

Cold Comfort: Lessons for the Twenty-First-Century Newspaper Industry from the Twentieth-Century Ice Industry

**Andrew Duffy, Rich Ling,
and Oscar Westlund¹**

NANYANG TECHNOLOGICAL UNIVERSITY AND
UNIVERSITY OF GOTHENBURG

duffy [AT] ntu.edu, rili [AT] ntu.edu.sg and oscar.westlund [AT] jmg.gu.se

Abstract:

First cut from frozen lakes and later manufactured on an industrial scale, ice was, in the nineteenth and early twentieth century, big business. The arrival of domestic refrigeration spelled the end of this industry. The rise and fall of the ice industry offers lessons to the modern newspaper industry, which faces a similar threat. Drawing an analogy between the ice and newspaper industries in terms of innovation and organizational learning, we look at how both are/were hampered by investment in technology and identity, and affected by devolution of control into consumers' hands. Based on this, we suggest that the newspaper industry would benefit from links with heterogeneous rather than isomorphic partners to counterbalance routines that obstruct change, and just as refrigeration forced a reconceptualization of the concrete "ice" into the abstract "cold," newspaper organizations can re-imagine themselves around the services and values they provide, rather than the product of "news."

Keywords: Newspapers, Innovation, Internet, Journalism

This article uses the collapse of the ice manufacturing and distribution business in the early twentieth century as a lens through which to view the current situation among the newspaper industries of Western countries, particularly North America and Europe. Each industry involves the production and distribution of a commodity and a legacy technology that is superseded. The analogy is imperfect, but the alignments and the imperfections of

the comparison each offer guidance to news media managers, specifically in the area of organizational learning, which is the theoretical framework for this paper.

Our analogy is founded on the idea that both industries face or faced threats to their existence caused by new technology. The bigger question is how each industry responds or responded to such an existential challenge. The ice industry retreated, defending its core product; initially, the newspaper organizations of the United States and Europe did the same.² But, given the disastrous outcomes for the ice industry of such a defensive approach, we suggest that it would be more constructive for news industries to take a different approach, and propose two ways.

The first is to think in terms of the *affordances* of news rather than the commodity of a newspaper or a news story. It is here that the analogy with ice is uniquely instructive. Demand for frozen water (a saleable commodity) diminished even as demand for refrigeration (an affordance of that commodity) took off. Affordances, in this context, refer to the capabilities inherent in a product or technology that provide the potential for a particular action.³ This demand was met instead by emerging organizations offering new technology. Ice producers foundered; refrigeration companies thrived. For the news industry to similarly distinguish between the sold commodity (print newspapers) and the affordance of that commodity (information, entertainment, enlightenment, enhanced decision making in the democratic process) would offer a new way to approach the current challenge. The second way, which is connected to the affordances of news, is to focus on the benefits of a superior (as opposed to tainted) product. Impurities in ice left it vulnerable to the healthier alternative of mechanized refrigeration; just so, the emergence of the fake news stories, which have been such an issue in the 2016 US presidential election, offers legacy news an opportunity for product differentiation based on quality.

This article joins recent scholarship that has placed the current uncertainty in Western news industries in a historical perspective through a comparison with the early-twentieth-century ice industry.⁴ The analogy is imperfect—for example, it can be argued that newspaper journalism in the developed societies of North America and Europe consists of highly differentiated products that engender extreme loyalty among consumers, whereas ice is a simple commodity differentiated only by purity, service level, delivery, convenience, and consistency, although equally these aspects can differentiate one supplier of ice from another—but it offers some illumination for the newspaper industries, which are in need of new strategies. The article will first set the context by outlining the rise and collapse of the ice industry and then present concepts relating to organizational learning, which is the framework for the subsequent analysis and analogy.

The Rise and Fall of the Ice Industry

Ice has been used to preserve food for centuries. Until the 1930s, the cost of producing and distributing it was outweighed by the benefits of preventing the deterioration of food.⁵ Yet adding value was not enough to save it from decline. The ice industry has seen three phases: the “natural ice” period, industrial-scale mechanical ice production, and small local ice

producers. At first, in the early nineteenth century, natural ice was harvested from frozen lakes and rivers and shipped to warmer climates to store food and to cool drinks.⁶ The northeastern United States was a recognized source of ice, and there was a similar industry in the United Kingdom, but after outbreaks of typhoid fever were related to consumption of tainted ice, Norway became the premier exporter of ice to the United Kingdom as of 1900.⁷ In the 1880s, new technology—steam-driven mechanical ice production—allowed the year-round manufacture of clean, pure ice which was the death knell of the natural river- or lake-ice industry. The end of the natural ice industry in the United Kingdom came with sea blockade during World War I and about the same time in the United States.⁸ There were rearguard actions by the advocates of natural ice who claimed that mechanical ice was of lower quality and would melt faster, and who also encouraged the idea that manufactured ice was often tainted by leaked refrigerant—and indeed, leaks from refrigerators did cause some sickness. The industry was also characterized by a well-developed, widespread, and costly system of distribution to individual homes. A few decades later, the centralized, industrial mass production of ice was superseded by in-home electrical refrigeration which transferred control of “cold” from the hands of the “big ice” companies into the hands of the individual or home. By the turn of the twentieth century, domestic iceboxes—which held a block of ice and were the predecessors of mechanical refrigerators—had become common household appliances. They helped preserve food and thus contributed to public health, but they had their problems: they continually dripped, were the source of bad odors and contamination, and were thus vulnerable to technological innovation that overcame these problems. By the 1920s, this had arrived in the form of mechanical refrigerators, which had become small and inexpensive enough for widespread domestic diffusion.

Inevitably, as people bought electrical refrigerators, there was a squeeze on “big ice,” which sought to maintain its position vis-à-vis “the refrigerator problem” with a variety of strategies. In his 1922 presidential address to the National Association of Ice Industries, J. G. Black described the home electrical refrigerator as a menace. At the same meeting, delegates discussed, among other things, locking in customers by selling them subsidized iceboxes or subsidized ice delivery to block them from buying a mechanical refrigerator, producing films and developing advertising campaigns extolling the virtues of iceboxes, encouraging local newspapers to write about the positive characteristics of iceboxes, and working with the government and insurance companies’ codes for accident prevention aimed at mechanical refrigerators.

The breadth and variety of these efforts, ranging from good-hearted public service to developing a better industry image and to questionable bending of regulatory tools, underscores how seriously the ice industry took the threat of in-home refrigerators. It shows how they firmly resisted the new technologies rather than embracing them.⁹ Several large-scale producers called for ice to be classified as a public utility on the same footing as railroads, electricity, taxis, and telephones. In the United States, ice manufacturers went to court to have their product declared a common good and hence protected. Instead, the courts found against them.¹⁰ Nevertheless, several state legislatures passed laws with the intention of fixing the price of ice, which had the effect of favoring the big producers, limiting competition, and undercutting the smaller local electrical production facilities. These moves, of course, were futile rearguard actions since the real transition was from iceboxes to mechanical

refrigerators. The effort by the large-scale producers to regulate away the smaller local entrepreneurs did not secure their future. The ice industry started to melt away, and by the 1940s, it was effectively finished.¹¹

Analogy with News Industries

The changing fortunes of the ice industry is a narrative of technological advance and consumer preferences. The industry saw a shifting of investment, inability to adapt, attempts at protectionism stimulated by competition, issues of quality control, and a high cost of distribution. In 1939, *Time* magazine could report that “In 1929 the U.S. ice business sold 58,000,000 tons for \$345,000,000—a record. Six years later only 60 percent of its business was left and the electric refrigerator had doubled its sales.”¹² All of these occurrences resonate with the current situation in Western newspaper industries. Then as now, technological advances have had social implications alongside the managerial. As with the changing face of print news, the collapse of the ice industry was connected to a transformation in customer lifestyle and openness toward alternatives.

Similarly, the digital revolution of the early millennium threatens to take production and distribution of news away from legacy newspapers, magazines, and TV organizations.¹³ Consumers can now access news in the quantities and at the times they want. In addition, they can sometimes contribute to its production through participatory journalism or through posting comments on the content produced by others, as legacy news media in some parts of the world have begun to lose their professional control in favor of an emerging logic of open participation.¹⁴ Moreover, aging readerships, migration of advertising revenue away from print media, the rise of “fake news,” and the challenge from online news aggregators such as Google News have all conspired to create a predicament in the industry.¹⁵

Today, despite changes in production and distribution, ice is readily available in advanced economies. Similarly, demand for news may increase or decrease, but it will remain. Importantly, news journalism plays an important function in democratic societies. The old ice model was built around sales/delivery of ice blocks to the available technology (i.e., the icebox). Now individuals manufacture only the small amount of ice they need based on newer technology (the domestic refrigerator). Similarly, the bulky newspaper that was built around old technology of print and physical delivery is in the throes of being superseded by the personalizable digital version delivered and consumed electronically.¹⁶ Ice production became fragmented, shifting from central plants to each household being responsible for its production. News, too, is becoming fragmented, with bloggers, citizen journalists, community journalists, legacy journalists, and technological actants such as news aggregators all contributing. Other media and industries follow a comparable pattern. Radio has taken many forms. Spotify might be considered part radio station and part music retailer/distributor, fulfilling functions of both its predecessors, but being significantly different from either. Movies, similarly, have a fragmented sales model, with revenue generated by cinema release, DVD release, TV rights, and streaming online sales, as well as merchandising spin-offs. It is also worth considering the evolution of ice. It has not been abandoned. There is still demand for it, produced individually in a domestic refrigerator, bought in

2.5-kilo bags from convenience stores for parties, or manufactured in cube form on a grander scale for restaurants. Just so, legacy news is likely to continue in some form alongside new media models; this article suggests how legacy news might successfully negotiate that form, assessed through the lens of organizational learning.

Organizational Learning and News Industries

Industries are composed of a number of organizations with similar products and/or services, serving the same or different markets. These organizations are assemblages of individuals and interests, all of which have economic structures and business models, human and technological resources, as well as corporate cultures and identities, and all developed in a particular regulatory context.¹⁷ All of these become salient when considering how an industry reacts to change brought about by organizational learning. There are two relevant and largely informal forms of organizational learning: (1) experiential and (2) vicarious learning. Simply put, theories of experiential learning posit that organizations learn from their experiences. Thus, history and routines are salient to how organizational members learn.¹⁸ There is continuous adjustment to shortcomings and errors.¹⁹ While allowing for change, these experiences may also become path dependencies, channeling not only how newspapers, and for that matter the ice industry, think and act, but also how they make investments in expensive capital equipment.²⁰ Experiential learning is thus based on existing routines which are held in a collective memory that is inherent not just in organizations, but also in the industry as a whole.

Vicarious learning essentially refers to how organizations learn from others, typically in an informal way. In isomorphic industries—where different organizations take on highly similar routines, structures, work practices, and goals, such as the news industry—vicarious learning is also commonplace. In newspaper industries, vicarious learning takes place through exchanges between news organizations, among journalists, and also businesspeople and technologists.²¹ Similar to learning from experience and routine, vicarious learning can entrench existing practice, particularly among organizations that feel under threat and wish to reinforce ideas of legitimacy. The way the ice industry closed ranks against the refrigeration industry is representative of this kind of organizational behavior: behavior which is analogous to the reactions of the legacy newspaper industry today facing the challenge of digital media. To examine these two forms of organizational learning—experiential and vicarious—we adopt and adapt a well-used analytical tool, the PEST analysis.

PEIST Analysis

Siles and Boczkowski have examined the economic, technological, and social factors that have precipitated the newspaper crisis.²² More broadly, widely used theories on the organization and its environment focus on these and also the political factor (Meyer and Scott 1983), which altogether constitute the elements of the PEST model. In this article, we

have reconfigured that model for our purpose, applying what we call a PEIST analysis: *Political, Economic, Industry Identity, Social and Technological*. The introduction of a specific *industry identity* element is done in recognition of the strong values that define the news media and which affect reluctance to adopt new professional and management behaviors.

Political Dimension: Government Intervention

The political dimension encompasses the politics, laws, and policies that affect an industry and its stakeholders. Faced with change, an organization has the choice to learn and adapt to a new environment, or to attempt to bend that environment to its own demands. “Big ice” took the second option, and as the industry entered its twilight years, it attempted to secure governmental regulatory protection. Among other benefits, it argued that it contributed to public health and the economy by preserving food and by reducing wastage—arguments that were equally true (and affordances that were equally valid) for mechanical refrigeration.

News, by comparison, is lauded for its affordances of democratic potential, watching over the state, and informing the electorate.²³ And while ice manufacturers directly lobbied politicians to protect their industry, newspaper industries in different geographical markets have made more oblique approaches and initiatives. There have been calls—some satirical, others not—for the use of public resources to support journalism, for two reasons. First, maintaining an informed electorate is a central justification for journalism.²⁴ Second, there is often the idea that journalism helps to maintain local cultures; in countries with dominant and secondary languages, they are seen as an important way to keep these languages alive.

Indirect state support of newspapers is quite widespread. In France, every individual over eighteen receives a free subscription. In the United States, newspapers receive help in the form of postal subsidies, and from 1792 until recently, 75 percent of the distribution costs of the newspapers were subsidized.²⁵ The Nordic countries of Europe, which have among the highest newspaper circulations in the world, have since long implemented state funding of news journalism. Denmark, Norway, and Sweden have all in recent years performed official inquiries with the purpose of analyzing contemporary changes in the mediascape, and how to best adapt their state support.²⁶ Altogether, many countries apply some form of indirect government support of newspapers via the purchase of advertisements, a lower value added tax (VAT) percentage rate, and announcements and mandated public notices regarding public hearings, regulations, and budgets, thus fulfilling the mission of the newspaper as being the source of information on government affairs. Nevertheless, in the United States, there is often a visceral reaction against any form of direct government support, as a matter of principle:

The gut reaction of a free-press proponent to any proposal calling for government funding and financial support of the major players in the U.S. newspaper industry surely would be one of both shock and abhorrence. How, after all, can the press play its much-ballyhooed watchdog role over the government when the government funds (and, therefore, indirectly controls) the press?²⁷

Economic Dimension: Structure and Business Models

The economic dimension concerns market dynamics and industry competition. This section will focus on structure and business models. Organizational learning theory also recognizes that companies do not exist in a vacuum, and they require a holistic understanding of associated factors, systems, and processes that affect the way they learn and what they learn. Capital investment is one such factor that has hindered both ice and news industries and obviated against agile reactions to change. A fundamental point in our analysis is that earlier regimes in both the ice and the legacy news industries had production processes that demanded large capital investment in the form of steam-driven ice production and expensive printing facilities, respectively. In addition, there were/are major labor-intensive logistical systems to distribute the product to a widely dispersed market. Operating this system demanded large investments and access to a large workforce. Thus, they were/are tied into the banking system: as newspapers in the United States floundered in 2008, for example, mergers and takeovers were driven by bankers looking for return on their investments rather than the pursuit of high-quality journalism.²⁸

To consider ice first, as the industry grew in the second half of the nineteenth century, it required major investment. Steam-driven refrigeration machines were ponderous devices that could weigh up to 220 tons and produced ice in a warehouse-sized facility.²⁹ They were also prone to leaks, and the escaping refrigerant (often ammonia) was both explosive and poisonous. With time, the systems became less toxic, easier to control, and more reliable and efficient. Thus, mechanical ice production became more hygienic, and production was more stable. However, the development of the electric motor meant that smaller facilities and later home-based refrigerators out-competed the larger facilities. With time, investors shifted their capital up the value chain from big ice companies to domestic refrigerator companies such as Frigidaire.

News organizations have been similarly encumbered with investment in printing presses and delivery systems. Turning to distribution, newspapers have clear echoes with the ice industry: a need to support an extensive delivery apparatus is a heavy cost that provides an advantage to emergent technologies unencumbered by such apparatus. The distribution network for ice was complex and fragmented, with both commercial consumers (such as butchers, fishmongers, breweries, and restaurants) and a domestic market. Residential customers were served by ice peddlers who delivered blocks of up to 100 lbs (45 kg) to the home. As the twentieth century progressed, around half of the cost to the customer was related to distribution.³⁰ Newspapers, meanwhile, went from manual distribution to truck delivery from central printing presses and a network of retail outlets, as well as a network of delivery boys and girls on bicycles.

Investment can also be in a business model that leads to entrenched corporate or industry-wide practices (“this is how we do things here”), which can be hard to change. The news business model relies on advertisers and circulation sales, which in turn rely on relationships with advertisers and readers that are built up over time. As a result, it does not emphasize agility, again echoing the case with large-scale ice manufacturers confronted with smaller refrigeration units. Revenue for many North American and European newspapers has diminished by half since the turn of the millennium.³¹ The loss

of advertisers to, for example, Craigslist, has ripped the heart out of the small-ads pages.³² There has also been a fragmentation of audiences, diverted from the one-size-fits-all model of the daily newspaper. Instead, customizable, web-based news aggregators have gained an advantage.³³ Microblogging sites such as Twitter, meanwhile, scoop even these news aggregation sites, leaving them ill-prepared for the sudden explosion of Web 2.0, and playing catch-up with their readers.³⁴ A variety of business models have emerged.³⁵ In 2012, for example, *Newsweek* announced that it was moving fully online, ending its print operations and their attendant costs. Just as the ice industry experimented with subsidized iceboxes and long-term subscriptions, the news industry has examined paywalls, not-for-profit models funded by nongovernmental organizations (NGOs), sponsorship, crowdfunding, crowd-sourcing, and public funding such as the BBC model, and a combination of all of these.³⁶

Industry Identity Dimension: Journalists' Roles Usurped

Alongside industry-wide or corporate identities, entrenched professional identities are a third factor that can act as a brake on an organizational learning to limit adaptability. Journalism has reacted badly to challenges. Far from using new technological affordances of newsgathering as a green light to move forward, the tendency has been to retrench into the comfort of existing job roles and norms. It is not alone, and both the ice and the news industry developed practices and a sense of self-worth based on an existing production process, which provided them with an institutional mission and an ideological rudder. However, clinging to these professional identities in the face of technical change hindered their agility. “Big ice” started to respond by attempting to better meet the consumers’ demand with their existing products rather than hitching their wagon to the new—quite literally, as the horses and carts that delivered the ice gave way to motorized vans.³⁷

Similarly, according to Mitchelstein and Boczkowski, journalists and newsrooms have been defensive of their traditions, which has been a hindrance in the problems they face.³⁸ Many journalists and editors, not surprisingly, are wary that their roles are being usurped. Many pundits and academics have voiced opinions on newsrooms having been slow to overcome entrenched work practices and attitudes, in the face of blogs, news aggregation websites, the rise of fake news, and the use of smartphone-armed citizen journalists who capture unfolding events.³⁹ This plays through to journalists working against integrating user-generated citizen content into the news.⁴⁰ In the words of Lowrey,

The industry has clung to institutionalized routines that traditionally have served news professionals, their organizations, and other community institutions that depend on news organizations . . . but which now may be undermining effectiveness in an era of flat, multi-node connectivity that bypasses traditional institutions.⁴¹

In many cases, uncertainty as well as the rapid development of technologies entrenches corporate caution and directs the trajectory of legacy news along existing management paths rather than toward blazing a new trail.⁴² But they can change, and Lowrey found that news organizations with a reader-centric mind-set were more likely to make substantial and long-term changes.⁴³

Social Dimension: Changes in Consumers' Lifestyles

As observed earlier, organizational learning takes place in the context of a larger social system, and this section brings forth the importance of changes in consumers' lifestyles. The dramatic social changes that accompanied the burgeoning wealth of the middle classes in late-nineteenth-century and early-twentieth-century Europe and the United States are more than matched by the social changes wrought by the internet. Then, the electrification of homes meant people could adopt a variety of devices, including the refrigerator.⁴⁴ Time brought about social changes, and in the 1920s and 1930s, wealthy women went from being managers of a staff that looked after the home, to being workers in their own home or (more charitably) managers of the home, aided by labor-saving devices such as the refrigerator.⁴⁵ Turning to the news, studies have shown that people still access news enough to have an overview of what is happening, but newspapers still struggle.⁴⁶ In a study of 12 UK national newspapers from 2007 to 2011, Thurman found that people spent less time reading the news both in print and via websites.⁴⁷ Younger readers are not picking up paper-based newspapers, and are disinclined to pay for online news, which makes the outlook for either form of news relatively poor.⁴⁸

In another social change wrought by the internet, some power has shifted from experts to amateurs. This has taken two significant forms, both of which are serious threats to legacy news. First, the internet empowers readers to navigate their own way through a variety of information of various qualities and calibers to compare what they read against other sources and to develop their own sense of the situation rather than relying on one primary newspaper or source.⁴⁹

Second, purveyors of false news—designed to look like real, albeit scandalous, news to attract shares and hence advertising revenue—can either damage the credibility of real news or offer an opportunity for differentiation. Just as tainted natural ice hastened the first transition in the ice industry, the widespread diffusion of tainted news can have profound consequences for legacy journalism.⁵⁰ Reaching further back into history, Eisenstein noted that the rise of the printing press in the fifteenth century facilitated the flourishing of valid as well as unsound science.⁵¹ The era saw growth in publications of astronomy as well as astrology, and chemistry as well as alchemy.⁵² These developments resulted in the academic peer-review system as a method to check the validity and empirical fitness of published material, as well as journalistic rituals of objectivity, accuracy, and fairness as markers of credibility and hence value. It is plausible to suggest that the current transition in journalism may mean that new forms of journalistic validation are wanting.

Technological Dimension: Production and Distribution

Finally, new technologies demand organizational learning as companies adapt either to incorporate the new technology or their own existing processes and technology to compete with other companies that have more actively embraced new technology. This article argues that the news industry would do better to take the first route, incorporating new technology, as, according to Siles and Boczkowski, a major factor precipitating the precarious situation in legacy news is changing technology, particularly in production and distribution.⁵³

With ice, smaller and more efficient facilities allowed manufacturers to streamline production. Similarly, digitization allowed journalists more efficient information collection, as well as cutting out or streamlining elements in the physical composition of the paper-based newspaper.⁵⁴ Nowadays, not only journalists but also other social actors, technological actants (e.g., systems, services), and audiences take part in the news production process.⁵⁵ However, this has also lowered the threshold for new entrants into the market who were able to eliminate many of the encumbrances of the legacy systems, bringing in more competition or eventually threats to the legitimacy of the entire news production system. The arrival of the new, neo-yellow, “fake” journalism, born of the speed of social media and its desire for virality-linked advertising revenue, has the potential to shake the very foundation of the journalistic enterprise. Equally, novelty brings opportunity as cooperating with or co-opting serious citizen journalism is a chance for mutually beneficial partnership.

The internet has also delivered an increased use of social media as a news source, akin to having a variety of places from which to procure ice, or different ways to refrigerate. Cooling can be done in trucks and trains, in shops and factories, as well as in homes, taking the production of “cold” away from the ice industry. Monitoring social media as a day-to-day source of news has similarly taken the power away from elite institutional news, and opened the door to less well-known sources.⁵⁶ Thus, although there is legitimate concern that the internet is weakening democracy by diminishing journalism, it is equally allowing for a greater variety of voices to be heard.⁵⁷ The ability to make both ice and news has been decentralized and placed in the hands of whoever has the technology. While in the case of ice, a tainted product could cause sickness, in the case of news, tainted stories have been associated with swaying elections.⁵⁸

News has long been produced along industrial lines; today, some traditional newsroom practices are outdated, but legacy news production is only slowly changing.⁵⁹ There is also a migration of journalists from legacy outlets to web-based news sites.⁶⁰ At the end of the day, there is a simultaneous downsizing of journalists and upsizing of technology-led journalism, resulting in journalism increasingly being shaped by technological actants alongside human actors.⁶¹

One anomaly is that whereas the legacy ice industries “caught cold” by not investing in the emerging new technologies, the news industry has actively engaged in the new technology, although without an adequate business plan to generate revenue from it.⁶² This was done reactively in response to competitors moving online, rather than proactively to open up new markets or to reach new readers, and often seeking short-term profits without a strategy long-term growth.⁶³ Despite venturing cautiously online, they remained rooted in what organizational learning theorists call a “competence trap” in which they become so expert in an inferior technology that they have less incentive to adopt a new, superior technology.⁶⁴

Conclusion

It would be overambitious to draw too many parallels between the ice and news industries, as each operated in distinctively different time periods, and on significantly different economic and political frameworks; moreover, as “big ice” has all but melted away, it would not

be a reassuring comparison. However, we have titled this article “Cold Comfort” in recognition that a comparison with the history of the ice industry offers some reassurance. The first way is to consider ice as an affordance—refrigeration—rather than as a commodity and to extend that conceptualization into news. Following organizational learning theory, news industries can learn by “encoding influences of history into routines that guide behavior.”⁶⁵ The demand for preserving food and preventing illness remained even though one means of achieving those ends waned. It was simply performed by other means. New technologies demanded a reorientation in the ice industry from making ice to making cold, a conceptual leap from the concrete to the abstract, from commodity to affordance. History has shown that the legacy ice industry was not equal to this challenge, limited as it was by an industrial path dependency. Just so, news journalism can learn from the failure of “big ice.”

News and newspapers are not the same thing, for all that they are conflated in the minds of many in the industry. Even news articles online broadly conform to a reporting format created and intended for print. Yet making a distinction between news and its affordances offers a direction for the industry. Siles and Boczkowski draw the distinction between saving newspapers, and saving the democratic function that they fulfil.⁶⁶ The functions of manufactured ice were amply fulfilled by refrigeration. It remains to be seen how web-based news sources can supersede the democratic function of newspapers, although research so far has not shown this as a likelihood.⁶⁷ Furthermore, Curran has suggested that the internet cannot save journalism as we know it.⁶⁸ Legacy media must therefore move beyond websites, apps, and tweets—which are newspapers by other means—to access the essential affordances of news. This offers an avenue for further research into exactly what these affordances are, and we suggest they might be classified according to who benefits from the affordances. So at a personal level, there is the affordance of confident decision making based on accurate and timely information; at an interpersonal level, social bonding and sharing of news stories; at a societal level, community connectivity and care based on shared knowledge and awareness of local problems, as well as the political management being strengthened by oversight from the press in its watchdog role; at a national level, greater engagement in civic participation and democratic involvement; and at an international level, the affordance of awareness of global issues leading to coordinated effort.

The legacy news industry is already starting to adapt, and as a result, news organizations can see a silver lining in a way that “big ice” did not, as newsrooms start to accept novel formats which offer similar affordances as print. For example, MacGregor observed a change between 2006 and 2011 that attitudes toward web journalism had altered from seeing it as a distraction from the real work of the newsroom, to being a natural development to be integrated into the newsroom.⁶⁹ This has coincided with the emergence of platform-agnostic “converged” newsrooms where different media forms are treated as tools which can be applied so that each story is reported for the platform that suits it best—once again, the affordance or possibilities of news become more important than the format of the commodity itself.⁷⁰

Alongside the product, the system of delivery changes once affordances rather than print-and-paper, or inverted-pyramid-style articles are taken as the primary benchmark of value. As a result, news distribution has been streamlined, too. In the period approaching the millennium, newspaper organizations were attracted by the dramatic savings yielded by digital newspapers, as printing and distributing constitutes around 60 percent of the cost of

producing a newspaper.⁷¹ News is placed at a central collection point where it can be digitally accessed. A secondary distribution network is the social media activity of posting links to news stories, which does not itself deliver news to more consumers, but informs them of the repository from which it can be accessed. For their part, newspapers use social networks to encourage the viral diffusion of their stories, and mobile apps have become a normal part of the users' daily routines.⁷² This may demand a compromise and the end of the monolithic news providers that dominate the industry today such as News Corp, Viacom, and Bertelsmann. The bigger perspective and the business model of the newspaper with its monopoly/oligopoly situation on a defined market with large barriers to entry (production facilities and distribution system) is difficult to achieve in a digital environment and confronted with smaller, more agile newcomers delivering the affordances of news without the encumbrance of investment in infrastructure or attitudes.

Our second suggestion was that the news industry should focus on the superior quality of its product over the opinion, rumor, trivialities, listicles, neo-yellow journalism, and downright fake news that are characteristic of the more disreputable arenas of the internet, and increasingly more mass-consumption sites such as Facebook. These are brand values which most news organizations and their products can leverage on, and these brand values are an advantage that players in the ice industry did not enjoy. While there was some cachet to be had from buying the purest Norwegian ice, there is no demand today for, say, frozen Volvic. News, on the other hand, occupies a place in the consumer's identity and lifestyle that few other products can match. This extends to the values that underwrite the brand: the *New York Times* or *The Economist* communicate the notion of a network of reporters and access to politicians and policy makers. Legacy news can also offer legitimation for a story, based on their brand values and the trust associated with them (on a global, national, regional, or local level). A part of brand should be for example "truth-markers" indicating that the material is fact-checked such that people can distinguish legitimate content. Another dimension of branding is that legacy news needs to jealously protect its branding of the news that it produces as it moves to different platforms. The logo of, for example, the *New York Times* needs to stand for its product just as Coca Cola, Versace, or Adidas stand for a particular product, even as counterfeiters try to appropriate it.

Legacy news needs to take the threat from neo-yellow "fake" journalism seriously. As we have noted, traditional journalistic values are central as news attempts to fulfill its role in democratic processes. Legacy news needs to be agile in its ability to produce and present well-founded, fact-checked news. Although one can argue to what extent all citizens actually care about the facticity of all kinds of news, in soft and hard journalism, the legitimacy and democratic significance of news journalism is closely connected to whether journalists successfully engage in news production processes that result in them publishing "accurate" news.

Furthermore, legacy news also has traditionally had access to the corridors of power that are often less open to bloggers and citizen journalists. While this is a strength, it also results in an elite bias observed in most legacy news.⁷³ They have the infrastructure, the time, the expertise, and the will to do investigative journalism in a way that few citizens can match. They have the legacy journalism values of accuracy, fairness, and objectivity which on the one hand slow them down, but on the other make them trustworthy. They offer training, developing cub

reporters in news values and socializing them into the newsroom. They promise continuity whereas a blogger or citizen journalist can decide on a whim to stop writing.

Importantly, these advantages enjoyed by legacy news outlets may not endure. In France, digital start-up Mediapart has brought down ministers through its investigative reporting.⁷⁴ In South Korea, OhmyNews trains citizen journalists. Newcomers do a form of investigative journalism through crowd-sourcing to process large amounts of data, such as WikiLeaks. Bloggers, citizen journalists, and community journalists can form into collectives and gain critical mass that gives them access to politicians, and the funding and infrastructure for long-term investigations, and allows them to offer continuity. They could seek funding from advertisers by building up a relationship of trust with readers replicating that of newspapers, and start charging for their stories. They can, in other words, perform many of the functions and offer many of the affordances of a newspaper without necessarily being constrained by the existing structures, limitations, and traditions of legacy news outlets.

Digital innovators such as these could offer viable (and profitable) partnership opportunities for traditional news organizations. They are part of the new ecosystem within which legacy media must operate. It is an ecosystem in which they will play diminished roles in an emerging and still rapidly changing world of digital journalism where news reporting is being reinvented, the character of news is being reconstructed, and reporting is being distributed across a greater number and variety of news organizations.⁷⁵ In terms of organizational learning, such similar but heteromorphic companies offer an opportunity for vicarious rather than experiential learning, which allows for the overcoming of path dependencies and entrenched industry identities.⁷⁶ Slow, limited institutional change tends to occur when help is sought from similar, perhaps introverted partners with strong ties to one another.⁷⁷ More radical change comes from organizations that exploit their weak ties with less well-known organizations and unfamiliar individuals with diverse skills.⁷⁸

This has implications for management attitudes toward both their own workforce and competing companies, overcoming what Nguyen described as a “fear-driven innovation culture” among newspapers in their early incursions into the online space, and what Boczkowski characterized as a defensive approach to the online digital threat.⁷⁹ Utterback refers to this as “symbiosis,” in which legacy and incursive technologies work together rather than viewing each other as competition.⁸⁰ The equivalent would have been the ice giants of the National Association of Ice Industries buying shares in Frigidaire—which did not happen.

In the past, it has been held, the news industry has been dismissive of the new digital paradigm and slow to deal with changes in the industry, seeing a threat rather than an opportunity.⁸¹ To see the recent changes as a moment for reinvention and organizational learning looking beyond the industry, rather than as an existential threat, would help them evolve, innovate, and learn rather than face extinction.⁸² To take a final analogy from before the last Ice Age, legacy news dinosaurs cannot expect to compete by growing feathers and tweeting. That will never get them off the ground. But a wholesale slimming down and re-evaluation of what they do is essential. Like dinosaurs, the change will be slow and not all will make it. But just as the Ice Age—and the age of ice—passed, those who were best at organizational learning thrive.

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- ¹ Andrew Duffy (PhD, National University of Singapore) is an Assistant Professor at the Wee Kim Wee School of Communication and Information, Nanyang Technological University. Previously a journalist in the UK and Singapore, he has worked for the past 10 years at NTU, where his research interests include online travel media, mobility and mooring in communication, the practice of online news, and the identity of the next generation of journalists.
- Rich Ling (PhD, University of Colorado, sociology) is the Shaw Foundation Professor of Media Technology, at Nanyang Technological University, Singapore. For the past two decades, Ling has studied the social consequences of mobile communication. He has written *The mobile connection* (Morgan Kaufmann, 2004), *New Tech, New Ties* (MIT, 2008) and most recently *Taken for grantedness* (MIT, 2012). He editor-in-chief of the *Journal of Computer-Mediated Communication* and is a founding co-editor of *Mobile Media and Communication* (Sage) and the Oxford University Press Series *Studies in Mobile Communication*. He was recently named a fellow of the International Communication Association.
- Oscar Westlund (PhD, University of Gothenburg). Westlund is an Associate Professor at University of Gothenburg that has spent the last decade researching the production, distribution and consumption of news, focusing especially on digital- and mobile technologies. He has authored more than 100 different publications, including articles in approximately twenty journals as well as co-authored inquiries for the Swedish government and the EU-commission. In 2016 one of his co-authored articles with Seth C. Lewis was awarded the Wolfgang Donsbach Outstanding Article of Year by the ICA.
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