An Analysis upon Broadcasting of Radio's Digital Dilemma in the Present Century

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Abstract – The interaction of policy and technological development in the era of "convergence" is messy and fraught with contradictions. The best expression of this condition is found in the story behind the development and proliferation of digital audio broadcasting (DAB). Radio is the last of the traditional mass media to navigate the convergence phenomenon; convergence itself has an inherently disruptive effect on traditional media forms. However, in the case of radio, this disruption is mostly self-induced through the cultivation of communications policies which thwart innovation. A dramaturgical analysis of digital radio's technological and policy development reveals that the industry's preferred mode of navigating the convergence phenomenon is not designed to provide the medium with a realistically useful path into a 21st century convergent media environment. Instead, the diffusion of "HD Radio" is a blocking mechanism proffered to impede new competition in the terrestrial radio space. HD Radio has several critical shortfalls: it causes interference and degradation to existing analog radio signals; does not have the capability to actually advance the utility of radio beyond extant quality/performance metrics; and is a wholly proprietary technology from transmission to reception. Despite substantive evidence in the record clearly warning of HD Radio's fundamental detriments, the dominant actors in the policy dialogue were able to quell these concerns by dint of their economic might and through intensive backstage discourse directly with the Federal Communications Commission. Since its official proliferation in 2002, HD Radio's growth has stagnated; some early-adopter stations are actually abandoning the protocol and receiver penetration is abysmal. As a result, the future of HD Radio is quite uncertain.

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INTRODUCTION

Radio broadcasting is the last bastion of the traditional analog mass media to negotiate the communicative phenomenon known as convergence—the ongoing evolution of media technologies toward a universal digital communications language and platform, presently best exemplifi ed by the Internet.

Convergence is itself a phenomenon governed by three factors: the development of new technologies, industry strategy, and public policy. Although most analyses of convergence focus primarily on its technological aspects, the phenomenon is more often than not "the product of political will, rather than inexorable logic." Those involved in the crafting of communications policy often promise us that new media technologies will make our media environment fundamentally more democratic—but in many respects, convergence has opened up the potential for potent unsettlement, especially with regard to how the phenomenon shapes legacy media systems. Unfortunately, corporate interests have skewed the regulatory development of our convergent media environment to entrench the priorities of commerce above all others; from the perspectives of industry strategy and public policy, convergence is a convenient

vehicle by which to bring the "entire 'ideological' sphere of society" into the orbit of a hyper-capitalist political economy.

Changes taking place in the realm of radio broadcasting are quite illustrative regarding the perversely negative effects that convergence can have on a medium undergoing a digital evolution. On one hand, as discussion of media digitalization gained steam during the 1990s and the commercialization of the Internet engendered the formal study of convergence itself, the U.S. radio industry—and the Federal Communications Commission that oversees it—remained surprisingly insular in their outlook for the medium's future. The 1990s were a decade of consolidation and the reconfiguration of radio relative to its mission to serve "the public interest, convenience, and necessity" into a fully entrenched marketplace paradigm. In simple terms, many involved in radio broadcasting have conceptualized convergence as a tool that allows the programming of multiple stations from one location and has been utilized more for cost-savings than for the creative or communicative expansion of broadcasting itself. By the time regulators, media professionals, and scholars began to grapple with the implications of convergence, the radio industry as a whole wasn't even fully aware that the

phenomenon was underway, much less what its implications for the medium itself might be.

The sheer expansiveness of the Internet and the introduction of digital satellite radio broadcasting served to change this ignorance, and the need for radio to address convergence became a growing topic of debate within the U.S. broadcast industry around the turn of the twenty-first century.

However, broadcasters initially defined digitalization as convergence, when in reality digitalization is only the first step in navigating the phenomenon. To be sure, it is an important step, and David Sedman has identified four criteria necessary for the adoption of any new radio service: "(1) Approval by a governing body (such as the FCC in the United States); (2) Acceptance by the broadcast station; (3) Consent from the consumer electronics industry to design and market a new technology; [and] (4) Adoption by the mass buying public."

Unfortunately, the technology developed by the U.S. radio industry and sanctioned by the FCC actually represents one of the worst possible iterations of digital radio, and does more to fragment the medium's participation in the convergence phenomenon than it does to embrace it. Only one of Sedman's four criteria (regulatory approval) has been met, primarily due to the fact that the FCC didn't even bother to examine the real-world implications of radio's digitalization. Instead, the nation's most economically powerful broadcast incumbents sold radio's digital transition as an evolutionary necessity, trusting in the "market exchange ethic" of neoliberal ideology to govern all aspects of digital radio's development and proliferation. Thus, the policy and technology of digital radio in the United States were essentially crafted to serve selfish needs that fall far short of serving the public interest. Radio's digital dilemma ultimately arises from a conflict between the traditional strengths of the medium and the perceived interests of broadcasters badly navigating a convergent media environment, enabled by a captive regulator. This has led to a state of affairs whereby radio's digital transition is effectively marginalizing traditional broadcasters; coupled with the rise of new digital audio delivery systems, the public identity of "radio" itself is now in fl ux. 9 This book attempts to explain the conditions that led to the present state of affairs. I argue that the political and economic decisions locking terrestrial broadcasters into a questionably viable digital radio technology has dangerous implications for the integrity of the medium as we've known it, and I aim to illustrate how the policymaking process—which is ostensibly designed to maximize the functional utility of media systems—has been effectively privatized in the case of radio, leading to such a potentially deleterious outcome. The most important aspect of this story is not the technology itself under scrutiny, but the values it embodies and their implications for the future of broadcasting.

IDENTIFYING RADIO'S DIGITAL DILEMMA

Radio broadcasting is the last of the traditional analog mass media to negotiate the communicative phenomenon known as "convergence." Convergence refers to the ongoing digitalization of all media and embraces the notion that previously separate mediums will inevitably "converge" in such a way so that the distribution of information takes place over a uniform conduit, such as the Internet. From a purely technological standpoint, this definition is useful. However, scholars and policymakers that study convergence often fail to address all three important factors which make the phenomenon possible, of which the development of new technologies is only one; the other two include industry strategy and public policy.

Communications policy often "downplay[s] the way in which technological change is the product of political will, rather than inexorable logic." At every technological turn toward communicative "progress" - with digitalization and convergence being the topics du jour - policymakers promise us that new communications technologies will "fundamentally make our media system more democratic." Yet with every new advancement, corporate interests skew regulatory development to entrench the priorities of commerce.

Far from being a utopian phenomenon, convergence opens up the potential for potent unsettlement. In fact, convergence operates within limits, including the notion that "the evolution of the physical embodiments of [convergent technology] is shaped by the social and cultural context in which they are embedded." Henry Jenkins noted that convergence within a corporate media structure, "from the ground," looks more like "great big dysfunctional families, whose members aren't speaking with each other and pursue their own short term agendas even at the expense of other divisions of the same companies." Despite its apparent messiness, critical communications scholars watching convergence in action are certain of one thing: it is shaped by "the abiding principles of a capitalist political economy," which seeks to bring the "entire 'ideological' sphere of society...into the market orbit."

Regulators have not always been so laissez-faire. The FCC has wrestled for decades with how the "public interest, convenience and necessity" is actually embodied in regulation of media, and at times has actually considered democratic principles in its decision-cycle. However, neoliberal ideology now defines communication policy's operative rationale in wholly economic terms, which effectively absolves regulators of the need to understand new technologies and their effects on the democratic potentiality of our media environment. Communications policymakers no longer function as servants of the people from whom they ostensibly derive regulatory power; they are now facilitators of the ethos of corporate capitalism. The end-state of such a situation is regulatory capture, and in the case of digital radio, the evidence is quite

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distinct. The overreliance on economic metrics has led to the unleashing of a form of broadcasting that may do more harm than good to radio's importance as a mass medium. Although the United States leads the world in its dogged adherence to neoliberalism, the ideology's effects are heavily felt in all developed countries and, as a result, has similarly confounded their exploration of digital radio broadcasting. Irrespective of the specific form of government, communications policymakers have uniformly treated the digitalization of radio in a similarly single-dimensional fashion and effectively reaped the same results.

Radio's digital dilemma arises from the conflict between the traditional strengths of the medium and the perceived interests of broadcasters badly navigating a convergent media environment governed by a captive regulator. Can terrestrial radio broadcasting find a meaningful place? If not, what damage might the process of broadcast digitalization do to radio's analog service, which is still a viable and popular method of mass communication? Broadcasters are struggling to define their interests in the face of competitors that digitization and convergence have engendered. New forms of radio, such as satellite broadcasting, portable digital music storage devices and, more recently, the ability to stream audio content via the Internet to "receivers" such as phones and in-vehicle entertainment suites, began to draw listeners away from traditional broadcasting in the 1990s. From the perspective of the listener, the identity of "radio" is now in flux.13 As a result, those that have historically claimed ownership over radio as a unique medium may find themselves usurped. This dissertation attempts to explain the conditions that led terrestrial radio to this impasse. I argue that the political and economic decisions locking terrestrial broadcasters into substandard digital broadcast technologies promise to marginalize their usefulness as media outlets in the 21st century.

THE DRAMATURGY OF TECHNOLOGY AND POLICY DEVELOPMENT

A useful way to examine how such troublesome processes work involves employing a dramaturgical framework—assessing how the representation of actors and arguments differs in certain key contexts, especially as it relates to disjuncture's between words and deeds. This allows for the careful examination of the actors behind these processes and how they manipulate discourse in order to achieve desired outcomes. In the specific arena of media policy, Jan Ekecrantz believes dramaturgical analysis is effective in illuminating "intricate institutional and other power relations, which imbue them with meaning and constitute their sine qua non in the fi rst place." The regulatory analyses of Sandra Braman, Erwin Krasnow and Lawrence Longley, Philip Napoli, Dallas Smythe and Thomas Streeter imply that much of what passes

for media policy is dramaturgical, for it allows the powerful to advance ideas that are given "credibility relative to their standing," as well as providing "a generalized immunity to perceptions of risk and danger that their activities might otherwise produce." In the context of digital radio policymaking, these two points are critical to understanding the process that led to such a tenuous outcome for the future of the medium.

Much of the dramaturgy conducted in modern society involves practices of communication that Peter K. Manning argues can be distortionary to core notions of "truth" on which the structure of sociopolitical power rests. Manning also asserts, "The higher the trust in the industry, the lower the level of information required and produced by the industry." In general, "powerful interests do not maintain their control as much by persuading us to believe them but, more often, by preventing us from knowing what they are doing." Streeter notes that communications policymaking takes place in an interpretative community where shared meanings of certain ideas are taken for granted, and there is ample evidence that such behavior does not produce the most rational outcomes. In this context, the venues in which policy-related discourse takes place become realms for "experts, not for 'politics' in the broad sense of governance in a modern neoliberal society"; fundamental matters such as "value, structure and legitimacy" thus become difficult to debate and democratically refine.

Radio's digital transition is playing out on two primary dramaturgical stages. The first is the FCC's policymaking process, which represents the "official" discourse of the transition. Those involved in this process define their objectives primarily by the policy outcome they'd like to see.

These objectives are not always clear, and the FCC's practice of ex parte meetings further complicates the true understanding of the motives and relative power of constituencies involved in the policy process. Examining the FCC discourse helps reveal the key ideas and perspectives that frame the acceptable boundaries of policymaking itself. This dramaturgy is quite different from that found in the radio industry trade press, where discourse is oftentimes more frank than that found in the policy arena. Carefully examining this forum is useful for ferreting out the "truth" (or lack thereof) of the various constituents involved in the policy process.

There are several key actors in the digital radio dramaturgy. The FCC is both a stage and actor, responsible for setting and maintaining the ground rules of policy discourse. Surprisingly, the FCC engages in little public dialogue regarding digital radio, instead deferring to preferred constituents in an attempt to promulgate what it perceives to be the "best" policy,

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as biased by its own historical and institutional understanding of radio regulation.

USING DRAMATURGICAL ANALYSIS TO PROBE TECHNOLOGY AND POLICY

To conduct a proper exploration of the technological and policy development of digital radio, the research methodology of dramaturgical analysis is useful. As the root word implies, dramaturgy is used to characterize an item or subject by certain performative aspects and provide context to the variety of factors which form the locus of a dramaturgical process. Dramaturgical analysis has existed in some form for hundreds of years, but was first applied to the social sciences by sociologists and has been employed in various fields ranging from organizational management to media studies.

Where many types of research methodologies focus on texts, dramaturgical analysis allows for the examination of the actors behind the texts, seeking to explain their actions in the context of a discursive process. In this regard, dramaturgical analysis is useful because it allows the examination of the bonds between action and meaning. While some scholars have limited the usefulness of dramaturgical analysis to the illustration of a "confrontation of villains and heroes in a staged spectacle," thinking of the methodology in such a manner is overly shallow. With regard to policy studies, the understanding of the bond between action and meaning is key to critically and constructively analyzing the mechanisms by which policy is made. Dramaturgical analysis also provides an insight into the social and material logic of media texts and actors and allows the construction of a conceptual framework within which practically useful conclusions can be derived.

Much of the dramaturgy conducted in modern society involves the practice of rituals which Peter K. Manning argues can be distortionary to core notions of "truth" on which the structure of social power rests. Such rituals can depress truth and sanction lies: power becomes synonymous with truth, whether or not "truth" actually exists. According to Manning, "Rituals are in some sense an index of social power, because they close off and truncate complexity of meaning, challenging and flattening the response to the predictable, the acceptable, the sanctioned....Power collapses variety in meaning, authority stabilizes it." In the maintenance of institutionalized trust, irony becomes a bellwether by which power may also be measured. Applying dramaturgical analysis to the digital radio debate first requires definition of the main aspects of the template. Onstage is defined as the FCC fora in which public discussion over DAB policy occurs, such as periods of comment and reply-comment in rulemaking proceedings.

In this arena, not only are all actors represented, but their metaphorical objectives are most clear to the audience, which has some level of agency (if only by voice) in the process. Offstage is defined as discourse that takes place in the industry trade press. Public Broadcasters differ from the industry in that their support of digital radio has been enthusiastic but historically qualified, due to the conflicting service objectives of commercial and public radio. As such, public broadcasters follow their own operative metaphors about what DAB may be useful for. In some instances, these metaphors are at cross-purposes to the industry's, though public broadcasters remain useful ancillary protagonists in their support of the industry's chosen digital radio technology and were instrumental in advancing it through the regulatory gauntlet by manipulating the institutional credibility they have with policymakers.

Independent Broadcasters are defined as any owner, engineer, or staff member of a radio station not directly affiliated with the technology's proprietors. They are strong antagonists in the policy dramaturgy. Although independent broadcasters represent the majority of radio stations in the United States, they deploy strong oppositional metaphors to define the future of radio and engage in the most contentious dialogue regarding its digitalization.

ASSEMBLING THE STORY OF RADIO'S DIGITAL DILEMMA

This Article utilizes several archival sources to tell the story of the U.S. digital radio transition, using the words of participants themselves to illustrate the development of technology and policy. This topic has received scant attention from scholars, so there is little direct academic foundation on which to start. That said, the transition process has been underway for more than 20 years now, so there is no shortage of material with which to work. This includes the entirety of the FCC's rulemaking record on terrestrial digital radio; two dockets in particular (RM-9395 and MM 99-325) constitute the entire archive of proposals, comments, and decisions promulgated by the FCC to facilitate the transition. Both are available online via the FCC's Electronic Comment Filing System (ECFS). Some 1,500 unique fi lings are available in both dockets, ranging in length from a paragraph to 700+pages apiece. These filings give a clear picture of the motivations and arguments proffered by various constituents in the policy dramaturgy and are extremely important for illuminating the operative rationales that have controlled (or conflicted with) policy outcomes.

In addition, the archives of industry trade publications provide important context to the policy dramaturgy of digital radio—of which two in particular are especially enlightening. Radio World is the preeminent industry newspaper for broadcast station owners, managers, and engineers. Published biweekly, each 50-page issue provides an excellent forum in which to observe the discursive behavior of actors directly involved in the

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radio industry, whether they are protagonists or antagonists in a policy context.

Although Radio World relies wholly on industry advertising for support and, thus, displays an editorial bias in favor of industry desires, the publication's change in tenor over time with regard to the potential of digital broadcasting can be clearly mapped from 1988 onward, which makes it a useful lens through which to observe how struggles over digital radio developed and festered outside the realm of the official policy discourse.

Similarly, the trade publication for public radio, Current, was examined to glean information about noncommercial broadcasters' support for and concerns with digital radio. 75 A smaller publication (20–30 pages per issue), Current is also published biweekly, and its archives were also analyzed from the late 1980s through the present. Ultimately, the dialogue in Radio World , Current, and other publications serves to supplement the FCC record with more candid assessments of digital radio technology and its prognosis for success—highlighting the fundamental contradictions between what digital radio broadcast technology is purported to be and what it actually is. These contradictions lie at the heart of radio's digital dilemma, both from an operational and a policy standpoint.

CONFRONTING RADIO'S DIGITAL DILEMMA

Radio's digital dilemma is quite real. The circumstances that led to this dilemma are now clear. What remains to be seen is whether the policy trajectory of the medium's digitalization is amenable to proactive modification, and whether broadcasters themselves have the wherewithal to adapt to a convergent media environment irrespective of the technology they ultimately use. Initial attempts have not been successful, thanks to the disruptive implications of digitizing radio signals and the lack of regulatory engagement with the consequences of such action. Simply becoming "bit radiators" does not address shifting expectations among the listening public about what "radio" in a digital environment can offer. So long as broadcasters and regulators continue to address the phenomenon of convergence in such a single-dimensional, neoliberal fashion, this dilemma will only become more complicated and challenging.

IMPLICATIONS FOR THE FUTURE OF BROADCASTING AND COMMUNICATIONS POLICY

Examining the dramaturgy of digital radio policy helps to explain how and why the navigation of convergence will be arduous for the medium's incumbents. It draws attention to the metaphors each actor uses in the policymaking process, provides a mechanism by which those metaphors can be interrogated for substance, and allows the critical examination of policy outcomes in the context of the rationales that drove them. Although the digitalization of radio was cast by its proponents as a purely technical exercise, the dramaturgy of radio policy shows that the science behind DAB was not a primary motivator for this activity. The promised "improvements" digitalization would bring to the medium were steeped more in rhetoric than demonstrable fact. When conflicts arise between the operative metaphors of contemporary digital radio policies and their practical application, it begs the question whether such regulation is actually constructive, or even rational.

The fact that communications policy is firmly grounded in the precepts of neoliberalism has not helped matters. Regulatory dysfunction involving radio's digital transition was precipitated by broadcast incumbents who attempted to navigate the phenomenon under conditions they could wholly manipulate. These conditions were defined almost exclusively in economic terms and favored increasing private control over the airwaves above all other possible outcomes, even in countries where state-run public service broadcasters initially dominated the medium.

Contextualizing the development of digital radio within a neoliberal paradigm allowed its proponents and regulators to ignore or downplay the inherently disruptive nature of convergence and mitigated against the adaptation and innovation necessary of incumbents to find purchase in an increasingly digital media world. Not only were the technologies of DAB designed without taking the collaborative and extensible aspects of convergence in mind, but as DAB service was deployed its lack of ability to adequately address these aspects confused and sullied several important constituencies on the viability of digital broadcasting.

CONCLUSION

Radio's Digital Dilemma is the first comprehensive analysis of the United States' digital radio transition, chronicling the technological and policy development of the HD Radio broadcast standard. A story laced with anxiety, ignorance, and hubris, the evolution of HD Radio pitted the nation's largest commercial and public broadcasters against the rest of the radio industry and the listening public in a pitched battle over defining the digital future of the medium. The Federal Communications Commission has elected to put its faith in "marketplace forces" to govern radio's digital transition, but this has not been a winning strategy: a dozen years from its rollout, the state of HD Radio is one of dangerous malaise, especially as newer digital audio distribution technologies fundamentally redefine the public identity of "radio" itself.

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