

During the 1990s, online technologies in general and the World Wide Web in particular captured America's imagination with extraordinary intensity. This was expressed in an array of statements about major societal transformations, such as the creation of virtual communities and the coming of a new economy. In an influential book about virtual communities, Howard Rheingold argued that "whenever [computer-mediated communication] technology becomes available to people anywhere, they inevitably build virtual communities with it, just as microorganisms inevitably create colonies" (1994, p. 6). Similarly dramatic words have been uttered about the economy. "From the whirlwind of the dot com firms emerged a new economic landscape," wrote Manuel Castells (2001, p. 66). Castells added that, by resorting to the Internet "as a fundamental medium of communication and information-processing," business "adopts the network as its organizational form." "This sociotechnical transformation," he continued, "permeates throughout the entire economic system, and affects all processes of value creation, value exchange, and value distribution." (ibid.)

Discourse about the potential implications of online technologies and the World Wide Web for the mass media has also had a drastic connotation, raising the specter of radical consequences for the production and the consumption of news. Concerning news production, John Pavlik has suggested that the convergence of computers and telecommunication has brought forth a "new media system [that] embraces all forms of human communication in a digital format where the rules and constraints of the analog world no longer apply" (2001, p. xii), and that these technologies are "rapidly rewriting the traditional assumptions of newsroom organization and structure" (ibid., p. 108). Regarding news products and their consumption, Nicholas Negroponte has contended that "being digital will change the economic model of news selections, make

your interest play a bigger role, and, in fact, use pieces from the cutting-room floor that did not make the cut on popular demand” (1996, p. 153). This widely debated idea of news personalization has left some scholars concerned about its potentially negative impact on civil society. For instance, in a book suggestively titled *republic.com*, Cass Sunstein has written that “a market dominated by countless versions of the ‘Daily Me’ would make self-government less workable [and] create a high degree of social fragmentation” (2001, p. 192).

Two themes cut across these and related reactions to what was initially called “cyberspace”: (1) the predominance of accounts that concentrate on the effects of technological change and pay much less attention to the processes generating them and (2) the pervasiveness of analyses that underscore the revolutionary character of online technologies and the web and overlook the more evolutionary ways in which people often incorporate new artifacts into their lives. Paradoxically in view of its claims to novelty, this focus on revolutionary effects was also common during the early years of other major developments in mass media technology. Early witnesses of movies worried that they were going to irreversibly damage the moral character of the population by fostering both inactive use of time and primitive passions, to the point that authorities occasionally closed down theaters. The popularization of radio was also accompanied by strong claims about its “social destiny” (Douglas 1987, p. 303), including the end of demagoguery, the advent of a more reflexive polity, and the rise of national unity in a country of growing diversity.

As with the case of movies, radio, and other major developments in the history of mass media technology, the focus on revolutionary effects has played a valuable role in raising our sensibility about the potentially radical consequences that online technologies and the web may have in the contemporary media landscape and in contemporary society at large. However, this focus has also been limited and limiting for at least two reasons.

First, it has made less visible that these effects derive not from how the technology’s perceived properties fit anticipated social needs, but from the ways actors use it. The difference between these two modes of understanding the effects of technology becomes particularly evident when we look at the unforeseen uses of new artifacts in the history of mass media. For instance, the pioneer companies of recorded sound sold their first units as devices for recording and replaying the outcome of a common domestic activity: people playing musical instruments at home. However, in a short time, people began using phonographs to play music per-

formed elsewhere, thus contributing to the birth of today's recording industry. The firms that did better were those that could shift focus from artifact makers to content producers.

The second limitation of the focus on revolutionary effects is that history also tells us that most of what ends up becoming unique about a new technology usually develops from how actors appropriate it from the starting point of established communication practices. The books published in the first decades after the invention of the printing press drew heavily from the content and the narrative traditions of oral storytelling, as well as from the layout and the production techniques of the hand-copied manuscript. Over time, this evolutionary appropriation of printing technology led to the construction of a communication artifact with the then-unique features of standardization and mass reproducibility—an artifact whose widespread adoption has been associated with such major transformations as the coming of the nation-state and the rise of modern science.

In this book, as an alternative to the dominant concern with technology's revolutionary effects, I look at the practices through which people working in established media appropriate technological developments that open new horizons and challenge their ways of doing things, and the products that result from this process. I pursue this alternative route not because I think the mass media's adoption of the web may not have revolutionary consequences but precisely because the potential for these consequences appears to be so significant that it is necessary to examine the often more evolutionary processes whereby they may or may not arise. I do this through a study of how American dailies have dealt with consumer-oriented¹ electronic publishing since the early 1980s, and I devote special attention to the emergence of online papers on the web in the second half of the 1990s. More precisely, I concentrate on technical, communication, and organizational practices enacted by print newspapers in their attempts to extend their delivery vehicle beyond ink on paper, such as the artifacts used to gather and disseminate information, the editorial conventions followed to tell the news, and the work processes undertaken to get the job done.

Online newspapers are a critical case of how actors situated within established media appropriate novel technical capabilities. Daily newspapers are a lucrative yet steadily declining business. At the end of the twentieth century, they exhibited profit margins higher than most industrial sectors and the largest share of advertising expenditures of all media. However, the indicators of progressive economic decline (among them

losses in penetration of the print product and share of the advertising pie, and difficulties in attracting and retaining younger readers) have not gone unnoticed by decision makers. These indicators have been linked to broader socioeconomic trends that have compromised the long-term viability of ink on paper as a delivery vehicle since the 1960s, such as rising newsprint and distribution costs, growing segmentation of consumption patterns, and the increased appeal of audiovisual media among younger generations.

In this socioeconomic context, it is not surprising that in the early 1980s American dailies began to experiment with personal computers, television, facsimile, and even regular telephones as alternative means of providing information to the general public. But none of these initiatives moved far beyond the experimental domain for more than 10 years. It was with the popularization of the World Wide Web around 1995 that millions of Americans began to get the news online, thus furnishing a hospitable context for the first widely adopted nonprint newspaper. This congruence of pressure to exploit the print business and pressure to innovate in the nonprint domain makes online papers a decisive case of how established media deal with new technologies.

The main thesis that results from this inquiry is synthesized in this chapter's title, "Emerging Media." It is that new media emerge by merging existing social and material infrastructures with novel technical capabilities, a process that also unfolds in relation to broader contextual trends. More specifically, online newspapers have emerged by merging print's unidirectional and text-based traditions with networked computing's interactive and (more recently) multimedia potentials. This has occurred partly as a reaction to major socioeconomic and technological trends, such as a changing competitive scenario and developments in computers and telecommunications—trends that, in turn, online newspapers have influenced. In contrast with the discourse about revolutionary effects that has been prevalent in the dominant modes of understanding online technologies and the web, my analysis shows innovations unfolding in a more gradual and ongoing fashion and being shaped by various combinations of initial conditions and local contingencies.

Beyond the specifics of online newspapers, this book's main thesis underscores the heuristic value of looking at history, locality, and process in the emergence of a new medium. A historical perspective helps the analyst to elicit the influence of extended longitudinal patterns in the ways actors deal with new technologies, thus achieving a more sophisticated assessment of continuities and discontinuities in media evolution.

A focus on local dynamics invites scrutiny of the contextually contingent factors that shape actors' appropriation of novel artifacts as well as their experience of the relevant trends in the larger socioeconomic and technological milieu. An emphasis on process contributes to making more visible the ongoing practices that generate the occasionally anticipated but more often unforeseen consequences of technological change.

In one of the earliest sociological accounts of print newspapers, Robert Park wrote: "The first newspaper in America . . . was published by the postmaster. The village post office has always been a public forum, where all the affairs of the nation and the community were discussed. It was to be expected that there, in close proximity to the sources of intelligence, if anywhere, a newspaper would spring up." (1925, pp. 276–277)

The once-new technology that evolved to become an established mass medium has recently begun to appropriate the first widely adopted non-print publishing alternative in almost 300 years, and the first major new medium since the advent of television. This has triggered all sorts of speculations about upcoming transformations, such as the death of print, the replacement of newspaper companies by multimedia firms, the demise of gatekeeping, and the rise of nonlinear storytelling. However, what will ultimately spring up out of this appropriation is to us hardly as foreseeable as subsequent transformations in the postal system and the then-nascent mass medium were to readers of the first American newspaper at the dawn of the eighteenth century. What is certain, though, is that analyzing the practices that enact these transformations will help us understand how they occur, as well as the consequences they may have for the media industry and the society in which it exists.

In the remainder of this chapter, to further situate this book's argument, I look more closely at the object of inquiry, introduce the theoretical and methodological tools employed to study it, and outline the content of the chapters to come.

From Ink on Paper to Pixels on a Screen

The print newspaper is one of the oldest elements of the contemporary media landscape. According to Smith (1979), the first daily publication was *Einkommende Zeitung* [*Incoming News*], established by the bookseller Timotheus Ritzsch in Leipzig in 1650. The first issue of a print paper in what would become the United States was published 40 years later, when Benjamin Harris launched *Publick Occurrences, Both Foreign and Domestick* in Boston (Mott 1962). That was also the last issue of *Publick Occurrences*.

Because one criterion for a newspaper is periodicity, historians such as Emery and Emery (1978, p. 25) have instead called the *Boston News-Letter*, which began publishing regularly in 1704, the “first genuine American newspaper.” The presence of newspapers in the United States has grown considerably since then. According to the Newspaper Association of America (2001), there were more than 1,400 daily newspapers in 2000, constituting a \$59 billion industry that employed more than 440,000 people. These papers produced an aggregate weekday circulation of almost 56 million copies read by close to 55 percent of the adult population of the United States.

With dozens of millions of new copies printed every day in the United States alone, it is not surprising to find dailies almost everywhere. From living rooms to bathrooms, from offices to factories, from hospitals to hairdressers, from libraries to coffee shops, and from trains to planes, current issues of print papers are almost omnipresent inhabitants of modern life. Their ubiquity extends to familiar practices unrelated to news and advertising needs: sellers use them to wrap fish, painters to cover carpets and floors, homeless people to warm their bodies, campers to start fires, waiters and waitresses to balance unruly tables and chairs. The creation of such a ubiquitous artifact has implications not only for the information realm but also for the natural environment: it is estimated that producing the Sunday edition of the *New York Times*, for example, consumes about 27,000 trees (Baldwin, McVoy, and Steinfield 1996).

The ubiquity of newspapers is tied to their significant standardization. Despite differences in yesterday’s and today’s news and advertisements, two recent issues of the same paper tend to look remarkably alike. The same happens with different newspapers, to the point that visitors to a foreign country are often able to get a basic sense of the day’s news by simply glancing at the local paper’s headlines.² This standardization results from a relatively stable ensemble of technical, communication, and organizational practices.³ Such a stable ensemble ensures that input consisting of information about often heterogeneous and unpredictable events is turned into a relatively homogeneous and predictable daily product.

This combination of age, ubiquity, and standardization endows the newspaper with a strong degree of familiarity. Perhaps none of its features is more taken for granted than the delivery vehicle, to the point of becoming part of the term used to designate the object. This is partly related to the fact that American newspapers have always told the news in ink on paper, despite experiencing significant technological change in

their three centuries of existence. There have been some attempts to find alternatives to ink on paper as a delivery vehicle, some starting before the “computer revolution,” such as the facsimile editions that the *Buffalo Evening News*, the *Dallas Morning News*, the *Miami Herald*, the *New York Times*, and the *St. Louis Post-Dispatch* published in the 1930s and the 1940s.⁴ But the bulk of these attempts have taken place since the 1980s, in response to socioeconomic trends such as decreasing penetration, increasing costs, readers’ moving to the suburbs and getting the news on the radio while driving to work, less homogenized consumer tastes’ challenging mass advertising, and less interest in print products among the younger segments of the population.⁵ Since then, American dailies began tinkering with options that utilized telephone, television, and/or computer technologies to communicate with their audience. However, none of these endeavors moved far beyond the experimental domain.

It was the popularization of the World Wide Web in the mid 1990s that furnished print papers with an information environment in which to create the first publishing alternative to ink on paper that achieved significant development and use. According to Abbate (1999), the Arpanet, the precursor of the Internet, became operational in 1969, and the World Wide Web was created in 1990. But their extensive social appropriation began around November 1993, when the National Center for Supercomputing Applications at the University of Illinois released Mosaic—the first graphical browser—for free download. Between 1993 and 1997, the number of web sites increased from 150 to 2.45 million (Sproull 2000), and of Internet hosts⁶ from 1.3 million to almost 22 million (Chandler 2001). In the United States, by the end of the 1990s, more than 40 percent of the adult population was online (Compaine 2000b), and online advertising expenditures for 1999 reached \$2.8 billion, equaling 1.3 percent of all media expenditures (Newspaper Association of America 2001).

At the time that “the web” began to become a household word in the United States, the print daily newspaper industry was quite profitable yet showing clear signs of economic decline. This decline resulted from, among other things, the trends that had propelled the industry to pursue consumer-oriented nonprint alternatives in the 1980s. On the positive side, revenues of newspaper companies grew at a 7.8 percent compounded annual rate between 1994 and 1998 (Moses 2000). In addition, the publicly traded newspaper-owning firms had a median return on revenue of 11.4 percent in 1997. This was relatively high in comparison with 3.3 percent for food, 6.1 percent for chemicals, and 9.0 percent for metal

products, to name but a few large industrial sectors (Compaine 2000a). Furthermore, in 1999 the newspaper industry still had the largest share, at 20.9 percent, of advertising expenditures of all media, followed by direct mail with 18.7 percent, broadcast television with 18 percent, and radio with 12.1 percent (Newspaper Association of America 2001). On the negative side, however, newspapers' share of the advertising pie had decreased to 20.9 percent in 1999 from 29 percent in 1970 (Picard and Brody 1997). Circulation figures also looked troublesome: for instance, daily newspaper circulation per 1,000 population declined from 356 in 1950 to 305 in 1970 to 234 in 1995, which amounted to a 34 percent loss in this 45-year period (Picard and Brody 1997). Making this decline even more problematic was that readership of print newspapers was less prevalent among younger people, raising the specter that the decline might only accelerate in the coming decades as the population aged. For example, in 2000 slightly more than 40 percent of people between the ages of 18 and 34 read a newspaper daily basis, versus 53 percent of those between the ages of 35 and 44 and 66 percent of those between the ages of 55 and 64 (Newspaper Association of America 2001).

Thus, it is not surprising that many print papers launched online editions on the web during the second half of the 1990s. A handful of U.S. papers had published on the web before 1995, but this was a small number compared to the 175 that had built sites by the end of that year ("Number of papers with online edition tripled," *Editor & Publisher*, February 24, 1996, p. 39). Developments continued to move at a fast pace. A list compiled by Jackson and Paul (1998) in June 1997 included 702 U.S. dailies with web operations, almost half of the dailies in the country, and 2 years later only two of the 100 largest dailies lacked online editions on the web (Dotinga 1999). Usage of papers' sites also increased dramatically during the second half of the 1990s. For instance, the Internet traffic auditing firm Media Metrix reported that USA Today.com had 2.5 million visitors to its web site in December 1998 (Outing 1999b).⁷ Three months later, Allegra Young, USA Today.com's Director of Strategy Research, stated that "on a typical weekday, the website has been averaging 923,000 unique users," and Bernard Gwertzman, editor of the New York Times on the Web, estimated that the online paper's usage was increasing by approximately 50 percent every 6 months (Outing 1999b).

Print papers' attempts to innovate on the web while still exploiting the print business provide me with a privileged window through which to examine the appropriation of novel technical capabilities by actors situ-

ated within established social and material infrastructures. Furthermore, the challenge of transforming an artifact so deeply ingrained in the everyday culture of contemporary industrialized societies brings to the fore the tensions between change and permanence that are at the heart of these appropriation practices. In addition, the combination of pre-web technical alternatives with a qualitatively different level of activity after 1995 constitutes a fruitful starting point for eliciting the dynamics of continuous and discontinuous phenomena by placing recent innovation processes within more extended patterns of change.

Theoretical and Methodological Considerations

Scholars who study technological and social change have often espoused relatively unilateral causal views, concentrating on technology's social impact or (especially in recent decades) on its social shaping. In this sense, the process of inquiry has, *a priori*, fixed either the technological or the social and turned it into an invariant explanans. However, recent work has demonstrated that material and nonmaterial elements originate, endure, and decay as a result of situated and interrelated processes of construction.⁸ This kind of work seeks to "identify processes of the mutual shaping of society and technology, rather than to explain the social shaping of technology and the technical building of society" (Bijker and Bijsterveld 2000, pp. 485–486). Though this recent work has emphasized various empirical foci and conceptual dimensions, at least three common themes have been explored in studies of this type: actors' simultaneous pursuit of interdependent technological and social transformations, the ongoing character of this process, and the importance of the historical context in which it unfolds.

First, actors engaged in innovation tend to pursue interdependent technological and social transformations simultaneously. That is, they do not concentrate on either shaping the artifact or taking advantage of its social effects; they undertake both sets of actions at the same time. In one application of this insight to the study of media artifacts, Pinch (2001) has shown the extent to which the main actors involved in the construction of the analog music synthesizer simultaneously tinkered with its material elements, sound capabilities, multiple stakeholders, selling strategies, and distribution networks. Thus, because attention to the making of artifacts reveals the parallel development of their conditions for diffusion, "it is a mistake to think of a market as somehow miraculously coming into being with a new product or somehow waiting for the right

product to come along. . . . [Markets] have to be actively constructed.” (Pinch 2001, p. 392)

Second, the interweaving of technology and society is an ongoing process. Hence, the shaping of an artifact does not stop after the emergence of a dominant design, and the conditions for the cultural consequences of its use start being created long before its initial deployment. Moreover, in this continuous process, partial outcomes at an earlier stage influence events at a later phase. An illustration of this matter in the case of media can be found in a study I conducted on the making of national identity and information infrastructures in the Argentine Mailing List, an electronic mail distribution list of Argentines living abroad (Boczkowski 1999a). I have shown that narratives of nationhood triggered technical transformations which then invited unexpected social changes that also ended up destabilizing prior material arrangements. Hence, I have suggested that a mutual shaping perspective is best suited to capture the sociomaterial dynamics of a communication environment such as the Argentine Mailing List.

Third, cultural and material changes do not proceed in a historical vacuum, but are influenced by the legacy of processes that preceded them. In other words, these changes do not occur “de novo” but are “the products of long historical processes that embed past contestations and settlements” (Reardon 2001, p. 6). Hence, the analyst has to look not only at ongoing transformations in the artifact under study, but also at related dynamics that happened before (sometimes long before) such an artifact came into being. An example of this issue concerning communication technologies is Kline’s (2000) examination of how rural populations adopted the telephone in the United States. Kline has described how these populations used the telephone not only in some of the ways intended by designers, but also in entirely new modes⁹ such as “visiting” on the party line. These unanticipated practices were strongly dependent on the history and culture of rural life, and the manufacturers and telephone companies that recognized this fact altered the original designs to accommodate users’ preferences. Therefore, Kline (*ibid.*, pp. 52–53) has concluded that these “joint actions reinvented the telephone—both technically and socially—as they wove it into the fabric of rural life. Farm people used the telephone primarily to extend existing communication practices.”

In this book I view the appropriation of nonprint publishing options by American dailies and the emergence of online newspapers as a new medium through this lens of the mutual shaping of technological and

social change. Following Lievrouw and Livingstone (2002, p. 7), I use the word ‘media’¹⁰ to mean “information and communication technologies and their associated social contexts, incorporating: the artifacts or devices that enable and extend our abilities to communicate, the communication activities or practices we engage in to develop and use these devices, and the social arrangements or organizations that form around the devices and practices.”

Media innovation unfolds through the interrelated mutations in technology, in communication, and in organization. I make sense of any of these three elements in the context of its links to the others, much like a triangle in which the function and meaning of any one side can be understood only in connection to the other two. To aid in this endeavor, I draw from conceptual resources originally developed in the fields more centrally concerned with each side of the triangle: science and technology studies, communication and media studies, and economic sociology and organization studies.¹¹ By locating the analytical gaze at the intersection of these usually separated fields, I show the existence of a deep ecology that links technology, communication, and organization. A new medium is what results from this ecology. Thus, understanding a new medium requires weaving a heterogeneous conceptual fabric able to illuminate the multiple elements and their complex relationships.

From this vantage point I make sense of data gathered through both ethnographic and historical methods. (See the Appendix for a more complete description of the research design.) To begin, I conducted case studies of projects undertaken by three online newsrooms aiming to exploit the web’s capabilities as an information environment. I focused on these projects because, though not representative, they nonetheless expressed with great intensity the dynamics involved in appropriating novel technical capabilities from the starting point of established socio-material infrastructures. The projects are the New York Times on the Web’s Technology section, the *Houston Chronicle’s* Virtual Voyager, and New Jersey Online’s Community Connection. (New Jersey Online is a joint initiative of the *Newark Star-Ledger*, the *Trenton Times*, the *Jersey Journal*, and the television station News12 New Jersey.) The Times on the Web’s Technology section aggregated all the print *Times’s* technology stories and added new content created for the online edition. Virtual Voyager produced multimedia packages of general-interest events. Community Connection was a free web publishing program for New Jersey nonprofit organizations. I spent between 4 and 5 months per case. I observed the work practices of those most directly related to the three projects under study and

conducted 142 interviews with relevant actors, in addition to hundreds of informal conversations with my interviewees and others.

I also examined larger trends in the history of consumer-oriented electronic publishing initiatives by American dailies, from their computer-based efforts of the early 1980s to their use of the web in the late 1990s. To this end, I undertook archival research of the newspaper industry's trade publications from 1969 to 1999 and complemented the findings from these publications with secondary sources. Embedding ethnographic accounts within a historical sensibility helps to situate fine-grained but temporally limited case studies within more extended patterns of continuity and disruption. Furthermore, my narrative also aims to contribute to a history of media's recent evolution. Although this record-keeping function is always an important part of social inquiry, its relevance increases during the emergence of a new medium for two reasons. First, the influence of previous cultural forms and the number of paths pursued are much less visible after a new medium becomes more established. Second, the speed and scope of the technological and social changes accompanying the evolution of online newspapers have posed special challenges for the actors' own record keeping and the analysts' empirical work.

Outline of the Book

This book looks at the practices enacted by actors situated within established media to appropriate new technologies, and the new media that result from this process. I address these phenomena through a study of the attempts of American dailies to extend the delivery vehicle beyond ink on paper, with a special focus on online newspapers on the web. The overall result of this inquiry is captured in the notion that new media emerge by merging existing sociomaterial infrastructures with novel technical capabilities and in the notion that this evolution is influenced by a combination of historical conditions, local contingencies, and process dynamics. To articulate these general notions more concretely in relation to the data, I structure my account of the emergence of online newspapers in two dimensions: empirical findings about patterns of innovation shaping the different practices undertaken by the actors, and analytical insights on the construction, products, and use of media.

Two patterns receive particular attention: print newspapers' culture of innovation and online newsrooms' innovation paths.

First, American dailies have seen the recent developments in information technology through the lens of print and have tended to appropri-

ate them under the assumption that the future would be an improved, but not radically different, version of the present. For example, they have often taken limited advantage of the multi-directional information flows afforded by networked computing, thus expanding the unidirectional mode prevalent in the industry but mostly preserving it. That is, interactivity has not been incorporated from the clean slate of a technology-driven future, but it has not been ignored either. The consequences of this particular culture of innovation have been twofold. On the one hand, print's forays beyond ink on paper have often resulted in artifacts not as innovative as those of competitors less tied to traditional media. On the other hand, the cumulative outcome has been one of tremendous change: by the end of the 1990s, online papers on the web were very different from their print counterparts.

Second, the innovation paths followed by online newsrooms trying to realize the web's interactive and multimedia capabilities have been shaped by three factors anchored in the world of print: the relationship with the print newsroom, the definition of the editorial function, and the representation of the public. Various permutations of these factors have led to different innovation paths and resulting artifacts. The endeavors that have been more successful in realizing the web's capabilities have articulated limited alignment with the print newsroom, enacted an editorial function structured around alternatives to traditional gatekeeping, and constructed their public as technically savvy information producers. In contrast, the endeavors that have ended up mostly reproducing print's modes on the web have taken place in online newsrooms that align themselves strongly with their print counterparts, structure editorial work along the lines of gatekeeping, and represent the intended end users as technically limited information consumers.

Eliciting these patterns of innovation yields three analytical insights about the construction of media, the products that result from this process, and their adoption by users. First, my inquiry suggests that the newsroom is a sociomaterial space in which artifacts matter greatly in how information is created, in who is involved in its creation, and in how the intended consumers are inscribed into the final product. To overlook the materiality of editorial work runs the risk of either missing important dynamics or misunderstanding their causes and implications. Second, because the results of newsroom practices are locally contingent, focusing exclusively on these products—the elements that constitute them, the logic governing their relationships, and the links to the larger context—and disregarding their production processes may lead analysts

to misread necessity into the outcomes of contingency. Third, this study indicates that how users take up online news products is shaped by features of these products created during their production. Thus, making sense of users' online consumption of these products depends substantively upon their mostly offline construction.

To make the case for the notions that new media emerge by merging existing infrastructures and novel capabilities, and that this is best understood by emphasizing history, locality, and process, the remaining chapters present these empirical findings and analytical insights as follows.

Chapters 2 and 3 focus on how the U.S. newspaper industry dealt with consumer-oriented electronic publishing in the 1980s and the 1990s. Chapters 4–6 present three case studies of recent initiatives by online newspapers aimed at exploiting the web's interactive and multimedia potentials. Chapter 7 is devoted to drawing general conclusions and offering grounded reflections on the changing new media landscape.

Chapter 2 focuses on American dailies' attempts to go beyond ink on paper, from the early computer-based efforts to the popularization of the World Wide Web. Two major developments characterized this period. First, the 1980s was a decade of exploration: dailies tinkered with a diversity of delivery vehicles, information infrastructures, and content options, and they learned about the commercial feasibility of these endeavors by studying how users responded to them. Second, the first half of the 1990s saw a progressive narrowing of nonprint alternatives, and by 1995 American dailies had settled on the web as their consumer-oriented information environment of choice. Although newspapers continued to explore most of the other technical alternatives, the web clearly took center stage.

Chapter 3 analyzes how things evolved during the first 5 years of online newspapers on the web. This was a time of feverish activity. American dailies pursued multiple avenues in their web efforts, some merely reproducing print content on their sites, some significantly enhancing it with the addition of new information features, and some creating entirely new material using interactive and multimedia tools. The overall consequence of this multiplicity of innovation practices was a form of hedging in which newspapers diversified their bets by moving in many different directions.

The accounts presented in chapters 2 and 3 begin to elicit the ways in which American dailies have dealt with consumer-oriented electronic publishing. But, despite their value in illuminating longitudinal patterns, these accounts are less suited to shedding light on the concrete practices

through which the established repertoire of print intersects with the novel horizons available in a digital networked information environment. In chapters 4–6, I examine some of these practices by presenting in-depth case studies of initiatives by online newsrooms aimed at creating content on a regular basis and taking advantage of some of the web’s distinctive potentials. The analysis of these case studies concentrates on interdependent practices in three dimensions. First, I examine the communication strategies enacted in online newsrooms, concentrating mostly on gathering, processing, and delivering editorial content. Second, I consider the configuration of information architectures, focusing on media choice, interface design,¹² information and message flows, and use and development of publishing tools. Third, I discuss the coordination processes that tie together the work relationships of online newsroom personnel with their counterparts in the print newsroom, their advertising and marketing colleagues in the new media division, and their users when they co-produce content featured on the site.

Chapter 4 looks at the Technology section of the New York Times on the Web, a new daily section that aggregates all the technology stories that appear in various sections of the print paper with original content created for the web. This project began in 1996 as the online paper’s effort to tinker with the novel potentials of online journalism. By the time I entered the field, more than 2 years later, it had evolved into a product that shared many of the characteristics of print journalism. The project had begun as an attempt to move beyond the translation of print into HyperText Markup Language (HTML)¹³ by exploring the new territory of online journalism, but it turned into the translation of HTML into print by mostly reproducing print’s ways in the creation of original content for the online environment. The chapter’s oxymoronic title, “Mimetic Originality,” aims to capture the tensions between permanence and change at the heart of this matter. My analysis suggests that the processes whereby the creation of newness turned into the creative production of sameness resulted from reproduction of print practices in the online newsroom, from an information architecture that reinforced continuity between print and online technologies as publishing environments, and from an articulation of alignment between the desk in the online newsroom in charge of the section and its relevant counterparts in the print newsroom.

Chapter 5 focuses on the *Houston Chronicle’s* Virtual Voyager project. Launched in April 1995, it used multimedia tools to foster vicarious experience in the form of “virtual voyages” by enabling users to be as close to

the scene as possible without being there physically. The evolution of Virtual Voyager exhibited a seemingly contradictory trajectory. Successful with users and industry colleagues, it nonetheless resulted in commercial failure. These were not contradictory outcomes, but the two sides of the same innovation coin. The success with users and industry colleagues was mostly premised on tinkering with multimedia storytelling to an extent almost unparalleled during the early years of online papers on the web. This, at the same time, created a gap between the less innovative expectations and routines of the marketing and advertising staff and the sponsors they were trying to attract. The same processes that led users to be almost on the scene without actually being there also made corporate and advertiser constituencies experience multimedia journalism without fully appropriating it. More precisely, my study attributes this double sense of vicariousness to a combination of print, audiovisual, and information systems practices in editorial work, an information architecture that inscribes an exclusion of technically unsavvy users, the almost complete absence of alignment with the print newsroom, and a fluid coordination of productive activities by online newsroom personnel with the “creative” but not with the “business” groups.

Chapter 6 is devoted to Community Connection, a project undertaken by New Jersey Online to provide free web publishing services to non-profit organizations in New Jersey. I argue that enabling users to participate directly in content production results from an alternative regime of information creation that I call “distributed construction” to signal its difference from the highly centralized mode of traditional media. My study suggests that this alternative regime involves tying together an artifact configuration that inscribes users as co-producers and enacts a multiplicity of information flows, work practices more geared to opening than controlling the gates of the site, and coordination mechanisms that support relationships of interdependence and multiple rationalities.

Chapter 7 is devoted to general conclusions. It starts by summarizing the empirical findings about patterns of innovation in online newspapers and the general analytical insights they yield into the construction, products, and adoption of new media. On the basis of these findings and insights, I conclude by offering grounded reflections on two general trends that mark the current new media landscape: the dynamics of convergence and the reconstruction of news. The proliferation of technical, communication, and organizational options in the development of online newspapers is tied to issues of media convergence, one of the most pervasive but least empirically examined tropes in new media discourse.

Most convergence rhetoric has assumed that technical changes would drive all media into a common form regulated by a single logic and has speculated about how best to characterize this product and its social implications. In contrast, my study shows that online newspapers have unfolded by merging print's old ways with the web's new potentials, in an ongoing process in which different combinations of initial conditions and local contingencies have led to divergent trajectories. This puts the argument back where it started, taking it from the "revolutionary effects" discourse associated with the convergence metaphor to the "evolutionary processes" ideas encapsulated by this chapter's title. Furthermore, online papers have been partially altering news production and products. More groups than in the typical case of print and broadcast media, from technical specialists to regular consumers, have more direct impact on the shaping of news, and this puts a premium on the coordination of tasks, goals, and resources across these groups. The content and the form of news are becoming more audience-centered, are being communicated in ongoing conversations, and are adding a micro-local focus. Thus, the news of online news is, among other things, that the news itself seems to be changing in its expansion from ink on paper to pixels on a screen.