COLLABORATION AND THE CREATION OF A NEW JOURNALISM COMMONS

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Acknowledgments

Contents

Executive Summary

The history of journalism includes many and varied forms of coopera-tion, as far back as landmark events such as the creation of the Associated Press by five New York newspapers in 1846 to share costs related to the coverage of the Mexican-American War. What sets the current phase of collaboration apart from previous ones is the wide diffusion of networked forms of organization and production, and the transformative impact of these cooperative practices in reshaping the new media world and its under-lying social and technological infrastructure as public utilities.

This report explores the gradual development of this phenomenon and the related development of a new commons for journalism, or a collection of shared resources and communities reconfiguring the material and cultural conditions of newswork as a social practice subject to dilemmas that require cooperation. The journalism commons, often going unrecognized in the academic and public discourse on the future of media, offers a framework to make sense of the new schemes of human relations, production, and governance.

Key findings:

- **Network collaboration:** The media world emerging from the transfor-mations that occurred in the last decades of the twentieth century—some of them predating the internet and still unfolding—has gradually incor-porated a wide array of collaboration powered by digital networks as an essential, pervasive component of the fabric of news. The term "network collaboration" encompasses current and previous practices developed in the last three decades that rely on digital networks to enable the pro-duction and sharing of technologies, information, services, and practices through cooperative modes, regardless of their form, as they apply to journalism.This broad definition aims to cover collaboration's role in the creation of a new shared infrastructure for journalism, and the variety of cooperative practices and processes developed around the material conditions of news production and dissemination.

- **The gradual diffusion of the phenomenon:** Four main develop-ments underlie the gradual diffusion of networked forms of collaboration in journalism: 1) the digitization of news media beginning in the mid-

1990s and the development of new modes of news production; 2) the wide array of collaborative practices, both internal and with others including the public, adopted by traditional media organizations in the aftermath of the dot-com bubble and through the 2000s; 3) the development near the end of the 2000s of a new model for watchdog journalism that served as a template for a renewed collaborative ethos among different organizations and individuals for investigative reporting; and 4) the ongoing consolidation of a set of partnership strategies in a new era that's still unfolding.

- **The collaborative age:** The distinct feature of the ongoing phase of collaboration, often labeled as collaborative journalism, is the development and open embrace of cooperative production arrangements between news organizations and others, including journalism schools and the public, to generate content that is greater than what any individual journalist, newsroom, or organization could produce on its own. Several reports, as well as individual accounts, have provided snapshots of this phenomenon, but there's no definitive assessment of its diffusion and impact. Considering the limitations of the data currently available, focused on explicit forms of collaboration between organizations, three core themes emerge:

  - *Collaboration as a field repair*: A core function of cooperative practices since the late 2000s, collaboration fills the vacuum left by the industrial decline of media and the constant erosion of the conditions for journalism.

  - *Shared resources for journalism*: The promise of collaboration in the networked era is likely showing its fullest impact in revitalizing investigative reporting through local, national, and international partnerships. These collaborations rely and build on shared resources—public databases, open source technology, networked communities—to fulfill journalism's core mission. This byproduct of collaboration is increasingly taking on characteristics of a commons, or a shared resource subject to social dilemmas.

- *The expanding role of journalism schools, nonprofit organizations, and other players*: A key difference between the current phase of collaboration and the convergence years is the existence of diverse players beyond news organizations that are having a prominent role in fostering, funding, and sustaining partnerships, led by journalism schools and established nonprofit organizations that fully incorporate network collaboration as a structural element.

- **The creation of a new commons:** The rise of collaborative practices applied to journalism have led to the development of the journalism commons, an intricate resource system functioning under an open access scheme and hosting critical technological and social components pertaining to journalism. This commons works as a supporting infrastructure for newswork. It is structurally dependent of network collaboration.

- **A preliminary characterization of the journalism commons:** Based on the description of other information resources such as the internet and the understanding of media systems as a layered structure, the journalism commons can be characterized as a resource system made of three distinct and intertwined layers —technological, social, and content-based—that contain other resources, or a commons of commons. This commons builds and take on characteristics of the internet as a founding structural element.

  The building blocks of this system are *facilities*, the evolving technologies that make digital distributed information possible, including its physical components; *artifacts*, specific, nameable representations of an *idea* or set of *ideas*, stored in *facilities*; and *ideas*, non-physical units, not protected by copyright, contained in an *artifact*. Just as the layered structure description provides an overview of the journalism commons and how it works, this low-level framework enables a careful examination of its building blocks—what individuals or organizations ultimately appropriate or use—and the relations among them.

  This preliminary characterization of the journalism commons as a resource system allows us to further conceptualize some of the most press-

ing issues affecting journalism as social dilemmas, and identify structural vulnerabilities.

- **The commons as a framework:** Connecting news media to the vocabulary of the commons provides a rich framework to analyze the impact of networked forms of collaboration in reshaping the infrastructure for journalism, and think about its future possibilities as social dilemmas that require cooperation. It also helps connect apparently independent phenomena, and devise new collaborative approaches to address structural vulnerabilities limiting the development of the new media world —from net neutrality to systemic market failure and the development of social capital and collective action. Much work is required to further the understanding and the importance of the commons in the new media world, a topic mostly neglected in academic and public discourse.

Introduction

In the 1990s, scholars noticed how networks were taking on new life beyond their traditional realm. Networks, defined as a pattern of inter-connections among a set of things,[1] had a prominent role long before the internet in sectors like crafts, where the work tends to be project-based and an assembly line-like workflow is poorly suited compared to a flexible arrangement involving groups with different skills and resources.[2] The critical change that researchers recognized was the expanded reach of information networks into new domains powered by the internet.[3] Paired with digital technologies, networks departed from their traditional, local nature and became apt for managing large and complex structures—an attribute especially befitting in times of relentless change and technological disruption thanks to their resilience and adaptability.

In the last decades of the twentieth century, there was an upsurge in research on the growing role of networks in enabling phenomena as diverse as migration, entrepreneurship, international trade, and the emergence of a new type of enterprise "built around business projects resulting from the cooperation between different components of different firms."[4] In a broader context of change, networks became the basis of a new social arrangement described by sociologist Manuel Castells as the network society, enabled by digital information and communications technologies.[5]

The popularization of the internet introduced new conditions for formal and informal collaboration within newsrooms, between organizations, and with the public. In the last three decades, the news media has gradually incorporated a wide array of networked forms of collaboration as an intrinsic component of the peer-production practices that have driven the development of a new technological infrastructure, enabled new forms of editorial work,[6] and reformulated how news organizations function and concentrate attention in the digital age.

The diffusion of collaboration is related to another transformative phenomenon: the creation of a new commons for journalism, or a collection of intricate, shared resources reshaping the material and cultural conditions of newswork as a social practice subject to vulnerabilities that require collaboration. The commons offers a framework to make sense of the "new schemes of human relations, production, and governance" emerging in the post-industrial new media world.[7]

Collaboration is not a new phenomenon in news media. The history of journalism includes varied forms of cooperation embedded in the daily production routines and between news organizations, including landmark events such as the creation of the Associated Press by five dailies in New York in 1846 to share costs and resources related to the coverage of the Mexican-American War. But the novel conditions created by digital technologies to develop new forms of organization and production based on networked forms of collaboration kick-started a new phase. The diffusion of networked forms of collaboration and the related development of the journalism commons is the subject of this report.

Previous research has covered the growing role of collaborative practices in journalism since the late 2000s. This work aims to complement it by providing an overview of the gradual evolution of collaboration since the early days of digital journalism, and its structural role in developing new social and technological conditions for newswork.

In the following sections, I describe how the adoption of the internet introduced novel forms of collaboration and contributed to reshaping the media ecosystem; the main dynamics around this process; and how a broad set of collaborative practices drives the development of the journalism commons. The main motivation for this research is to focus on collaboration as an evolving and pervasive component of digital journalism, and to widen the conversation about its fundamental role in the creation of a sustainable news world.

In the first part, "The Rise of Networked Collaboration," I summarize how the current form of collaboration, usually described as collaborative journalism, came into being in American media. To do so, I reviewed academic research, essays, and reports on the social, technological, economic, and cultural transformations since the mid-1990s as they relate to the rising new conditions for formal and informal modes of cooperation in news media.

In the second part of the report, "Developing the Journalism Commons," I examine the impact of networked forms of collaboration through the creation of a new social and technological infrastructure for news. This part builds on the groundbreaking work by the late Elinor Ostrom and

the research developed since the 1990s on knowledge and information as resource systems.[8]

The citations chapter includes the full bibliography collected on the range of topics covered in this research—from the early days of digital journalism to the consolidations of new material and cultural conditions for newswork. Hopefully, this bibliography will be useful for others interested in expanding the role of the commons as a framework for thinking about the current challenges and opportunities for journalism.

The Rise of Network Collaboration

The profound transformations that occurred in the last decades of the twentieth century have reconfigured different aspects of human life, including journalism.[i] [9] These transformations ranged from critical developments in the social and economic conditions around newswork, including the social network revolution[10] and opportunities to develop new models of organization,[11] to media-specific developments such as the derogation of the Fairness Doctrine (1947–1987) and the ushering in of the cable news era. The post-industrial media world emerging from this vast ecology of changes, some of them predating the internet and still unfolding, has gradually incorporated a wide array of collaborative forms powered by digital networks as an essential and transformative component of the fabric of news.

Collaboration has enjoyed different lives in the context of digital media. In the latest of its several evolutions, it is generally used to describe "a cooperative arrangement (formal or informal) between two or more news and information organizations, which aims to supplement each organization's resource and maximize the impact of the content produced."[12] I'll use the term network collaboration throughout this report as a generic concept that encompasses this form as well as previous ones that use digital networks to enable the production and sharing of technologies, information, services, and practices through cooperative modes, regardless of their form, as they apply to journalism.

Following Lisa Gitelman's model of media as a system operating on two levels—the technology as a medium that enables communication, and the social and cultural practices developed around that technology—this broad definition aims to cover collaboration's role in the creation of a new technological infrastructure for journalism, and the variety of cooperative practices and processes developed around the material conditions of news production and dissemination.[13]

Collaboration might be present in one-off and long-term partnerships between different media organizations; in intricate patterns of production within the same organization; in peer production facilitated by the

i. "Toward the end of the second millennium of the Christian era, several events of historical significance transformed the social landscape of human life. A technological revolution, centered around information technologies, began to reshape, at accelerated pace, the material basis of society."

technical infrastructure of the web; in meetups involving journalists and software developers; in radical decentralized modes that facilitate sifting through databases and documents; in arrangements involving nonprofit, public, and commercial media as well as other players such as journalism schools, advocacy groups, and technological platforms; in formal partnerships within large media networks; and in informal ventures loosely coordinated. The term network collaboration aims to capture the full extent of this phenomenon—all types of collaborative practices developed around digital journalism inside the newsroom, between organizations, with the public and individuals—to make it sustainable.[ii][14]

The rise of network collaboration in journalism might seem, with hindsight, expected in the context of the network society, defined as an era of intrinsic collaboration.[15] An essential condition of network relationships is that "one part is dependent on resources controlled by another, and that there are gains to be had by pooling resources, sharing and collaborating."[16] But it took a gradual and often troubled evolution for these practices to play a substantial role in the assembly of news. As media researcher W.C. Anderson argues in his analysis of the Philadelphia news ecosystem's struggles to adapt to the digital age, collaboration involving different organizations between 2007 and 2010 was rare and the result of lengthy bureaucratic negotiations, contrary to the expectations built for the network society.

This pattern seems to fit into the irregular diffusion of networks,[17] with different degrees of penetration across the same system, and the expected development of the network enterprise as a gradual process that starts with the adoption of horizontal structures, followed by the cooperation between small and medium businesses "pulling their resources to reach a critical mass," and finally "the strategic alliance and partnerships between large corporations and their ancillary networks."[18] This process was far from completion when Anderson did his research, and is arguably still ongoing in an irregular fashion across the news ecosystem. This reactive context for

ii. A similar distinction has been used to describe network journalism as "a structural concept, referring to the whole of the global journalism sphere in which roles of journalists de facto change, but even more importantly a new organizational framework is taking shape in which journalistic outlets operate".

the adoption of novel forms of collaboration could also be seen as a sign of a larger problem: the difficult transition to digital media.[19]

Four main developments can describe the gradual diffusion of networked forms of collaboration in journalism:

1. **The digitization of news media** beginning in the mid-1990s and the development of novel modes for news production;

2. **The wide array of practices of collaboration**, both internal and with others, adopted by traditional media organizations in the aftermath of the dot-com bubble and through the 2000s;

3. **The development of a new model for the watchdog function** by the end of the 2000s that served as a template for a renewed collaborative ethos in investigative reporting based on the alliance of different organizations and individuals;

4. **The ongoing consolidation of a set of partnership strategies** into a new era of collaboration currently unfolding.

Digitizing the News

The early days of digital journalism were a time of "feverish activity."[20] In 1993, the first graphical web browser (Mosaic, later Netscape) was released to the public, followed a year later by Microsoft Internet Explorer. By 1996 most news outlets, print and broadcast, had a web presence.[21] In a context for traditional media "marked by reactive, defensive and pragmatic traits,"[22] news sites featured content that was usually limited to "shovelware"—text, video, or audio repurposed for web publication from its original format without changing substance, a practice that already required significant organizational change.

Experimentation developed on the fringes, and new offerings for the web grew steadily. By the end of the 1990s, U.S. online newspapers exhibited "a range of products, a technical infrastructure and organizational patterns that clearly departed from its print counterparts."[23] Journalism's initial
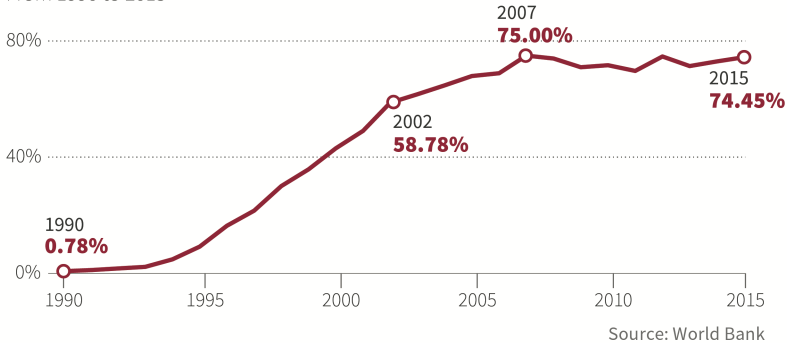
foray into the web introduced a culture, tools, and cooperative modes of production that set the baseline for network collaboration to develop.[iii][24]

Share of individuals using the internet in USA
From 1990 to 2015

Source: World Bank

In traditional newsrooms, the diffusion of network collaboration generally occurred within established structures. The industrial, assembly line-like news workflow was dominant and served as a model to explore the unique opportunities offered by the internet: multimedia storytelling combining text, video, and audio; layered information connected through links and tools to navigate it; the opportunity to foster a dialogue with the public and involve it in the news process; and novel narratives and formats such as blogs. Email was adopted as the main form of communication. New routines and intricate patterns of production tested centralized, hierarchical practices, and they gained more relevance in the coming years as the ability to collaborate internally and externally increased dramatically.[25]

The idea of exploring creative arrangements with other organizations or with the public was in an early stage or not even on the horizon for most legacy media, with notable exceptions such as the legacy tradition of partnerships in local media: projects building on early efforts such as The Whole Earth 'Lectronic Link[26]—normally shortened to The WELL— launched in 1985 that reimagined computer-mediated communication as

iii. The hacker culture provided the technological foundations, and the communitarian culture linked to the aftermath of the 1960s counterculture movements shaped its social forms, processes, and uses.

virtual communities;[27] and the work of organizations outside the mainstream media such as California Media, later New American Media, relying on partnerships with other organizations "as a way to combine the strengths of ethnic media and the intimate knowledge of diverse communities with those of mainstream journalism."[28]

Media researcher Pablo Bockzowski's studies on the early days of *The New York Times*'s first digital-only section, Cybertimes, a project launched in 1996 to experiment with online narratives, illustrates these early developments through the diffusion of new organizational routines and horizontal structures on the sides of legacy, top-down workflows.[29] Bockzowski also documents the *Houston Chronicle*'s 1995 multimedia efforts, a series of projects combining text, video, animation, and 360-degree photography that exhibit some of the transformations in communication, technology, and organization that were beginning to unfold. The analysis by the same author of New Jersey Online's Community Connection advances the deep organizational changes and different notions of journalism emerging from projects that considered the public not only a consumer but a potential producer of valuable information, too. These early examples of digital journalism attest to the changes happening on the edges of legacy news organizations in their initial explorations of the web's potential, and fit into Manuel Castell's description of the first steps in the evolution of an organization into a network enterprise.[30]

That being said, the most successful collaborative journalism often requires a departure from past practices and mindsets.[31] Perhaps the most illustrative and well-known project of this kind was the Independent Media Center (Indymedia), a collective that grew out of the 1999 World Trade Organization protests in Seattle. This network was built around a set of tools and a decentralized structure to empower on-the-ground observers and "give voice to the voiceless." It used its own servers and open source content management systems. Local chapters negotiated their own editorial line and code. The interweaving of political activism, a new technological infrastructure, cooperative production, and a decentralized structure represented a radical alternative to the legacy, hierarchy-based production of news.

But the rise of peer production wasn't a phenomenon limited to organi-

zations outside of mainstream media. This system of collaboration facilitated by the internet had enabled large groups of individuals to cooperate effectively in the creation of new tools, technologies, and social practices that were gradually adopted for newswork, including the internet as a platform for news and flagship developments that became core components of the new infrastructure for journalism such as the Apache web server or the Linux operating system.[32] This phenomenon, responding to a new economic logic not relying on market or public incentives, is a pervasive, often overlooked component of the new media world in spite of its profound implications in reshaping the infrastructure for news, and its powerful role in reinventing its social and cultural conditions.[iv]

Through the next decade, the diffusion of network collaboration in journalism followed three main paths: technological, as a core component of the commons-based infrastructure for newswork; experimental, through the development of decentralized, cooperative modes of production involving participatory communities, individuals, and others; and corporate, or the organizational and partnership strategies that shaped the role of collaboration in traditional media and contributed to the overall networking of the emerging media world. Often these paths would collide, and they would eventually consolidate into a new model for watchdog reporting combining different forms of collaboration as a structural feature.

The Convergence Years

The assumption in the 1990s was that we were in the midst of the digital revolution. As Nicholas Negroponte and others put it, the internet would "flatten organizations, globalize society, decentralize control, and help harmonize people."[33] But to use Pablo Bockzkowski's expression, the past survived in the future.[34] The networking of an emerging media ecosystem combining both traditional and new components was gradual, multi-layered and non-linear.[35] The burst of the dot-com bubble that occurred between 1997 and 2001 opened a new phase for network collaboration driven by the

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iv. The importance of peer production is further explored in the second part of this report regarding its critical role in the development of the journalism commons.

convergence of old and new media, and the deployment of a more explicit role for cooperative practices in traditional media.

Technologies of Freedom, written by Ithiel de Sola Pool, was probably the first book to lay out the concept of media convergence.[36] In it, de Sola Pool argues that "a single physical means—be it wires, cables, or airwaves—may carry services that in the past were provided in separate ways. Conversely, a service that was provided in the past by any one medium—be it broadcasting, the press, or telephony—can now be provided in several different physical ways. So the one-to-one relationship that used to exist between a medium and its use is eroding."[37] de Sola Pool anticipated a long period of media transition during which different media systems, combining both legacy and novel elements, would compete and collaborate.

By 2000, when the internet service American Online (AOL) and the media company Time announced "the largest merger in corporate history," the logic of the convergence became a dominant theme in the conversation about the future of journalism and news organizations. Four years later, Pew Research Center's first annual report on the "State of the News Media," published regularly since then, listed convergence as one of the main eight trends shaping the new media world among others such as the existence of diverse journalism standards inside a single news organization, and the shrinking of audiences in some markets.[38]

Digitization set the conditions for old and new media to collide, a development that required significant organizational change and propelled the diffusion of novel collaborative forms.[39] Convergence practices were adopted through five main modes that could be seen as a precedent of today's dominant forms of collaborative journalism:[40]

- **Ownership convergence**: Refers to partnerships within large media companies for cross-promotion and content sharing. This arrangement can be traced back to the mid-1980s. It didn't imply shared editorial decisions or other collaborative practices. Media resources (print, television, digital) were usually owned by the same company.

- **Tactical convergence**: Partnerships between media properties usually under separate ownership on content, marketing, and revenue strategies.

An example would be efforts to sell advertising packages across platforms owned and operated by different companies. The most common model of this partnership was between a TV station and a newspaper in the same local market, a practice that initially characterized the convergence years. Media researcher Rich Gordon traces the adoption of this strategy to the last 1990s.[41] In most cases, the main motivation was promotional. It did not produce substantive change in the participant newsrooms.

- **Structural convergence**: Practices within the same media company to reorganize the newsroom and introduce new positions. These are changes with a significant impact on internal workflows and production patterns. They continued in the next decade, sometimes in an erratic development as both national and local news organizations sought new strategies to adapt to the ongoing consolidation of the news market, the shrinking of newsrooms, the rise of social media platforms, novel distribution models and media consumption patterns, and the progressive decline of industrial models.

- **Information gathering**, or the use of several devices to capture information such as audio or video recorders by an on-the-ground journalist: This idea of the "backpack" or multimedia journalist was highly controversial in the early 2000s as it was seen as a practice having a negative impact on the quality of journalism and responding to layoffs. This practice continued to evolve with the emergence of social media, a new generation of digital journalists, and new user-friendly devices to easily capture, collaborate, and share information.

- **Presentation convergence**: Referring to storytelling practices involving different media formats such as audio, video, and 360-degree photograph to convey a news story.

Because of the wide array of practices included under these modes, data about its diffusion might be misleading.[42] One of the earliest attempts to track it, completed in 2002, found that nearly eighty-nine percent of the respondents—members of an association of news directors of radio and television—considered their organizations engaged in some mode of convergence. The most common behavior (seventy percent of respondents) was republishing already existing content on the web. Also, thirty percent

of the participants said their radio or television stations produced content for newspapers.

Another work from the early 2000s surveying one newspaper and TV station in each of the U.S.'s top media markets found that eighty-three percent of responding stations and ninety-five percent of newspapers practiced convergence. These figures again included organizations that repurposed content from print or broadcast. Seventy percent of the newspapers and forty-one percent of the TV stations included in the survey reported a partnership with another medium.[43]

Anderson's account of the Philadelphia news ecosystem's struggles in the digital age, referenced earlier, offers an example of how some of these practices unfolded within a large newspaper chain.[44] With the collapse of the online economy in the early 2000s and the demands from shareholders to increase profits in the still highly profitable news industry,[45] media publisher Knight-Ridder centralized all local services, including its online properties covering Philadelphia. Overall, thirty-three newspaper sites were reduced to thirteen within a year, operated by a few editorial teams using the same ad platform and publishing system. The primary forces behind these changes were managerial and economic over technological or journalistic. Anderson didn't find the "spontaneous, networked work practices envisioned as the future of digital media production on the web," but a formal approach following a lengthy organization and planning.[46] Most of the changes implemented under these strategies for convergence didn't last long. Other media firms with multiple news holdings went down a similar path, moving to single publishing platforms to share news and publish ads across nationwide networks.

By the end of 2000s, most of the early practices of convergence were fading,[47] though some of them—such as structural convergence, or the reorganization of newsrooms to adapt to new digital workflows and products—continue to be part of the toolkit for adapting to the digital age. The print-TV partnerships trend from the beginning of the 2000s fell into oblivion under new circumstances dominated by the decline in print newspaper readers and ad revenue, and wide cuts in newsrooms. The context for journalism by the end of the 2000s was one of severe economic crisis. The Project for

Excellence in Journalism reports 11,000 lost jobs in journalism just in 2008 and 2009, while other estimates are higher.

Radio and television, which had enjoyed profit levels similar or higher to their print counterparts, began pursuing similar staff cuts, with an estimated 1,600 jobs lost in local television between 2008 and 2009. This trend continued in the next years, with the total number of news workers within the industry dropping by around forty percent over the decade, growing drops in circulation and ad revenue, and the systematic erosion of the journalism ecosystem, with entire regions going mostly uncovered.[48]

Newspaper advertising and circulation revenues
From 1956 to 2016 (in billions of dollars)

Source: Pew Research Center
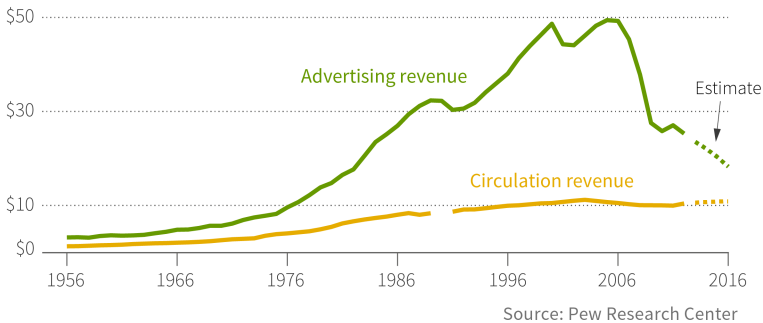
Collaboration during the convergence years could be described as one piece of a larger corporate roadmap initially focused on the cooperation between print and broadcast media, and later dominated by ever-increasing financial pressures and organizational struggles. In spite of the limitations of these strategies, shaped by short-term goals and a poor understanding of the emerging news world, these practices had a significant impact in conceptualizing the role of network collaboration in traditional media. On the organizational side, novel tools and technologies that made some of these strategies possible such as content management systems that standardized the editing process and production workflows became central in blurring the lines between novel and traditional routines and consolidated the importance of digital tools in fostering or hindering collaborative practices in the newsroom. Likewise, the business logic that generally drove the diffusion of these strategies only gained more importance after the 2008

economic crisis, though increasingly with a journalistic purpose, and helped define the role of collaboration as a field repair, a concept that will be further explored later in this report.[49]

A New Model for the Watchdog Function

The convergence paradigm has a deeper meaning beyond the tactical one often capturing the journalism discourse through the 2000s. It refers to new structural conditions for media "where different forms of what constitutes journalism and the idea of the public collide, where grassroots and corporate media intersect, where the power of the media producer and the power of the media consumer interact in unpredictable ways," as Henry Jenkins put it in the introduction to Convergence Culture.[50]

This process, still unfolding, has been critical to the assembly of a new environment for network collaboration within newsrooms, across organizations not limited to news media, and with the public. The partnership between WikiLeaks and other media organizations on the 2010 U.S. embassy cables, as an example, provide us with insights about what this transformation entails.

WikiLeaks, a "stateless news organization," was founded in 2006 to harness the speed, interactivity, and global reach of the internet "to provide a secure mechanism to anonymously submit information and share it to a global audience."[51] Preaching radical transparency for the access to information pertaining to governmental or corporate affairs, the organization stormed into the journalism scene in 2010 with the publication of several leaks of critical importance for the understanding of current events and international diplomacy—starting with the release of a leaked video on the 2007 U.S. Baghdad airstrike,[52] and followed by the Afghan War Logs,[53] the Iraq War Logs,[54] and the coordinated release of U.S. cables in collaboration with five traditional media organizations in the United States and Europe, and later with many others around the world.[55]

As researcher Yochai Benkler wrote in a seminal paper on the importance of these events in signaling the sources of resilience and weakness of the emerging networked fourth estate, "the steady flow of confidential mate-

rials through an organization that was not part of the familiar 'responsible press' was met by increasing levels of angry vitriol from the Administration, politicians, and media commentators," including prominent voices among its original partners for the distribution and reporting on the US cables.[56] These were the days when the leading Republican presidential candidate, Mike Huckabee, called for the execution of WikiLeaks founder, Julian Assange, and media commentators across the political spectrum declared WikiLeaks a major security threat.[57]

The study of these events has provided us with a fascinating account of the assembly of news in the networked era. What is critical for this report is how these events contributed to further define creative arrangements combining different forms of collaboration to solve complex journalistic production problems. As it happened earlier with Indymedia, WikiLeaks combined an open, participatory culture with a fully decentralized organization.

The collaboration with the public, who was encouraged to anonymously submit leaked documents that shed light on matters of public interest, was possible through a digital system integrated into a structure that shaped a new role for whistleblowing in the digital age. The cooperation with traditional media was articulated through a set of organizational protocols and digital tools to share documents and sift through them with the required confidentiality. Mainstream media offered WikiLeaks a major pathway to getting an important subject to the public, and effect that was amplified by the orchestrated publication of the reporting by legacy newspapers.

A tradition of collaboration in investigative reporting already existed—the Center for Investigative Reporting in Berkeley had been doing collaborative work since 1977 and the Center for Public Integrity since 1989. But the partnership between WikiLeaks and legacy organizations was of a different nature. As described by the French news site Mediapart, it was "a reflection of the new alliance formed by the digital revolution between professionals and amateurs, journalists and activists, news professionals and citizen whistleblowers."[58]

The Cablegate signals the emergence of a model of the watchdog function neither purely networked nor purely traditional, but an interaction between the two, with collaboration playing a structural role.[59] This ar-

rangement combines the strengths of the network with the reporting tradition. It also consolidated the presence of new computer expertise and tools in legacy newsrooms that had been building up since the 1990s, in this case to develop a secure infrastructure to organize, secure, analyze, and share large databases of documents—on the WikiLeaks side, also to circumvent the multiple attacks it faced to limit its ability to function.

The Collaborative Age

The deliberate cooperation of two or more newsrooms, along with other players including the public, to collect, share, and sift through documents and databases, and report on the findings, occurred within a larger trend often described as a new era of collaboration in journalism. By the end of the 2000s, cooperation with the competition was arguably becoming "more the rule than the exception."[60] The distinct feature of this ongoing phase is the development and open embrace of cooperative arrangements for news production by news organizations, in collaboration with others including journalism schools and technological platforms, to generate "content that is greater than what any individual journalist, newsroom, or organization could produce on its own."[61] Collaboration in this context has evolved "from experiment to common practice."[62]

Recent initiatives such as the SF Homeless Project, involving more than seventy organizations seeking "answers and change" to the problem of homelessness in San Francisco;[63] the News Integrity Initiative, a global consortium hosted at CUNY Graduate School of Journalism;[64] and Electionland,[65] a collective effort to monitor the vote on the 2016 election day, are only three major examples of this emerging pattern. Several reports as well as individual accounts have provided with snapshots of this phenomenon, but there's no definitive assessment of its diffusion and impact.[v]

In 2014, Pew Research examined the achievements and challenges of five journalism partnerships taken as a sample to survey the motivations of news outlets to team up together, and the difficulties in sustaining these efforts.[66] Economic problems were the main driver for these partnerships.

v. The Center for Cooperative Media at Montclair University is currently building a database on journalism collaborations aiming to fill this gap.

Arrangements usually followed simple, non-bureaucratic terms but were easily derailed for different reasons. Partnerships were (still) not easy to implement between legacy media due to incompatible workflows and tools, such as digital content management systems that couldn't work together. The projects that fueled engagement with the audience and involved important topics seemed more suitable for collaboration—or at least received more attention by news managers.

This report anticipates that ad-hoc strategies taking full advantage of the distributed nature of the web would be "the next wave" in collaboration. The phenomenon was also expected to grow in the coming years "as nonprofits become more established and credible" and become "an increasing asset to traditional news organizations,"[67] a shift that effectively occurred.

The latest report on the current estate of collaboration, published in 2017 by the Center for Cooperative Media at Montclair University, provides the most comprehensive analysis to date of the current state of collaborative journalism. This report catalogues forty-four ongoing collaborations in the United States involving more than 500 newsrooms and other information providers, and estimates at least two hundred million dollars spent to foster journalistic collaboration since the 2000s.[68] This effort describes six main arrangements based on the length of the project and the level of integration of the participants. The self-explaining modes are:

1. **Temporary and Separate**, such as the already mentioned SF Homeless Project, where dozens of organizations report independently on the same subject and collaborate in some dissemination practices to concentrate attention around their coverage.

2. **Ongoing and Separate**, like the USA Today Network, an organizational effort within the same organization focused on marketing and consumer solutions.[vi]

3. **Temporary and Co-Creatin**g, such as Documenting Hate, a project led by ProPublica to collect and verify reports on hate crimes and bias incidents, and build a database for others to further investigate these issues.

vi. From a Gannet press release.

4. **Ongoing and Co-Creating**, such as NPR's Collaborative Coverage Project, aiming to transform National Public Radio and member station newsrooms into a journalistic network.

5. **Temporary and Integrated**, like the award-winning Panama Papers, an international collaboration led by the International Consortium of Investigative Journalists to report of a massive leak from the database of one of the world's biggest offshore law firm.

6. **Ongoing and Integrated**, such as the arrangement involving seven public radio stations in Alaska operating independently on the editorial side but integrating their business efforts.

Several of the forty-four initiatives considered in this research started as one model but evolved into a different one. There are also projects that fall into various categories. In some cases, the differences between some of the projects included in this catalog are minimal when compared to the so-called convergence modes from the previous decade, a circumstance that suggests the overlapping of old and novel practices as the networking of the new media world continues to unfold.

The Center for Cooperative Media at Montclair University also leads the Collaborative Journalism Database initiative,[69] an effort aiming to serve as a central repository on collaborative journalism. A first release of data from January 2018 includes one hundred and eleven entries of news collaborations from more than 800 organizations.[70] Projects are classified according to the previous categories.

The database also includes other information such as the starting date of the collaboration, a brief description, list of participants, subject, funding sources, tools used to articulate the work, and success metrics. A very preliminary analysis suggests the wide adoption of a simple technological infrastructure for collaboration developed since the mid-2000s (from Google Docs, launched in 2006, to Slack, available since 2013) and a similar number of projects following formal versus informal agreements.

Considering the limitations of the data currently available, focused on explicit forms of collaboration between organizations in detriment of other arrangements, three core themes emerge from the current phase of network collaboration:

1. **Collaboration as a field repair:** A core function of cooperative practices since the late 2000s is to fill the vacuum left by the industrial decline of media and the constant erosion of the conditions for journalism. This notion permeates the discourse on the role of collaboration. The expression "field repair," mentioned earlier in this report, draws from the sense of "field" as developed by the French scholar Pierre Bourdieu and others as a way "of understanding and explaining the constraints and processes involved in news media production," and is used here to convey the overall function of collaboration in fixing the media ecosystem.[71] The emphasis for traditional media is on filling the gaps left by the still unfolding economic crisis by exploring networked arrangements to reimagine how newsroom and business operations can function in the digital age, expanding their mission and better serving the public. In this context, collaborative practices are still fringe activities for most organizations and don't touch on core editorial and business routines, but they are becoming a common solution for addressing big challenges and for gaining salience and attention in a news media ecosystem increasingly reliant on opaque technological platforms to reach the public.

2. **Shared resources for journalism:** The promise of collaboration in the networked era is probably having its fullest impact in revitalizing investigative reporting through local, national, and international partnerships. The combination of decentralized organizational arrangements—powered by new communication tools such as Slack—and new technological capabilities to collaboratively obtain, mine, and share information seems to be one of the most promising developments in digital journalism. These collaborations rely and build shared resources—public databases, open source technology, networked communities—to fulfill journalism's core mission. This byproduct of collaboration is increasingly taking on characteristics of a commons, or a resource shared by a group of people independent of particular property rights, and contributing to transform the underlying infrastructure for news production. This is one of the most impactful and transformative effects of collaboration.

3. **The expanding role of journalism schools, nonprofit organizations, and other players:** A key differentiator between between the

current phase of collaboration and the convergence years is the existence of diverse players beyond news organizations that are having a prominent role in fostering, funding, and sustaining partnerships, led by journalism schools and established nonprofit organizations that fully incorporate network collaboration as a structural element. Major examples of initiatives led by non-traditional organizations include:

- *Electionland and Documenting Hate*,[72] both hosted and led by ProPublica in partnership with national and local organizations, journalism schools, and technological platforms

- *Santa Clara University's Trust Project*,[73] a consortium of news organizations and platforms to develop transparency standards to assess the quality and credibility of journalism

- *Stanford Open Policing Project*,[74] a public repository of national data on police misconduct, elaborated and supported by an interdisciplinary team of researchers and journalists at Stanford University

- *Center for Collaborative Journalism at Mercer University*,[75] exploring the "teaching hospital" model in partnership with local media, an arrangement also pursued by other journalism schools across the United States

- *MuckRock*,[76] a nonprofit site that brings together journalists, researchers, activists, and individuals to request, analyze, and share government documents

- *Brown Institute for Media Innovation*,[77] a collaboration between Stanford University and Columbia University to encourage and support new paths for media media innovation

- *the wide array of collaborative initiatives* hosted outside of the traditional news ecosystem to address some of the most pressing issues affecting journalism, such as verification and online propaganda

Foundations have played a critical role in funding, promoting and sustaining these efforts and the overall diffusion of collaborative practices. For example, as quoted in the 2014 Pew Research report already mentioned, the Knight Foundation funded eight pilot collaborations between news outlets

and community contributors—though only one participant remained active when the seed money ran out.[78] The future role of these organizations as well as new players (startups, ad-hoc nonprofits, journalism schools, civic organizations at the local and national levels, joint efforts exclusively focused on collaboration) in enabling and further developing network collaboration is expected to grow.

Several questions remain open about the current estate of collaborative journalism. One of them is to what extent the arrangements currently in vogue are an evolution of previous modes in a more mature news media ecosystem, with an array of nonprofits and foundations supporting the diffusion of collaborative practices. A related question is whether the current era of collaboration is fulfilling its promise and producing a substantive, lasting change, and what larger impact these practices will have in journalism, in news media, and in serving the public. Are collaborative partnerships producing broader and deeper news coverage, more easily accessed or discovered?[79] Can we prove that in a collaborative project the sum is more than the parties?[vii]

All these question deserve further inquiry in light of the importance that collaboration is gaining, the resources devoted to it, and its role in creating more opportunities for news media under pressure from ever-increasing economic and technological challenges. The second part of this report addresses the issue of impact by examining the critical role of network collaboration in creating a new shared infrastructure for journalism.

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vii. This question was posed by Liza Gross, from the Solutions Journalism Project, in the first Collaborative Journalism Summit, held at Montclair University on May 4-5, 2017.

Developing the Journalism Commons

Public parks, roads, open squares, and the internet are all examples of commons, or shared resources subject to social dilemmas in which non-cooperation between individuals leads to its deterioration and possible collapse. A commons is the resource and the community that uses and manages it. It is easier to grasp the pervasiveness and relevance of these social and economic structures as public utilities that support varied forms of organization and production than fully characterize their distinct structure and vulnerabilities, especially in complex commons with many dimensions such as the internet.[viii]

The understanding of this field has changed radically, and its complexity has grown as the focus moved from local, geographically defined natural resources to complex global information commons with many intricate dependencies and no clear boundaries. A full account of this rich discussion is beyond the scope of this report. But it is necessary to briefly introduce the recent intellectual history of this domain in order to fully examine the critical impact of network collaboration in creating and developing a shared, commons-based infrastructure for newswork in the post-industrial media world.[80]

The once dominant model to conceptualize the commons builds on one of the most cited papers in social science, Garret Hardin's "The Tragedy of the Commons."[81] In 1968, Hardin published his metaphor of a pasture open to all where each herdsman would try to maximize its personal benefit by keeping as many cattle grazing as possible, ultimately leading to the inevitable depletion of the natural resource. The resulting tragedy, used by Hardin to illustrate the perils of overpopulation and the degradation of the environment, is captured in a famous line: "Ruin is the destination toward which all men rush, each pursuing his own interest in a society that believes in the freedom of the commons. Freedom in a commons brings ruin to all."

Hardin's solution was "either socialism or the privatism of the free enterprise,"[82] excluding the longstanding existence of the notion of public

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viii. The idea of the commons has been used before in the context of journalism. For example, the discussion around the public journalism movement in the mid-1990s referred to the American newspapers as "the public conversational commons," in Black, J., Mixed News: The Public, Civic, Communitarian Journalism Debate, Routledge, 1997. Also on copyright discussion. For a complete review, see Lessig, L., The Future of Ideas, Vintage Book, 2001.

property in the Western world and traditional group-property regimes.[83] In reality, this narrative only applies to a narrowed percentage of cases defined as open access commons. But Hardin's parable set the terms of the debate for the next two decades, and it has been widely used to rationalize central government control of key resources, to justify privatization of shared resources, and "to paint a disempowering, pessimistic vision of human prospect."[84]

The traditional understanding of the commons has also been influenced by other lines of research. One of them is the prisoner's dilemma, a formal approach that turns Hardin's tragedy into a set of elements and evaluates their potential combination, showing how in certain circumstances rational individuals might not cooperate, even if it appears it is in their best interest to do so. This model considers three main variables to theorize about the fate of the shared resource—communication and cooperation between the participants, and the personal incentives to seek an individual versus a collective benefit.

Other game theory approaches offer more complex alternatives to the same problem—as with the prisoner's dilemmas, they all serve as mathematical tools to analyze decision-making in situations with social interdependencies. A third narrative builds on the theory of collective action as developed by Mancur Olson in the 1960s on the difficulties faced by any group of individuals working to provide a public good in an efficient manner, and the possibilities of cooperation. This theory is said to heavily influence Hardin, and is usually at play in the current discourse of the commons along other key concepts such as social capital.[85]

These models have often provided us with the base for policy, sometimes with disastrous effects.[86] But the possible solutions around the collective use and management of shared resources, often opaque by memorable metaphors, are much wider. As Elinor Ostrom wrote in the seminal Governing the Commons, "communities of individuals have relied on institutions resembling neither the state nor the market to govern some resource systems with reasonable degree of success over long periods of time."[87] Empirical research shows how public property and privatization are also subject to failure and in some cases are associated with more degradation than traditional group-property regimes.[88]

Since the mid-1980s, the combination of disciplines had enabled a deeper understanding of this pervasive phenomenon. Scholars began to untangle the many confusions existing about commons as complex resource systems, and uncover its prominent but often neglected role. Putting it succinctly, the conversation moved from "the solution to a commons is x" to a more nuanced, empirical approach that considers local lore and ad-hoc arrangements.

In the mid-1990s, the attention turned to new or previously ignored core resources for communication such as the internet, public radio, and digital content. It was in this decade when the Library of Congress began to use "commons" and "natural resources" for some books concerned with conservation of natural resources,[89] and when scholars and activists called for a new environmentalism for open information in the digital age, threatened by a new enclosure movement that fostered restrictive copyright regimes for information, limiting the development of the networked public sphere.[90] Information commons outgrows from the critical role of libraries in safeguarding public knowledge and ensuring wide access to it.

This is the overall context for the rise of the journalism commons in the networked digital age. In spite of its pervasiveness, the potential implications of a shared, commons-based infrastructure for journalism has been mostly neglected in the public discourse on the future of media.

A Basic Vocabulary on the Commons

Through this intellectual journey, covering the last five decades, a technical vocabulary to characterize shared resources has been defined—though different notions still exist as the understanding of this domain continues to evolve.[91] In this report I follow the terminology building on Elinor Ostrom's work,[92] who had a seminal influence in evolving the research on the commons into a multidisciplinary, empirical approach. This is not to assume that the Ostrom school has prevailed and that other points of view are not relevant. But for the sake of simplicity, this vocabulary provides with a comprehensive and accessible framework to think about the impact of collaboration in developing the journalism commons, and can serve as the base for a first attempt to characterize this critical relation.

Researchers make a basic differentiation between commons as a *resource system*, also called *common-pool resources*, and as a property rights regime. Common-pool resources, natural or human-produced, have two main characteristics: the exclusion of beneficiaries is especially difficult and costly, and the exploitation by some of the users reduces the availability of the resource for others. Social dilemmas affecting resource systems include overuse, congestion, pollution, and free riding, referring to the use of the resource by some of its beneficiaries without contributing to the costs of providing, maintaining, and regulating it.

A resource systems such as the journalism commons can consist of multiple goods—excludable and non-excludable, rivalrous and non-rivalrous—and still have many characteristics of a commons. A good or service is excludable if it is possible to prevent consumers who have not paid for it from having access to it, and is non-excludable if non-paying consumers cannot be prevented from accessing it. If a good can be used and consumed by many individuals concurrently it is is non-rivalrous.

In the opposite situation, when a good cannot be consumed by many individuals at the same time, is classified as rivalrous. Hardin's tragedy considered two possible property rights regimes to prevent the degradation and the inevitable collapse of the pasture—privatization or governmental property. But there are two additional forms neglected by this view. These are *open access*, such as the pasture in Hardin's metaphor or the internet, characterized for the absence of enforced property rights; and group property, when the rights of the resource are held by a group who can exclude others to use it.[93]

Types of property rights regimes to regulate common-pool resources

Property rights	Description
Open access	Absence of enforced property rights.
Group property	Rights held by a group of users who can exclude others.
Individual property	Rights held by individuals (or firms) who can exclude others.
Governmental property	Rights held by a government that can regulate or subside the use.

Source: Ostrom et al, Science, 1999

There is a large variation of common-pool resources, patterns of use, and types of users, and no definitive evidence that favors any property right over the others as the best suited.[94] What the systematic, empirical research on natural resources has yielded is a set of general principles that are associated with a better performance of shared resources, such as the existence of rules devised and managed by the beneficiaries; simple systems to monitor its compliance and impose sanctions; different institutions to deal and regulate with the resource in all its dimensions, such as local versus regional; and procedures for revising the rules. Lessons from extensive case studies of local and regional natural common-pool resources are encouraging. Pasturelands, woodlands, fisheries, and other natural resources have long been shared and used in common by local people as a combination of particular environmental characteristics, social conditions, and technological factors.[95] In highly complex systems, such as the internet or the journalism commons, it is extremely challenging to devise optimal rules and institutions to monitor them.

The Critical Role of Collaboration

This introduction to the current conceptualization of the commons and its vocabulary serves as the base for a first attempt to characterize the shared infrastructure for journalism and its structural dependence of network collaboration. Based on the description of other information resources such as the internet and the understanding of media systems as a layered structure, the journalism commons can be described as an intricate resource system, functioning under an open access regime, with both local and global dimensions, and hosting all components and social activities pertaining to journalism.[96] It is made of three distinct and intertwined layers containing other resources—or a commons containing other commons—that build and take on characteristics of the internet as a founding, structural element.

The first layer is the *technological commons*, the physical infrastructure and the technologies to collect, store, and organize digital information. It includes the code that regulates the cascade of operations involving digital information, the elements required for commercial transactions and services, and the different media technologies used to capture, produce, manipulate,

and disseminate digital data, both open source and proprietary. The internet and its related technologies are incorporated in this layer as an essential component of the infrastructure for news, with all its related technologies, components, and dilemmas.

The technological commons is a critical driver of change in the journalism commons. It can transform how elements flowing through the resource are captured and used by the users, the overall rules regulating it, and expand or limit the community of users and how they access and utilize the resource. Critical segments of the technological commons are a result of past and ongoing commons-based practices of production, occurring when there are no exclusive rights to organize the productive effort or capture its value, and cooperation is achieved through social mechanisms other than market or managerial directions.[97] This is the case for open web standards, the core internet protocols, unlicensed spectrum, and the wide array of free and open source software (FOSS) used for news production and dissemination.

By the end of the 2000s, FOSS accounted for between sixty-five percent and seventy percent of the web server software market, about eighty percent of server-side scripting languages, and serves as the base for the widely adopted Android operating system and the web browser Firefox.[98] The technological commons illustrates the essential role of networked forms of collaboration, through commons-based production, in building the technological infrastructure for journalism. This is the result of the cooperative work of "the connected," or "those who have built and are building the internet that we have come to know."[99]

The second layer of the journalism commons is the *social commons*, created by the use of the resource by individuals and groups. This layer is not always included in models describing media systems. But it seems critical to capture the social nature of journalism, including the relation with the public, intricate workflows and production patterns, and the many cooperative arrangements and forms described in the first part of this report.[100] Collaboration is how journalism works. This social nature of the social commons has been defined in the academic literature as "the commoning," and is increasingly seen as an essential attribute.

The social commons intersects with the technological commons through

social production practices, as the logic that fostered the collaborative creation of critical segments of the digital infrastructure for media that expanded to other activities including the production of specific tools, software and other resources for news production and dissemination, and the development of social practices for editorial work.

The third and final layer is the *content commons*, or the information hosted in this system. Its possibilities are shaped by the technological and the social layers. Network collaboration enables new ways to cooperatively generate information, sometimes also functioning as a structural resource for others to report and to further investigate public affairs, meeting in this case the function of a technology. This type of hybrid good with several functions illustrates one of the main characteristics of the journalism commons—it hosts components with dual attributes, such as physical and digital, often distributed across different layers and evolving as they flow through different points of the system. Critical dilemmas such as enclosure, erosion, or pollution can emerge in some of these intersections through changes in any of the three layers.

This multi-layered, complex resource system can be characterized in detail using a framework for information resources that classifies its components as *facilities*, *artifacts*, or *ideas*.[101] If the layered structure description provides us with an overview of the journalism commons and how it works, these terminology complements it by enabling a careful examination of its building blocks—what individuals or organizations ultimately appropriate or use—and the relations among them. This low-level framework allows for further conceptualizing some of the most pressing issues affecting journalism as social dilemmas, identifying structural vulnerabilities, and refining the examination of the impact of network collaboration in the development of a shared, sustainable infrastructure for newswork:[102]

- *Facilities* **are the evolving technologies that make digital distributed information possible, including its physical components.** They store artifacts and make them available in the system. The properties and attributes mentioned in the description of the technological layer applies to facilities, including the foundational role of networked practices of collaboration.

Examples of facilities are digital repositories such as online newspapers and magazines, and the internet and its underlying technologies and protocols, including its physical infrastructure such as servers, routers, and wires. They can have physical limits, such as being able to host a limited number of concurrent users or the amount of information that can effectively travel through a digital network.

There are critical dilemmas associated with these components with important implications for policy regulation, often not receiving enough attention in the journalism discourse. For example, net neutrality—the idea that internet service providers should treat all data that travels over their networks fairly, without improper discrimination in favor of particular apps, sites, or services[103]—can be conceptualized as a social dilemma involving specific facilities of the journalism commons, how they are appropriated and used, and whether they serve to a few users or to the whole collective.

Another related example would be the digital divide, or the technology gap that prevents users from accessing the internet on fair terms due to the combination of the cost of an unrestricted, neutral internet connection, and the absence of critical facilities in less populated regions due to lack of market incentives, still a major problem for American society.[104]

Overall, facilities bring to the forefront core questions such as who owns and regulates the different digital and physical resources that populate the system and are used and appropriated by its beneficiaries, how particular property rights regimes can alter the proper functioning and sustainability of the whole resource, and the essential role of collaboration both in creating and managing the building block of the commons, addressing vulnerabilities, and securing its long-term viability.

- *Artifacts* **are a specific, nameable representation of an idea or set of ideas.** They are stored in facilities and flow through the resource. The description of the content layer applies to artifacts. Their flow through the system is more complex than in natural resources due to the combination of both physical and virtual characteristics. Digital information can be subject to dilemmas such as congestion (pollution),

but usually not to erosion (deterioration) in the same way that physical information artifacts. Users can usually be excluded from using them at some point (enclosure), but this process is more complex and less transparent than with natural resources.

The use of digital artifacts—an article, a movie, an image, a PDF file— can be limited based on the capacity of the facilities hosting them or the logic defined in the system, for example, to prioritize some piece of information over others (the net neutrality problem), or the property rights regime in use. They vary in their durability, and can evolve during their transit—a trait of the journalism commons already mentioned. In the same way that an excessive amount of artifacts is associated with key information problems such as congestion, resulting in overwhelming the end user and the loss of value for information goods flowing through the system, the opposite problem is also a commons dilemma.

The growing problem of news deserts, resulting from local newspapers shutting down its operations across the country, can be conceptualized using this framework as the combination of a lack of market incentives and investment on facilities to guarantee the flow of the system at the local and national levels. This market failure is not foreign to journalism, as noted by media researcher Victor Pickard, the history of American media is in many ways a history of market failure.[105] The commons offers a way to think about these problems beyond private or public arrangements.

- *Ideas* **are non-physical units, not protected by copyright, contained in an artifact.** An example would be the thesis of an article, or the outcome of a journalistic investigation. The overall functioning of the system has also an impact on the availability of ideas. This is a critical aspect of property rights regimes—the balance between protecting them and guaranteeing the free flow of ideas required for the system to keep functioning and serve as a platform for new ideas. Another problem is the poor quality of information, or the pollution of the system due to new strategies of overwhelming and propaganda, resulting also in the decay of the system.

The discourse of the commons is at once descriptive, "because it identifies models of community governance that would otherwise go unexamined," and constitutive, because it gives us a language to build new communities and resources based on principles of the commons.[106] Connecting news media to the notion and the vocabulary of shared resources subject to social dilemmas provides with a rich framework to analyze the impact of networked forms of collaboration in reshaping the infrastructure for journalism, and think about its future possibilities. It also helps connect apparently independent phenomena, and devise new collaborative approaches to address structural vulnerabilities limiting the development of the new media world—from net neutrality to systemic market failure and the development of social capital and collective action. Much work is required to further the understanding and the importance of the commons in the new media world, a topic mostly neglected in the academic and the public discourse.

Conclusion

The period covered in this report—the first three decades of digital journalism—could be described as a constitutive moment in the creation of media.[107] Sociologist Paul Starr explains this phenomenon as an episodic process that reflects "the particular conjuncture of forces and ideas at the moment when a political upheaval takes place, a new technology is introduced, or some other event reopens settled institutional patterns." The profound social, cultural, economic, and political transformations happening in the last decades of the twentieth century is the context for network collaboration to rise and evolve in journalism as a collection of formal and informal, implicit and explicit arrangements. After three decades of gradual, non-linear evolution beginning with the digitization of news media in the mid-nineties, the assumption is that a new era of collaboration in journalism is unfolding.

Traditional news media, nonprofit organizations, journalism schools, and other information producers are taking advantage of opportunities created by the combination of decentralized, networked, and traditional models for news production and dissemination to work together, create shared resources, and advance their work. The cooperation of multiple organizations and individuals to address journalistic challenges is happening at a scale that no single organization could replicate by itself.[108] These arrangements are helping to alleviate the impact of the economic crisis, fostering new ways to expand journalism's core mission, and contributing to reconfigure the media ecosystem through the creation of a new commons-based shared infrastructure for newswork. A first attempt to characterize this resulting journalism commons—an open access resource system with a technological, social, and content layers made of facilities, artifacts, and ideas—uncovers a social, economic, and cultural form that is unfolding in front of us.[109]

Looking at the impact of collaboration in creating the journalism commons allows us to connect apparently disconnected resources and phenomena and introduce new questions to media organizations, journalism schools, foundations, and other organizations involved in news production and dissemination, and interested in its long-term sustainability. The issues at play in the journalism commons, as in any commons regardless of its nature, are equity, or issues of equal appropriation contribution, and

maintenance of the resource; efficiency or the issues affecting the optimal production, management and use of the resource; and sustainability or the outcome in the long term.[110] A model for journalism based on the commons opens new creative ways to think through these long-term issues, and puts collaboration as a structural element of the future of news.

Citations

1. David Easley and John Kleinberg, *Networks, Crowds, and Markets: Reasoning About a Highly Connected World* (New York: Cambridge University Press, 2010).

2. Walter W. Powell, "Neither Market, nor Hierarchy: Network Forms of Organization," *Research in Organizational Behavior*, no. 12 (1990): 295–336, https://www.researchgate.net/publication/31842399_Neither_Market_nor_Hierarchy_Network_Forms_of_Organization_WW_Powell.

3. Manuel Castells, *The Rise of the Network Society* (Cambridge, MA: Blackwell Publisher, 1996).

4. Manuel Castells, *The Internet Galaxy* (New York: Oxford University Press, 2001).

5. Manuel Castells, *The Rise of the Network Society.*

6. Jeff Howe, Aleszu Bajak, Dina Kraft, and John Wihbey, "Collaborative, Open, Mobile: A Thematic Exploration of Best Practices at the Forefront of Digital Journalism," Working paper, May 26, 2017, https://ssrn.com/abstract=3036984.

7. David Bollier and Silke Helfrich, eds., *The Wealth of the Commons: A World Beyond Market and State* (Amherst, MA: Levellers Press, 2013).

8. Charlotte Hess and Elinor Ostrom, *Understanding Knowledge As a Commons* (Cambridge, MA: MIT Press, 2007).

9. Manuel Castells, *The Rise of the Network Society.*

10. Lee Rainie and Barry Wellman, *Networked: The New Social Operating System* (Cambridge, MA: MIT Press, 2012).

11. Yochai Benkler, *The Wealth of Networks: How Social Production Transforms Markets and Freedom* (New Haven, CT: Yale University Press, 2006).

12. Sarah Stonbely, "Comparing Models of Collaborative Journalism," Center for Cooperative Media, September 29, 2017, https://centerforcooperativemedia.org/new-research-comparing-models-collaborative-journalism-released-sept-29/.

13. Lisa Gitelman, *Always Already New: Media, History, and the Data of Culture* (Cambridge, MA: MIT Press, 2008).

14. Ansgard Heinrich, *Network Journalism: Journalistic Practice in Interactive Spheres* (New York: Routledge, 2011).

15. Manuel Castells, *The Rise of the Network Society.*

16. Walter W. Powell, "Neither Market, nor Hierarchy: Network Forms of Organization."

17. Laurel Smith-Doerr and Walter W. Powell, *The Handbook of Economic Sociology* (New York: Princeton University Press, 2005).

18. Manuel Castells, *The Internet Galaxy.*

19. C.W. Anderson, *Rebuilding the News: Metropolitan Journalism in the Digital Age* (Philadelphia: Temple University Press, 2013).

20. Pablo Boczkowski, *Digitizing the News: Innovation in Online Newspapers* (Cambridge, MA: MIT Press, 2004).

21. Mark Deuze, "Journalism and the Web: An Analysis of Skills and Standards in an Online Environment," *Gazette*, no. 5 (1999): 373–390, https://doi.org/10.1177/0016549299061005002.

22. Pablo Boczkowski, *Digitizing the News: Innovation in Online Newspapers*.

23. Ibid.

24. Manuel Castells, *The Internet Galaxy*.

25. Clay Shirky, *Here Comes Everybody* (New York: The Penguin Press, 2008).

26. Howard Rheingold, *The Virtual Community* (Cambridge, MA: MIT Press, 1993).

27. Fred Turner, *From Counterculture to Cyberculture: Stewart Brand, The Whole Earth Network, and the Rise of Digital Utopianism* (Chicago: University of Chicago Press, 2006).

28. Sarah Stonbely, "Comparing Models of Collaborative Journalism."

29. Pablo Boczkowski, *Digitizing the News: Innovation in Online Newspapers*.

30. Manuel Castells, *The Internet Galaxy*.

31. Martha Hamilton, "All Together Now: News Partnerships Increase in Digital Age," *American Journalism Review*, May 18, 2015, http://ajr.org/2015/05/18/all-together-now-news-partnerships-increase-in-digital-age/.

32. Yochai Benkler and Helen Nissenbaum, "Commons-Based Production and Virtue," *Journal of Political Philosophy*, no. 4 (December 2006): 394–419, http://onlinelibrary.wiley.com/doi/10.1111/j.1467-9760.2006.00235.x/abstract.

33. Nicholas Negroponte, *Being Digital* (New York: Knopf, 1995).

34. Pablo Boczkowski, *Digitizing the News: Innovation in Online Newspapers*.

35. Mark Granovetter, "Economic Action and Social Structure: The Problem of Embeddedness," *American Journal of Sociology*, no. 3 (November 1985): 481–510, https://www.jstor.org/stable/2780199?seq=1#page_scan_tab_contents.

36. Henry Jenkins, *Convergence Culture: Where Old and New Media Collide* (New York: New York University Press, 2006).

37. Ithiel de Sola Pool, *Technologies of Freedom* (Cambridge, MA: Belknap Press, 1983).

38. "State of the News Media," Pew Research Center, 2004, http://www.pewtrusts.org/en/research-and-analysis/reports/2004/03/15/the-state-of-the-news-media-2004.

39. Henry Jenkins, *Convergence Culture: Where Old and New Media Collide*.

40. Rich Gordon, *Digital Journalism: Emerging Media and the Changing Horizons of Journalism* (New York: Rowman & Littlefield Publishers, 2003).

41. Ibid.

42. Leslie-Jean Thornton and Susan M. Keith, "From Convergence to Webvergence: Tracking the Evolution of Broadcast-Print Partnerships through the Lens of Change Theory," *Journalism & Mass Communication Quarterly*, no. 2 (June 2009): 257–276, http://journals.sagepub.com/doi/abs/10.1177/107769900908600201.

43. Ibid.

44. C.W. Anderson, *Rebuilding the News: Metropolitan Journalism in the Digital Age.*

45. Juan González and Joseph Torres, *News for All the People: The Epic Story of Race and the American Media* (New York: Verso, 2011).

46. Pablo J. Boczkowski and C.W. Anderson, *Remaking the News: Essays on the Future of Journalism Scholarship in the Digital Age* (Cambridge, MA: MIT Press, 2017).

47. Leslie-Jean Thornton and Susan M. Keith, "From Convergence to Webvergence: Tracking the Evolution of Broadcast-Print Partnerships through the Lens of Change Theory."

48. Victor Pickard, "The Great Evasion: Confronting Market Failure in American Media Policy," *Critical Studies in Media Communication*, no. 2 (June 2014): 153–159, https://doi.org/10.1080/15295036.2014.919404.

49. Lucas Graves and Magda Konieczna, "Sharing the News: Journalistic Collaboration As a Field Repair," *International Journal of Communication* (January 2015): 1966–1984, https://www.researchgate.net/publication/313750807_Sharing_the_news_Journalistic_collaboration_as_field_repair.

50. Henry Jenkins, *Convergence Culture: Where Old and New Media Collide.*

51. Benedetta Brevini, Arnie Hintz, and Patric McCurdy, eds., *Implications for the Future of Communications, Journalism and Society* (New York: Palgrave McMillan, 2013).

52. Collateral Murder, https://collateralmurder.wikileaks.org/.

53. Afghan War Logs, https://wikileaks.org/afg/.

54. Iraq War Logs, https://wikileaks.org/irq/.

55. Public Library of US Diplomacy, https://search.wikileaks.org/plusd/.

56. Yochai Benkler, "A Free Irresponsible Press: WikiLeaks and the Battle Over the Soul of the Networked Fourth Estate," *Harvard Civil Rights–Civil Liberties Law Review*, no. 2 (2011): 311–397, https://dash.harvard.edu/handle/1/10900863.

57. Ibid.

58. Benedetta Brevini, Arnie Hintz, and Patric McCurdy, eds., *Implications for the Future of Communications, Journalism and Society.*

59. Ibid.

60. Brant Houston, "Collaborations Spread Quickly, Giving Stories a Broader Reach," *IRE Journal*, Spring 2010, https://www.ire.org/publications/ire-journal/search-journal-archives/2029/.

61. Sarah Stonbely, "Comparing Models of Collaborative Journalism."

62. Ibid.

63. SF Homeless Project, https://sfhomelessproject.com/.

64. News Integrity Inititive, https://www.journalism.cuny.edu/centers/news-integrity-initiative/.

65. ElectionLand, https://projects.propublica.org/electionland/.

66. Rick Edmonds and Amy Mitchell, "Journalism Partnerships: A New Era of Interest," Pew Research Center, December 4, 2014, https://mediaimpactfunders.org/journalism-partnerships-a-new-era-of-interest/.

67. Ibid.

68. Sarah Stonbely, "Comparing Models of Collaborative Journalism."

69. Database: Search, Sort and Learn about Collaborative Journalism Projects from around the World, https://collaborativejournalism.org/database-search-sort-learn-collaborative-projects-around-world/.

70. Ibid.

71. Rodney Benson and Erik Neveu, *Bourdieu and the Journalistic Field* (Malden, MA: Polity Press, 2005).

72. Documenting Hate, https://projects.propublica.org/graphics/hatecrimes.

73. The Trust Project, https://thetrustproject.org/.

74. Stanford Open Policy Project, https://openpolicing.stanford.edu/.

75. Center for Collaborative Journalism, https://ccj.mercer.edu/.

76. Muckrock, https://www.muckrock.com/about/.

77. Brown Institute for Media Innovation, https://brown.columbia.edu/.

78. Rick Edmonds and Amy Mitchell, "Journalism Partnerships: A New Era of Interest."

79. Ibid.

80. Charlotte Hess and Elinor Ostrom, "Ideas, Artifacts and Facilities: Information As a Common-Pool Resource," *Law and Contemporary Problems*, no. 11 (2011): 111–145, https://scholarship.law.duke.edu/cgi/viewcontent.cgi?article=1276&context=lcp.

81. Garret Hardin, "The Tragedy of the Commons," *Science*, no. 3859 (December 1968): 1243–1248, http://science.sciencemag.org/content/162/3859/1243.

82. Elinor Ostrom, Joanna Burger, Christopher B. Field, Richard B. Norgaard, and David Policansky, "Revisiting the Commons: Local Lessons, Global Challenges," *Science*, no. 5412 (April 1999): 278–282, http://science.sciencemag.org/content/284/5412/278.full.

83. Carol M. Rose, "The Comedy of the Commons: Commerce, Custom, and Inherently Public Property," *University of Chicago Law Review*, no. 3 (1986): 711, http://digitalcommons.law.yale.edu/fss_papers/1828/.

84. Elinor Ostrom, *Governing the Commons: The Evolution of Institutions for Collective Action* (New York: Cambridge University Press, 1990).

85. Mancur Olson, *The Logic of Collective Action: Public Goods and the Theory of Groups* (Cambridge, MA: Harvard University Press, 1971).

86. Elinor Ostrom, *Governing the Commons: The Evolution of Institutions for Collective Action.*

87. Ibid.

88. Digital Library of the Commons at Indiana University, full database of case studies, https://dlc.dlib.indiana.edu/dlc/.

89. Bonnie J. McCay, *The Commons in the New Millennium: Challenges and Adaptation* (Cambridge, MA: MIT Press, 2003).

90. Lawrence Lessig, *The Future of Ideas: The Fate of the Commons in a Connected World* (New York: Vintage, 2001).

91. Bonnie J. McCay, *The Commons in the New Millennium: Challenges and Adaptation.*

92. Elinor Ostrom, *Governing the Commons: The Evolution of Institutions for Collective Action.*

93. Francesco Parisi, *Oxford Handbook of Law and Economics: Private and Commercial Law* (Oxford, UK: Oxford University Press, 2017).

94. Bonnie J. McCay, *The Commons in the New Millennium: Challenges and Adaptation.*

95. Joanna Burger, Elinor Ostrom, Richard B. Norgaard, David Policansky, and Bernard D. Goldstein, *Protecting the Commons: A Framework for Resource Management in the Americas* (Washington, DC: Island Press, 2001).

96. Charlotte Hess, "The Virtual CPR: The Internet as a Local and Global Common Pool Resource," Fifth Annual Meeting of the International Association for the Study of the Common Property, Syracuse University, 1995, https://www.researchgate.net/publication/45530367_The_Virtual_CPR_The_Internet_as_a_Local_and_Global_Common_Pool_Resource.

97. Yochai Benkler, "Commons-Based Strategies and the Problems of Patents," *Science*, no. 5687 (August 2004): 1110–1111, http://science.sciencemag.org/content/305/5687/1110.full.

98. Francesco Parisi, *Oxford Handbook of Law and Economics: Private and Commercial Law.*

99. Lawrence Lessig, *The Future of Ideas: The Fate of the Commons in a Connected World.*

100. Todd Sandler, *Collective Action: Theory and Applications* (Ann Arbor, MI: University of Michigan Press, 1992).

101. Charlotte Hess and Elinor Ostrom, "Ideas, Artifacts and Facilities: Information As a Common-Pool Resource."

102. Elinor Ostrom, *Governing the Commons: The Evolution of Institutions for Collective Action.*

103. Electronic Frontier Foundation, https://www.eff.org/issues/net-neutrality.

104. Pablo J. Boczkowki and C.W. Anderson, *Remaking the News: Essays on the Future of Journalism Scholarship in the Digital Age.*

105. Ibid.

106. Charlotte Hess and Elinor Ostrom, *Understanding Knowledge As a Commons.*

107. Paul Starr, *The Creation of the Media: Political Origins of Modern Communications* (New York: Basic Books, 2004).

108. Yochai Benkler, "A Free Irresponsible Press: WikiLeaks and the Battle Over the Soul of the Networked Fourth Estate."

109. Charlotte Hess and Elinor Ostrom, *Understanding Knowledge As a Commons.*

110. Ibid.