dominant political interests became the inhibiting factors.

With the passing of the Job Creation Law on October 5, 2020, there are several fundamental problems regarding broadcasting in Indonesia. Several articles that have undergone changes or shifts can be predicted to experience difficulties in broadcasting management in Indonesia. There are essential points from the changes in reports and modifications, namely analog to digital migration, with a target time of two years from promulgation. A government regulation will be issued as a guideline for changing this law. The fundamental question is whether this step can be carried out optimally, referring to the Broadcasting Law Number 32 of 2002, whose derivative regulations were issued in 2005. Until now, the implementation has not been maximized.

Media Policy in Indonesia

Regulations related to media policy in Indonesia often make the basis of the Press Law Number 40 of 1999 and the Broadcasting Law as the basis for guaranteeing citizens to exercise freedom of opinion and expression. However, along with technological developments, this law will not be able to have a significant impact considering that

¹ Ade Armando, *Televisi Jakarta diatas Indonesia; Kisah Kegagalan Sistem Televisi Berjaringan di Indonesia* (Yogyakarta: Bentang Pustaka, 2011), 263.

regulations will not catch up with the speed of technology. The mapping of broadcasting institutions seems to be difficult because when the implementation is not optimal.

The media industry is often seen as an institution that drives economic power and is only profit oriented. However, this orientation certainly will not always be easy to implement. The case of television broadcasts centered only on Jakarta-centric is strong evidence of how regulation is powerless over industrial power. Even though the broadcasting law regulates cross-ownership, especially in Article 18 to prohibit cross-ownership, this regulation cannot stop the media oligarchy. Requires that the media industry be distinguished from other industries as a business institution that cannot be calculated mathematically because the unique nature of the media is that it is a means of conveying information with the power of being a means of propaganda.

The use of rubber articles in every law always appears as part of how they use rules as symbols without doing what a policy is. For example, failure to implement a network broadcast system (SSJ) has significantly impacted the diversity of content from the media industry's programs. This failure makes the local broadcasting media unable to do anything to increase their rating or bargaining position in the battle for media industry management. There are already regulations in charge of this. Still, once again, the implementation that is not serious by broadcasting stakeholders has not had an optimal impact on the performance of broadcasting management in Indonesia.

Digital TV Development Challenges

The discourse on the transformation of television and radio from analog to digital has been going on since 2004. At that time, the migration was led by the National Team for Migration of Television and Radio from Analog to Digital. One of his duties is to conduct an in-depth study of the implementation of digital TV broadcasting. So seminars, workshops, and discussions were held, inviting experts and experts in digital TV broadcasting and related experts. At its peak, the team conducted a trial of digital TV broadcasts in mid-2006 using 34 UHF for the DVB-T standard and ch 27 UHF for the T-DMB standard.²

For information, the DVB-T standard is deliberately designed to transmit high-quality digital video, digital audio, and various data. Everything is sent over a 7- or 8-MHz channel. This system is designed to share digital information at a rate of 4.98-31.67 Mb/s. Coded Orthogonal Frequency-Division Multiplex (COFDM) has been selected for DVB-T. This technology is already being used to meet the needs of European broadcasting stations and networks. Single-Frequency Networks (SFN) are widely used in Europe to be more effective.³

Through the Omnibus Law, the desire of the government and the DPR to use digital broadcasting technology is easy to understand. As a country that wants to be part of the global community, Indonesia should have been using digital broadcasting technology for decades like other countries. In addition, digital broadcasting technology can be a solution to increasing television channels. In the future, the community can enjoy a variety of more varied and creative programs.

The urgency of broadcasting migration from analog to digital is often called the "digital quantum leap in television technology".⁴ As an affirmation, Galperin argues that the migration from analog to digital broadcasting is a phenomenal innovation in the

² Harry Budiarto, *Sistem TV Digital dan Prospeknya di Indonesia* (Jakarta: Multikom, 2007), 76.

³ Gerald W. Collins, *Fundamentals of Digital Television Transmission*, 1st ed. (New York: Wiley, 2000), 9, doi:10.1002/0471213764.

⁴ Jock Given, *Switching Off Analogue TV. Dalam Andrew T Kenyon (Editor). TV Futures; Digital Television Policy in Australia* (Melbourne: Melbourne University press, 2007), 51.

history of television.⁵ According to him, digital broadcasting not only touches the reconfiguration of economic interests but is also the center of democratic political mechanisms and popular culture.

Even though some people still question the urgency of using digital broadcasting technology for the community. As Rianto et al. stated that the development of digital TV cannot be seen as just an ordinary phenomenon; more or less, it must contain the interests of the country where the technology is developing from a political and economic standpoint.⁶ This allegation raises the question of who can guarantee that the migration from analog to digital truly prioritizes the public interest. Or on the other hand, what happens vice versa increases the influence of the owners of capital who play behind digital broadcasting.

Ideally, the rules or regulations issued by the government regarding television digitalization policies should be interest-oriented. The powers that will be made need to contain a narrative of public interest above other interests, including market interest. Undeniably, analog TV technology is pushing media convergence even more substantially. In addition, media convergence occurs not only in the use of technology but also in aspects of its management and impact. Changes in audience behavior will appear in correlation with economic and cultural elements.

Digital broadcasting technology will seriously have a significant social, political, and economic impact on broadcasting. As Tadayoni & Skuby:⁷

“Technological innovations like digitalization, audio, and video coding technologies, computerization, and broadband infrastructure, such as cable and satellite networks, make service provision across sectoral boundaries possible. This also imposes new political and regulatory challenges and makes rethinking and re-designing the existing regulatory framework necessary for communication.”

The advantages of using digital technology on television include, first, the abundance of channels that allow digital compression. This technology makes it possible to send 7 or even 10 programs simultaneously. Second, the transmission quality can be improved because digital signals are less susceptible to interference and distortion. Third, the number of choices creates new challenges, and the audience automatically becomes supervisors who are free to control their options. Likewise, portals and search engines can easily filter programs that contain sexual or violent scenes.⁸

While Weber & Tom mention the advantages of digital TV for consumers, namely that there are quite a lot of audio alternatives and can be connected to every computer, the video quality is even six times better, the audience can participate and intervene in broadcasts such as responding directly and the availability of Random Access Storage which can encourage faster access.⁹ As for the benefits for the first operator or distributor, records management will be more organized. Second, reduced storage. Third, more efficient bandwidth. Fourth, it makes it easier for advertisers to create their ads: Fifth, the availability of multi-use hard disks.

⁵ Hernan Galperin, *New Television, Old Politics: The Transition to Digital TV in the United States and Britain*, 1st edition (Cambridge: Cambridge University Press, 2007), 75.

⁶ Puji Rianto, *Digitalisasi Televisi di Indonesia: Ekonomi Politik, Peta Persoalan, dan Rekomendasi Kebijakan* (Yogyakarta: PR2Media dan Yayasan Tifa, 2012), 37.

⁷ Reza Tadayoni and Knud Erik Skouby, “Terrestrial Digital Broadcasting: Convergence and Its Regulatory Implications,” *Telecommunications Policy* 23, no. 2 (March 1, 1999): 175–99, doi:10.1016/S0308-5961(98)00086-X.

⁸ Joseph D. Straubhaar and Robert LaRose, *Media Now: Communications Media in the Information Age* (Belmont: Wadsworth, 2000), 23.

⁹ Joseph W. Weber and Tom Newberry, *IPTV Crash Course*, 1st edition (New York: McGraw Hill, 2006), xvi–xvii.

In addition to these advantages, the transition from analog to digital technology has had a significant impact, both from a political, social, technical, and cultural aspect. This impact is illustrated by the phenomenon in the United States, which has driven changes in the mechanism for TV shows being produced, edited, and broadcast. That phenomenon includes changes to the overall infrastructure for digital signal transmission. Then all equipment used for analog TV must be replaced with digital TV equipment. As a result, more than 200 million analog TV sets in the United States were eventually replaced. The transition began in 1990, and the era of analog TV ended in 2008, marking the start of a new generation of digital TV.¹⁰

It doesn't end there; the business side of the TV industry itself more or less influences the problem of transferring digital technology. They can affect them, including regulations, broadcasting infrastructure, and commercial issues. Rules are needed to control access to restricted channels and ensure they are in the public interest. In every country, regulations are implemented in different ways and approaches; for example, in the United States, controlled by commercial interests, general interests, or other strategies that emphasize state control.¹¹

In 2010 research was conducted by Billon, Lera-Lopez, and Marco with the title "Differences in Digitalization Levels: a Multivariate Analysis Studying The Global Digital."¹² It was stated that several groups imitated technology in developed and developing countries. Several factors influence differences in application between countries, including aspects of business, individuals, families, and geographical location to differences in socio-economic levels. These factors make them have unequal opportunities to access information and communication technology, including the limitations of each user that are different. To conclude, there is a positive relationship between the higher education of the community in an area and the digitalization program.

Furthermore, the socio-technical theory is relevant to this discourse. This theory states that the application of technology products consists of at least 3 sub-systems: first, a technical system that includes equipment, infrastructure, applications, and services. Second, the environmental system consists of policies, regulations, and society. Third, the social system includes markets, customers, and industry.¹³

Shin Studies can be the basis for implementing digital broadcasting technology in Indonesia. Based on the experience of implementing Digital Multimedia Broadcasting in Korea, it was found that there was an imbalance in regulation because the concept was not clear from the start. In one case, the law can reach, while in another, it cannot.¹⁴ The socio-technical perspective shows aspects of DMB and the relationships between technology, services, markets, rules, and users. The conclusion may be that technology is developed sophisticatedly, but it will be useless if the market, users, and regulations are not given attention.

Experience using digital TV in America and Korea can be an essential lesson about the need for careful preparation and planning. The government, in this case, needs to invite broadcasting stakeholders to have a long discussion about plans to move analog

¹⁰ Ibid., xvii.

¹¹ Colin Drury, *Management and Cost Accounting*, 8th ed. (United Kingdom: Cengage Learning EMEA, 2012), 15.

¹² Margarita Billon, Fernando Lera-Lopez, and Rocío Marco, "Differences in Digitalization Levels: A Multivariate Analysis Studying the Global Digital Divide," *Review of World Economics* 146, no. 1 (April 1, 2010): 45, doi:10.1007/s10290-009-0045-y.

¹³ Dong H. Shin, "Socio-Technical Challenges in the Development of Digital Multimedia Broadcasting: A Survey of Korean Mobile Television Development," *Technological Forecasting and Social Change* 73, no. 9 (November 1, 2006): 1146, doi:10.1016/j.techfore.2005.11.004.

¹⁴ Ibid., 1157.

television to digital. Progress in the field of broadcasting needs to be done. Still, the aspects of equity and implementation that pay attention to all aspects starting from technology, service, community readiness, and regulation, must be the primary consideration to avoid misunderstanding and rejection.

Broadcasting Omnibuslaw

After enacting the Job Creation Law, better known as the Sweeping the universe law, it has received a rejected by various parties. The consequence of the birth of this law for broadcasting is by rearranging broadcast media, especially how government regulations accompany the migration of analog to digital broadcasting to guide the transition process. The question arises whether this is the answer to the problem of broadcasting has not been resolved. With good intentions for alternative solutions to break the stagnation of broadcasting regulations that have not been realized for a long time, the Job Creation Law can be the answer. Furthermore, the transformation of analog to digital TV broadcasting and the certainty of the Analog Switch Off (ASO) deadline has a clear legal basis, so it is expected to accelerate.

The provisions governing the ASO deadline are contained in Article 60 A of the Job Creation Law, which reads: (1) Broadcasting is carried out by keeping abreast of technological developments, including the migration of broadcasting from analog to digital technology. (2) Migration of terrestrial television broadcasting from analog technology to digital technology as referred to in paragraph (1) and analog switch-off shall be completed no later than 2 (two) years from the entry into force of this law. (3) Further provisions regarding the migration of broadcasting from analog technology to digital technology, as referred to in paragraph (1) and paragraph (2), shall be regulated in a Government Regulation.

The government continues to direct many operators developing 5G internet networks to implement future frequency sharing and infrastructure schemes. As a habituation step, the government also allows simultaneous broadcasting of analog and digital TV so that people get used to it. Several broadcasting institutions have even broadcast digitally. In general, it is known that there are differences in the use of frequency bands between analog and digital TV broadcasting. Analog TV broadcasting utilizes the 328 Mhz frequency band, while digital broadcasting uses 700 Mhz. The analog switch-off allows the frequency at 700 Mhz to be rearranged and utilized for other services, such as fast internet, while digital broadcasting can use 112 Mhz.

So far, each industry player has built the frequency spectrum and passive infrastructure. Apart from spending a lot of money, it also disrupts urban planning, which runs independently without coordination. If the migration to digital broadcasting is implemented, it opens opportunities for frequency sharing, which emphasizes effectiveness and efficiency.

Implementing digital broadcasting is part of the government's efforts to catch up with other countries worldwide because almost 90% have stopped broadcasting analog and switching to digital. Even within the scope of ASEAN, all countries have agreed to migrate. It can eliminate the frequency interference between directly adjacent countries if this is done successfully.

Referring to the Job Creation Law, migration to digital broadcasting should be carried out no later than 2022 or 2 years after this law is passed. According to the Government through the Minister of Communication and Informatics, Johnny G Plate, the national digital transformation will bring extraordinary changes in vital sectors such as education, health, economy, and disaster.

In particular, in the economic field, the utilization of the 700 MHz frequency for mobile broadband will provide benefits in the form of an additional increase in Gross

Domestic Product (GDP), opening new job vacancies, expanding the potential for new businesses and other economic impacts according to studies conducted by the government with experts.

On the other hand, the Job Creation Law positions the government as having the most significant authority to regulate broadcasting governance; this can be easily recognized because Article 34, which governs the role of KPI in the broadcasting licensing process, can no longer be found or omitted. The deletion of this article automatically aborts the ten-year broadcasting license time limit for TV and five years for radio; likewise, the prohibition of broadcasting licenses being transferred to other parties. With all this information, the Job Creation Law fully mandates the authority to transmit from analog to digital broadcasting to the government.

The Future of Local TV

Based on AC Nielsen data, media advertising spending in Indonesia throughout 2019 grew by 10% compared to the previous year. The total advertising spending in 2018 on TV, radio, and print reached IDR 168 trillion. TV again controls 85 percent of advertising spending, with a figure of more than 143 trillion. This figure grew 14 percent compared to 2018. She was followed by advertising spending on print media of around Rp. 22 trillion and radio of around Rp. 1.7 trillion. These figures show that TV still has the largest share of advertising spending compared to the others.

Meanwhile, spending on local TV advertising is minimal compared to national media. Even though the investment costs incurred are substantial, including rental fees and production systems that are not cheap, it is practically predictable that local TV will find it difficult to compete when digital broadcasting technology begins to be used. All the tools used today that are still analog-based must be replaced with digital broadcasting technology.

Many local TV stations complain about this picture of the future. Especially now that they are trying to revitalize the TV industry and find forms, some have even developed but suddenly asked to accept the reality to change the business model from what it has been running. This condition certainly felt heavy for local TV.

Admittedly, investment cost constraints still haunt local TV to adapt to digital broadcasting technology. Just surviving in the current situation is still tricky, especially in covering operational costs. In this case, local TV needs financial assistance from strategic parties. Meanwhile, if we pay attention to the income potential, it is still not encouraging. In conclusion, as long as national TV controls broadcast in the regions, local TV's efforts to survive and compete for advertisements will become increasingly tricky.¹⁵

At this point, digital broadcasting technology is an entirely new era and very different from before. Several essential things to pay attention to include, firstly, from the production aspect, the supporting equipment for this technology is digital-based, so you have to start investing in digital broadcasting equipment.

The second aspect of distribution concerns the receiving device. It takes time to socialize digital broadcast-receiving devices to the public. The third is about business. At its core, the digital era's business model lies in implementing the multiplexer. Meanwhile, building it requires a lot of capital. Digital TV investment is hardly a problem for national TV. However, for local TV, it has become a big problem, which until now has been challenging to find a solution for.

The government must strive for the concepts of the diversity of ownership, diversity of content, and network station systems (SSJ) to be applied consistently. Later, during the transformation from analog to digital TV, content and program diversification

¹⁵ Agung Prabowo, "Era Penyiaran Digital: Pengembangan atau Pemberangusan TV Lokal dan TV Komunitas?," *Jurnal ASPIKOM* 1, no. 4 (January 21, 2012): 312, doi:10.24329/aspikom.v1i4.27.

will occur. However, in every regulatory change, the government must prioritize the community's interests, local industry, and services. For this reason, it is necessary to encourage increased efficiency in the use of frequency spectrum, improve the quality of broadcast program reception, a convergence of multimedia services, and grow software and hardware industries that can produce devices to support digital technology.¹⁶

In this position, the government pays attention to local TV to maintain healthy competition. Diversity of content and ownership are only the subject of discussion and are not difficult to implement. There needs to be a touch of government support in the form of regulations and policies to save local television from being dominated by capital power if the agenda for using digital television is later carried out.

Conclusion

Broadcasting media policy in Indonesia has experienced a period of stagnation, considering that the revision of the Broadcasting Law has been scheduled since 2010 in the national legislation program. It is hoped that the presence of the Job Creation Law will solve the fundamental problems of broadcasting so far. The real problem of broadcasting in Indonesia is the diversity of owners (Diversity of Ownership) and the diversity of content (Diversity of Content). On the other hand, essential points in the Job Creation Law only speak at the level of technology migration from analog to digital. Even though it has been explicitly explained that government regulations will support the work copyright law, implementation will not be easy. It seems that regulations will not catch up with the speed of technology, so the challenge of implementing analog-to-digital technology migration will undoubtedly cause new problems related to the arrangement of broadcast media in Indonesia. The tug-of-war between interests seems unavoidable because all broadcasting stakeholders have their agendas. On the other hand, policymakers are often late in anticipating the pace of technological change, and this will indirectly affect the performance of our broadcast media industry. As a solution for this reality, government regulations that will be made to support the Job Creation Law can at least provide; 1) feeling comfortable for broadcasting stakeholders in Indonesia 2) anticipating the fundamental problems of digital broadcasting by keeping abreast of international scale technological developments and 3) providing early education to the public regarding digital broadcasting.

Bibliography

- Armando, Ade. *Televisi Jakarta diatas Indonesia; Kisah Kegagalan Sistem Televisi Berjaringan di Indonesia*. Yogyakarta: Bentang Pustaka, 2011.
- Billon, Margarita, Fernando Lera-Lopez, and Rocío Marco. "Differences in Digitalization Levels: A Multivariate Analysis Studying the Global Digital Divide." *Review of World Economics* 146, no. 1 (2010): 39–73. doi:10.1007/s10290-009-0045-y.
- Budiarto, Harry. *Sistem TV Digital dan Prospeknya di Indonesia*. Jakarta: Multikom, 2007.
- Collins, Gerald W. *Fundamentals of Digital Television Transmission*. 1st ed. New York: Wiley, 2000. doi:10.1002/0471213764.
- Drury, Colin. *Management and Cost Accounting*. 8th ed. United Kingdom: Cengage Learning EMEA, 2012.
- Galperin, Hernan. *New Television, Old Politics: The Transition to Digital TV in the United States and Britain*. 1st edition. Cambridge: Cambridge University Press, 2007.

¹⁶ Fahrul Pradhana Putra, "Menuju Indonesia TV Digital 2018: Bisnis vs Regulasi," *Semantik* 3, no. 1 (November 16, 2013): 3.

- Given, Jock. *Switching Off Analogue TV. Dalam Andrew T Kenyon (Editor). TV Futures; Digital Television Policy in Australia*. Melbourne: Melbourne University press, 2007.
- Prabowo, Agung. "Era Penyiaran Digital: Pengembangan atau Pemberangusan TV Lokal dan TV Komunitas?" *Jurnal ASPIKOM* 1, no. 4 (January 21, 2012): 301–14. doi:10.24329/aspikom.v1i4.27.
- Putra, Fahrul Pradhana. "Menuju Indonesia TV Digital 2018: Bisnis vs Regulasi." *Semantik* 3, no. 1 (November 16, 2013): 115–20.
- Rianto, Puji. *Digitalisasi Televisi di Indonesia: Ekonomi Politik, Peta Persoalan, dan Rekomendasi Kebijakan*. Yogyakarta: PR2Media dan Yayasan Tifa, 2012.
- Shin, Dong H. "Socio-Technical Challenges in the Development of Digital Multimedia Broadcasting: A Survey of Korean Mobile Television Development." *Technological Forecasting and Social Change* 73, no. 9 (November 1, 2006): 1144–60. doi:10.1016/j.techfore.2005.11.004.
- Straubhaar, Joseph D., and Robert LaRose. *Media Now: Communications Media in the Information Age*. Belmont: Wadsworth, 2000.
- Tadayoni, Reza, and Knud Erik Skouby. "Terrestrial Digital Broadcasting: Convergence and Its Regulatory Implications." *Telecommunications Policy* 23, no. 2 (March 1, 1999): 175–99. doi:10.1016/S0308-5961(98)00086-X.
- Weber, Joseph W., and Tom Newberry. *IPTV Crash Course*. 1st edition. New York: McGraw Hill, 2006.

