Uber Television:
Internet-Only Television Stations

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I. INTRODUCTION

Television is gradually moving to the Internet, and the FCC's Broadcast Incentive Auction[1] provides an opportunity to complete the transition. The Auction opens up a window of opportunity through which Internet-only television stations can become a reality. This new type of television station can embrace not only an alternative distribution mechanism, but also other technological and workplace

[1] The Incentive Auction is a major step in the FCC's long-term plan to have television broadcast stations surrender frequencies that then can be reassigned through forward auctions to broadband wireless carriers. Section VIII. discusses the auction process in more detail.

developments that can reduce costs and increase the quality of program content,[2] thereby accommodating shifting audience preferences for Internet distribution.

More people than ever are watching television on the Internet.[3] Every month, more and more cable customers pull the plug on their subscriptions.[4] Local television stations are spending millions of dollars on figuring out how to establish a relevant presence on the Internet, even as they spend more to upgrade their transmitters and control rooms to accommodate digital technologies.[5] Consumers seeking the benefit of this technological revolution often are disappointed, however. The plethora of multiple login credentials and interfaces is frustrating.

This article argues that dramatic reduction in the cost of technology for television production and distribution, combined with the profound trend toward a gig economy,[6] makes it possible to provide television entertainment through "stations" existing entirely on the Internet. By embracing a set of disruptive technologies[7] fully, video-programming entrepreneurs can earn a return on investment by providing a more satisfactory experience to television viewers. In order to do so, however, entrepreneurs must avoid traditional practices that restrict most television content available on the Internet. This will require cutting the cord[8] with traditional content producers who routinely insist on restricting Internet users to particular channels and services to which they must subscribe.[9]

The viability of Internet-only television benefits from relying on labor in the gig economy—relying, as the title of this article suggests, on the model adopted by Uber,[10]— and on simpler production, programming, and distribution technologies on the Internet. Doing so will obviate the need for expensive broadcast transmitters, antennas, and studio-to-transmitter links, known colloquially in the industry as "boomers."[11] This model will encourage traditional stations to go off the air, redeploy the capital they have invested in their boomer transmitters and antennas, and send their programming exclusively through the Internet to their viewers. Others will stay on the air but adapt the signals they transmit so that they become another communication path at the edge of the Internet, complementing cellphone facilities in distributing large quantities of streaming video.

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[2] Accommodation of a much wider class of content producers for both news and entertainment would increase quality overall.

[3] *See infra* § III. A.

[4] *See infra* § III. A.

[5] *See infra* § III. A.

[6] *See infra* § III. C.

[7] *See infra* § III

[8] The term "cutting the cord" usually refers to television viewers who cancel their cable subscriptions and watch video programming on the Internet instead. As used in the text, it refers to cutting a different cord, the one that binds television stations to traditional content producers.

[9] *See infra* III. A.

[10] *See generally* Uber, https://www.uber.com/about [https://perma.cc/WZK2-A2T7] (last visited Apr. 1, 2016).

[11] *See infra* § II (describing current television station technologies).

This article begins by explaining six disruptive technologies[12] and market phenomena that, together, comprise a perfect storm that creates a window of opportunity for bold entrepreneurship in video programming. It explains how a television station can embrace the technologies and avoid a number of legal requirements associated with legacy television broadcasting, such as station and operator licenses, and elaborate copy protection schemes that make it difficult and inconvenient for viewers to look at television on the Internet. It then evaluates the elements of a business model for Internet-only television stations. This article also addresses the question so often asked of those with innovative entrepreneurial ideas: "If this is such a great idea, why isn't someone already doing it?" Finally, it explains how the Broadcast Incentive Auction may stimulate bolder action than has occurred so far.

The likelihood of successful Internet-only television stations depends more on economics, strategic creativity, and entrepreneurial courage than it does on the law. Nevertheless, the law operates in the background of each aspect of the perfect storm. For example, the FCC's implementation of the congressional decision to reallocate spectrum through an auction process provides a large capital pool that facilitates dramatic transition by legacy television stations. Further, employment law has encouraged different forms of gig-economy work that have proven to be dramatically successful in the case of Uber. And finally, copyright law makes it difficult to realign business relationships to take advantage of new entertainment and distribution technologies. In some of these examples, current law is a barrier to innovation; in others, such as the auction of television spectrum, it can be an engine.

II. STATUS QUO

Approximately 1400 commercial broadcast television stations exist in the United States.[13] Most of them are independently owned but affiliated with one of four major networks: ABC, CBS, NBC, and Fox.[14] Although their programming schedules vary, virtually all of them air some combination of news, network programming, syndicated programming, locally produced non-news content, and advertising. Virtually all of their revenue comes from advertising, although news-producing stations earned five billion dollars from retransmission fees in 2015.[15]

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[12] *See infra* § III

[13] 16th Annual Assessment Status of Competition in the Market for Delivery of Video Programming, 30 FCC Rcd. 3253, 3320 (2015) [hereinafter FCC 2015 Video Competition Report].

[14] Consolidation of ownership has been occurring for the last several decades. Some stations have always been owned by networks, but that kind of vertical consolidation is less prevalent than ownership by non-network chains such as Sinclair, Scripps Howard, Knight-Ridder, the Tribune corporation, and Reno. *See generally* Austin Caridad, Note, *Overwhelmed by Big Consolidation: Bringing Back Regulation to Increase Diversity in Programming that Serves Minority Audiences*, 63 FED. COMM. L.J. 733, 734 (2011).

[15] Amy Mitchell, STATE OF THE NEWS MEDIA 2015, PEW RESEARCH CENTER 6 (Apr. 29, 2015), http://www.journalism.org/files/2015/04/FINAL-STATE-OF-THE-NEWS-MEDIA1.pdf [hereinafter Mitchell 2015]. In the past, networks paid local stations to air network programming, but the flow of payments has reversed, with stations paying networks for network programming. FCC 2015 Video Competition Report, *supra* note 15, at 3345.

Television comprises three basic functions: content production, programming, and distribution. Content production includes the various processes of scripting, casting, principal photography, and editing. It also includes collecting content, as in capturing imagery and writing stories about news, and producing content from in-studio activities. Programming involves selection and arrangement of content—stitching it together.[16] Distribution takes programed content and makes it available to viewers.[17]

All three functions must be supported by revenue. Broadcast television is supported almost entirely by advertising, while cable is supported by subscription fees. Internet distribution can be free, advertiser-supported, or require subscriptions for pay-per-view to access available content.[18] The ubiquity of the Internet is gradually supplanting the other means of distribution. It has no direct effect on the other two functions mentioned above.

Most television stations are worried about the shifts away from conventional broadcast and cable channels to the Internet, as discussed in section A The stations have publicly announced plans to accommodate this demand shift by making more of their content available on the Internet, as discussed in the same section. Nevertheless, a variety of license restrictions for the seventy-five percent of their programming that is not local have made it difficult for these stations to put content and advertisements on the Internet in a way that takes full advantage of Internet technology and appeals to users, as discussed in section B These stations are reluctant to abandon their traditional business models and the capital they have invested in boomer transmitters and antennas. The capital required for conventional television stations is substantial, about half of which is associated with radio antennas, transmitters, studio to transmitter links, and other broadcast infrastructure. "TV transmitters are unique in that no other application requires such high levels of . . . radio frequency (RF) power generation while operating virtually uninterrupted."[19]

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[16] In *Fortnightly*, the Supreme Court had to decide what constitutes "broadcasting" in order to support its conclusion that CATV systems were not engaged in that function, but only distribution. It identified five activities constituting broadcasting—what this article calls "programming," namely selection and procurement of programs to be viewed, producing programming itself, and converting the visible images and audible sounds of programs into electronic signals. Fortnightly Corp. v. United Artists Television, Inc., 392 U.S. 390, 398 (1968). In *Teleprompter*, the Supreme Court added program origination, selling advertising, and interconnecting with other systems as also core activities of the programming function. Teleprompter Corp. v. Columbia Broadcasting Inc., 415 U.S. 394, 403–04 (1974). It emphasized that programming and distribution involve distinct activities, even when they are offered as a bundle to customers. *Id.* at 405. The Supreme Court used the term "origination" to refer to programming, and the term "reception" to refer to distribution. *Id.* In *Aereo*, the Court associated exercising choice over what to transmit as a programming activity. Am. Broad. Cos. v. Aereo, Inc., 134 S.Ct. 2498, 2505 (2014).

[17] The *Aereo* Court also enhanced understanding distribution, as the term is used in this article, by focusing on what it called the "transmit clause" in the 1976 Act – communicating programming to viewers. *Aereo*, 134 S.Ct. at 2506.

[18] FCC 2015 Video Competition Report, *supra* note 15, at 3354–64 (describing OVD ventures and their business models).

[19] Gerald W. Collins et al., Harris Corp. Eng'rs, *Analog Television Transmitters*, *in* Nat'l Ass'n of Broad. Handbook 1481 (10th ed. 2007).

For locally produced programs—especially news—broadcast stations rely on salaried employees, many of whom are governed by collective-bargaining agreements. Broadcast stations have , however, historically contracted with stringers and freelancers[20] to augment salaried staff at times of major event news coverage, or on weekends and late at night when salaried personnel are off duty. Furthermore, broadcast stations long have earned much of their revenue from local advertising. A station inserts local advertisements into locally produced content and into syndicated content in advertising holes made available by the syndicator for that purpose.[21] They have not, however, taken much advantage of newer targeted-advertising technologies.

Advertising revenue associated with local news broadcasts accounted for fifty percent of local station revenue in 2013.[22] More than 1000 local stations air local news broadcasts, but consolidation has resulted in some 300 of these broadcast news programs being produced by another station.[23] Most commercial television programs are either thirty minutes or one hour long. Within a full hour programming slot, advertising typically occupies fourteen minutes or more.[24]

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[20] The distinction between stringer and freelancer is vague, if, indeed, a distinction exists. Both are informal terms referring to contract journalists who work on a story-by-story or an assignment-by-assignment basis rather than as continuing employees. As between the two terms, informal parlance in the industry generally considers freelancers to be a more professional type of contract journalist, while stringers work very informally and sometimes use questionable means or have questionable motivation, as popularized in the 2015 movie, *Nightcrawler*. This article uses the term *stringer* in preference to the term *freelancer*. *Stringer* better exemplifies the casual and episodic nature of the relationship between the worker and the television station, while *freelancer* often refers to someone who has an ongoing relationship with a station but simply is classified as an independent contractor rather than as an employee. The cost structure of a station constructed around freelancers, in a sense, would not be as attractive as one structured around stringers. *See* Stephanie J. Frazee, *Bloggers as Reporters: An Effect-Based Approach to First Amendment Protections in a New Age of Information Dissemination*, 8 Vand. J. Ent. & Tech. L. 609, 627 (2006) [hereinafter "Frazee"] (describing stringers and freelancers and considering whether journalists' First Amendment protections extend to freelancers and stringers). Newspaper stringers typically concentrate on written stories, while television stringers usually concentrate on video imagery.

[21] Television Operations at 17–18 (explaining that sustaining programs involves ingestion of a stream or file that comprises the entire program content rather than ingesting program segments that begin and end at intended ad boundaries).

[22] FCC 2015 Video Competition Report, *supra* note 15, at 3334 (reporting that local news programming accounts for just under fifty percent of television station advertising revenue); Katerina Eva Matsa, *5 Facts About the State of Local TV Newsrooms* , PEW RESEARCH CENTER (July 23, 2014), http://www.pewresearch.org/fact-tank/2014/07/23/5-facts-about-the-state-of-local-tv-newsrooms/ [https://perma.cc/3QD9-WZKA]. The share of total revenue produced by local news has climbed for the last ten years, reaching fifty percent in 2013. Mitchell 2015, *supra* note 17, at 47.

[23] Matsa, *supra* note 24.

[24] *Average Hour-Long TV Show is 36% Commercials*, MARKETING CHARTS (May 7, 2009), http://www.marketingcharts.com/television/average-hour-long-show-is-36-commercials-9002/ [https://perma.cc/VX3U-8P6K]. In a typical large-market station broadcast day, news accounts for six hours: two to three hours in the morning as viewers are getting ready to go to work and commuting, an hour in the middle of the day, two hours in the late afternoon to cover the evening commute, and an hour in the late evening. Stations frequently experiment with alterations in their schedule for newscasts, allocating more or less total time and trying different start times. Local news programming accounts for about twenty-five percent of total airtime. The remaining seventy-five percent of total airtime comprises live network programming such as the *Today Show* and *Good Morning America*, narrative programs such as the soap opera *General*

Large market stations are adding news programming because it has a stronger appeal to audiences than other types of programming, and because news programming is cheaper to produce than syndicated entertainment programming is to buy.[25] The marginal cost of additional news hours is low, because the stations already have the infrastructure and the staff. The same trend is apparent in other parts of the country.[26] The concern is that audiences will eventually become oversaturated with news coverage. And, to be sure, there is only so much news to be covered, even in a big city like Chicago. Recycling what has already been broadcast, even if slightly different video clips are used, has its limits.

An analysis of one thirty-minute news program[27] revealed the following content:

- Reported news: 8.17 minutes (twenty percent)[28]
- Weather green screen: 4.75 (sixteen percent)[29]
- Weather stories: 2.0 (seven percent)[30]
- Traffic green screen: 2.5 (nine percent)[31]
- Traffic video: 0.17 (one percent)[32]
- Advertisements: 5.17 (eighteen percent)[33]
- Headlines and teasers: 2.7 (nine percent)
- Station self-promotion: 1.0 (three percent)
- Banter among anchors: 0.3 (one percent)

Hospital during prime time, almost all of which are licensed rather than being produced locally, and late evening network features such as the *Tonight Show*. Miscellaneous low-budget local programming such as cooking shows and features with local content are produced by the station itself. Although variations in schedules are considerable, most stations produce most of the news that they broadcast, and license almost everything else. The author's analysis of the programming schedules of ABC7 in Chicago WAND-TV in Decatur, Illinois and WAIT, the CBS affiliate in Birmingham, Alabama shows roughly six hours of local news in Chicago, four hours in Decatur, and three hours in Birmingham.

[25] A 2016 report on the five Chicago stations, for example, showed that they added a total of fourteen hours of news to their programming weeks in 2015. Lynne Marek, Why Chicago TV stations are adding so many hours of news, Crains, Jan. 9, 2016, http://www.chicagobusiness.com/article/20160109/ISSUE01/301099993/chicagos-biggest-tv-stations-are-adding-more-hours-of-local-news (motivation is to arrest the drift of audience away from over-the-air content toward Internet sources).

[26] *See* Diana Marszalek, *Local TV News Output Hits All-Time High, Broadcasting and Cable*, Broadcasting & Cable, (June 2, 2016, 10:44 AM), http://www.broadcastingcable.com/news/local-tv/local-tv-news-output-hits-all-time-high/156999 (reporting that local stations are adding news programming).

[27] Author's stopwatch analysis of ABC7 News, Chicago, 04:30-05:00 (Jan. 11, 2016), streamed live to station's website, http://abc7chicago.com/live/ [https://perma.cc/5ZTN-VNGX].

[28] Defined as combination of studio and field reporting, almost all with intercut video or still images.

[29] Defined as when a weather reporter appeared to stand in front of the weather map. "Green screen" signifies that a reporter physically stands in front of a green-colored blank background, onto which the master control operator superimposes the image of a map.

[30] These included field reporting and interviews.

[31] Defined as when a traffic reporter appeared to stand in front of a street map showing areas of congestion.

[32] Defined as video of outside images of traffic.

[33] Most of the advertisements were thirty seconds each. Two of them were repeated verbatim from earlier parts of the program.

- Blank screen: 2.1 (seven percent)[34]

According to Nielsen, the share of prime-time programming in the 2010-2011 season, compared with 2001-2002, was as follows:

- Reality 56.4% (up from 22.4%)
- General drama 23.6% (down from 29.5%)
- Sports twenty percent (down from 22.4%)
- Sitcoms 0% (down from 38.9%)[35]

The surge in reality programming is driven by its lower costs.[36] The rise in sports programming is facilitated by the willingness of professional leagues and the NCAA to make license deals that bring in huge revenue streams[37] and driven by audience appeal:

"NFL games will continue to be a golden goose for networks and their advertisers for one major reason: NFL games are one of the few remaining programs that huge audiences want to watch live instead of recording to watch later – fast-forwarding through the commercials that companies pay millions to air."[38]

Legacy stations reach their audiences through a combination of radio frequency transmissions from local transmitters and antennas, cable retransmission, satellite retransmission,[39] telephone company DSL, and the Internet.[40] All U.S. television stations completed the transition from analog transmissions using the NTSC standard to digital[41] transmissions using the ATSC standard in 2009. The conversion required

[34] Defined as when the station logo or sports scores filled gaps where station apparently lacked license to put content on Internet.

[35] *10 Years of Primetime the Rise of Reality and Sports Programming*, NIELSEN (Sept. 21, 2011), http://nielsen.com/us/en/insights/news/2011/10-years-of-primetime-the-rise-of-reality-and-sports-programming.html [https://perma.cc/D4SZ-XSCQ] (reporting shift toward realty and sports shows and away from drama and, significantly, away from sitcoms).

[36] Reality programs cost considerably less to produce than drama. One report estimates reality production costs about one-third the cost of a program like X-Files. *Reality TV—A Brief History*, OREGON STATE UNIVERSITY, http://oregonstate.edu/instruct/soc499/cordray/media/Realitytv.html [https://perma.cc/8G7C-TSA7] (last visited April 5, 2016) (describing relative production costs, ownership, and appeal to advertisers).

[37] *See* Brent Schrotenboer, *NFL Takes Aim at $25 Billion, But at What Price?*, USA TODAY SPORTS (Feb. 5, 2014), http://www.usatoday.com/story/sports/nfl/super/2014/01/30/super-bowl-nfl-revenue-denver-broncos-seattle-seahawks/5061197/ [https://perma.cc/4KRH-8SMM] (reporting five billion dollars in annual licensing fees paid to NFL by CBS, Fox, NBC, and ESPN); Karen Gullo, *NCAA Players Win Piece of $800 Million Broadcast Pie*, BLOOMBERG (Aug. 8, 2014), http://www.bloomberg.com/news/articles/2014-08-08/ncaa-ban-on-student-player-pay-ruled-illegal-by-u-s-judge [https://perma.cc/L4YZ-QPVZ] (reporting $800 million in license fees to NCAA).

[38] Schrotenboer, *supra* note 39.

[39] *See infra* Part V. C. for a discussion of cable and satellite distribution rights. Satellite and cable distribution are inherently related. Most cable distributors use satellite links as part of their distribution infrastructure. For example, network-originated material usually travels by satellite to a regional cable headend, where it is processed and fed into the wired cable plant for distribution to customers. The principal regulatory difference is whether a viewer receives her television signal by wire from a cable headend, or whether she receives it directly from a satellite.

[40] Ninety percent of viewers receive local broadcast station programming through an MVPD. FCC 2015 Video Competition Report, *supra* note 15, at 3331.

[41] All radio signals are analog, but can be modulated by information encoded digitally. Indeed, the

stations to change frequency assignments to free up spectrum for public safety and broadband wireless application.[42] Using digital technologies for transmission has stimulated a broader embrace of digital hardware and automation in studios and control rooms. Network-owned stations are centralizing their master control functions in third-party provided master control facilities that perform the function for all the stations.[43]

The stage is set for more profound changes.

III. A Perfect Storm of Influences

Six disruptive phenomena threaten legacy arrangements and create new opportunities to rethink how television works. Audiences are migrating from cable and over-the-air broadcasts towards the Internet. Targeted advertising is replacing conventional mass-audience advertising. Work is fragmenting, with more of the labor force earning a living through contingent part-time arrangements—in the gig economy—instead of through long-term, full-time employment. New technologies reduce the cost of television production and programming, lowering barriers to entry. Entertainment programs are being produced more by indie moviemakers rather than traditional studios and production enterprises. Capital markets are opening up to small investors and small issuers of securities.

A. *Audiences Are Moving to the Internet*

Television audiences are moving from over-the-air viewing toward over-the-web viewing. Moreover, audiences are increasingly watching content on mobile devices to supplement or replace home viewing.[44] Most popular television entertainment series, movies, sporting events, and local news are available through the

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first radio communications were digital because Morse Code is digital. Essentially, the carrier radio signal is either on (1) or off (0).

[42] *Digital Television*, FCC, https://www.fcc.gov/general/digital-television [https://perma.cc/JM9D-2RCJ] (last visited April 5, 2016) (describing advantages of digital television, the statutory mandate to use its technology exclusively, and the motivation to free up spectrum for public safety and broadband wireless); *compare* Brett Jenkins & John Freberg, *Digital Television Transmitters*, *in* Nat'l Ass'n of Broad. Handbook 1535 (10th ed. 2007) (providing brief history of digital television and its standards), *with* Collins, *supra* note 21 at 1481 (describing analog transmission systems).

[43] *See ABC O&Os Outsourcing Master Control Operations*, TVNewsTalk (July 23–31, 2014) http://forums.tvnewstalk.net/index.php?threads/abc-o-os-outsourcing-master-control-operations.14005/ [https://perma.cc/EXW5-LD5Q] (debating ABC's decision to follow suit); *Outsourced Master Control Drives NBC O&Os*, TVNewsCheck (Nov. 17, 2011, 12:05 PM), http://www.tvnewscheck.com/article/55504/outsourced-master-control-drives-nbc-oos [https://perma.cc/J8GH-U36J] (describing NBC's move to centralize master control function); Encompass, http://www.encompass.tv/ [https://perma.cc/DA7J-XNKB] (last visited April 5, 2016) (describing centralized function performed by contractor).

[44] The author keeps television news on in the background, during much of his time at home and some of the time in his office. He used to do so through CNN's cable channel. Now he does so via ABC7 Chicago's news stream to the Internet.

Internet[45]—"over the top" ("OTT"), as industry commentators say.[46] Some viewers watch local news exclusively through the Internet.[47] A 2015 survey of consumer viewing habits,[48] analyzing data from 19,000 respondents in 19 countries, found that eighty-six percent of viewers in the U.S. and Canada used OTT[49] television on the Internet, compared with ninety-two percent using broadcast television.[50] Over-the-air viewing continued to dominate, however, as viewers watched free broadcast television for 10.7 hours per week, and only 6.7 hours per week through the Internet.[51]

Viewers watch programming streamed to the Internet on a multiplicity of screens, including conventional television receivers and desktop computers, and mobile devices, such as laptop computers, smartphones, and tablets.[52]

Legacy television content producers and programmers claim to be adapting to the viewers' behavioral shifts. ABC, for example, maintains a website whereby cable subscribers may access full-length episodes of ABC shows. Non-subscribers have more limited access, and no access to local ABC television "linear feed." ABC-News.com provides Internet access to ABC news reports.[53]

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[45] *See* Brian X. Chen, *How to Watch the Super Bowl When You Don't Have Cable*, N.Y. TIMES, (Feb. 4, 2016), http://www.nytimes.com/2016/02/04/technology/personaltech/how-to-watch-the-super-bowl-when-you-dont-have-cable.html?_r=0 [https://perma.cc/MC7X-DT8D] (explaining how subscribers to Apple TV, Google's Chromebox, Microsoft's Xbox One, and Amazon's Fire box can use CBS Sports or NFL apps to watch the Super Bowl live without login credentials).

[46] Marvin Ammori, *Copyright's Latest Communications Policy: Content-Lock-Out and Compulsory Licensing For Internet Television*, 18 COMMLAW CONSPECTUS 375, 391 (2010) ("With new technologies, companies can deliver television content through an Internet connection (or, as they say in the industry, 'over the top ['OTT'] of an Internet connection) and deliver that content to the television screen. Online television distribution includes a range of business models, including subscription, per-episode fees, advertiser-supported, or some combination. Distributors include Hulu, which already has 40 million monthly viewers and hundreds of advertisers. Companies like Miro and Vuze have also offered high-definition video. Apple has enjoyed success selling movies and shows by the episode, and is now in the process of assembling a monthly subscription television service that may prove disruptive to the MVPD industry. YouTube is adding full-length films to its user-generated content and splitting the resulting advertisement revenue with the content owners. Some niche start-up entities offer specialized content; for example, one company caters to aviation and air-show enthusiasts with high-definition video.").

[47] *See* FCC 2015 Video Competition Report, *supra* note 15, at 3352–64 (describing variety of Online Video Distribution ("OVD") providers).

[48] ARRIS, The ARRIS 2015 Consumer Entertainment Index—Global Results, www.arris.com/arriscei [hereinafter ARRIS Survey].

[49] Over-the-top ("OTT") refers to distribution of television programming through the Internet rather than by cable connections or radio transmission. *See* Nitin Narang, *#2 Concept Series: What is the Difference Between OTT and IPTV*, M&E INDUSTRY TRENDS, TECH. & RES.(Apr. 19, 2013), http://www.mediaentertainmentinfo.com/2013/04/2-concept-series-what-is-the-difference-between-ott-and-iptv.html [https://perma.cc/Y2UU-XDH2].

[50] ARRIS SURVEY, *supra* note 50, at 41.

[51] Traditional television services dominate time watching television at home. *Id*.

[52] *Id.* at 18.

[53] The Walt Disney Company, Fiscal Year 2014 Annual Financial Report & Shareholder Letter 5 (2014), https://ditm-twdc-us.storage.googleapis.com/2015/10/2014-Annual-Report.pdf [hereinafter Disney 2014 Annual Report].

The traditional business models produce huge revenues,[54] however. Accordingly, major players embrace the new possibilities cautiously. Time Warner's list of risk factors in its most recent annual report began with a discussion of how new technologies can undermine revenue from premium pay television services, production and licensing of television programming, disruption of the ad-supported television model, and undermining of exclusive distribution rights.[55] Disney's 2014 Annual Report also emphasized this threat.[56]

Legacy programmers are increasingly moving content to Internet distribution, but their desire to protect legacy revenue streams causes them to encumber the Internet availability with limitations that get in the way of viewer freedom. Commentators refer to this phenomenon as "walled gardens."[57] HBO Now, Amazon Prime, Apple TV, Disney, and major sports content producers offer their content through the Internet only in these so-called walled gardens.[58] Disney, for example, offers its programming through the Internet, but only for cable and DSL entertainment subscribers.[59] A viewer can subscribe to multiple collections of content, but she cannot easily go from one garden to another.

News, in contrast, is usually free of such encumbrances. MSNBC[60] and CNN[61] offer news programming outside a walled garden. This has become the norm for

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[54] *See The Real Disney*, The Economist (Mar. 30, 2016), http://www.economist.com/news/business/21574463-wonderful-world-espn-sports-network-which-outmints-mickey-mouse-real-disney [https://perma.cc/SWJ8-G4M8] (reporting that ESPN accounts for about half of Disney's operating income, sixty percent of its free cash flow, and half of its share price).

[55] Time Warner Annual Report 2014 13 (2014), http://ir.timewarner.com/phoenix.zhtml?c=70972&p=irol-reportsannual (follow "2014 Annual Report to Shareholders" hyperlink)) [https://perma.cc/56X5-5DD5].

[56] Disney 2014 Annual Report, *supra* note 55, at 18 (noting that viewer embrace of new technologies has disrupted and challenged the business model for certain traditional forms of distribution, such as broadcast television, home entertainment sales of theatrical content and the development of alternative distribution channels for broadcast and cable programming).

[57] United States v. Am. Soc. of Composers, Authors and Publishers, 559 F.Supp.2d 332, 345 (S.D.N.Y. 2008) (explaining that "walled garden" restricts access to content exclusively available to subscribers); Rob Frieden, *Lock Down on the Third Screen: How Wireless Carriers Evade Regulation of Their Video Services*, 24 Berkeley Tech. L.J. 819, 820 (2009) (analyzing economic incentives to provide wireless access only to "walled gardens" such as those provided by iPhone apps; "Subscribers seeking to access non-preferred content typically would have to undertake several additional steps that may add time, complexity, inconvenience, and possibly higher cost in the determination of whether to seek alternatives to walled garden options.").

[58] *See* Fox Sports 1, http://www.foxsports.com/watch/fs1 [https://perma.cc/D7RD-4BDC] (last visited Apr. 3, 2016) (requiring Fox 1 sports viewers to identify user's subscription to cable distributor in order to see content); *see* ESPN 3, http://espn.go.com/watchespn/player/_/id/1977175/ [https://perma.cc/J5BS-FFSU] (last visited Apr. 3, 2016) (requiring ESPN 3 sports viewers to identify user's subscription to cable distributor in order to see content).

[59] *See* Disney Channel, http://watchdisneychannel.go.com/live [https://perma.cc/Z2ZE-U6GM] (last visited Apr. 3, 2016).

[60] *See* Adam Howard, *Clinton, Sanders Square Off in Debate: Six Promises to Follow Up On*, MSNBC (Feb. 6, 2016), http://www.msnbc.com/msnbc/clinton-and-sanders-stand-six-promises-follow [https://perma.cc/4UZB-BG4Z] (streaming of Clinton-Sanders debate without requiring login; ad supported).

[61] *See* Nick Paton Walsh & Don Melvin, *40,000 Fleeing Aleppo as Battle for Syrian City Intensifies,*

local news. Most of the local news, however, generally consists of simple streaming of broadcast programs. The real innovation on news designed for the Internet comes from startups that are increasingly producing serious journalism made for Internet platforms. BuzzFeed has a 170-person news staff, including at least one Pulitzer Prize winner;[62] Mashable has a seventy-person news staff, including a former New York Times assistant managing editor.[63] These programmers, however, cover international and national news, not local news. Their financial and journalistic success is mixed.[64] Local news programming designed for Internet viewers is hard to find.[65]

Before the migration to the Internet began, three news-only cable channels induced changes in viewer behavior and preferences with respect to television news that have been amplified by Internet distribution:

"When we look back at the transition of television news from a mass-medium, appointment-viewing model (the network nightly newscasts) to an on-demand, constantly-updated, interactive model (the future), the cable news networks-CNN, Fox News Channel, MSNBC–will seem a transitional phase between broadcasting and online news."[66]

At least two ironies exist in the evolving video industry. The first is that even if viewers stop receiving over-the-air signals transmitted by the station, they continue to receive the same programming into their mobile devices over-the-air. The difference is that traditional over-the-air television reception involves streamed programming fully occupying separate channels for each station. Now, wireless reception involves receiving pieces of programming on an as-requested basis through communications channels that are also handling other information at the same time.

U.N. Group Says, CNN (Feb. 6, 2016), http://edition.cnn.com/2016/02/05/middleeast/battle-for-aleppo/index.html [https://perma.cc/A7TD-9CVP] (streaming of video story on regime progress in Syrian conflict without need for login; ad supported).

[62] Leslie Kaufman, *BuzzFeed Hires Pulitzer Winner to Head Investigative Unit*, N.Y. TIMES, Oct. 31, 2013, http://www.nytimes.com/2013/10/22/business/media/buzzfeed-hires-pulitzer-winner-to-head-investigative-unit.html?_r=0.

[63] Amy Mitchell, STATE OF THE NEWS MEDIA 2014, PEW RESEARCH CENTER 2 (Mar. 26, 2014), http://www.journalism.org/files/2014/03/Overview.pdf.

[64] MITCHELL 2015, *supra* note 17, at 7 (reporting on significant problems at First Look Media, Gigaom, BuzzFeed, and The New Republic, countered by successes at Vice News, Vox.com, Politico, and Quartz).

[65] A Google search performed by the author on January 9, 2016 for "local news Chicago" produced links to the local Chicago television station websites, to the websites of the local newspapers and a Yahoo aggregation of the same stories featured on the television station and newspaper websites on the same date. "https://twitter.com/newschicago" produced nothing more recent than 23 April 2012. "https://twitter.com/Chicago_IL_News" produced a number of tweets, with sports trivia intermingled with repetitive summarizing of other breaking news and items such as, "How to keep your New Year's resolutions." Some effort to exploit the appeal of local news is apparent, however. The Chicago Sun-Times sold off its newspapers to the competing Chicago Tribune, intending to build a "national network of local news websites." And DNA Chicago is an Internet-only newspaper, with lots of still photographs but less video. *DNAinfo* https://www.dnainfo.com/chicago/ [https://perma.cc/Q9HL-FUAT] (last visited Apr. 23, 2016).

[66] Andrew Tyndall, *Television News in Transition*, STATE OF THE MEDIA 2005, http://www.stateofthemedia.org/2005/cable-tv-intro/guess-essay/ [https://perma.cc/RRZ7-L8R8] (last visited Apr. 3, 2016).

The second irony is that even as viewers unplug their cable television subscriptions, they stay plugged in to the same cable for Internet connectivity. The provider's and/or consumer's decisions dictate the type of over-the-air or wired acquisition. Product-design and pricing decisions by cable and wireless providers are a factor. Can they maximize the revenue by packaging some of their signal according to the legacy broadcast television model and some of it as part of an interactive Internet stream? Habit is another factor. Past practices, developed over years, are embedded in consumer preferences, in contract terms and business models, and in instinctive resistance to change. These sources of inertia are powerful. The traditional broadcast television model is not interactive at all; the Internet model is completely interactive. Some viewers like the minute-by-minute choice that interactivity involves, while others prefer to watch television passively.

B. *Targeted Advertising is Flourishing*

Targeted advertising,[67] available for more than twenty years,[68] delivers advertising content to individual Internet-users based on data indicating their interests and purchasing behavior.[69] This type of advertising is proving its worth to both advertisers and consumers as a supplement or substitute for traditional mass-market advertising. "[Targeted advertising] permits advertisers to target online advertisements only to those consumers fitting desired demographic, geographic and "psychographic" criteria,"[70] or engaging in certain online behavior.[71]

Data intermediaries collect large quantities of data about the behavior of everyone who uses the Internet.[72] Other intermediaries function as specialized advertising agencies, by accepting or helping craft advertising content and undertaking to place

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[67] This term is also known as behavioral advertising.

[68] *See* Reception System for an Interactive Computer Network and Method of Operation, U.S. Patent No. 5,347,632 (Sep. 13, 1994) (claiming basic components of targeted advertising system).

[69] The process is described in Computer Interface Method and Apparatus with Targeted Advertising, U.S. Patent No. 6,628,314 (Sep. 30, 2003) [hereinafter '314 Patent], ruled invalid by Facebook, Inc. v. B.E. Technology, LLC, No. IPR2014-00052, 2015 WL 1735098 (P.T.A.B. Mar. 31, 2015). Advertising servers and the databases on which they rely typically do not maintain data about individuals, but rather on behavioral clusters. Individuals are tagged with a multiplicity of behavioral clusters to which their past behavior links them. *See* 314 Patent at 15 (explaining behavioral categories).

[70] Morsa v. Facebook, Inc., 77 F. Supp.3d 1007, 1009 (C.D. Cal. 2014) (describing subject matter of patent).

[71] "[I]f the user is using the computer to search for information on stocks, then client software . . . can detect this (whether by recognizing the web site being accessed, the keywords used in the web pages being accessed, the program being executed, or some other aspect of the user's search) and can display an advertisement that is relevant to this topic, whether it be for a stock brokerage, a stock exchange, an investment group, or some other organization." '314 Patent at 16.

[72] Google, for example, records every search request and every page visited. Amazon keeps track of book purchasing and browsing. Airlines, lodging and entertainment venues, and retailers keep track of purchases. Some of these enterprises sell their data to intermediaries called "data brokers" like Acxiom and Experian. *See generally* In re Facebook Internet Tracking Litigation, --- F.Supp.3d ----, Case No. 5:12-md-02314-EJD, 2015 WL 643874 (N.D. Cal. Oct. 23, 2015) (describing how website visits use cookies to direct targeted advertising).

the advertisements according to profiles submitted by the advertiser. For example, an advertiser might want to serve advertisements about drones to everyone who has shown an interest in drones in the past through their web browsing behavior.[73]

The user's computer, the content server, and the advertisement server work together to select the advertisements that should be displayed to the user based on the user's interests.[74] The result is an advertising market that is more acceptable to users than one that interposes advertisements for products and services the user has no interest in.[75]

Targeted advertising is available to very small businesses because the pricing is adjustable and flexible. Pay-per-impression and pay-per-click advertisements, in which the advertiser pays only for advertisements served, and, in many cases, clicked by a target, are common options. Placing a targeted advertisement on Google, Amazon, Facebook, and other large-scale e-commerce and social networking sites is relatively easy.[76] Google's Adsense, for example, permits content sites to sign up for the service after only a few minutes of interaction on its website. The host site has complete freedom to design where advertisements appear on its pages. Google boasts: "Block ads you don't want, choose where ads appear, and change the look and feel of text ads to match your site. You can even control the categories of ads you allow. Your site. Your rules."[77] Google accounts for advertisement revenue, pro-

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[73] '314 Patent at 15 (describing category identifiers associated with advertisement content).

[74] When an Internet user clicks on a website, the user's IP address and other available identifying information is sent invisibly to an advertisement server, usually by means of a "cookie." A cookie is a small data file implanted on a client computer by a server. When the user returns to the same server, the cookie accompanies the request and identifies the user. While the web server that the user is visiting (the content server) is preparing the requested webpage, the advertisement server quickly looks up the user and matches her profile with the specifications provided to the advertising agency by the advertiser. The data stores generally do not track individual users, but rather group them into clusters of users with similar interests and behaviors. A simpler system avoids the behavioral databases and serves advertisements according to their relationship with the particular page a user has requested. Patent '314 at 16 (describing "reactive targeting").

Then the advertising server (or the content server) inserts the advertisement into the requested page and sends it to the requester. The infrastructure supporting the system must be quick in its data look-up, programmed decision-making, and transmission of advertisementss to avoid unacceptable delays to the user. *See Why Internet Users Abandon Digital Videos* (Jan. 4, 2016), http://www.emarketer.com/Article/Why-Internet-Users-Abandon-Digital-Videos/1013415 (summarizing research showing that 61.8% of users skip videos that have too many advertisements; 51.3% skip if the video buffers more than once, 26.7% skip if an advertisement appears before the video and cannot be skipped; and 16.4% skip if an advertisement appears before the video).

[75] Katy Bachman, *Poll: Targeted Advertising Is Not the Bogeyman [Updated] Nearly 70% Like at Least Some Tailored Internet Ads*, ADWEEK (Apr. 18, 2013, 6:05 AM), http://www.adweek.com/news/technology/poll-targeted-advertising-not-bogeyman-updated-148649 [https://perma.cc/MK8Z-WXBX].

[76] *See* Kate McFarlin, *How to Advertise on a GoDaddy Parked Page*, HOUSTON CHRONICLE, http://smallbusiness.chron.com/advertise-godaddy-parked-11256.html [https://perma.cc/RTT3-FSHM] (describing process for enabling targeted advertising on domain names established with popular domain registrar) (last visited April 5, 2016); *How to Target Facebook Ads*, FACEBOOK, https://www.facebook.com/business/a/online-sales/ad-targeting-details/ [https://perma.cc/3R94-64Z6] (last visited April 5, 2016) (describing how to use targeted advertising on Facebook).

[77] *Content Monetization at Its Best,* GOOGLE, https://www.google.com/adsense/start/benefits/ [https://

cesses payments from advertisers, and periodically sends direct deposits to the host's bank account.[78]

Targeted advertising is unavailable for over-the-air, cable, and satellite distribution of television programming, but is available on legacy station websites. Internet-only television stations are likely to exploit the possibilities more thoroughly, as they have more of their content on the Internet than legacy stations, thus providing more opportunities for advertisement placement.[79] Effective websites insert graphical advertisements in the margins of requested pages without obscuring requested content.[80] When advertisements are closely aligned with user interests, they may appear to be part of the requested page itself, increasing the likelihood of a user clicking on the advertisement.

The shift toward targeted advertising has engendered battles among advertisers, advertising platform vendors, and consumer advocates. Controversy over efforts to patent targeted advertising systems has been fierce among participants and would-be participants in the system.[81] Privacy advocates have aggressively challenged targeted advertising on invasion-of-privacy grounds, but generally have been largely unsuccessful.[82]

Infomercials are a form of television programming that represents an alternative approach to targeted advertising. A typical infomercial presents itself as a television program rather than an advertisement. It is typically shrill in tone and fast in pace, featuring pitch-men and pitch-women who show off products the infomercial

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perma.cc/NVM2-BFKP] (last visited April 5, 2016).

[78] Google reports that it paid out nearly ten billion dollars in advertisement revenue to its AdSense customers. *Google AdSense*,Google, https://www.google.com/adsense/start/benefits/ [https://perma.cc/XV2W-SGJR]. Various reports indicate that Google pays out about seventy-five percent in advertisement revenue to those hosting its advertisements, *The Revenue Share of Google AdSense Publishers* (Feb. 22, 2012), http://www.labnol.org/internet/adsense-revenue-share/12531/ [https://perma.cc/4SXF-J468], and Google itself recommends that advertisement developers share seventy-five to 100% of the revenue with advertising hosts. *AdSense Host API*, Google, https://developers.google.com/adsense/host/revenuesharing [https://perma.cc/WND8-UNRC].

[79] Legacy producers have been slow and clumsy in their use of Internet advertising, however, although television stations do a better job than many newspapers. The Chicago Tribune, for example, places full-screen advertisements that cover up the requested content, and the content of these advertisements only sporadically aligns with user interests. *See Andrew Ross Sorkin, Beyond 'Star Wars,' a Dark Force Looms for Disney: Cord-Cutting*, N.Y. Times, Dec. 21, 2015 (arguing that Disney's ESPN is in financial trouble because it has not joined other networks in streaming to Internet, and Internet subscription fees cannot cover "the enormous cost of licensing live sports programing"); *Breaking News*, Chicago Tribute, http://www.chicagotribune.com/news/local/breaking/ [https://perma.cc/7VTE-J778].

[80] See Patent 314 at 4 (describing "ad region" of page displayed to user).

[81] *See* Morsa v. Facebook, Inc., 77 F. Supp.3d 1007, 1016 (C.D. Cal. 2014) (rejecting claim for infringement of targeted advertising patent because patent covered only abstract concept); B.E. Technology, LLC v. Groupon, Inc., 957 F. Supp.2d 939 (W.D. Tenn. 2013) (denying motion to transfer infringement case involving targeted advertising patent); Facebook, Inc. v. B.E. Technology, LLC, No. IPR2014-00052, 2015 WL 1735098 (P.T.A.B. Mar. 31, 2015) (invalidating Patent 6,628,314 involving targeted advertising).

[82] In In re Facebook Internet Tracking Litigation, 2015 WL 6438744 (rejecting privacy-invasion claims by Facebook users for lack of injury-in-fact standing).

promotes.[83] The video and audio frequently repeat an 800 telephone number, and sometimes a website, encouraging viewers to order the promoted merchandise or service right away, in order to take advantage of special deals. Infomercials have proliferated in local station programming. They are cheap to produce, and advertisers sometimes pay a fee to air infomercials. Moreover, local stations incur no syndication costs for infomercials, which is important given local stations' attempt to reduce syndication costs for independent productions.

One of the advantages of infomercials is their focus on direct sales. , Targeted advertisements displayed in conjunction with higher quality programs, however, can have this same effect—instead of calling an 800 number to order a product, a user clicks on the targeted advertisement to order the product immediately, perhaps while pausing the program stream. While there is room for debate about different consumer behavior likely to be elicited by a traditional infomercial and softer programming with targeted advertisements, the targeted advertisement approach allows for more flexibility, permitting programming quality to improve.

The infomercial concept can evolve into a form of content production in which the content of a program is designed by the advertiser to appeal to a particular audience. The evolved infomercial's content would have stronger news or narrative value than that of the traditional infomercial, but it would have prominent product placement, plot, and characterization that leads to the conclusion that use of the product helps characters overcome obstacles to their goals.[84] For instance, a long-distance romance about to founder might be strengthened by use of a new social-media product; a talented young actor disabled by self-doubt might triumph after he acquires a particular model of automobile.[85]

The strong trends toward targeted advertising, however, should not obscure the fact that traditional advertising still dominates. While local television advertising revenue increased seven percent to twenty billion dollars in 2014, and digital advertisement revenue increased eighteen percent to $50.7 billion,[86] most of the digital ad

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[83] "If you have a problem, chances are Kevin Trudeau has an answer. For over a decade, Trudeau has promoted countless 'cures' for a host of human woes that he claims the government and corporations have kept hidden from the American public. Cancer, AIDS, severe pain, hair loss, slow reading, poor memory, debt, obesity-you name it, Trudeau has a 'cure' for it. To get his messages out, Trudeau has become a marketing machine. And the infomercial is his medium of choice. He has appeared in dozens of them, usually in the form of a staged, scripted interview where Trudeau raves about the astounding benefits of the miracle product he's pitching. But Trudeau's tactics have long drawn the ire of the Federal Trade Commission ('FTC'). The FTC accuses Trudeau of being nothing more than a huckster who preys on unwitting consumers-a 21st-century snake-oil salesman. For years Trudeau has dueled with the FTC in and out of court." FTC v. Trudeau, 579 F.3d 754, 756 (7th Cir. 2009) (affirming, in material part, contempt citation against infomercial that misrepresented effectiveness of weight-loss program); *see also* FTC, Guides Concerning the Use of Endorsements and Testimonials in Advertising, 16 C.F.R. pt. 255.

[84] *See* Henry H. Perritt, Jr., *Technologies of Storytelling: New Models for Movies,* 10 VIRGINIA SPORTS & ENT. L. J. 106, 111–23 (2010) (summarizing formulas for effective narrative construction).

[85] NewsCastic, discussed *infra* § IV. A. 4.

[86] Mitchell 2015, *supra* note 17, at 6.

revenue was not going to television stations.[87] Moreover, traditional banner ads bring in more revenue (eleven billion dollars and forty-nine percent of the total) than targeted ads (six billion dollars and twenty-seven percent of the total), though the share of targeting advertising is growing.[88] Targeted advertising is a two-edged sword: a station relying on it avoids the cost of an advertising sales staff, but it also loses control of its advertisers and has to share revenue for advertisements inserted into its programming with advertising networks.

C. *Work Is Fragmenting*

The shift away from traditional employment toward contingent work has been well-recognized.[89] Commentators have struggled to invent terminology for the new labor market. A California District Court referred to it as a "sharing economy."[90] This wording is misleading, as it obscures exactly who is sharing. Others refer to this market as a "casual economy." This wording is also misleading, as it suggests that sellers of services are not serious about their participation. The New York Times referred to it as a "gig economy." This article adopts the New York Times' terminology,[91] referring to this market as a "gig economy."

Cable and telephone service providers perform installation and troubleshooting functions through independent contractors. Uber and Federal Express hire part-time contract drivers to perform basic delivery and transportation services. Litigation and administrative agency initiatives are proliferating to define the boundary between employee and independent contractor for purposes of employment and tax law. The

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[87] "Significant digital revenues remain largely on the wish list. None [of the TV news programmers] get more than a small share of their total revenue from digital." Mitchell 2015, *supra* note 17, at 7. "Online revenue still accounts for a tiny portion of the total"—$800 million, compared with twenty billion dollars. Mitchell 2015, *supra* note 17, Local TV News Fact Sheet at 44.

[88] Mitchell 2015, *supra* note 17, Overview at 20.

[89] *See generally* Henry H. Perritt, Jr., §1.05 *Uber Drivers and §1.06 Federal Express Ground Delivery Service*, *in* 2016 Employment Law Update (2016) (explaining the test for independent contractor status in chapter one); Stephen F. Befort, *Revisiting the Black Hole of Workplace Regulation: A Historical and Comparative Perspective of Contingent Work*, 24 Berkeley J. Emp. & Lab. L. 153, 160–63 (2003) (identifying four reasons for the shift from the traditional employment relationship to contingent employment). *See also* Tyler Cohen, *In an Uber World, Fortune Favors the Freelancer*, N.Y. Times (June 28, 2015), http://www.nytimes.com/2015/06/28/upshot/in-an-uber-world-fortune-favors-the-freelancer.html [https://perma.cc/V3W7-PLMG] (observing spread of "new sharing economy" and identifying its advantages, such as more flexible use of leisure time that is beneficial mostly for "disciplined and ambitious task switchers," who typically have college educations).

[90] O'Connor v. Uber Tech., Inc., No. C-13-3826 EMC, 2014 WL 1760314 at *27 (N.D. Cal. Mar. 11, 2015) (discussing "sharing economy"). *See also* Jennie Davis, *Drive At Your Own Risk: Uber's Misrepresentations to UberX Drivers About Insurance Coverage Violate California's Unfair Competition Law*, 56 B.C. L. Rev. 1097, 1102 n.23, 1105 n.41, 1132 n.194, 1133 n.197 (2015) (citing multiple sources describing the "sharing economy" as "loosely defined as an internet marketplace where individuals come together to exchange underutilized goods or services").

[91] *See* Norm Scheiber, *Solo Workers Unite to Tame Their Gig Jobs*, N.Y. Times, Feb. 3, 2016 at A1 (reporting on efforts by Uber drivers and other participants in the "online gig economy" to exert concerted pressure for better compensation and working conditions).

same tendency to rely on personnel who have only an attenuated and sporadic relationship with the entity paying for their work is visible in journalism. Newspapers, threatened with a decline in readership and in advertising revenue are restructuring their organizations to rely more on stringers and freelancers to gather news.[92]

Freelancers and stringers are as old as journalism itself. In the earliest days of newspapers, local editors lacked the capacity to collect news except in their immediate geographic area. For national and international news, they relied on the combination of correspondents and shameless copying of material from other publications they received in the mail. Typically, correspondents submitted their stories to multiple publications, although exclusive arrangement did exist.[93] Ernest Hemmingway, Winston Churchill, and John Steinbeck were correspondents in their younger years.[94]

The advent of telegraphy encouraged the formation of cooperative organizations like the Associated Press[95] and United Press,[96] which initially functioned mainly to tie stringers to publishers. At the same time, improvements in printing technology produced economies of scale in newspaper publishing that allowed newspapers to hire reporters as employees. When photographs became available during the Civil War, newspapers sought to increase circulation and thus to attract more advertisers by publishing photographs.[97]

Photojournalists were initially freelancers—they were photographers who also sold their material to newspapers. Newspapers continued using content produced

[92] Chicago's second largest newspaper, the Sun-Times, laid off all of its photographers and now relies on freelancers to provide imagery for the paper. *Chicago Sun-Times Lays Off All Its Full-Time Photographers*, N. Y. TIMES, (May 31, 2013), http://www.nytimes.com/2013/06/01/business/media/chicago-sun-times-lays-off-all-its-full-time-photographers.html?_r=0 [https://perma.cc/NFG7-992N]. In 1991, UPI received permission from its bankruptcy court to substitute stringers for some of its employees. *See* In re United Press International, Inc., 134 B.R. 507, 515 (S.D. N.Y. Bankruptcy 1991) (granting interim relief from collective bargaining agreement, allowing bankrupt news service to use stringers).

[93] BEN MACINTYRE, A SPY AMONG FRIENDS 19-20 (2014) (reporting on Philby's service as a Times correspondent); *see also id.* at 46 (reporting on non-exclusive work for Times).

[94] *When Winston Churchill Was Our War Correspondent*, THE PIONEER (Jan. 5, 2014), http://www.dailypioneer.com/sunday-edition/agenda/150th-anniversary-issue/when-winston-churchill-was-our-war-correspondent.html [https://perma.cc/BY3F-4XYV] (summarizing war-correspondent stories from Churchill); *List of Famous War Correspondents*, RANKER, http://www.ranker.com/list/list-of-famous-war-correspondents/reference (listing John Steinbeck as a famous war correspondent).

[95] AP was founded in 1846 as a cooperative of participating newspapers. *AP's History*, AP, http://www.ap.org/company/history/ap-history [https://perma.cc/2CT6-X5RF] (last visited Apr. 3, 2016).

[96] United Press was founded in 1907 by E.W. Scripps to provide competition to AP. It absorbed William Randolph Hearst's International News Service in 1958 and renamed itself "UPI." *UPI History*, UNITED PRESS INTERNATIONAL CENTENNIAL ANNIVERSARY, http://100years.upi.com/history.html [https://perma.cc/8ZJK-QHL4] (last visited Apr. 3, 2016).

[97] Matthew Brady hired assistants to take portable darkrooms to Civil War battles to capture photographs of the action. *See generally* Douglas Perry, *Teaching With Documents: The Civil War as Photographed by Mathew Brady*, NATIONAL ARCHIVES, http://www.archives.gov/education/lessons/brady-photos [https://perma.cc/2DWE-VFM3] (last visited Apr. 3, 2016). Harper's Weekly significantly increased its circulation by printing woodcuts and engravings made from Brady's photographs. *See High Quality Mass Printing of Nineteenth Century Engravings and Woodcuts*, CENT. PAC. R.R. PHOTOGRAPHIC HIST. MUSEUM, http://cprr.org/Museum/Engravings/Harpers_Engravings.html (reproducing article characterizing Harper's innovative use of woodcuts and engravings).

by people who were not employees of the newspaper, and, later, radio and television stations followed suit, with the utility and behavior of stringers shaped by each new technology.

Television stations long have relied on stringers.[98] Fully embracing gig-economy arrangements permits a television station to reduce labor costs substantially—not only because of lower pay rates, but also because of greatly improved flexibility to hire workers only when they are needed. When stringers cannot afford the latest newsgathering technology, stations invest in the technology and use employees to operate it; when the cost of new technology drops, more stringers have state-of-the-art equipment available to them. Satellite trucks, microwave vans, and news helicopters,[99] all of which require substantial capital investment, are operated by employees or long-term contractors. Digital single-lens reflex (DSLR), GoPro cameras, and newsgathering drones, which cost much less, are available to stringers, who often produce content on spec[100]—capturing imagery of newsworthy events in the hope that someone will buy it.

The advent of the Internet spawned naïve arguments that intermediation would disappear. The basic argument was that the Internet would be full of factual and opinion posts, and people would read them instead of watching television or reading newspapers and magazines. This did not happen, of course, because intermediation is extremely valuable—good editing and good production values are as important to the story as are the raw images and facts. This is so for both news and fictional stories.[101] But the idea of citizen journalism, and the availability of good portable cameras, dramatically encouraged interest in the concept of using stringers—so much so that CNN launched iReport, an organizational component to promote citizen

[98] "They supplement our operation, but are important because a lot of things happen when we are all asleep . . . They provide a very real service and have for many years," said one major market television station news director. Stephanie Chavez, *Freelance Videographers Chase News for TV*, LA Times, Aug. 3, 2003, http://articles.latimes.com/2003/aug/03/local/me-video3 (reporting on activities of Los Angeles area television stringers and quoting KTLA-TV news director).

[99] The need for specialized operators can induce programmers to contract out for the service, as is the case with STS and news helicopters. *See* Satellite Technology Systems, http://www.satellitetechsys.com [https://perma.cc/TL85-7GPU] (last visited Apr. 3, 2016); U.S Helicopters, Inc., http://www.helis.com/database/org/us_us_helicopters_inc [https://perma.cc/QY8B-6MQD] (last visited Apr. 3, 2016) (proving summary data on U.S. Helicopters, Inc.); Andrew Dodson, *TV News Choppers Flying High Once Again*, T.V. News Check (Aug. 8, 2013), http://www.tvnewscheck.com/article/69563/tv-news-choppers-flying-high-once-again [https://perma.cc/YM2Q-29PC] (reporting on increasing number of television station contracts for Helicopters, Inc.).

[100] "On spec," in this sense means performing work in the hope that the worker will be able to sell it. Spec work is common, for example, in the homebuilding industry, where contractors often build houses before they have a buyer. *See* Erin Carlyle, *With Inventory Tight, Speculative Luxury Homebuilding Heats Up*, Forbes (Apr. 2, 2014, 9:50 AM), http://www.forbes.com/sites/erincarlyle/2014/04/02/with-inventory-tight-luxury-spec-home-building-ramping-up/#453e71531412 (describing spec homebuilding phenomenon).

[101] *See generally* Detmar Straub, *Chapter 9. Intermediation and Cybermediation,* Foundations of Net-Enhanced Organizations (2003), http://higheredbcs.wiley.com/legacy/college/straub/0471443778/ppt/ch09.ppt [https://perma.cc/7P7Q-8GAT] (explaining economics of intermediation, focusing on airline travel agents).

journalism, in 2008.[102] CNN's iReport website displays stringer-uploaded photographs and videos, and "dishes out assignments to fledgling videographers and photojournalists.[103] The idea, however, has underperformed.[104]

The capital barriers to entry have nearly evaporated. But promoters of citizen photojournalism have yet to discover a model for intermediation that works. A handful of stringers get their material broadcast, while most others must be satisfied with posting their work on YouTube or Vimeo.

D. *New Tools Facilitate Content Collection and Moving It Around*

Technology improvements dramatically affect every element of the infrastructure necessary to deliver television programming to audiences. DSLR and GoPro cameras obviate the need for video cameras costing an order of magnitude more. Small drones capture aerial photography, while costing less to purchase than one hour of news helicopter time. Furthermore, Dejero and LiveU cellular bonding systems permit reporters and photographers in the field to send their material to the station in real time without the need for microwave and satellite trucks.

Encoding video and audio signals with the Internet IP protocol sidesteps the cost and inconvenience of proprietary systems and standards. Most MVPDs already use the Internet protocol, or something closely related to it, to packetize and frame the signals they send to their customers.[105] Digital switching and signal processing technologies reduce the cost of studio equipment such as video switchers. Everything can be controlled remotely, reducing the demand for specialized labor.

In the long run, today's broadcast transmitters and antennas may simply become another "tube"[106] for linking users to the Internet.[107] Some television programming will still be distributed to viewers through electromagnetic signals transmitted omni-directionally from the existing broadcast infrastructure, but these over-the-air broadcasts will be integrated with the Internet. To understand how this works and why it is desirable, one must understand the architecture of the Internet. The "Internet" signifies a network of computers, all of which use the basic Internet Protocol ("IP") standard for routing information. Information is broken up into IP packets that are moved progressively closer from their origin to a requesting user by specialized computers called "routers." The Internet is defined, not in terms of particular types

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[102] Josh Lowensohn, *CNN's Citizen Journalism Site iReport Goes Live*, CNET (Feb. 14, 2008), http://www.cnet.com/news/cnns-citizen-journalism-site-ireport-goes-live [https://perma.cc/QFG3-57MU].

[103] *Id*.

[104] k3vsDad, *CNN Signals Curtain Call on "Citizen Journalism?"*, CNN IREPORT (Jan. 5, 2015) http://ireport.cnn.com/docs/DOC-1203588 [https://perma.cc/EN4U-4SKE] (reporting on floundering of iReport, and fading CNN interest in the participants).

[105] FCC 2015 Video Competition Report, *supra* note 15, at 3293 (describing cable distribution technologies).

[106] ANDREW BLUM, TUBES: A JOURNEY TO THE CENTER OF THE INTERNET (2012) (describing variety of physical and wireless links that carry Internet packets between routers).

[107] The author appreciates information provided by Mark Aitken, VP of Advanced Technology at Sinclair Broadcast Group, on ATSC 3.0 and its potential.

of hardware or signaling protocols. Information that moves through the Internet may "ride" on an electrical signal that passes through a wire, light waves that pass through an optical fiber, or electromagnetic radiation moving through air under any modulation scheme and at any frequency. [108]

The Internet's evolution as a distribution mechanism for television depends on more efficient movement of multiple packets containing the same program content. The Super Bowl stream must be handled so that it is broadcast once to closely clustered, multiple viewers, rather than being processed, packet-by-packet, through multiple routers. For the Super Bowl, and other popular programming, the packets representing the live program would be sent to radio transmitters for the last hop[109] to multiple users.

The television industry's standards organizations embrace this vision and are working on ATSC 3.0 to make it a reality. ATSC 2.0, adopted by the FCC as a standard for digital television, already uses the Internet Protocol to packetize information before it is sent to transmitters. ATSC 3.0 goes considerably further. It "is designed to accommodate and extend the existing high power/tall tower broadcast infrastructure and associated business models, while, for the first time, supporting delivery of robust vehicular and pedestrian mobile television and other data services to all portable devices."[110] It will enable "a broadcast infrastructure that can deliver both traditional linear television programming with exceptional, ultra-high definition capability receivable deep inside buildings and to portable and mobile devices and also data services that require broadcasting's enormously efficient one-to-many architecture . . . The addressable feature of the transmission facilitates coding that will permit unique geographical "zoning" of programming, advertising and data services, supporting expansion of services that broadcasters can offer."[111] Accordingly, television standards organizations are working to make ATSC 3.0 a reality.

Under a prototype demonstrated at the April, 2015 NAB trade show, the UHF transmitter sent a UHF signal to a home gateway, which processed it and sent it

[108] Millions of routers are tied together by links of various kinds—coaxial cables, Wi-Fi channels, optical fibers, cell phone connections, microwave satellite channels, or high power omnidirectional radio signals. Some of the links are interactive, permitting packets in both directions. Some can be non-interactive, as in the case of a broadcast link. Each time an Internet packet traverses a router, the router must process it by looking up its address field in a routing table and determining where to send it next. This is an extremely inefficient way of transferring the same information to multiple users, as demonstrated by the sending of camera imagery and commentator discussion at the Super Bowl to tens of millions of viewers who want to watch the same game at the same time. Using the traditional router mesh all the way from origin to all the users necessitates hundreds of millions of router processing cycles—the more recipients the more processing. Major e-commerce enterprises like Google recognize this and use load-balancing algorithms to decentralize the routing of the most popular information, caching it (stockpiling it) on regional servers to reduce the number of hops required to get information to users who have requested it.

[109] The movement between each pair of routers is referred to colloquially as a "hop." For example, the packets comprising an ABC7 Chicago newscast the author watched on 26 January 2016 moved through 11 distinct routers, two of them near Las Vegas, before connecting back to ABC7's infrastructure in Chicago. Traceroute from the author's computer to abc7chicago.com, performed at 1312 on 26 Jan. 2016.

[110] ONEMEDIA, http://onemediallc.com [https://perma.cc/98EL-24NN] (last visited Apr. 4, 2016).

[111] Id.

on to user computers and video screens through a conventional WiFi connection.[112] Beginning in 2016, the FCC granted ONEMedia[113] temporary special authority to test a full-power prototype of the base elements of ATSC 3.0 in the Baltimore-Washington area.[114] The standard's developers expect that broadcasters will petition the FCC to approve ATSC 3.0 for use as part of the spectrum repacking initiative of which the Broadcast Incentive Auction is a part.[115] Important architectural issues must be resolved, however, before ATSC 3.0 joins the large family of Internet related standards.[116]

The new competition will be among three modes of distribution: (1) OTA ATSC 3.0, (2) cable Internet access, and (3) mobile broadband wireless. ATSC 3.0 puts broadcasters into the wireless Internet access business. ATSC 3.0 is bi-directional, and asymmetrical, requiring a fat pipe—boomer television transmitters and antennas to download content—and a skinny pipe to bring back the interactive requests.[117]

The bandwidth constraints do not relate to the "core" of the Internet; ATSC 3.0 programming will move through routers and pipes just like IPTV. Rather, the bandwidth constraints relate to the last mile from the core of the Internet to the viewer. Enabling pervasive Internet-only television requires developing the routers and servers at the "edge" of the Internet. There, the tradeoff is between much higher power omnidirectional transmissions and the sophisticated switching that must be done by wireless broadband providers, such as cellphone companies. There is a race. Deployment of pico and microcells in cellphone infrastructures translates into increased wireless capacity with the same spectrum. Repacking of television broadcast spectrum, combined with ATSC 3.0 creates competition. Any distributor can achieve

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[112] ONEMEDIA, *Demonstration: National Association of Broadcasters Convention, Wynn Hotel* (April 13–15, 2015), http://onemediallc.com/files/NAB%20Demo%20Schematic%20FINAL%2004092015.pdf.

[113] ONE Media, LLC is a joint venture between Coherent Logix and Sinclair Broadcast Group, with a central role in developing the ATSC 3.0 standard. Its Chief Technology Officer, Kevin Gage, was Chief Technology Officer of the NAB and founder of NAB labs. ONEMEDIA, *Kevin Gage, Executive Vice President and Chief Technology Officer*, http://onemediallc.com/bios/ [https://perma.cc/782N-W639] (last visited Apr. 23, 2016).

[114] *One Media to Test and Operate Next Generation Broadcast Platform in Washington/Baltimore* (Sept. 3, 2015), http://onemediallc.com/files/Press-Release-SFN-STA-Final-090215.pdf.

[115] Mark Richer, *President's Memo: Ushering in a New Era in Television*, ATSC (Jan. 2016), http://atsc.org/newsletter/presidents-memo-ushering-in-a-new-era-in-television [https://perma.cc/6HHN-PHNP].

[116] The Internet routing system must make rational decisions about when a packet should be routed to the next router-to-router link, and when it should be routed directly to viewers through a high-power radio transmitter. Switched digital video ("SDV") transmits only those programs being received by a group of subscribers. The result is much like multicasting through the Internet. Nearly half of cable distributors in high-density markets employ SDV. FCC 2015 Video Competition Report, *supra* note 15, 36 at ¶ 80 (explaining SDV).

[117] E-mail from Fred Baumgartner, TV Product Manager, SBE Education Committee, Ennes Foundation, to Henry H. Perritt, Jr., Professor of Law, Chicago-Kent College of Law (1 Feb. 2016, 12:35 PM).

arbitrarily large levels of service, and what they actually do depends on relative costs for infrastructure and the regulatory environment.[118]

Even as television stations move toward becoming Internet access providers through ATSC 3.0, broadband wireless providers are deploying technologies that increase bandwidth for mobile users. They are filling out traditional macrocells with multiple microcell and picocell base stations. Traditional cell tower facilities employ macrocells, which have transmitters with power in the tens to a few hundred watts. Microcells have power levels of 0.08 to 1.6 watts, and picocells have power levels of 0.02 to 0.2 watts, measured at the antenna input. Power levels must be variable to allow the minimum power necessary to communicate with a user device.[119] Microcells and picocells connect to a base station controller (BSC), which connects to a mobile switching center (MSC) or to a gateway GPRS support node (GGSN). Recently, BSC and MSC functions have migrated to the picocell level, permitting picocell controllers to connect directly to the Internet. Microcells have a range of about two miles; picocells about 600 yards, and femtocells about thirty feet.

Technology developments are transforming television from initial news collection and entertainment production to distribution over the last mile to the viewer. High quality video cameras, drones, and wireless bonding technologies enable anyone with the requisite skills to collect news and produce entertainment. A stampede to embrace Internet formats means that television content now moves through the Internet just like any other information. Deployment of ATSC 3.0 and other edge technologies put television stations into competition with broadband wireless, cable, and direct satellite Internet-access providers.

E. *Content Providers Are Proliferating*

Video entertainment market share is shifting away from major Hollywood-based production studios, which no longer exclusively produce high-quality video entertainment.[120] Amateurs and would-be professionals that spend hundreds of hours crafting screenplays and shooting movies are now uploading their movies to YouTube and Vimeo. YouTube receives more than 300 hours of new video every minute.[121] This content, however, is mostly lost in the clutter—not for a want of quality, but rather, because of search costs and the low signal-to-noise ratio.[122] While there are Internet matchmaking services that match content creators with users willing to

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[118] Id.

[119] http://www.infocell.org/imgs/uploads/research/NRPB_W62_Sep2004.pdf.

[120] Khairil Azizi Rosli, Broadcast Television - Chapter 10, at 20 (The McGraw-Hill Companies, June 26, 2014), http://www.slideshare.net/khaiazizi/chap10dom10e [https://perma.cc/Q526-FXDY] (summarizing sources of entertainment content).

[121] Mark R. Robertson, *300+ Hours of Video Uploaded to YouTube Every Minute*, ReelSEO (Nov. 21, 2014), http://www.reelseo.com/youtube-300-hours/#ixzz3wrROeQSm [https://perma.cc/W7CR-82MG].

[122] Signal-to-noise ratio is a concept in radio engineering that metaphorically applies to any situation where the material for which there is a demand is buried in a larger quantity of material with the little merit.

pay for these creations, matchmaking services are highly specialized, have clunky interfaces, and receive an unclear amount of traffic.

Distributors with deep pockets—Netflix, Hulu, Apple, Google, and Amazon—are beginning to invest money in new entertainment productions by unknown creators.[123] Alternatively, a television station that more aggressively seeks independently-created content could exert a gravitational force that would simplify search costs, because the creators would seek out the television station rather than the television station having to find them.

News programming market share already is similarly shifting away from newspapers and commercial television to a variety of Internet news and opinion sites, such as Huffington Post. "Because the Huffington Post has often borrowed and reposted portions of articles from other outlets, it has been criticized for luring traffic away from traditional news outlets and contributing to an environment in which online news has been less profitable than the news business had hoped. "But the site demonstrated that collecting headlines from many sources can be a service that many readers appreciate, as it helps them sift through the roiling sea of online news. Since the Huffington Post was established, many other sites have popped up to aggregate news in technology, media, sports and other topics, and a boutique industry of news aggregation has risen and prospered."[124]

The Huffington Post, and other aggregators, however, exemplify a migration of *intermediation* to the Internet rather than demonstrating widely dispersed, democratized content *collection*. In this regard, it may be useful to distinguish between content *production*—which includes intermediation as well as fact collection—and content *collection*—a conceptually distinct process with respect to the news. Content production includes intermediation as well as fact collection.

F. *Capital Markets Are Opening Up*

Relaxation of prohibitions on public solicitation of investment capital through the Internet creates new ways for small start-up enterprises to raise capital from small investors. In a perfect capital market, firms seeking investment capital, and investors seeking to provide it, would have no difficulty finding each other. Potential investors would have perfect information allowing them to compare and choose investment opportunities, and issuers of investment securities would fully and truthfully disclose objective facts about opportunities to earn rates of return and the risks that might prevent that happening. Those theoretical propositions, however, do not reflect reality. Search costs are enormous, given the large number of people

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[123] Brooks Barnes, *So Far, Amazon and Netflix Are Sundance's Top Buyers*, N.Y. TIMES (Jan. 26, 2016), http://www.nytimes.com/2016/01/26/business/media/so-far-amazon-and-netflix-are-sundances-top-buyers.html [https://perma.cc/AA83-AZC7] (reporting that Amazon and Netflix outbid traditional studio distributors for movies at Sundance film festival).

[124] David Sarno, *A Brief History of the Huffington Post*, L.A. TIMES (Feb. 7, 2011), http://articles.latimes.com/2011/feb/07/business/la-fi-huffington-post-timeline-20110207 [https://perma.cc/4X-PD-Q3VY].

interested in investing, and the large number of firms seeking capital from those not affiliated with the enterprise. Substantial information asymmetry facilitates fraud and imprudent investment.

To deal with these instances of market failure, the law has imposed additional burdens on issuers and investors, who must spend tens of thousands—even millions—of dollars to satisfy securities regulatory requirements. The result is that many small enterprises lack the resources and the data to seek investment from the public in general. This is especially true for start-up enterprises. Moreover, intermediaries, such a stock exchanges, impose their own requirements, effectively locking out many small and unproven enterprises. While the existing system permits trillions of dollars to be invested, participation in capital markets are skewed toward large enterprises and institutional investors, or individuals participating only through large intermediaries such as investment funds and established broker dealers.

Kickstarter and Indiegogo have proven that millions of small contributors and investors are willing to support interesting projects by unknowns. The Congress, in the JOBS Act,[125] and the SEC, begrudgingly, in its Reg A+,[126] now permit small enterprises to raise investment capital through Internet-based crowdsourcing. The barriers under Reg A+ are substantial. For example, issuers must file an offering statement with the SEC that resembles traditional prospectuses, and investment can be solicited only through "portals," which resemble traditional broker/dealers. It remains to be seen, however, just how much less an A+ offering will cost than a traditional registered offering.[127] Nevertheless, Reg A+ opens up channels for soliciting investment that were previously unavailable, making it possible for small enterprises such as the proposed Internet-only television stations to raise capital from millions of online investors.

IV. Internet-Only Television's Embrace of Disruptive Technologies

An Internet-only television station would embrace disruptive technologies to accomplish the basic tasks of content production and capture, programming, and distribution. The phenomena involved in this perfect storm have mostly developed independently of each other; together, however, these phenomena will radically transform television news production, programming, and distribution.

The biggest challenge, and therefore the biggest source of uncertainty, is developing effective labor and product markets for the content capture and production

[125] Jumpstart Our Business Startups (JOBS) Act, 15 U.S.C. § 77d–1 (2012); *see Jumpstart Our Business Startups (JOBS) Act*, SEC, http://www.sec.gov/spotlight/jobs-act.shtml [https://perma.cc/V9KE-UHQJ] (last modified Dec. 21, 2015).

[126] SEC, Amendments for Small and Additional Issues Exemptions under the Securities Act (Regulation A) (Nov. 16, 2015), http://www.sec.gov/rules/final/2015/33-9741.pdf.

[127] *Compare* Bonnie J. Roe, *Will Regulation A+ Find Its Niche? Some Opportunities to Explore*, Bus. L. Today (Dec. 2015), http://www.americanbar.org/publications/blt/2015/12/02_roe.html [https://perma.cc/BQ2F-TBHU] (questioning breadth of Reg A+'s likely effect), *with* Sahil Chaudry, *The Impact of The Jobs Act on Independent Film Finance*, 12 DePaul Bus. & Com. L.J. 215 (2014) (concluding that JOBS Act will rescue independent film industry from capital starvation).

function, because no labor market now exists for stringers, and no product market exists for indie video producers. The other functions involve workflow management through technology that is already well understood and actively marketed to commercial television stations. The distribution function involves technology already in use by web publishers that employ targeted advertising.

The sections that follow describe how an Internet-only television station can make full use of each of the disruptive phenomena involved. Many existing stations and new entrepreneurial ventures, however, may decide to utilize only some pieces, and to adopt hybrids of existing practice and new possibilities.

A. *Content Capture and Production*

Traditional television entertainment production costs millions of dollars,[128] and much more for entertainment productions than for news.[129] To reduce production costs, the Internet-only television station will obtain content from producers not typically relied on by legacy television stations. For news programming, it will rely on stringers using the latest small camera video technology for ground-based video capture, and drones for aerial video. For entertainment programming, it will rely on a carefully selected pool of indie video producers, some of whom will be commissioned to produce new narratives and comedies, and some of whom have already produced it—especially reality television content.

1. Application of the Coase Theorem

The choice between using employees or independent contractors, such as stringers and indie video producers, is a choice that every firm makes. Firms themselves are networks of employees, not mere communities of individuals with shared interests and goals. Ronald Coase's 1937 article[130] explains that firms exist because the transaction costs of organizing factors of production, including labor, are often less when they are managed according to internal rules and commands given by firm decision-makers instead of being organized through arm's-length contracts in the marketplace. Coase explains that the boundaries of any firm are determined by the point at which the transaction costs become less for market arrangements than bureaucratic ones.

Oliver Williamson, elaborating on Coase's insight, explained that when complex contracts arranged in the marketplace are too costly to write, execute, and enforce, "the firm may decide to bypass the market and resort to hierarchical modes of

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[128] ROSLI, *supra* note 121 at 28 (reporting one million dollar production cost per thirty minute episode of sitcom; three million dollars per episode of drama episode; quiz and reality shows much cheaper).

[129] News content, even using traditional methods, is considerably cheaper to produce than entertainment content. The capture and editing infrastructure is similar, but television reporters, photographers, and anchors get paid considerably less than well-known actors, directors, and cinematographers. Also, the editing process for news video is considerably less thorough than for editing a movie or television episode.

[130] R. H. Coase, *The Nature of the Firm*, 4 ECONOMICA 386, 388–92 (1937).

organization."[131] A recent commentator summarized the Coase/Williamson insight as firms' having the capacity to "shelter transactions from the costs imposed by the marketplace."[132] These theoretical prescriptions for efficient economic organization apply not only to labor, but to all other factors of production.

Several aspects of television production—especially news production—illustrate the theory in action. Newsgathering is essentially opportunistic: television stations lack the power to determine when a three-alarm fire will occur or when a motor vehicle accident will clog an expressway. Their success depends upon being able to deploy resources to cover such unpredictable events quickly. If a television station has reporters, photographers, and radio engineers available at all times, it can meet these business needs. However, it cannot meet these needs if it must go out into the labor market on an *ad hoc* basis once it learns of breaking news and seek to negotiate contracts with disparate members of a team to cover it. Of course, a television station could have freelance reporters, photographers, and radio engineers whose contracts prescribe how soon the freelancer must be on the scene once called out. But the freelancer is likely to demand a premium contract price for such an arrangement. At some point, it costs less to hire the requisite craftsman for regular workweeks and order them out as necessary. The trade-off is that keeping a large staff on the payroll increases labor costs because they cannot be utilized fully; some of their time is spent simply waiting. In addition, employment and tax law increase the costs of employees, as contrasted with independent contractors. The higher transaction costs for making arrangements in the outside labor market are offset to some degree by the savings for using independent contractors as compared with employees.

Significantly, labor law uses the right to control test and the closely related economic realities test[133] to distinguish between independent contractors and employees. The concept of right to control exemplifies a truth larger than potential liability for minimum wage, overtime premiums, employment discrimination, and other employee benefits and protections not afforded to independent contractors. Quick response depends on the right to control.

2. Using Stringers for Newsgathering

The title of this article, "Uber television," suggests that important parts of the concept are modeled on the modern car service app, Uber, which employs otherwise-lay-drivers in a flexible, gig-economy model to perform taxi services through one, centralized app. Like Uber, the Internet-only television station will use individuals who are currently underemployed, or have not found a way to monetize

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[131] Oliver E. Williamson, The Economics of Antitrust: Transaction Cost Considerations, 122 U. Pa. L. Rev. 1439, 1443 (1974). See also Oliver E. Williamson, Transaction-Cost Economics: The Governance of Contractual Relations, 22 J.L. & Econ. 233 (1979).

[132] Usha Rodrigues, *Entity and Identity*, 60 Emory L.J. 1257, 1273 (2011).

[133] *See* Anfinson v. FedEx Ground Package System, Inc., 281 P.3d 289, 298-299 (Wash. 2012) (comparing right-to-control with economic-realities tests for determining who is an "employee" under state minimum-wage law).

their creative effort fully and effectively, to collect news and produce entertainment programming. It also will offer its news collectors and entertainment content producers an opportunity to be compensated for their work under terms that permit them complete flexibility as to scheduling and what they work on. Management of such casual resources requires a dispatch system, and a recruiting and training program that resemble the software that is at Uber's core .

An important part of the opportunity to reduce costs is to use gig-economy workers—stringers—to capture news, and to offer new opportunities to earn income to the thousands of producers of good video stories who post their work on YouTube and Vimeo but lack an effective means to monetize their efforts. Unquestionably, the low prices of new camera, cellular bonding, and drone technologies[134] make it possible for almost anyone to be a photojournalist. Doing that, however, confronts significant questions as to effective management of gig-economy resources and obtaining adequately trained and motivated personnel.

Television is a visual medium. Viewers expect stories to feature, or to be accompanied by, moving pictures. It also is widely believed that viewers are drawn to overhead shots, which add a macro perspective and a sense of excitement, often providing details and technical quality unobtainable from ground-based photography. But news helicopters are very expensive, costing as much as $2000 per hour. The advent of small drones, affordable to more people, makes aerial imagery available to any television station. The legacy journalism enterprises, however, have been slow to embrace drones due to concern about regulatory uncertainty and a lack of strategic creativity to adapt traditional work practices to accommodate drones. Video producers in Hollywood and elsewhere, however, are making drones a regular part of their cinematography infrastructures.[135]

The stringer model for Internet-only television allows drones to be a regular part of a photojournalist's toolkit. Part of the message that the Internet-only television station would use to attract public excitement and support for its new venture would feature the fact that drones will be a regular part of its newsgathering operation. Because of their utility and, for a time, their novelty, the Internet-only television station could pay for the necessary hardware, wholly or partially.

Television news requires field reporting and image collection as well as studio commentary. "[A] newscast is a collection of taped packages and the role of the anchor is to string them together. When we get our television news online, assignment desks and producers and correspondents and editors will still do the work of choosing stories and covering them.

"Stringing them together—we can do that for ourselves."[136]

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[134] *See infra* Part D

[135] Ellen Gamerman, *Drones Invade Hollywood*, WALL ST. J. (Mar. 26, 2015, 6:55 PM), http://www.wsj.com/articles/drones-invade-hollywood-1427410534 (reporting that drones have become a permanent addition to aerial photographers' toolkits).

[136] Tyndall, *supra* note 67.

It is far from clear that the stringer model for news collection can work. Alex Garcia, Pulitzer Prize winning former Chicago Tribune photojournalist and now freelancer, does not think it can.[137] He argues that while citizen-journalist videos of disasters and street killings draw viewers, this is due to the dramatic subject matter; stringers and citizen journalists lack the skills necessary to produce the large quantity of video necessary for an acceptable publication. Moreover, CNN has not been able to make its iReport citizen journalism project work to any great degree.[138] Uneven coverage, poor reliability, and a pattern of factual inaccuracies, sometimes amounting to outright fraud, have kept stringer journalism[139] at the margins of the news industry. Using staff journalists immerses them in a culture of professional journalism, but it also blocks the force of their journalistic drive by bureaucratic commercial caution.

Uber and Lyft are undeniable successes, but before they gained popularity, one would have thought their core strategies were also preposterous.[140] Many believed that stringers would be too difficult to recruit, train to acceptable standards of journalism, and manage, and that the necessary supporting infrastructure, along with their fees, may produce total costs greater than getting the same coverage with salaried journalists. Nevertheless, Uber's success, and the availability of new technologies that permit newsgathering to be decentralized, make the stringer model for Internet-only television worth considering. To succeed, an Internet-only television enterprise must find ways to recruit stringers with the right potential, and give them enough technical training that they can effectively integrate with professional

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[137] "[A]ll these smart people pontificating, making conceptual scoops and publishing opinions on our industry [should] show me how you would crowdsource the typical 300+ pictures that run in our newspaper every week and the thousands of man hours that it takes to pull it all off, seamlessly, until it falls on your doorstep or refreshes your home page with just a whisper . . . [How would] an app . . . automate the logistics involved in shooting pictures of individuals, groups, buildings, places, events, food, sports, products, news that make up our weekly report. Images that you have to pay people to produce ahead of time, not on spec, to assure they'll actually get taken . . . They're not just show-up-and-snap pictures either. Many of our pictures go beyond simple representations of their subjects to emphasize through judgment, experience and composition what it is about them that makes them newsworthy and storytelling. That includes the use of artificial light - the kind you mount on the end of a light stand on location or in our photo studio. Everything about the images is purposeful, carefully concealing the organized chaos it took to make them happen."

[138] See *infra* Part E(discussing CNN's iReport project to harness citizen journalists).

[139] Garcia would say that "stringer journalism" is an oxymoron. *See* Alex Garcia, *Crowdsource This Photo Grid by Our Staff*, Chi. Trib.: Assignment Chicago (Jul. 23, 2013), http://newsblogs.chicagotribune.com/assignment-chicago/2013/07/a-photo-grid-of-one-week-for-the-staff.html [https://perma.cc/A2JR-XX73] (sharply criticizing fantasy of citizen journalism's replacing staff photojournalists).

[140] When the author worked on the White House staff of President Gerald Ford, one of his assignments was to recruit economists for one of two open slots on the President's Council of Economic Advisers. One candidate, a well-respected professor of economics, came in for an interview and presented, with great enthusiasm, a free market scheme for urban transportation. Taxicabs would be replaced by ordinary citizens who would put a sign in their windows offering to provide point-to-point transportation. The idea was not all that different from what materialized forty-five years later as Uber. The author and other members of the Presidential Personal Office joked about its absurdity afterwards.

journalists performing the programming function.[141] That integration requires state-of-the-art dispatching technology resembling that used by Uber.

3. Stringer Recruitment and Training

Success of the model for stringer news production requires enlarging the pool of stringers beyond those who already perform the function for legacy television stations and newspapers. While stringers function in most television markets, they are few in number, and their relationships with the television stations that use their material are informal and *ad hoc*. The Internet-only television station requires a substantially larger number of stringers—enough to produce news content for five or six hours per day of programming. Of course, not every minute of news programming involves stringer-captured video. Other news material will be produced in the studio, but stringers must capture stories that occur in the field.

A real labor market for stringers does not presently exist. Therefore, Internet-only television innovators must develop one. After market development, an effective training program must bridge the likely gap between the stringer mastery of journalism and the more professional journalists performing the programming function.

Five pools of potential stringers exist: (1) people already working as stringers for legacy television stations; (2) underemployed photographers, including those just starting their careers and having difficulty finding entry-level jobs; (3) Uber and Lyft drivers and others who perform flexible work; (4) drone enthusiasts who are already excited about using drones for newsgathering; and (5) others with no previous professional or quasi-professional involvement with either photography or casual work. Each of the recruiting pools poses its own challenge in terms of likelihood of successful recruiting and the need for additional training.

Existing stringers should be the easiest to recruit, so long as the Internet-only television station offers compensation or other conditions of work that are competitive with the opportunities stringers already have. The underemployed photographer group should similarly be easy to recruit, as they are interested in photography—some of them photojournalism—and the commercial job opportunities for them are scarce and shrinking. The Uber driver group is in an intermediate position: most of these workers already earn a substantial amount of income by driving passengers, but when demand is light, they can simply go off duty and perform newsgathering work during these times. The drone-enthusiast group includes serious photographers who want to expand opportunities to earn compensation from a new aerial photography tool. The FAA has granted nearly 5000 Section 333 exemptions,[142] authorizing these users to fly drones commercially, and most of them are scrambling for opportunities. Members of the last group—the general public—will be the hardest to recruit. Because of their diffuse nature, making contact with them and getting them to pay

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[141] *See infra* Part IV. B.

[142] A section 333 exemption is FAA authority to operate a drone commercially. *See Section 333*, FEDERAL AVIATION ADMINISTRATION, https://www.faa.gov/uas/legislative_programs/section_333/ [https://perma.cc/S85D-DBQQ] (last visited Apr. 23, 2016).

attention to the station's recruiting pitch will be challenging. Moreover, there is no reason to believe they are any more interested in covering news than they are in working in other professions.

As for training, members of the experienced stringer group would be immediately useful with minimal additional training, as they already understand journalism and photography. The second group—photographers—already knows photography, but likely needs training in journalism. Members of the third group—Uber and Lyft drivers—likely know nothing about either journalism or photography, but are an attractive target for recruiting because they are consistently out in the field ,and have full control over their flexible work schedules. Flexibility in their routes and the timing of their assignments would permit interrupting their driving activities to cover news.

The starting point for the combined recruiting and training program is an understanding of the requisite qualifications. Good photography skills are essential. A qualified stringer must know how to operate the requisite handheld and drone-mounted equipment to get the best technical effects, and must have a good sense of the principals of composition for an effective news treatment. Beyond that, because they will be operating remotely and without supervision, they must be reliable, enthusiastic, persistent, and diplomatic. Excitement about being involved with breaking news is also a prerequisite, but it surely is not enough in itself.

An important question for stringer selection and training is whether the stringers will work only as photographers or whether they will report the news as well. The skills relevant to photography and reporting are quite different, although they overlap. Good photojournalism, like reporting, requires an acute sense of storytelling. Random photographs, despite their artistic value, do little to facilitate telling the story.

There is no effective network or trade association involving news stringers.[143] Because their work is generally licensed to individual stations, it does not appear on YouTube or Vimeo, except occasionally as part of a stringer's promotional reels.[144] Thus, recruiting outreach must be aimed broadly, especially for the general public. Although, targeted advertising pointed specifically toward Internet users interested in photography, drones, journalism, and television broadcasting will likely be effective.

The most productive recruiting efforts would likely target journalism and film schools in the market areas. The Internet-only television station should contact faculty members at those schools and seek opportunities to make presentations, post advertisements, and meet with student clubs. The station also should immediately offer internships that might be integrated into academic programs, which are common in

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[143] *But see* Stringer News Service, http://stringernews.com [https://perma.cc/BYG2-N59Q] (last visited Apr. 10, 2016) (offering stringer collected news and video from Long Island); Stringernews.net, http://www.stringernews.net [https://perma.cc/7FKX-FGSD] (last visited Apr. 10, 2016) (inviting stringers to contribute their work).

[144] A "reel" is a short video that shows off the work of an actor, cinematographer, or director, equivalent to a visual artist's portfolio.

high-profile journalism schools like Northwestern's Medill School.[145] If the Internet-only television station forges relationships with one or more journalism or film schools, the requisite skills acquisition can become a part of the curriculum. Otherwise, the station must do at least some training and build the cost of that training into its budget.

Physically attractive stringers who are reasonably articulate can be encouraged to do talking-head commentary for their stories.

The Internet-only television station must decide how training is to be accomplished.[146] Even experienced stringers new to the endeavor need some training pertaining to the specific corporate vision, and how to receive assignments, submit material, and get paid. Research in the print journalism community indicates that stringers crave a sense of being members of the team, clear direction, and frequent feedback.[147]

Others, with little or no experience, will need extensive training in both photography and journalism. Journalists must be able to recognize good stories, gather facts through skillful interviewing and research, develop sources, craft welcoming leads and satisfying endings, rewrite to achieve mastery, and structure narratives for different types of articles.[148] Photojournalists must be able to anticipate which images tell the story best, what subject to focus on, and when the best picture will emerge, given the flow of the action. They must also know what focal length, shutter speed, and aperture is necessary to capture the best imagery, how to feature emotion, and how to get the imagery in the time available.[149] All journalists must be persistent, patient, and not easily intimidated.[150]

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[145] *See Journalism Residency at Medill*, MEDILL SCH. OF JOURNALISM, MEDIA, INTEGRATED MKTG COMM., http://www.medill.northwestern.edu/bsj/exclusives/journalism-residency.html [https://perma.cc/M2EZ-NY53] (last visited Apr. 10, 2016) (describing "journalism residency" program, in which students spend one academic quarter working in media outlets).

[146] *See infra* Part IV. A. 3.

[147] Laura M. Browning, *When a Staff Isn't a Staff: Managing Freelancers*, POYNTER NEWS U., https://www.newsu.org/courses/managing-freelancers [https://perma.cc/JR9T-AXHF] (webcast originally broadcast, Nov. 11, 2015) (presentation by supervisor at A.V. Club, an affiliate of The Onion, who coordinates the work of nearly 200 stringers).

[148] *See JOUR E-50 Basic Journalism*, HARV. EXTENSION SCH., http://www.extension.harvard.edu/academics/courses/basic-journalism/12549 [https://perma.cc/QW97-32L5] (last visited Apr. 10, 2016) (summarizing course).

[149] Alex Garcia, *The Most Important Skill for a Photojournalist,* CHI. TRIB.: ASSIGNMENT CHICAGO (Jan. 29, 2011), http://newsblogs.chicagotribune.com/assignment-chicago/2011/11/the-most-important-skill-for-a-photojournalist-tuesday-tips.html [https://perma.cc/5RYB-4K9N] [hereinafter *Most Important Skill*]; Cameron Knight, *Understanding and Appreciating the Basics of Photojournalism*, ENVATOTUTS+: PHOTO & VIDEO (Nov. 9, 2011), http://photography.tutsplus.com/articles/understanding-and-appreciating-the-basics-of-photojournalism--photo-1218 [https://perma.cc/8MHK-9TB7]:

> The three elements of a great photograph are light, composition and moment. Knowing how to use a flash when needed and looking for dramatic natural light are good skills to have. Also knowing the fundamentals of composition such as the rule-of-thirds, leading lines and repetition of form will take you a long way. But finding that perfect moment is essential. Look for the emotion peak.

[150] Alex Garcia, *Tuesday Tips: 10 Key Traits of Winning Photojournalists*, CHI. TRIB.: ASSIGNMENT CHICAGO (May 11, 2010), http://newsblogs.chicagotribune.com/assignment-chicago/2010/05/7-key-traits-of-winning-photojournalists.

Reaching out to those entering this new labor market requires some mechanism to give them the requisite skills. Anyone can be instructed in the basic principles of photojournalism in a few hours, and anyone who has good basic writing skills similarly can understand the requirements for a good news story or television news package. The Internet-only television station must be prepared to offer such training and to assure completion as a part of stringer recruitment. But far more than rudiments is required. The programming function of the Internet-only television station must make up for what stringers lack in professional journalist skills. And, of course, it must supervise their journalistic output carefully

Stations can simply pay successful candidates to attend training sessions, but that risks wasting money on training which the station does not recoup through content. There is no assurance that someone completing the training program will ever shoot any video for the station. A station could require candidates to complete training as a gateway to being selected, but as long as the vision of an Internet-only television station remains unproven, potential stringers are likely to be skeptical that they will ever get any payoff for investing their time in training.

Two attractive alternatives present themselves. One is that training costs could be deducted from initial contract payments until the station has recouped training costs (or a specified portion thereof). That way a new stringer does not have to pay anything for training except in proportion to how much he gets paid for his contributions. The other possibility is to permit stringers to begin work immediately—this presents no greater risk than the current system in which any citizen journalist can capture a good picture or video, send it in, and hope the station likes it. Then, after a few months of consistent quality work, the stringer could be required to complete training in order to become a regular member of the network, entitled to receive assignments directly from the station instead on spec.

4. Stringer Management

The utility of casual labor depends upon whether the work product by that labor can be stockpiled. When the goal is to make a movie, it does not much matter when principal photography occurs, so long as all of the requisite cast members and production personnel can be assembled at the same time. When editing a movie, it makes no difference whether the editor works from eight AM to five PM, or from one AM to six AM, whether she works 12 hours straight or in bursts of an hour or less. Similarly, television content can be mostly stockpiled.

News, on the other hand, is perishable. Most newsworthy events occur at random times and places. Others, like fireworks displays and athletic events, are scheduled, but their shelf-life is short. Accordingly, the indie/stringer model works well for film and television content, but presents challenges for management and control with respect to news content. Certain television operations require tight control over

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html [https://perma.cc/TS3U-B38U].

resources, and that is more easily available for members of the workforce who are employees rather than independent contractors.

In the traditional assignment model, the assignment desk at a television station sends a reporter and photographer team to a specific news event. If the station has a helicopter, the assignment desk similarly dispatchers the helicopter, which typically has a crew comprising a pilot and a photographer. Some also carry a reporter. When the team gets to the newsworthy event, the reporter often makes suggestions to the photographer as to what particular shots will enhance the story, but experienced photographers already know what they should shoot, especially if they have worked with that reporter in the past. For helicopter coverage, someone at the station is watching a live feed from the helicopter camera and directs the helicopter crew as to the needed shots. Traditional stringers, on the other hand, operate mostly on spec. Stations are reluctant to dispatch them or direct their coverage for fear of giving them legal status as employees.[151]

Careful specification of contract terms can provide a considerable amount of control. The Uber and FedEx ground driver contracts illustrate some of the possibilities, although these very provisions have made it difficult for Uber and FedEx to maintain the legal status of their drivers as independent contractors. In *Berwick v. Uber Technologies, Inc.*,[152] an Uber driver filed a claim for unpaid wages, reimbursement of expenses, liquidated damages, and waiting time penalties under California's Wage Payment Act. The claimant apparently was hired by Rasier-CA LLC, an Uber contractor—not by Uber itself. Her agreement provided:

"You shall be entitled to accept, reject, and select among the Requests received via the Service . . . Following acceptance of a Request, however, you must perform the Request in accordance with the User's specifications. Failure to provide promised services on an accepted Request shall constitute a material breach of this Agreement, and may subject you to damages."[153]

Such language would assure a television station that a stringer would perform an assignment according to the station's direction, but it would not assure a stringer's availability for a particular assignment. Uber, however, exercises more control over driver availability that the language suggests. Drivers are expected to accept all ride requests, and rejecting too many trips may cause drivers to be excluded from the Uber platform.[154]

The need for certain television operations to be managed tightly militates toward organizing labor resources inside the firm instead of on a freelance or stringer

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[151] This concern is unwarranted and results either from a misinterpretation of legal advice or bad legal advice. Classic independent contractors often are commissioned and given fairly clear direction, often written into details of their contracts, as to the characteristics of the art they are expected to pursue.

[152] Barbara Ann Berwick v. Uber Tech., Inc., No. 11-46739 EK, 2015 WL 4153765 (Cal. Dept. Lab. June 3, 2015).

[153] *Id.* at *1 (quoting parts of agreement).

[154] O'Connor v. Uber Tech., Inc., 2014 WL 1760314 at *20–27 (N.D. Cal. Mar. 11, 2015) (quoting provisions of driver handbook and denying summary judgment in class action asserting that Uber drivers were employees under California law).

basis. For the same reasons, most television stations characterize their core staff as employees rather than independent contractors. But not everyone is an employee. Most television stations also use freelancers and stringers to fill in when inadequate employee staff are available, especially for late-night and weekend spots, and they regularly contract in the marketplace for certain important content, most notably for entertainment programming. Some television stations produce some of their own entertainment programming, but most obtain it from the network with which they are affiliated or from other production houses.

Effective use of stringers to produce most of the news content for the station requires a robust dispatching system capable of identifying stringers close to breaking news and allowing for the possibility that only a fraction of those may be interested in covering it when it breaks. Beyond that, sound journalistic judgments at the station level must assign stories on a daily basis to feed the station's hook-and-hold strategy[155] on a newscast-by-newscast basis. A quota of hot news, soft news, and feel-good outros[156] must be available for each program.

Conceptually, the dispatch system should work like the Uber dispatch system. Each stringer would have an application on an iPhone or tablet computer that shows his location on a moving map. Newsworthy events would pop up on that map, and the stringer would be able to accept an assignment in the same way that an Uber driver accepts one—simply by clicking on it. The technology obviously exists for constructing such an app – Uber has one, Lyft has one, and other delivery services have them. This approach avoids the need for a human dispatcher to communicate individually by phone, email, or text with each potential stringer for every news event. This could also assure timely coverage.

It might be possible to license the Uber software and extend it to cover a stringer dispatch function, or to embed the stringer dispatch function into the Uber app, but that depends on whether a deal can be struck with Uber. If a deal cannot be struck with Uber or a similar service, the app can be stand-alone, which ultimately would not be a barrier to use. Many Uber drivers run both the Uber and Lyft apps simultaneously, sometimes on separate tablets mounted on their dashboard, and sometimes in separate windows on the same tablet.[157]

As with the Uber app, any news event can be blocked as covered when any stringer accepts it. Alternatively, the program can be written so that any event allows up to a certain number of stringers to accept an assignment, thereby engendering

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[155] *See infra* Part IV. B. for an explanation of the common "hook-and-hold" strategy for television news programming.

[156] An "outro" in a video program, written story, or musical composition is the part of the whole that leads the viewer, reader, or listener out of the creation. It corresponds to the third part of television news programs adhering to the "hook-and-hold" philosophy.

[157] December 31, 2015 conversation with Ken Simon, Uber driver, en route from O'Hare to Glencoe, IL.

competition and more certain coverage. The software, like the Uber software, can track stringer performance and alert management of stringers who accept few assignments.

The stringer dispatching system, however, must be different from the Uber system in one important respect: it must carry substantial quantities of video back to the station. Stringers need to know where they can find news, but they must also be able to get their coverage back to the station easily. Various email and file transfer technologies long have been available, and they offer adequate speeds on almost every wireless device. But the Internet-only television station's content management system must be able to associate content transmitted from the stringer with a particular assignment so that it easily can be fed into the station's automated programming system.

The kind of network for stringer news collection this section envisions is a reality. NewsCastic, formed in 2013, is active in several dozen markets, including Chicago, Washington, Albuquerque, Austin, Dallas, Denver, and Pittsburgh. It recruits journalists through the NewsCastic website, and lists assignments in the geographic area where the journalists are located. A journalist can volunteer for an assignment, cover its subject matter, and submit the result through the website by streaming imagery wirelessly from the field into a NewsCastic cloud, where it is processed and buffered as necessary to ensure specific quality levels and then streamed directly to viewers, or through contracting television stations.

A NewsCastic subsystem automatically tracks each story in terms of impressions and instances in which viewers share the stories through social media. Another subsystem automatically determines pricing for advertising and breakeven compensation rates for journalist contributors. In addition, the NewsCastic "newsroom" monitors journalist performance and assigns subjective ratings, allowing the better journalists to rise to the top and obtain more desirable and better-paying assignments. Journalists are paid through automatic deposits to their accounts.

Further, NewsCastic enters into contracts with local television stations in which it undertakes to provide a certain number of stories or even pieces of a story to the station. Initially, multi-media journalists ("MMJs") can either provide footage to the station under these agreements through the NewsCastic marketplace, leaving it to the station to weave the footage together into packages, or NewsCastic can deliver a finished story. The station then stitches the packages together into its news programming.

NewsCastic also offers advertisers the opportunity to sponsor stories. The advertiser specifies subject matter, designating specific assignments or adding new assignments to the list presented to journalists. Journalist work product on these assignments is integrated into well-crafted stories that are presented on the Internet under the advertiser's banner.

NewsCastic is far more than a mere concept; it has a total of 700 actively-participating journalists who have generated some 10,000 stories, several of whom have attracted 200,000 or more viewer impressions and 50,000 or more shares to social

media. Three television stations have entered into arrangements with NewsCastic to use its services, including stations in the Dallas, Huntsville, and Salt Lake City markets.

5. Production of Entertainment Content

The premise for the Internet-only television station advanced in this article is that its content producers will be amateurs and quasi-professionals who have not found a way to monetize their creative offerings. The Internet-only television station will build an initial stable of content producers by reviewing YouTube and Vimeo videos and making contact with their authors. The station will solicit both fictional and nonfiction works likely to appeal to audiences its advertisers want to reach. Its contract terms will reserve to the station the power to accept or decline submissions, and will have a price structure that pays a relatively small amount to anyone who submits in response to a solicitation, only paying the full amount if the program is accepted and included in the station's programming.

With respect to entertainment content, millions of hours are already being generated, but there is no developed market adequate for Internet-only television stations and their potential content producers to find each other. Already, some Internet intermediaries are testing the possibility of linking multiple contributors to interview and commentary programming through social media.[158] This concept is a specific application of crowdsourcing. The main problem is content quality. Many potential players are hobbyists or beginners who lack experience and do not produce high quality work. Consider the YouTube Partner Program[159]: users get paid to make videos part-time from home. Often, their chosen subject matter, framing, lighting, sound, and editing are sub-par. Only with experience can they reach a desirable level. They could be poached, however, by the bigger stations with promises of bigger money before reaching a desirable level.

Despite YouTube's pervasiveness and popularity, it is hard to find well-crafted narrative videos that come anywhere near approaching the quality of even the worst television programming. There *is* some, however, and the movement of Internet-based entities such as Hulu, Netflix, Amazon, and Google into the video production business is drawing more YouTubers into crafting narrative videos. There is no shortage of aspiring screenwriters, cinematographers, directors, and actors. The Internet-only television station can transform the market for indie moviemakers, providing an efficient way to connect them with audiences for the first time. The message to them is different from the message to potential stringers, in that producing entertainment content does not require being in the field—an advantage to someone who prefers solitary creation from home on her own time schedule.

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[158] *See*, *e.g.* The Video Call Center, http://www.thevideocallcenter.com/ [https://perma.cc/9FH7-ARJG] (last visited Apr. 23, 2016) (describing Internet-based linking of participants in interview and commentary programs for television).

[159] *YouTube Partner Program Overview*, YouTube, https://support.google.com/youtube/answer/72851?hl=en

As with developing the labor market for stringers, contacts with film schools may be a helpful, albeit much smaller, part of recruiting entertainment video producers. The starting point should be the identification of producers of narrative-form content who already have sought support from Netflix, Hulu, Google, Yahoo, and Amazon as they seek to rely more on independently generated content. Then, an aggressive effort to review what is available on YouTube and Vimeo can identify interesting candidates, although a comprehensive and systematic review of the enormous quantity of YouTube and Vimeo videos would exceed any conceivable level of resources available to the station. Once candidate producers are identified, the station could invite them to participate in competitions, as does Doritos for Super Bowl advertisements, one of which was among the top-rated advertisements during the 2016 Super Bowl.[160]

6. Legal Relationships with the Station

The Internet-only television station and its content producers will have a contractual relationship. The terms of the relationship should be explicit, establishing whether the producer is an employee or independent contractor, and also covering ownership of intellectual property and allocation of risk for liability.

An important part of the allure of the gig economy in general is that employment law treats employees and independent contractor very differently. Employers pay in excess of 15 percent more to employees than to independent contractors performing similar work.[161] Employees, but not independent contractors, enjoy protection under a variety of antidiscrimination laws. In addition, many employers assume that they will provide health insurance for employees but not for independent contractors, although the law does not mandate that the two classes of workers be treated differently in that regard. Also, a gig-economy workforce easily accommodates fluctuations in demand on a seasonal or daily basis, while most employees are simply kept on the payroll during downtime. In order to classify workers as independent contractors, however, an employer must give up a measure of control over how work is performed, and that may prove detrimental to the employer's success in the marketplace. Moreover, the total compensation paid to gig-economy workers may equal or exceed compensation paid to employees that do the same work, as the costs of increased supervision and information systems to manage the gig-economy workforce may exceed savings in direct compensation.

Copyright ownership can be assigned by contract. A content producer, whether a news stringer or indie entertainment creator, earns a copyright on his work as soon as he fixes original content in a medium from which it can be retrieved.[162] Origi-

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[160] *See Doritos Commercial 2016,* SUPER BOWL COMMERCIALS 2016, http://www.superbowlcommercials2016.org/doritos/ (reporting on Doritos' Crash the Super Bowl advertisement contest).

[161] The employer's contribution for Social Security is 6.2 per cent, for Medicare, 1.45 percent, for unemployment insurance, 7.75 percent. Additional amounts are paid for worker's compensation premiums and premium overtime compensation for employees, but not for independent contractors.

[162] U.S.C. § 102(a) (2015).

nality is satisfied as long as the creator captures or creates something, as opposed to copying someone else's creation,[163] and fixation occurs as soon as a video recording is made.[164] If an Internet-only television station distributes that copyrighted contact content to the public, it infringes the copyright unless it has a license.[165] Accordingly, implementation of the model advocated by this article requires appropriate license terms that must be negotiated between the station and its content producers. The station is presumed to own the copyright in material created by its employees, while the copyright in material created by non-employees—including stringers and indie entertainment producers—presumptively remains with the creator.[166]

At a minimum, the station must have the privilege to stream content to its website portal as a part of its regular programming. It also should have exclusive rights to it, so that the stringer or indie producer cannot license the same content to a competitor. Beyond that, it is advantageous both to the content creator and to the station to allow for syndication. Thus, the license terms should allow the station to sublicense the content in exchange for additional payments to the creator. Restrictions on types of technologies or channels through which syndication occurs should be avoided, lest the new model become encumbered by the same kinds of fragmented restrictions that bedevil legacy television.

Most content producers for Internet-only television will not have the resources to assume the risk of liability for what they produce, and, therefore, the Internet-only television station must ensure against liability for defamation, invasion of privacy, and copyright infringement. The risks are relatively well understood because such insurance is common for any journalism enterprise. Despite the reality that the Internet-only television station will have deeper pockets than any individual stringer or independent entertainment producer, the contracts between producers and station should have an indemnification clause, so that, in appropriate cases, the station has recourse against a producer whose conduct is egregious.[167]

B. *Programming*

Programming, as this article uses the term, includes determining the subject matter for the station to distribute to viewers, selecting the specific content that represents that subject matter, ingesting it into the station's content management system,

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[163] Feist Publ'ns, Inc. v. Rural Tel. Serv. Co., 499 U.S. 340, 345 (1991) ("Originality does not signify novelty; a work may be original even though it closely resembles other works so long as the similarity is fortuitous, not the result of copying").

[164] 17 U.S.C. § 101 (2015) (definition of "fixed").

[165] 17 U.S.C. § 106(3) (public distribution); 17 U,S,C, § 106(5) (public display); 17 U.S.C. § 501(a) (linking infringement to violates rights conferred by section 106).

[166] *See* Cmty. for Creative Non-Violence v. Reid, 490 U.S. 730, 742–43 (1989) (holding that employee works presumptively vest copyright in the employer, under the work-made-for-hire doctrine, while independent contractor works presumptively vest copyright in the independent contractor).

[167] *See generally* Meeropol v. Nizer, 505 F.2d 232 (2d Cir. 1974) (affirming refusal to stay parallel action in different federal court involving similar claims of copyright infringement, defamation, and invasion of privacy covered by indemnification agreement between defendants in the two separate actions).

adding supporting material such as video commentary, captions, voiceovers, and other audio, and stitching it together into a coherent whole. Local television stations compete based on viewer experience, including the viewer's ability to view programming online as well as over-the-air, via MVPD streams and/or on mobile devices.[168] In some respects, programming by Internet-only television stations will resemble programming by legacy stations, because viewer preferences are largely consistent across platforms. It will, however, differ from legacy programming in several respects.

1. News

Most legacy stations employ a "hook-and-hold" strategy for programming newscasts.[169] The motivation is to "hook" viewers from the start of the program, so that they will continue to watch it. The result is that stories about crime, accidents, fires, and disasters always lead, followed by softer stories on business, education, science and technology, and news about government, social welfare, budgets, and politics. Soft material comprises the end—"teasing some of the funniest or most unusual video, and promising further detail later in the show."[170] The program often promotes these stories throughout the broadcast to remind people not to leave.[171] An Internet-only television station can escape the need for such strategies, because its viewers can decide on their own sequences.

The news director, or perhaps the station manager in a small startup, must decide what will comprise the "hook" for a particular newscast, and dispatch stringers accordingly. She must determine what business, government, and technology to cover for the middle portion, and dispatch stringers to collect that content. Finally, she must review available recorded material to fill in the final portion, or arrange to shoot it in the studio. Internet-only television stations can resist the trend at legacy stations to reduce on-air reporting, to increase coverage of "events that are easy to find and report" such as scheduled meetings of political bodies and in-studio interviews, and to use more material from outside sources.[172]

As the material is selected or submitted by stringers, the news director must work with the master control operator to cue the material up on the content management system so that the master control operator can stitch it all together in the right sequence with the right interstitial material, some of it including live commentary. In performing this function, she must be mindful of the draw of live coverage of

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[168] FCC 2015 Video Competition Report, *supra* note 15, at 3336.

[169] Robert A. Papper, *The State of the News Media 2005*, PEW RESEARCH CENTER, http://www.stateofthemedia.org/print-chapter/?print_id=2885 [https://perma.cc/EUB4-927J] (describing hook-and-hold strategy).

[170] *Id.*

[171] *Id.*

[172] *See id.* Pew's five-years' worth of data shows that the percentage of stories presented by reporters dropped by a third, from sixty-two percent of the total to a little over forty percent in 2002. News stories covered without a reporter and anchor "tell" stores with no video increased from thirty-eight percent to fifty-seven percent. *Id.*

breaking events.[173] She should also make judgments as to how the elements of a particular newscast should be displayed on the website for later retrieval by viewers.

An essential part of the news programming function, even more important than in a legacy station that uses mostly professional journalists to capture news, is to enforce the principles of good journalism. Journalism is a harder task than most people think. It is even harder to do well. There is no reason to believe that recently-trained stringers can do as good a job putting news stories together as professionally trained and experienced journalists. Accordingly, stringers will require closer supervision to ensure they are in the right place at the right time, and must be trained and led so that they are decent journalists. Thus, the qualifications of the station manager or news director, if that is a separate position, are crucial, and must embody the best journalism instincts and technical skills. Not only will the occupant of this position make news judgments about where a stringer should be dispatched, she also must have the right instincts and strategic judgments on how to stitch the content together into coherent programming. In addition, she must educate stringers on the basics of journalism.

Hook-and-hold is analogous to "persistence" in web-site metrics—how long a visitor stays on a particular website. But the reality is that neither is possible in the new digital world, as viewers get access through too many different starting points, like Facebook. Control over what a viewer sees next, or where the viewer goes next, is dying out. The market for popular music, moving away from albums and towards tracks, is experiencing this same phenomenon.

The new programming strategy must be based on (a) pushing the programming to where the viewer already is, like Facebook, rather than hoping the viewer comes to the programmer's website, and (b) having something distinctive about what viewers see so that they identify with the programmer, gradually building loyalty. The way a station distinguishes itself from the competition is with its individual stories, not by the newscast in its entirety.

Internet-only stations will emphasize style by grouping their stories into themes that match up with what Facebook, VOX, BuzzFeed, and VOS are doing. Programming means pushing content into the thematic boxes the viewers are interacting with, and branding the stories so that viewers gradually will develop loyalty to the originator. Hook-and-hold in the new environment is not so much about page design as it is about storytelling style, format, and packaging. Every story posted to Facebook lives or dies based on the audience's willingness to view and share it. Thus, the story needs to have the hook-and-hold strategy baked right into it.

2. Entertainment Programming

Decisions made long in advance will circumscribe what is available for the entertainment portion of any given day of programming. Station management will

[173] Regardless of the availability of statistical analysis, all one needs to do is to consider how often legacy television stations promote their capacity to present breaking news live to realize how deeply rooted the proposition stated in the text is.

have already selected existing video material from YouTube, Vimeo, or elsewhere, engaged in any necessary licensing negotiations, and commissioned new production to complement the material. The programming decision for a particular day will involve choosing an appropriate mix of drama, comedy, reality, do-it-yourself, and interviews.[174] While sports programming is very popular with audiences,[175] it is expensive. Some commentators argue that legacy television is darkening its future by paying too much for Super Bowl and other NFL broadcast rights.[176]

Just as news programmers must ensure their journalists have the right skills, tools, and links to the station, entertainment programmers must select and collaborate with creative and quality-oriented video producers to script what they should shoot, and manage their schedules and payment arrangements.

3. Stitching It Together

Internet-only television opens up asynchrony in how viewers watch television. Viewers are no longer locked into the sequence that results from hook-and-hold or other programming strategies. Instead, they are locked into station sequencing for live streams, but they can pick and choose the order in which they consume recorded content.[177]

Most of the business model analysis assumes an Internet-only television station must have enough programming to fill a twenty-four hour broadcast day. This, however, does not have to be the case. For instance, an Internet-only television station could offer only one hour of programming per day. Such a limited offering would be a significant disadvantage to an over-the-air station, however, as limited programming forgoes a broader hook-and-hold strategy in which a viewer, drawn in by one

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[174] *See supra*, note 41, and accompanying text for an analysis of legacy station entertainment content.

[175] John Consoli, *MediaVest Exec Sheds Light on Popularity of the TV Sports Marketplace*, BROADCASTING & CABLE (Jul. 5, 2012, 2:03 PM) http://www.broadcastingcable.com/news/news-articles/mediavest-exec-sheds-light-popularity-tv-sports-marketplace/113345 [https://perma.cc/4UH9-VZ8G] (identifying the advantages of live sports programming, including the reality that different sports draw different mass audiences and thus are attractive to advertisers).

[176] Cecilia Kang, *Bidding War Between Networks, Sports Leagues Will Increase Price of Cable TV*, WASHINGTON POST (Jan. 23, 2015), https://www.washingtonpost.com/business/economy/bidding-war-between-networks-sports-leagues-will-increase-price-of-cable-tv/2015/01/23/d0cb19f4-9db8-11e4-a7ee-526210d665b4_story.html [https://perma.cc/Y74F-9WYW] (arguing that escalating payments for sports broadcasting rights will cause cable prices to increase and cause more viewers to pull the plug).

[177] TYT Network, for example, has a daily live broadcast from 6 to 8 PM ET, but provides recordings of it in archives. At other times, its Web page provides a fairly rich collection of recorded news commentary and features, focused on national and international politics. THE YOUNG TURKS LIVE, http://www.tytnetwork.com/live/ [https://perma.cc/F9EX-FDFR] (last visited Apr. 5, 2016), archived material and most of the recorded political commentary is only available to subscribers. *See, e.g.,* THE YOUNG TURNS JANUARY 15, 2016 HOUR 1 https://www.tytnetwork.com/2016/01/15/young-turks-january-15-2016-hour-1-2/ [https://perma.cc/E6C3-WBU6] (last visited Apr. 5, 2016). One of the motivations that drove the development of the content of the ATSC 2.0 and 3.0 standards was the realization that most viewers prefer to watch television programming, except for sports, asynchronously rather than having to be available when the program is streamed. Most cable providers already provide this capability through the equipment they provide to subscribers. The ATSC 2.0 and 3.0 standards provide similar capability for signals received over the air.

program, stays around for others and for the advertising that accompanies it. But the asynchrony of viewer access to Internet-only television and the asynchrony of targeted advertisements makes it more likely that Internet-only television programming during only parts of the day could be successful.

The distinction between being "on the air" and "off the air" is less meaningful for an Internet-only television station than it is for a broadcast station. When the broadcast station is off the air, a viewer selecting its channel sees a blank screen. When an Internet-only television station is off the air, a viewer still sees content. The important question is whether the content is refreshed frequently enough to bring viewers back to the website to get more advertising exposure. It is less important, therefore, that the content available through an Internet-only television station change frequently. But, new program material should be added to the website frequently throughout the day. Otherwise, a viewer that becomes accustomed to a website that changes only every few days will visit it less often, decreasing the number of potential encounters with ads.

Live programming is not the only way to keep a website fresh, however. Indeed, an Internet-only television station could very well use as a model major television stations, such as ABC7 Chicago, which puts only live newscasts on the air, totaling about six hours per day. Viewers come back to watch the live news, and while they are on the site, they see archived material from earlier newscasts along with the ads associated with them.

The Internet-only television station has the option of providing content on-demand rather than having to deliver a complete integrated stream twenty-four hours a day. That opens up considerable flexibility for entertainment programming that, for the most part, is stockpiled rather than needing to be viewed live. Some of this content can be commissioned by, and specifically for, the station, but other content is also already available. When a producer publishes her video on an unprotected YouTube or Vimeo link, she arguably has put it into the public domain, and the station can copy it without committing infringement.[178] In any event, the station can provide a visual thumbnail and link to the URL where the creator published it.[179] That would open up a fairly wide range of possibilities for how the Internet-only television station could fill the web equivalent of a television programming day.

4. Technologies

For live-stream programming, the functions to be performed are similar to those performed by the master control system. Specific items of content must be ingested into the system, and a combination of an automated schedule and master control

[178] See Murakami-Wolf-Swenson, Inc. v. Cole, No. 3:13–CV–01844–BR, 2015 WL 1249872 at para. 3 (D. Or. Mar. 18, 2015) (considering and rejecting argument that placing video on YouTube put it in the public domain; explicit reservation of rights rebutted any public- domain inference).

[179] Providing a link does not constitute infringement, because it is not a reproduction, public distribution, public display, or public performance of the copyrighted content. See 17 U.S.C. § 106 (enumerating exclusive rights of copyright owner, and impliedly excluding other rights).

operator intervention must sequence the content correctly, and intercut supporting material such as captions, video commentary, and audio.[180] The traffic and sales functions will prepare a program schedule that represents detailed instructions on a minute-by-minute basis for the master control function. An automated video switcher will call up the requisite content from incoming live streams and from recorded materials stashed on the station's video server. Associated equipment will perform any necessary transcoding and monitor video levels. A master control operator will sit in front of a video switcher and associated monitors to intervene as necessary when the automation malfunctions or when last minute developments such as breaking news must be inserted into the preprogrammed flow.[181] The software associated with the automated system automatically keeps track of what was actually sent to viewers, and identifies any discrepancies from the schedule, enabling the station to make good on its advertising commitment.

The advertisement insertion workflow for Internet-only television stations, however, will differ in that advertisement content will, for the most part, be inserted not by the station's master control system, but rather into the stream before it reaches the distribution infrastructure. Instead of inserting the content of the advertisement, the master control system will interact with advertisement servers that supply the content of the advertisement, or a link to the advertisement on the fly, according to a particular viewer's behavioral category stored in the advertisement management database. The station's distribution interface will prepare html code that will be rendered as a webpage for the viewer, and the advertisement server will insert additional html code in the places on the page reserved for advertisements. The combined html code then will be sent to the viewer through the http protocol.

An Internet-only television station's content-management and master control systems must go beyond those required for traditional over-the-air broadcasts. A significant part of the station's output will be presented to viewers in the form of clickable links rather than being embedded in a daylong broadcast stream. The systems must be capable not only of streaming the assembled programming, but also of placing recorded programs in appropriate positions on the website, according to tags embedded with the particular content segment.

By embracing state-of-the-art digital equipment, the Internet-only television station can reduce programming infrastructure costs. For example, it can use smaller

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[180] FREDERICK M. BAUMGARTNER & NICHOLAS A. GRBAC, Television Operations 7–10 (2015) (describing television station workflow).

[181] John Luff, *Television Master Control Systems and Network Distribution*, in NAT'L ASS'N OF BROAD. Handbook at 1364–65 (10th ed. 2007) (providing flow diagram and photograph of master control panel and monitoring screens).

but highly capable cameras, DSLRs,[182] or Blackmagic cameras[183] mounted on tripods instead of traditional studio cameras costing two orders of magnitude more.[184] It can use master control systems implemented in software rather than far more expensive video switchers.[185] It can fully embrace content management systems that reduce the need for separate multiple servers, switches, and format conversion boxes, while handling the work product of a great many stringers and individual indie producers.

C. *Distribution*

Realization of the Internet-only television concept will occur through a combination of converting boomer signals into IP streams under ATSC 3.0, shutting down boomers altogether, and sending television programming through wires and broadband wireless connections. The mix of IP boomers and enhanced IPTV will be determined by economics and physics. Boomers require enormous power to transfer information to a relative handful of people, each of whom receives less than one ten-billionth of the transmitted signal.[186]

Internet-only television obviates the need for infrastructure to generate very high power radio signals[187] through "boomer" transmitters and antennas. "Starting an Internet channel requires only a camera, computer, software, and website."[188] The quoted assertion, however, ignores what is necessary for quality video production

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[182] Such as those offered by Nikon, ranging in price from the $750 D5500, to the $3000 D810, to the $6500 D5. DSLR Cameras | Entry-Level, Enthusiast & Professional | Nikon, http://www.nikonusa.com/en/nikon-products/dslr-cameras/index.page [https://perma.cc/FSD7-RC84] (last visited Apr. 9, 2016). Higher priced models offer a wider range of options for sensor sensitivity, frame rates, and manual setting of white balance, without much difference in sensor size. *Id.*

[183] Prices range from $2300 for its Blackmagic Cinema Camera to $3000 for its Blackmagic Production Camera 4K. Blackmagic Design: Cinema Cameras, https://www.blackmagicdesign.com/products/cinemacameras [https://perma.cc/LRB6-LVGQ] (last visited Apr. 9, 2016). Oddly, Blackmagic refers to its cameras as "digital film" cameras, even though, like most digital cameras, they record to sensors rather than to film.

[184] The NTIA equipment inventory for public television stations lists the price of a studio camera at $450,000, with an additional $90,000 for a pedestal and mount. *Television Station Construction Costs,* NITA (Jan. 12, 2011), https://www.ntia.doc.gov/legacy/otiahome/ptfp/application/EquipCost_TV.html [https://perma.cc/Z7PE-XBJL].

[185] *Compare* Blackmagic Design: ATEM Production Studio 4k Software, https://www.blackmagicdesign.com/products/atem/software [https://perma.cc/Q7H7-PM88] (last visited Apr. 9, 2016) (showing Blackmagic ATEM Production Studio 4K software priced from $1695 to $5995), *with Television Station Construction Costs,* NITA (Jan. 12, 2011), https://www.ntia.doc.gov/legacy/otiahome/ptfp/application/EquipCost_TV.html [https://perma.cc/6BMN-3DU8] (listing $250,000 as the price for a video switcher).

[186] Assuming that viewer is fifty miles from the station's transmitting antenna, that the transmitter antenna gain is zero, and that the receiving antenna gain is six dB, resulting in a total loss of 114.044 dB.

[187] Major market televisions stations use transmitters that emit as much as 1 megawatt of RF power. *See* WLS Television, Inc., Application for Construction Permit for Commercial Broadcast Station, https://licensing.fcc.gov/cgi-bin/ws.exe/prod/cdbs/forms/prod/cdbsmenu.hts?context=25&appn=101422856&formid=301&fac_num=73226 [https://perma.cc/G8TE-5QR4] (proposing increase in transmitter power to one megawatt). By way of comparison, a typical cellphone transmitter emits 0.6 to 3.0 watts.

[188] Khairil Azizi Rosli, *Cable, Satellite, and Internet Television*, (June 26, 2014), http://www.slideshare.net/khaiazizi/chap11dom10e [https://perma.cc/W35Y-H6NP].

and realistic programming—multiple cameras for different angles, and a mixture of close and long shots, good lighting, and good sound. Effective programming requires servers to store pre-recorded program segments and video switchers to intercut live shots and recordings and to superimpose captions and voice-over audio.[189]

The Internet-only television station will use well-established means for putting its programming onto the Internet. The station's local area network will connect to a border gateway router,[190] which in turn will be connected through a coaxial cable or optical fiber link to the station's Internet service provider from which from it will go into the Internet cloud. Substantial connection bandwidth to its Internet service provider will be necessary as viewership grows, and the processing power of the advertisement-serving hardware and software must increase in proportion to the numbers of viewers and numbers of advertisements, because it must process each viewer click and interact with the advertisement server to decide what advertising content should be sent to that viewer.

Legacy television stations use three modes of distribution: over-the-air broadcast, cable, and the Internet. A pure Internet-only television station would shut down the over-the-air transmitter, cut the cable, and send its programming exclusively through the Internet. The economic case for doing that is less persuasive than merely shutting down the transmitter and continuing distribution via both cable and the Internet.

In the early days of cable television distribution, cable distributors ingested local television station programming from the broadcast television signal. Now, most cable distributors obtain such programming through a direct fiber link from the station to the cable headend.[191] Eliminating the broadcast signal does not disturb the availability of the station's programming to the cable distributor. Section Canalyzes the effect of ceasing transmissions on the legal obligations of television stations and cable route distributors, but from a technical standpoint shutting down the transmitter would have no effect on the availability of cable distribution.

But not all boomers will be shut down. Many of them will supplement bandwidth at the edge of the Internet by using their high power to blanket dense markets with video streams of popular programming encapsulated in IP packets. The infrastructure transition may involve connecting centralized master control functions, such as those used by ABC, NBC, and Fox for their owned-and-operated stations.[192] In these arrangements, local stations do not have their own master control room

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[189] *See generally* BLACKMAGIC DESIGN: ATEM TELEVISION STUDIO TECH SPECS, https://www.blackmagicdesign.com/products/atemtelevisionstudio/techspecs [https://perma.cc/XGY2-SNSP] (last visited Apr. 9, 2016) (technical description of video switcher).

[190] See *RFC 1009 - Requirements for Internet Gateways*, FAQs (June 1987), http://www.faqs.org/rfcs/rfc1009.html [https://perma.cc/DY7Y-2DUC] (defining gateway router; explaining that it links an autonomous network such as a LAN to a wide-area-network such as the Internet).

[191] Paul Hearty, *Cable Television Systems*, *in* NAT'L ASS'N OF BROAD. HANDBOOK 1751, 1755 (10th ed. 2007) (explaining shift from over-the-air acquisition to optical fiber and satellite acquisition).

[192] *See Reality TV— A Brief History*, *supra* note 38 (discussing NBC and ABC centralized master control in Atlanta).

co-located with their studios. Rather, their programming is stitched together at a centralized master control room, often contracted out to a third party. The output from any master control room, whether centralized or dispersed to the station, can simply be disconnected from the transmitter and reconnected to an Internet router.

D. *Advertising Revenue*

A cost of moving entirely to targeted advertising is that a legacy station loses its direct relationship with advertisers, who now place advertisements by algorithms maintained by advertising agencies. An Internet-only television station fully embracing the targeted advertising model is at the mercy of algorithms and data maintained by others for its advertisement revenue. It can, of course, adjust the tags it uses to increase advertisement matches, change its pricing, and control which advertisements appear on a website and where, but it does not have an ongoing, repeat-player relationship with major advertisers.[193]

V. Lightening the Legal Load

Internet-only television avoids the regulatory complexity that grew out of the notion of scarce spectrum. It also avoids the bureaucratized cartels that have grown up as sponsors of suffocating copyright protection regimes. It offers stringers and indie content producers the flexibility to work when they want and on what they want. The key challenge is to persuade them that innovation in the form of Internet-only television will create a new source of demand for their product.

A. *No Need for FCC Licenses*

Internet-only television stations avoid the need to have FCC licenses for their broadcast equipment and the personnel who operate it. Television transmitters must be licensed by the FCC,[194] and before a station may begin to build one, it must obtain a construction permit.[195] Further, television transmitters may be operated only by radio engineers holding FCC commercial operators' licenses.[196]

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[193] It can, of course, continue to work with advertisers to adjust the tags each uses to match ads with viewer demographic and behavior groups.

[194] "No person shall use or operate any apparatus for the transmission of energy or communications or signals by radio . . . except under and in accordance with this chapter and with a license in that behalf granted under the provisions of this chapter." 47 U.S.C. § 301 (2015).

[195] "No license shall be issued under the authority of this chapter for the operation of any station unless a permit for its construction has been granted by the Commission." 47 U.S.C. § 319(a) (2015).

[196] "The actual operation of all transmitting apparatus in any radio station for which a station license is required by this chapter shall be carried on only by a person holding an operator's license issued hereunder, and no person shall operate any such apparatus in such station except under and in accordance with an operator's license issued to him by the Commission." 47 U.S.C. § 318 (2015).

B. *Avoidance of Copyright Licensing Requirements for Traditional Content*

Internet-only television stations need not be prisoners of past copy-protection strategies for protecting intellectual property—mainly copyright. Rarely do television stations produce all the content they broadcast. They generally produce local news, but almost everything else is produced by other entities, and the originators are unwilling to make it available to broadcast television stations for free. Typically, they charge a licensing fee. Reproducing copyrighted material, or displaying it publicly, is an infringement, unless the copyright owner grants permission.[197] Further, use beyond the scope of license limitations constitutes copyright infringement.[198]

An Internet-only television station is in no better position than a broadcast television station to produce all of its content by itself. A local version of CNN—twenty-four hour news—is conceptually possible, but few localities produce enough news to fill a twenty-four hour programming schedule.[199] So the question is whether it can buy content produced by others without undue restrictions on distributing it through the Internet.

Any television station, and those that supply its content, have an economic interest in protecting their intellectual property against free riding. In some cases, as with breaking news, the short shelf life makes assertion of an intellectual property right less necessary to realize full value.

It is relatively easy to structure a website so that archived files are easier to copy than video streams. Thus, an Internet-only television station can protect its time-sensitive content more fully than content that has become stale. The archived content presents fewer temptations to infringers seeking a free ride.

1. Fragmentation of Ownership

A copyright owner seeks to maximize the revenue she earns from copyrighted content. In this regard, she is like a grocer who can sell cheese by ten-pound blocks, one-pound chunks, or by the slice. Most consumers prefer smaller quantities because of the risk of spoilage, and thus are willing to pay a higher price per pound for slices or one-pound chunks than for the ten-pound block. Likewise, the owner of a copyright in a popular television program could, in principle, transfer the entire copyright to a local television station, but that television station, given the limited geographic extent of its market, would be unwilling to pay a price that reflects the worldwide potential of the copyright. The copyright owner can earn more revenue by splitting

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[197] 17 U.S.C. § 106 (2015).

[198] 17 U.S.C. § 106 (2015).

Grant Heilman Photography, Inc. v. McGraw-Hill Co., 28 F.Supp.3d 399, 406–07 (E.D. Pa. 2014) (holding that defendant infringed plaintiff's copyrights by publishing stock photographs beyond detailed limitations on markets, print runs, and print size).

[199] *See* Craig Carter, *Filling the 24-Hour News Hole*, THE ARGUS OBSERVER (June 12, 2014), http://www.argusobserver.com/opinion/filling-the--hour-news-hole/article_44211fd0-f24b-11e3-98d7-0019bb2963f4.html (explaining difficulty of acquiring 24 hours worth of news).

up the licensed rights and selling them separately ("syndicating"[200] them) to multiple television stations in different geographic markets. To protect the exclusivity of each licensee in its own market, the terms of the license must restrict transfer and impose geographic limits on exploitation of each license.

Different markets also exist temporally. The work may have high-value to a television station that wants to run it live or to offer access to it immediately. Other potential licensees may prefer to pay a lower price for distributing it later. When that is the case, further license restrictions are necessary, some permitting immediate exploitation but expiring, others permitting exploitation only after some period of time. The market might be further subdivided by means of distribution. Cable-operator licensees would be permitted to exploit the work only by distributing it to their own subscribers; network licensee distribution would be limited to their network affiliates; television station licensees would be limited to over-the-air distribution in a particular metropolitan area within the station's broadcast footprint.[201] Internet distributors might be limited to particular kinds of copy-protected or subscription channels through the Internet.

Each licensee has an interest in ensuring that other licensees do not trespass on its license rights and privileges,[202] lest the value of the license purchased be diluted.[203] Internet licenses are particularly problematic in this regard because the Internet has no geographic boundaries, so an Internet license vitiates the benefit of an exclusive geographic license for other means of distribution.[204] Moreover, legacy producers, programmers, and distributors worry about the tendency of their customers to pull the plug and view their content through the Internet. They seek protection from that in the form of strict restrictions on Internet licensees.[205] Licensees can sue one another, but they are often better off protecting their interests through tough negotiations with potential licensors, insisting, for example, on stringent limitations on other licensees and aggressive enforcement efforts by the licensor.

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[200] Syndication refers to licensing of the right to broadcast content produced by other entities, who retain the copyright. Syndication, http://www.museum.tv/eotv/syndication.htm.

[201] Fox Television Stations, Inc. v. AereoKiller, 115 F.Supp.3d 1152, 1161–62 (C.D. Cal. 2015) (rejecting entitlement of Internet distributor to compulsory license for retransmission; noting claim of market dilution by copyright licensees, resulting from broad geographic reach of alleged infringing activity).

[202] *See generally* HarperCollins Publishers LLC v. Open Road Integrated Media, LLP, 7 F.Supp.3d 363 (S.D.N.Y. 2014) (resolving dispute over whether publication agreement included license of right to public book in electronic form).

[203] *See* Hubbard Broad., Inc. v. S. Satellite Sys., Inc., 593 F. Supp. 808 (D. Minn. 1984) (adjudicating application of statutory privilege for redistribution of local television program via cable and satellite systems to other markets).

[204] See WPIX, Inc. v. ivi, Inc., 691 F.3d 275, 281-283 (2d Cir. 2012) (reviewing legislative history of compulsory license for cable systems to rebroadcast local television signals; holding that Internet distribution did not qualify for

[205] compulsory license).

See generally Am. Broad. Cos. v. Aereo, Inc., 134 S.Ct. 2498, 2511 (2014) (Scalia, J., dissenting) (noting competing self-interested doomsday arguments about effect of novel technology that captured broadcast television signals and distributed them to individual consumers over the Internet).

The resulting fragmentation of copyright interests[206] significantly increases the transaction costs for negotiating a new license for a purpose not embedded in decades of standard license forms. A copyright owner may be unwilling to grant a license for a purpose that will upset its other licensees who already are providing substantial revenue streams. The free market does allow a potential new licensee to buy up all of the other license rights,[207] but their number and complexity generally results in unsupportable transaction costs,[208] and the total price of buying out the other licensees is likely to exceed the value perceived by the new licensee.

The proposed Internet-only television approach avoids the cost of this fragmentation because it relies on new content from content producers and collectors not already in the marketplace and not already accustomed to standard legacy license terms.[209] Content collectors and producers still want to maximize their revenue, but can consider novel arrangements that take full advantage of new technologies, as opposed to having to protect legacy revenue streams. They are more willing to venture into new territory where greater uncertainty about markets and participant behavior prevails.

The traditional restrictions make sense economically. A content producer is willing to grant a license to a television station for broadcast in exchange for an acceptable fee, but it is unwilling to let the station capture other revenue opportunities that the content producer could capture for itself. For example, a typical license to a television station for a program prohibits the television station from passing the content along to cable distributors; the content producer wants to make its own deal with the cable distributor. In addition, a good deal of paranoia exists about piracy, and the ideology is that as soon as anything goes on the Internet without substantial

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[206] *See* Broad. Music, Inc. v. Hearst/ABC Viacom Entm't Serv., 746 F. Supp. 320, 328–29 (S.D.N.Y. 1990) (adjudicating motion to dismiss certain defenses in litigation over who must obtain license for public perform of music separated from existing license for television program; holding that public performance occurs at each step in the process from creation to distribution).

[207] *See generally* Richard Sandomir et al., *To Protect Its Empire, ESPN Stays on Offense*, N.Y. TIMES (Aug. 26, 2013), http://www.nytimes.com/2013/08/27/sports/ncaafootball/to-defend-its-empire-espn-stays-on-offensive.html [https://perma.cc/J9EW-EUEC] (reporting on controversies between ESPN and college football conferences over ESPN's buying up exclusive broadcast rights to college games just to keep them away from competitors).

[208] *See WPIX*, 691 F.3d at 281 (noting that "Section 111's compulsory license thus enabled cable systems to bypass the transaction costs and impracticalities of negotiating individual licenses with dozens of copyright owners, while simultaneously ensuring that copyright owners were compensated.").

[209] *See generally* Nathan McAlone, *Netflix is Rethinking its Original Series—And it Should Make Traditional Media Worried,* BUS. INSIDER (Sep. 25, 2015), http://www.businessinsider.com/netflix-is-trying-out-a-new-tactic-for-its-original-series-and-it-should-make-traditional-media-very-worried-2015-9 [https://perma.cc/Y42J-YZ5Y] (explaining that Netflix is producing more original content because it wants to become independent of other producers, as competition in the Internet entertainment streaming market intensifies and the producers become more hostile to Netflix); Andrew Wallenstein, *Apple Eyes Move Into Original Programming*, VARIETY (Aug. 31, 2015), http://variety.com/2015/digital/news/apple-eyes-move-into-original-programming-exclusive-1201582020 [https://perma.cc/JQJ6-K2YZ] (reporting Apple's exploration of ways to produce original content and its buying up of rights at indie movie festivals).

technological restrictions on its use, it essentially falls into the public domain and its ability to earn revenue by virtue of being scarce disappears.[210]

Twentieth Century Fox Film Corp. v. Marvel Enterprises, Inc[211] is a good example of the complexity of licensing arrangements for video entertainment. Marvel licensed to Fox the exclusive rights to make motion pictures from certain Marvel comic characters Marvel reserved rights to make television programs from the characters, giving Fox the power to consent or to withhold consent for "any live-action motion picture for free television exhibition, pay television exhibition, non-theatrical exhibition, or home video exhibition (on cassettes or discs) or any feature-length animated motion picture for non-theatrical exhibition or home video exhibition (on cassettes or discs)."[212] It also limited Fox's rights to include only certain characters.[213] Fox, the licensee, sued Marvel, the licensor, for using video clips and logos from Fox's movies.[214] As an *exclusive* licensee, Fox had succeeded to the rights of Marvel as the original copyright owner, but only as to material that fell within the scope of the license. The District Court granted summary judgment to Fox on some of its infringement claims.[215]

The complexity of license limitations leads legacy stations to block much of their broadcast content from the Internet, usually everything except local or network news. The ABC7[216] website is a good example of the result. It features several dozen stories, each with a video thumbnail and a headline. It has buttons for live streaming of the multiple daily newscasts. Nothing is copy-protected or available only to subscribers. The absence of any entertainment content exemplifies the crippling effect of license restrictions. The station's website is, in effect, an Internet all-news station. Most of the day, its live-stream window displays a sign that says, "We're not on the air, check back." The interesting possibility for change is that stringers, compared with traditional staff reporters, photographers, and indie entertainment producers, will be willing to work for less and impose fewer licensing restrictions than their legacy counterparts.

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[210] Evidence is growing, however, that Netflix's cheap price and the price of Spotify and Pandora (free services with lots of advertisements or paid premium versions) essentially eliminate piracy because users get the same benefit as pirating without the consequences. Online users avoid the metaphorical house-of-prostitution risks, where participation might result in acquiring a disease—when downloading pirated content risking viruses and malware. *See* Sophie Curtis, *Spotify and Netflix Curb Music and Film Piracy*, The Telegraph (July 18, 2013, 9:57 AM), http://www.telegraph.co.uk/technology/news/10187400/Spotify-and-Netflix-curb-music-and-film-piracy.html (reporting significant declines in piracy as a result of the growth of legitimate sources).

[211] Twentieth Century Fox Film Corp. v. Marvel Enter., Inc., 155 F.Supp.2d 1 (S.D.N.Y. 2001).

[212] *Id.* at 7 (describing terms of license).

[213] *Id.* at 8.

[214] *Id.* at 22–23.

[215] *Id.* at 49.

[216] *See* ABC7 Eyewitness News, abc7chicago.com [https://perma.cc/6B5C-X4SP] (last visited Apr. 10, 2016).

Advertising also is encumbered with restrictions on re-distribution. A program that has the advertisements already inserted[217] has to be taken apart before the content can be sent to the Internet so that the advertisements can be omitted. The motivation here is not that the advertiser opposes wider dissemination—most welcome it. It is station opposition to re-distribution of advertisements that poses a problem. Stations earn revenue in proportion to the amount of exposure, and if they simply give more exposure to an ad by putting it on the Internet and broadcasting it, they have lost a revenue opportunity.

An Internet-only television station provides an opportunity for different arrangements because its content producers—existing and newly recruited stringers, and indie video producers—have an unprecedented opportunity to monetize their creative effort. Presented with this new opportunity, they are no longer prisoners of 100 years of broadcast licensing practices. They will be open to whatever makes sense economically. The range of agreement depends upon how much compensation it will take to pull the stringers and indie producers into the market, and how much cost for content the Internet-only television station's business model can tolerate.

2. Motives to Slow Adoption of Disruptive Technologies

Much of the thicket of restrictions is the natural result of perfectly rational efforts to protect the value of creative content. But not all of it. Some restrictions are explicitly motivated to protect the past against the technologies of the future.[218] Vertically integrated enterprises such as Comcast, Time Warner Cable, Viacom, CBS, and NBC Universal have arranged the status quo to limit competition both to their content production and to their distribution businesses.[219] Online television threatens the core of their business models, and they impose standard contract terms across the MVPD industry that limit what content producers can make available on their own websites thereby mitigating competition in the distribution market by Internet access providers such as Verizon or AT&T.[220]

"[W]e have to intervene at some point" if cable networks continue put shows online the same day of an MVPD broadcast, threatened Time Warner Cable's chief executive officer, Glenn Britt. Britt consistently argues that "free, ad-supported

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[217] Advertisements can be *inserted* into programs by the master controller, whose video switcher may be largely automated. This makes local advertising more efficient, because it can be localized to reach only the intended audience. BAUMGARTNER & GRBAC, *supra* note 179, at 15–16 (explaining advertising flow).

[218] *See* FCC 2015 Video Competition Report, *supra* note 15, at 3276 (discussing anticompetitive practices in retransmission consent negotiations).

[219] "The cable industry consists of two cozy overlapping oligopolies—the powerful distribution companies and the powerful programming companies, which often own stakes in one another." Marvin Ammori, *Copyright's Latest Communications Policy: Content-Lock-Out and Compulsory Licensing For Internet Television*, 18 COMMLAW CONSPECTUS 375 (2010) (criticizing use of copyright to limit competition in the OTT video market) [hereinafter "Ammori"].

[220] *Id.* at 387–88.

television sites such as Hulu undermine the subscription-television revenues that the [content] industry depends on."[221]

A typical restriction is to make content available online to a subscriber only if the subscriber is an authenticated cable subscriber as well as an Internet subscriber. This ties the availability of online content to a cable subscription, and effectively denies some of the most desirable content to new Internet-access competitors of the incumbent cable distributors. Even if they provide the content, their customers must pay for it twice—once to them and once to their incumbent competitors.[222]

Another commentator alleges that cable distributors "desire to push broadcast television content behind the 'pay-wall' on every platform, including the Internet."[223] In seeking exclusive online content distribution, cable and satellite television operators have, in the past, demanded that television broadcast networks stop making the majority of their popular programming available to other highly successful digital consumer outlets, such as Amazon, Hulu and Netflix. "[224]

One commentator urges compulsory licenses for Internet distribution as the best solution.[225] Compulsory licenses are better suited, however, for established markets than for incipient ones. The dynamics of new markets involve a process of exploration and experimentation over negotiated terms. That opportunity is lost with compulsory licensing schemes with fixed royalty metrics. Furthermore, there is no assurance that the politics of adopting a compulsory licensing regime will produce royalties the permit a viable business model for an Internet-only television station.

The central argument of this article is that these suffocating restrictions can be avoided by new programmers dealing with new content providers, who are not committed to the existing system. The crucial questions are whether the new programmers can raise the necessary capital, and whether new content providers and collectors can be recruited in sufficient numbers and trained to provide the content that audiences want.

C. *Navigating Changes in Must-Carry And Retransmission Consent Fees*

The legacy television market involves complex negotiations between distributors and content producers and programmers, which produce an important revenue stream for television stations.[226] Every three years, local television broadcast stations

[221] *Id.* at 405.

[222] *Id.* at 408.

[223] Robert C. Kenny, *Pay-TV-Led Legislative Changes Bad for Consumers*, TV Freedom (June 2, 2014), http://www.tvfreedom.org/uncategorized/pay-tv-led-legislative-changes-bad-for-consumers/.

[224] C. Kenny, *Guest Blog: Is the Sky Falling on the Retransmission Consent System?*, Broadcasting & Cable (Jun. 18, 2014), http://www.broadcastingcable.com/blog/bc-dc/guest-blog-sky-falling-retransmission-consent-system/131840 [https://perma.cc/5ETP-QPS6].

[225] Ammori, *supra* note 218, at 411.

[226] 2015 Video Competition Report, *supra* note 15, at 3272 (explaining statutory requirements for negotiations between MVPD distributors and programmers); *id.* at 3274 (explaining must-carry and retransmission consent); *id.* at 3277 (discussing NAB's argument that retransmission consent revenues are essential to support local content production and programming).

must elect between "must-carry" and "retransmission consent" regimes.[227] Must carry rules assure that the station's programming is accessible to viewers in its broadcast area, not only over-the-air, but also via cable and satellite.[228] Cable and transmission distributors may not charge stations for must-carry content.[229] Retransmission consent allows a station, in lieu of must-carry content, to extract royalties for cable and satellite distribution of its signal. Section 111 of the Copyright Act[230] grants cable and satellite distributors a compulsory license to redistribute programming broadcast by television stations subject to two conditions: (1) the redistributor must not alter the content of the redistributed program, but, rather, must maintain advertising embedded in the program intact;[231] and (2) the redistributor must pay statutory royalties.[232] The legislation was motivated by pressure from local broadcasters to earn revenue from rebroadcast of their over-the-air programing, and Congressional recognition that requiring individual negotiations for copyright licenses would be burdensome.[233]

The rights and obligations of cable and satellite distributors are generally symmetrical, except that certain satellite retransmissions are not subject to royalty payments.[234] Retransmission fees are a significant part of the revenue stream for legacy television stations, and a major cost to cable and satellite distributors. According to one estimate, some $178 million was collected for cable retransmissions, and more than ninety-two million dollars was collected for satellite retransmissions in 2009.[235]

A station's preference depends on how it perceives the value of its programming. A station with low-value programming prefers must-carry content, because it gets its content to more viewers. On the other hand, a station with high-value content

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[227] *Carriage of Broadcast Stations*, FCC, https://www.fcc.gov/media/cable-carriage-broadcast-stations (last updated Dec. 9, 2015); 47 U.S.C. § 325(b) (2015) (imposing must-carry rule and requiring stations to elect between must-carry and retransmission consent); 47 C.F.R. § 76.64(f) (2016) (requiring stations to elect between must-carry and retransmission consent by cable distributors); 47 C.F.R. § 76.66(c) (2016) (providing for election by station of must-carry or retransmission consent by satellite distributors).

[228] *See* 47 C.F.R. § 76.56 (2016) (FCC must-carry rule for cable distributors); 47 C.F.R. § 76.66(b) (2016) (FCC must-carry rule for satellite distributors).

[229] C.F.R. § 76.60 (2016) (prohibiting payment to cable distributors for must-carry distribution); 47 C.F.R. § 76.60(a) (2016) (allowing cable distributors to require stations to pay the costs of interconnection at the headend of the cable system); 47 C.F.R. § 76.66(l) (2016) (prohibiting payment to satellite distributors for must-carry, but allowing stations to pay for cost of interconnection).

[230] 17 U.S.C. § 111 (2014); 47 C.F.R. § 76.64 (2015) (FCC retransmission consent rule for cable distributors).

[231] 17 U.S.C. § 111(c)(3) (2014).

[232] 17 U.S.C. § 111 (d)(1) (2014).

[233] Hubbard Broad., Inc. v. S. Satellite Sys., Inc., 777 F.2d 393, 395 (8th Cir. 1985) (summarizing legislative history of section 111).

[234] 17 U.S.C. § 122(c) (2014) (exempting satellite retransmission into station's local market from royalty fees).

[235] Edward Hammerman, *Television's Multi-Million Dollar Secret: Claiming Retransmission Royalties for Documentaries*, INT'L DOCUMENTARY ASS'N (2011), http://www.documentary.org/magazine/television%E2%80%99s-multi-million-dollar-secret-claiming-retransmission-royalties-documentaries [https://perma.cc/N4HS-B] (explaining how owners of copyrights in documentaries can claim their share of retransmission royalties rather than letting television stations keep them).

likely believes that it could command a price in the marketplace. All NBC-owned stations, for example, elect retransmission content.[236]

Whether Internet redistribution constitutes cable retransmission remains undecided. After the Supreme Court decision, in *American Broadcasting Companies, Inc. v. Aereo, Inc.,* Aereo, argued in California and New York federal courts that it was a "cable system" entitled to a compulsory license. [237]

If a redistributor is not a cable or satellite system, it is liable for copyright infringement if it redistributes over-the-air programming without negotiating a license with the station.[238] If the FCC promulgates a rule that Internet-based redistribution qualifies as "Multichannel Video Programming Distribution,"[239] such a rule may influence the Copyright Office to determine that Internet re-distribution constitutes cable redistribution, thus bringing it under the compulsory licensing regime.

The controversy over whether Internet re-distributors qualify for a compulsory license affects Internet-only television stations only peripherally. The concept advanced in this article does not involve the Internet-only television station as a re-distributor of over-the-air programming; rather, it argues that an Internet-only television station should rely on new types of content creators precisely to avoid the regulatory thickets of both compulsory and negotiated licenses.

Moreover, Internet-only television stations are not likely to qualify for royalties under compulsory licenses to re-distributors of their programming because the statute subjects only transmissions from television *broadcast* stations to compulsory licensing.[240] They could, however, earn royalties under negotiated licenses because they would hold a copyright in their programming.[241]

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[236] NBCUniversal Media, LLC, Form 10-K Annual Report 24 (2014), http://files.shareholder.com/downloads/CMCSA/1858204932x0xS1193125-15-68526/902739/filing.pdf.

[237] *Compare* Fox Television Stations, Inc. v. AereoKiller, 115 F.Supp.3d 1152, 1170 (C.D. Cal. 2015) (denying motion to stay; explaining possibility that Internet redistributor qualified for compulsory license), *with* Am. Broad. Cos. v. Aereo, Inc., No. 12–cv–1540, 2014 WL 5393867 (S.D.N.Y. Oct. 23, 2014) (holding that redistribution over the Internet does not qualify for cable-system compulsory license, citing WPIX, Inc. v. ivi, Inc., 691 F.3d 275, 279 (2d Cir. 2012)). *Compare* Counterclaim for Defendant at ¶ 36, NBCUniversal Media, LLC v. Filmon X, LLC, Nos. CV12-06950-GW (JCx), CV12-6921-GW(JCx), 2014 WL 10100590 (C.D. Cal. Sep. 25, 2014) (Internet distributor of television programming qualifies as a cable distributor, covered by must-carry and retransmission consent obligations) *and AereoKiller*, 115 F.Supp.3d at 1171 (certifying to Ninth Circuit question of whether Internet distributors of television programming are entitled to section 111 license), *with* Fox Television Stations, Inc. v. FilmOn X LLC, Civil Action No. 13-758 (RMC), 2015 WL 7761052 at *16 (D.D.C. Dec. 2, 2015) (Internet distributor of television programming did not qualify as a cable system under section 111). *See* FCC 2015 Video Competition Report, *supra* note 15, at 3367 (discussing FCC proposal to broaden definition of MVPD to include OVD entities).

[238] Nat'l Broad. Co., Inc. v. Satellite Broad. Networks, Inc., 940 F.2d 1467 (11th Cir. 1991) (holding that satellite distributor was a "cable system" entitled to a compulsory license; reversing summary judgment for copyright infringement).

[239] Promoting Innovation and Competition in the Provision of Multichannel Video Programming Distribution Services, 29 FCC Rcd. 15995 (Dec. 19, 2014) (notice of proposed rulemaking).

[240] 17 U.S.C. § 111(f)(9) (2014) (emphasis added).

[241] For example some Internet-only television shows, such as Netflix's *House of Cards,* have been licensed to cable programmers such as HBO. The same thing can occur for content originating from an

The must-carry or retransmission-consent choice has considerable effect on a legacy television station's decision whether to become an Internet-only television station. It loses its must-carry right if it stops broadcasting and moves to the Internet. It will lose that portion of its advertising revenue associated not only with over-the-air broadcasting, but also with cable redistribution. Stations that have elected retransmission-consent status, however, lose less. Their material is copyrighted, regardless of how they distribute it, and a cable or distributor picking it up from the Internet would have to negotiate licenses, which might result in equal or greater revenue than that obtained through legacy redistribution rights.

VI. BUSINESS MODELS AND HURDLES

The central assumption driving the business model is that the Internet-only television stations will have programming content that is similar to that of legacy television stations—about twenty-five percent of local news is produced by the station, while the rest is syndicated from other producers. The local television industry is fiercely competitive, and it is reasonable to conclude that the behavior of more than 1000 local stations in this competitive environment reflects audience preferences.[242]

Good content selection, scripting, photography, lighting, and sound are essential for television entertainment. This means that Internet-only television is not about simply shipping raw content to the Internet. It requires the same careful production values that over-the-air television requires. Accordingly, the cost side of such a business model must include the same cost elements that are now required for studio and field production; the difference lies in taking full advantage of new technologies for production while avoiding the costs of transmitters, antennas, and studio-to-transmitter links altogether.

A. *Costs*

The expenditure side of the business plan must accommodate economists' traditional factors of production: labor, land, and capital. While labor and capital remain consistent, the 21st century has transformed Adam Smith's 18th Century "land" into equipment, infrastructure, and raw material.

1. Labor

The starting point for estimating labor cost is to articulate assumptions about how many hours of programming requiring each type of labor input are contemplated. Using facts about program content articulated in earlier parts of the article, the Internet-only television station will presumably distribute six hours per broadcast day of news. The six-hour assumption is at the high-end of current practice, and

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Internet-only television station to legal producers, programmers, and distributors.

[242] While changes in the medium of delivery often expose changes in audience preference, speculation about such change is too amorphous for initial estimates on whether an Internet-only television station can be profitable enough to attract the necessary investment.

reflects data suggesting that local news is the biggest draw for viewers. The remainder comprises syndicated entertainment programming.

Content will occupy the entirety of each timeslot,[243] unlike legacy practice in which an hour of television programming comprises fourteen minutes and fifteen seconds of advertising, and only forty-five minutes and forty-five seconds of content.[244] This assumption can be altered if advertisers insist on advertisements that are integrated into content programs.

An average news package runs for two minutes. The longest feature does not exceed three or four minutes, and many are fifteen to thirty-second updates and breaking news summaries. About ten percent of news broadcast content comprises reporter packages.[245] The rest comprises studio-produced material such as anchor introductions of reported stories, station promotion, credits, weather, and traffic. Thus, of the six hours of news programming, thirty-six minutes are represented by stringer-created packages. At two minutes per package, eighteen stringer packages are needed for each broadcast day. At $200 per package,[246] the projected cost of stringer compensation for news broadcast content totals $3600 per day.

Meanwhile, the sixteen hours of daily entertainment programming amounts to forty-seven entertainment programs.[247] At a cost of $1000 per program,[248] the projected cost of entertainment content totals $47,000 per day. In addition, the station must have managerial personnel to tie everything together. At minimum, this staff would include a station manager, an advertising manager, a master control operator, and on-air talent. Assuming the station manager makes $75,000 per year and doubles as advertising manager, the master control operator makes 60,000 per year, and

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[243] Traditional practice interrupts content with advertisements, whereas targeted advertising appears at the margin of the content screen.

[244] Joe Flint, *TV Networks Load Up on Commercials*, L.A. Times (May 12, 2014), http://www.latimes.com/entertainment/envelope/cotown/la-et-ct-nielsen-advertising-study-20140510-story.html [https://perma.cc/6PLZ-NKKJ] (reporting on Nielsen study). *See also infra* Part II., presenting the author's analysis of one thirty-minute Chicago news program, with eighteen percent—5.17 minutes—comprising advertising.

[245] *See infra* Part II. revealing 8.17 minutes (twenty-eight percent) of reported news. About half of this comprises anchor introductions of field reporters or anchor studio reports with intercut recorded video.

[246] Legacy stations typically pay $200-$300 for a stringer contribution. In a 2015 conversation with the author, the assignment editor at Chicago's Channel 2 (a CBS-owned station) reported typical pay of $200-$300 for a stringer story, with a substantial boost up to $1000 or more if the network picks up the story. *See generally Thinking of Becoming a TV News Stringer*, The DV Show, http://www.thedvshow.com/thinking-of-becoming-a-tv-news-stringer [https://perma.cc/7JPG-UVST] (last visited Apr. 9, 2016) (somewhat dated description of good practice; reporting compensation ranging from seventy-five dollars to thousands, depending on content); James Krall, *Freelancers: How Much Do You Charge/or Get Paid For a Story?*, Photo.net (Oct. 25, 2006), http://photo.net/street-documentary-photography-forum/00IZVu [https://perma.cc/L3AL-5988] (reporting newspaper rates as low as fifteen dollars per story).

[247] Sixteen hours divided by an average program length of 22.5 minutes.

[248] The author has produced several plays and movie shorts in Chicago. Actors often work for a multiple-week run of a play for a few hundred dollars, and are delighted to receive $100 per day. Directors and cinematographers often work for free, believing that the experience and exposure is sufficient compensation.

the three anchors each make $45,000 per year,[249] total salary compensation comes out to $275,000 per year.

To some extent, the Internet-only television station could apply its freelance model to programming as well as production. Anchors could, for example, be freelancers and come into the studio only for certain news broadcasts.[250] Someone, however, must be available continuously, and tied closely to the station; this is most important for the personnel intended to ensure the application of professional journalism.

The result is total labor costs of $18.7 million, with the contract payments for entertainment programming dominating the category. Intuitively, this is far too much for a sustainable business model. Accordingly, it is necessary to look for areas in which costs can be cut. It would be difficult to reduce stringer costs, as stringers will not work for much less than the amount legacy stations pay, and reducing the number of stringer stories would undermine the credibility of the station's news programming. Entertainment programing costs, however, can be reduced significantly, because assuming that all sixteen hours of non-news programming comprises original entertainment content is considerably out-of-line with legacy television program schedules. Rather, these schedules typically incorporate considerably more in-studio programs than syndicated programs. Reducing the amount of independent producer programming to twenty percent of the sixteen hours would reduce the annual cost for that element to $3.4 million and total labor costs to just over five million dollars.

2. Infrastructure

The National Telecommunications and Information Administration's ("NTIA") Public Telecommunications Facilities Program[251] published a list of equipment costs for public television stations in 2011.[252] The list is a useful starting point for estimating the costs that Internet-only television stations would save since they do not need radio transmission facilities. According to the estimates, the costs of broadcasting equipment totals about $4.5 million, while other equipment[253] totals about $4.2 million. In other words, costs associated with broadcasting the station's signal comprise about half the total infrastructure cost. These can be readily dispensed with in the case of the Internet-only television station; such a station will, however, need most other items that comprise studio infrastructure cost if it is to have lighting, sound, and video production values equivalent to those of legacy television. The station also

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[249] The salary estimates reflect pay rates reported for legacy stations in one 2015 salary survey. BOB PAPPER, RESEARCH: RTDNA SALARY SURVEY, RADIO TELEVISION DIG. NEWS ASS'N (July 13, 2015), http://rtdna.org/article/research_rtdna_salary_survey#.VaQJCvlViko [https://perma.cc/C9EQ-BB86]. The estimates are at the low end of reported medians, and comparable to starting salaries for inexperienced personnel at legacy stations.

[250] Anchors also could perform the task remotely; Fox often has anchors and interviewees separated by a couple of hundred miles; the author has been interviewed several times by Fox under those conditions.

[251] *See* 15 C.F.R. § 2301 (2016) (rules for government funding of public television stations).

[252] NAT'L TELECOMM. & INFO. ADMIN., TELEVISION STATION CONSTRUCTION COSTS (2011), https://www.ntia.doc.gov/legacy/otiahome/ptfp/application/EquipCost_TV.html [https://perma.cc/7Q4F-YK4L].

[253] Such as master control room, datacasting and captioning, production control and studio equipment.

needs an inventory of equipment specifically available for stringers to use. Stringers are likely to have their own cameras, but a reasonable estimate for loaner cameras is $3000 for GoPros, and $30,000 for six DJI Inspire level drones. This increases infrastructure cost only modestly to a total of about $4.5 million.

B. *Return On Investment*

The FCC's Broadcast Incentive Auction is projected to generate hundreds of millions of dollars for legacy television stations that volunteer to give up their UHF frequency allocations. The resulting pool of new capital can be used to embrace a number of disruptive changes in labor markets and electronic technologies as well as to promote new means of watching television, for which viewer enthusiasm already is apparent.[254]

Even though Internet-only television stations avoid capital costs associated with broadcast infrastructure, the production and delivery of good television content is still capital-intensive. Accordingly, startups face barriers that legacy entities do not. A legacy television station, for example, already has a studio, master control system, and an organization for acquiring content from third parties, including existing contractual relationships. On the other hand, legacy entities, particularly when they are embedded in larger organizations, as most television stations and networks are, are slower to innovate, both because of various committee-oriented approval processes within the corporate hierarchy, which usually emphasize caution and risk avoidance over innovation, and because of a rational reluctance to cannibalize existing product lines. So realization of the Internet-only television station advanced in this article depends either on unusually innovative existing television stations or on an effective pitch by a startup to investors who, in the aggregate, are willing to commit substantial resources.

Such a station needs $4.5 million in capital for initial infrastructure investment, and five million dollars per year in recurring expenditures. Assuming that it takes an Internet-only television station three years to turn a profit, that means that a total of about twenty million dollars in initial capital is required.[255] To earn a ten percent rate of return, the station must earn a profit of two million dollars per year.

C. *Revenue*

The Internet-only television station must earn enough revenue to cover both the five million dollars in annual recurring costs, plus enough to provide the two million dollars return on investment, to be sustainable. In the long term, it may be able to

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[254] Oddly, the Disney (ABC), Comcast (NBC), CBS, and Time Warner (CNN) annual reports for 2014 say nothing substantive about the Broadcast Incentive Auction or its likely effects on their businesses, although they all acknowledge its imminence.

[255] The twenty million dollar figure is the result of summing the infrastructure costs with three years of recurring expenditures.

supplement advertising revenue with syndication revenue, but in the short term, it is unrealistic to expect much supplementation.

1. Advertising

The Internet-only television station, like its broadcast counterparts, will be supported entirely by advertising revenue. The assumptions and estimates for expenditures and rate-of-return on investment mean that the station must earn seven million dollars per year in annual advertising revenue. In 2013, Internet ad spending in the U.S. totaled $42.8 billion, exceeding $40.1 billion for broadcast television. Cable television accounted for another $34.4 billion.[256] Given the existence of 1000 broadcast stations, average advertising revenue per station was four million dollars.[257]

Rates for button advertisements are generally around $0.15 per thousand impressions. If the Internet-only television station has a ten percent penetration of a market the size of metropolitan Chicago, it can be assumed to have 972,000 viewers. Each of those viewers clicking on the station's website once per day would result in 354.8 million impressions per year. At an advertising rate of $0.15 per thousand impressions, each station would have a revenue of $53,100 from each advertiser per year. To generate seven million dollars in annual advertising revenue, it would need about 130 advertisers.[258]

The total cost per advertiser seems sellable. Obtaining 130 advertisers is a stretch, however, in large part because it would be difficult to find space for so many advertisements without crowding out the station's content. Thus, the seven million dollars figure for advertising revenue for an Internet-only television station is not entirely unrealistic, but it is contingent on whether the television station can persuade advertisers that it offers value exceeding that of legacy stations. It will accept only targeted advertising, and its page design will ensure that advertisements appear only in the margins of the main screen. Its pitch to advertisers[259] will emphasize the opportunity to target narrowly to particular audiences, using state of the art techniques and technologies in the field of behavioral advertising.

Whether the advertising revenue is sufficient to support the business model depends upon the effectiveness of the station's marketing to potential advertisers, its rate sheet, which will be constrained by the policies of its advertisement servers, and

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[256] Jason Abbruzzese, *Internet Ad Spending Beat Broadcast TV for First Time Last Year*, MASHABLE (Apr. 10, 2014), http://mashable.com/2014/04/10/mobile-surge-internet-beats-tv/#MVPG4TQ44mqD [https://perma.cc/7QSP-9GE3].

[257] The average figure is misleading, because, obviously, advertisement revenue for big-market stations is much greater than that for small-market stations.

[258] *See generally Being Realistic About Google Adsense Earnings*, BIG SKY FISHING.COM, http://www.bigskyfishing.com/Internet_Business/adsense-earnings.php [https://perma.cc/A7KW-CKJ3] (last visited Apr. 9, 2016) (calculating likely advertisement earnings).

[259] "Pitching" to advertisers is an anachronism in the targeted advertising world, where advertisement placement depends on viewer demographics at any particular millisecond. The "pitch" amounts to the kinds of viewers the station draws. The Internet-only television stations should also try to sell banner advertisements to individual advertisers to supplement the automated targeted advertisement process.

the size of its audience. Audience size will be even more critical than for the traditional business model of broadcast television stations, because targeted advertising payments usually depend not only on the rate, but also on the number of hits an advertisement receives.[260] To address this, the station will arrange its programming to appeal to particularly large advertising targets. This will help set the station apart from legacy television, since most broadcast stations do not target advertisements, but instead focus on a mass undifferentiated audience. This does not mean that the Internet-only television station will let advertisers determine the content of its programming. Rather, it will do its own research in order to discern which audience is most likely to appeal to those advertisers who spend the most money.

For example, one report[261] shows the following share of digital advertising expenditure by industry for 2015:

Table 1

Retail	22.1%
Financial services	12.3%
Automotive	12.5%
Telecom	11.1%
CPG and consumer products	8.5%
Travel	8.3%
Computing products and consumer electronics	7.6%
Media	5.8%
Entertainment	4.8%
Healthcare and pharma	2.5%
Other	4.5%

Working from these data, the Internet-only television station would solicit several stories on products available at retail, refining subject matter depending on a disaggregation of the 22.1% figure for particular products. It would then solicit stories on investments, banking, automobiles, and so on.

2. Subscriptions

Eventually, subscription revenue may supplement advertising revenue—but not at first. Internet users are accustomed to free content, and they often find it annoying when they discover attractive content, only to realize they must sign up for a walled service, or worse, pay for access. The Internet-only television station will avoid this source of viewer alienation at first, by making all of its content available for free to anyone who visits its website. In this way, the Internet-only television station will

[260] The number would be less to the extent that station earns revenue from sponsored content and product placement.

[261] *Retail Industry Remains the Largest Spender in US Digital Advertising*, eMarketer (Sept. 5, 2013), http://www.emarketer.com/Article/Retail-Industry-Remains-Largest-Spender-US-Digital-Advertising/1010187 [https://perma.cc/92XZ-YMJX].

make the most of its comparative advantage with respect to other sources of television content, almost all of which put the most desirable content behind walls.

3. Licensing

Additional revenue will come from the licensing of content generated by the station to other programmers and distributors, including legacy television networks and aggregators. When that occurs, the stringer capturing the content could be offered a premium. Such syndication, however, is unlikely in the early stages of the Internet-only television stations. Accordingly, no revenue from this source is included in the business model.

4. Data

Asynchronous television watching makes it possible for Internet-only television stations to exploit a new revenue stream—selling data on viewer behavior. Almost everyone in the industry recognizes the diminishing value of the traditional Nielsen ratings, and the data about individual behavior on Internet-only television websites is a valuable substitute. Moreover, data on the sequence and frequency with which viewers watch particular items of content enable, for the first time, robust evaluation of programming strategies such as hook-and-hold.

VII. WHY HASN'T SOMEONE DONE THIS ALREADY?

One of the standard questions for advocates of innovation is "If this is such a good idea, why hasn't someone done it already?" That is always a reasonable question. The short answer is, "They are." Existing television stations and networks are actively testing the ATSC 3.0 concept. These actors recognize that they will eventually become Internet-only stations, in the sense that their boomers will simply be a new high-bandwidth technology for distributing television programming through the Internet. But legacy stations are hindered by a number of forces: existing license restrictions, risk averseness, embedded capital, and the romance of the journalism of the past. Some of the bolder incumbents will embrace the possibilities of ATSC 3.0 and become Internet-only, but many will not. The point of this article is to crystallize what a bold venture looks like and to identify the forces that undermine boldness.

In a limited way, legacy media already are embracing elements of the idea of Internet-only television stations. Several sections of this article provide detail on Chicago ABC7's website. The *New York Times* website provides a good example of a full embrace of Internet distribution. The web version of the newspaper[262] shows the same content as the printed paper for the same day, with stories reordered on the front page and new material added, reflecting news that became available after the print paper went to bed the previous evening. The layout is similar to the print paper, with various banner advertisements, separate from the story text and headlines promoting subscriptions to the print and web version of the times, and relatively few

[262] Viewed by the author at 10:30 AM, Central Standard Time on Jan. 15, 2015.

advertisements. However, once a user clicks on them, the stories themselves have more advertisements. Many of the stories are accompanied by video. No truncation of stories or copy protection obstacles are apparent. Meanwhile, Pandora and Spotify have created virtual radio stations that are stealing market share from over-the-air stations. Interestingly, these Internet-only radio stations are not initiatives of existing radio stations or the chains that own them.

News content aggregation is key to the Internet-only television station. News aggregation on the Internet has been common for many years. Yahoo was a pioneer, and now Microsoft Windows and Apple iOS both come with built-in applications to set up news sites tailored to the interest of each user. Considering how long the Internet has been available to everyone in the world, how long its promoters have claimed that it will revolutionize journalism and commerce, and the force of the arguments advanced in this article, it is puzzling that so few true Internet-only television stations exist, and that their offerings are so heavily limited. While Internet television is becoming increasingly available, it typically takes the form of repackaged and archived material that already has been broadcast by television stations, or comprises live video feed of specific news broadcasts by major stations. Moreover, almost everything is fenced in by subscription requirements. For example, access to the CNN live feed is limited only to cable subscribers.

A. *Most Likely Candidates*

This article assumes, for the most part, that an Internet-only television station will be the project of a startup enterprise that can raise seven million dollars in capital. That is not necessarily the way it will work, however. The most likely candidates to embrace the Internet-only television model are newspapers rather than legacy television stations. While advertising revenue for television stations is eroding, it is not as dramatic, and broadcast advertising revenue is still substantial. On the other hand, the decline in advertising revenue for newspapers is precipitous and threatens their existence in the near-term. A substantial number of newspapers will eventually drop their print editions. Many of them already have. Thus, the Internet-only newspaper is likely to precede the Internet-only television station. Newspapers will consider moving their journalism operations to the web as an act of desperation; television stations are not yet desperate.

Within the television industry, a prime candidate to move to the Internet-only model would be a station that is in serious financial straits. This entity would likely become an Internet-only television station as a last resort. Other than that, one or more of the other 1000 local television stations in the United States may take the risk; many of them already stream their news programming to the Internet without encumbering it with copyright protection, and they all have the infrastructure to produce news. The question, however, is whether they will be bold enough to cut the cord with their traditional syndicated programmers and gradually move away from salaried journalists in favor of stringers. An unaffiliated station, like WGN in Chicago, might be in the best position to do this, because it does not have a network looking

over its shoulders, insisting that the station continue to show network programming to provide revenue to the network.

B. *Obstacles*

The aggressive innovation represented by the Internet-only television station is likely to be undermined by several traditional considerations. These include the desire to avoid cannibalizing existing markets, and the use of copyright as a tool to thwart change. Moreover, the economic case for successful stations to implement the Internet-only model is weak. Making more content available on the Internet would increase advertising revenue by pulling more viewers to Internet sites, where they would see the station's advertisements. To make this happen, however, stations would have to push harder (and almost certainly have to pay more) to renegotiate license terms so they could put more content up on the Internet. This begs the economic question of whether the local advertising revenue lost by not putting the entertainment content online exceeds the cost of increased license fees. The answer is especially dubious given the widely available alternatives to the model. Those interested in television news can already get it live from the ABC7 website, just as the author does. Those that are drawn to the station's entertainment content can already get it via over-the-air broadcast and cable subscriptions. If they really prefer Internet access—as they might to view it on mobile devices—they can get it through one of the subscription channels such as Hulu or Netflix.

While audience migration from over-the-air television to the Internet is dramatic, lots of people still watch local televisionover-the-air or through their cable subscriptions. Many television stations are already "Internet stations;" they are just not Internet-only television stations. Simply to disconnect viewers from those modes of access, and offer them the Internet-only television alternative, would mean giving up substantial advertising revenue. The stations with the most resources and most innovative cultures, like Chicago's ABC7, will reject the Internet-only television model, because they do not see the potential marginal gains of pushing more of their content to their Internet sites or abandoning their over-the-air broadcasts. The number of people who watch local television over-the-air or through cable connections is enormous. Even though this number is declining, it still produces far more advertising revenue than Internet distribution does. Moreover, it is not altogether certain whether Internet advertising revenue will ever approach the level of broadcast advertising revenue.

The infrastructure necessary for over-the-air broadcasting already exists for legacy stations, and there is no economically rational motivation to eliminate it. They can instead strategically allocate their efforts among two different distribution channels—the Internet and broadcasting/cable.[263] ATSC 3.0 enable legacy television

[263] It is the over-the-air signal that is redistributed through cable, and one does not exist without the other.

stations to become Internet-only, without going off the air by using their boomer infrastructure to become Internet access providers.

Legacy television stations also may reject the Internet-only television station model, and instead simply use the threat of implementing such a program as leverage to reduce costs for salaried reporters and photographers, as well as syndicated program fees. Proposing to use stringers to replace salaried newsgathering staff can be useful in renegotiating collective-bargaining agreements for salaried staff. Similarly, proposing to acquire more entertainment content from independent producers can induce syndicated program producers to reduce their licensing fees and loosen up restrictions on distributing such content through the Internet.

The desire to protect intellectual property drives much of the reluctance of legacy media enterprises to embrace the new distribution model. Television stations are worried that Internet users will bypass the arrangements they have made to earn royalties from rebroadcast by cable companies. Further, even when the stations are not concerned, those actors who license their content to the stations are. Consequently, they impose licensing terms that prohibit the streaming of their content to the Internet and/or the offering of their content in downloadable form, except through proprietary distribution networks. None of this content loses its copyright protection by virtue of being available on the Internet, but copyright holders prefer the integrity of technological protection schemes to the uncertainties of infringement litigation and takedown notices under the DMCA.

The legal obstacles are more daunting than the technology issues, since a good engineer should be able to work those out. FCC regulation is unlikely to be a barrier: The Commission surely will approve ATSC 3.0 as an optional transmission mode. How must-carry and retransmission rights will work may be controversial, but if television stations continue to distribute their programming via electromagnetic signals, both must-carry and retransmission rights would still apply. The harder question has to do with the interaction of copyright protection with must-carry and retransmission rights, because retransmission revenue is such a significant part of total television revenues. Will all the players be willing to modify their traditional licenses to allow distribution by any mode? That is a business decision, but copyright in programming is so fragmented that the market is likely to be disorganized, where one holdout can pose challenges to the effort to present viewers with a seamless set of choices.

While viewers can get OTA now for free and bypass the MVPDs, most remain as cable subscribers as a matter of convenience. A portion of their subscription fees turns into retransmission fees for television stations. If OTA ATSC 3.0 goes right into a gateway router, what is left of IP traffic to the cable company is that caused by the interactive nature of IP television. ATSC 3.0-enabled OTA television might drive more bits down MVPD pipes to support targeted advertising, that option is not viable for direct satellite distribution, which does not have the bandwidth for UHDTV and for retransmission of local programming into local markets. ATSC 3.0 will thin urban markets for direct satellite distribution.[264]

[264] E-mail from Fred Baumgartner, TV Product Manager, SBE Education Committee, Ennes

VIII. The 2016 Broadcast Incentive Auction Provides an Opportunity to Jump-Start Implementation

The FCC's 2016 Broadcast Incentive Auction provides an opportunity for existing television stations to catapult the Internet-only television station idea forward. "The auction presents a once-in-a-lifetime opportunity for broadcasters," the FCC said in its 2014 Report and Order on the incentive auction policy.[265] "Payments to broadcasters that participate in the reverse auction can strengthen broadcasting by funding new content, services, and delivery mechanisms"[266] The auction, scheduled to begin on March 29, 2016,[267] is meant to facilitate rationalization of UHF spectrum to provide more bandwidth for digital communication systems such as cell phones and broadband wireless Internet access.[268] In order to accomplish this, holders of FCC licenses for 38-6 MHz UHF channels can volunteer to give up their spectrum assignments in exchange for substantial payments estimated to be in the hundreds of millions of dollars per station.[269] The United States Court of Appeals for the D.C. Circuit denied review of the FCC order in June, 2015.[270]

No one knows how many legacy television stations will elect to participate in the auction.[271] Under the FCC's rules for the auction, it will not disclose which stations sign up for the auction; their identities will remain confidential for two years after the auction is complete.[272] Many profitable large market stations will sit on the sidelines. But the number of stations that must relinquish frequency assignments, to free up the spectrum that the FCC needs for new uses, may be substantial. Less

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Foundation, to Henry H. Perritt, Jr., Professor of Law, Chicago-Kent College of Law (Feb. 1, 2016, 12:35 PM) (on file with author).

[265] Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions, 29 FCC Rcd. 6567, 6570 (June 2, 2014), https://apps.fcc.gov/edocs_public/attachmatch/FCC-14-50A1_Rcd.pdf [hereinafter Broadcast Incentive Report & Order].

[266] *Id.* at 4.

[267] *Broadcast Incentive Auction*, FCC (Jan. 8, 2016), https://www.fcc.gov/about-fcc/fcc-initiatives/incentive-auctions.

[268] Broadcast Incentive Report & Order, *supra* note 263 at 6570 (summarizing purpose of auction); FCC 2015 Video Competition Report, *supra* note 15 at 3327 (explaining repacking).

[269] Grant Gross, *FCC: Some TV Stations Could Earn Huge Dollars in Spectrum Auction*, Computerworld (Oct. 1, 2014), http://www.computerworld.com/article/2690553/networking-hardware/fcc-some-tv-stations-could-earn-huge-dollars-in-spectrum-auction.html [https://perma.cc/V772-G9PE] (speculating that some television stations could earn as much as $400 million per station by auctioning off their VHF frequency assignments in major markets); *see also* David Oxenford, *TV Incentive Auction Moves Forward – FCC Estimates the Value of TV Stations and Clarifies the Interference Standard for Stations Who Remain After the Auction*, Broadcast Law Blog (Oct. 2, 2014), http://www.broadcastlawblog.com/2014/10/articles/tv-incentive-auction-moves-forward-fcc-estimates-the-value-of-tv-stations-and-clarifies-the-interference-standard-for-stations-who-remain-after-the-auction [https://perma.cc/9BAT-MMHS] (reporting on FCC report on station value).

[270] Ass'n of Broad. v. F.C.C., 789 F.3d 165 (2015) (rejecting arguments by television broadcaster trade association that FCC approach failed to protect existing stations' market areas).

[271] *See generally TV Broadcaster Participation by Market*, Nat'l Ass'n Broad., http://www.nab.org/spectrumAuctions/participationbyMarket.asp [https://perma.cc/SG9Y-CZSS] (last visited Apr. 9, 2016).

[272] Broadcast Incentive Report & Order, *supra* note 263 at 6731 (explaining that disclosure of participants could adversely affect investors and advertisers).

profitable stations are—even now—evaluating their options. They may elect to sit it out, or they may shift to new over-the-air frequencies, by going off the air altogether, electing to become Internet-only television stations by shutting down their boomers, or by converting them to ATSC 3.0. The amount of capital that they obtain from participating in the auction will go a long way to defraying transition costs and freeing them up from the straitjacket of the legacy licensing regime. Of course, some of them may take the auction proceeds and simply invest more in licensed content, but hopefully the numbers will be sufficient that a substantial number will be entrepreneurial enough to become Internet-only television stations.

A rational decision whether to take the auction money and move off the air entirely requires assessing multiple variables. First, what is the split for a particular station among over-the-air viewing, cable customer viewing, and Internet viewing? Stations with significant declines in over-the-air viewing, and increases in Internet viewing, face less risk in moving entirely to the Internet. Second, how does the local cable service get programming from the local television station—over-the-air or through a direct optical fiber or microwave link?[273] A station whose cable redistributor gets its signal over-the-air will lose not only over-the-air viewers if it shuts down its transmitter; it will also lose cable viewers. Third, what do the station's most important advertisers think about the move? If they are opposed and will take their advertising elsewhere, the risk is substantial. The station must be satisfied that its auction proceeds will make up the shortfall of advertising revenue until its transition to the Internet is successful and targeted ad revenue has risen enough to replace the lost over-the-air advertising revenue.

If legacy television stations do not make the first move, entrepreneurial new entrants will take advantage of the opportunity. Eventually all television will be Internet-only.

[273] *See infra* Part IV. C., discussing interconnections between station and cable headend.