

Aufsatz

The Transformation of Journalism in the Networked Age

Trends of News Production in the Hungarian Digital Economy

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Abstract

How has the ecosystem of news production transformed in Hungary since 2012? In the last six years news consumption moved towards mobile devices. By 2015, content-producing media companies were forced to face unequal competition by the instant content sharing technology platforms. In the content market competition, media companies are involved in personalizing information, transforming it to complex products and user experiences. Editorial work changes to content management system: journalists are supported by IT engineers, designers and social media managers. Content search is transformed: algorithm supports news production and the mining of new stories. The role of news seekers is also modified: informal groups and expert individuals contribute to the collection, evaluation and sharing of information. In a networked age the journalists' profession is re-interpreted: since they are no longer the only dispensers of information, they have to sell insight and understanding.

Keywords: News consumption; News literacy; Digital journalism; Business model; Content Management System; Explanatory reporting; computational journalism

Introduction

The current study will focus on trends in the economy of digital news production. Since 2009, the Studio 20: Digital First program has been co-operating with a selection of master students and correspondents (The New York Times, The Wall Street Journal, The Guardian, Fast Company,

ProPublica, Mashable.com) at Arthur L. Carter Journalism Institute New York University (NYU Journalism Website 2016). The project seeks innovation opportunities for journalism in the Internet, in this multimedial, interactive, ever-changing platform. The latest extensions of the Internet are becoming increasingly popular with mobile devices. The News Literacy 2016 project helps students understand the economic and technological forces that transform the media industry, business models and content policy of media companies, organization of editorial workflow, and journalists' news production methods (News Literacy 2016). The main focus lies on the renewal of news editorials: adaptation of journalism to the digital economy.

Considering the results of the News Literacy project, this article summarizes current trends and problems in online journalism. Traditional understanding of journalism as a profession has changed significantly, due to the fact that digital media and social network environment has brought opportunities but also challenges related to the journalistic practice. The aim of this study is to understand the forces that are transforming the media business and altering the way journalists work worldwide and also in Hungary.

In 2012, news consumption moved towards mobile devices. For traditional publishers, the home page may soon become akin to the print edition: nice to have, but not the primary attraction. In 2014, more than half the visitors to The New York Times have come via mobile – the figure increases with each passing month – and that percentage is higher for many other publishers (Carr 2014: B1). Social media networks and their mobile apps play an increasingly important role in how people discover the news that they read every day. In the new sharing economy, advertisers are turning mainly to social media, where most of the people are looking for their news. Launching Instant Articles in May 2015, Facebook presented its new initiative as a commitment to solving the problem of sluggish mobile websites and helping publishers monetize journalism distributed via its platform (Brown 2018). But media companies are worried that the relationship with customers, most of the data about what they did and the reading experience would all belong to the instant content sharing technology platform, if Facebook's mobile app hosted publishers' pages. The release of news has been changed dramatically as content-producing media companies are losing control over the distribution of their content in an unequal competition.

The economics of news production is shifting towards paid models. Before 2000, online news production started from the misconception of being free. In addition to print sectors and editorials the digital divisions of media companies and online editorials were emancipated in the 2000s. But they still have not found sustainable business models. Primarily pre-paid

services work reliably. However, the future is uncertain for media companies that want to rely on risky investments and merely digital ads. Online media revenue growth is expected to rise from strengthening alternative transaction sources: these are the media company's products that are not in the news market. As a non-media product, Ringier Axel Springer Hungary has acquired the industry-leading job search portal Profession.hu in its portfolio, and Global Axel Springer has bought the Business Intelligence paid business information service.

In the content market competition, provident media companies, alongside news production, are increasingly involved in personalizing information, transforming it to complex products and user experiences. This will likely stimulate willingness to pay. In 2017, a research was conducted by the Media Insight Project – an initiative of the American Press Institute. The findings of the study have a number of implications for publishers and the future of journalism. Those who pay for news are attracted to their paid source because it helps them stay informed and covers issues they care about well. “Younger generations will pay for news – but publishers must understand that these relationships begin through friends’ referrals and social media and are strengthened through frequent engagement and interaction” (Young 2017). Publishers must find ways to identify and then engage news seekers who look like subscribers but currently do not pay. Many news organizations modify their digital strategies by implementing new business models based on paid content strategies.

The role of news consumers is also transformed: those who were formerly the audience can now practice journalistic activities. They contribute to the collection, evaluation and sharing of information. Now, almost all stories are first broken by people who are not professional journalists. Anyone anywhere with a smartphone becomes a journalist when they see something happening, snap a photo, and upload it to a social network platform. Journalism outlets must hire journalists who come from the communities they wish to reach and who are willing and able to connect with their community in an authentic and open way. News outlets must think of ‘sharing’ as a new way to develop, research, write, and produce new stories. Breaking news, once the heart of journalism, has now been almost completely outsourced to the person on the street. “Yet it is the creation of news via sharing that is the truly transformative aspect of the news economy. This sharing is currently happening in two ways: via members of the community who are creating their own news and via news outlets that have realized the benefits of working with each other” (Green Kaiser 2015).

To survive in a world where news is plentiful and essentially free, and where evenhandedness might no longer be a dominant value, journalists

need to sell something else. This new negotiable product is “wisdom journalism”, i.e. an amalgam of exclusive, investigative reporting with more informed, more explanatory, more impressionistic takes on current event (Stephens 2009: 4). The journalist’s profession is re-interpreted: on the web, journalists no longer dispense information alone. They need to learn how to deal with net-users’ strong passion for documentation and sharing. Although journalists outsource the aggregation of information (and thus renounce their traditional role), they also find a new sense of mission in digital expertise because journalists remain to be the best to explore background contexts. While there is less news in our best journalism today, there is also more thought, knowledge and perspective. Editorial content management systems help the journalist share information, sell insight, and tell data-centric stories in the most optimal context and attractive layout on web platforms (Stephens 2014; Yu 2014). The journalist is supported by IT professionals, designers and social media managers. Content search is also transformed: the news has already been automated by algorithms, but now algorithm supports the mining of information and new stories from large data masses.

In 2016, a new Reuters Institute report has found that many news users prefer an algorithm to choose their news, rather than an editor. Algorithms were seen as less influenced by political agendas. The research found that trust in news was associated with engaging with a variety of sources. Key issue here is diversity: the public needs to feel that the media can represent them. But there is a perceived risk of getting caught in a ‘filter bubble’ of their own interests as algorithms select news for users based on past consumption. Algorithms are written and maintained by people, and machine learning algorithms adjust what they do based on people’s behavior. Some study participants concern that content might be made as a result of commercial considerations at news organizations. The research shows that trust in news is primarily associated with content and its perceived accuracy, impartiality and tonality (Goodman 2016). Media institutions need to develop algorithms that prioritize trustworthiness over newsworthiness.

News consumption moves towards mobile phones

Smartphones and tablets are changing the way news reaches us: the trend has been steadily increasing since 2012. The mobile is the new medium, not just a smaller screen: a new format for spatial and contextual communication. The user has an intimate and personal relationship with their mobile. Today’s consumers around the globe are living in an *always-on* world due to the ubiquity of mobile devices and mobile internet access.

One interpretation of this data is that our lives are merely more technologically integrated. According to the analysis of the Pew Research Center (State of the News Media 2016), the online audience for newspapers continued its shift to mobile devices in the United States in 2015. “For 39 of the top 50 U.S. newspaper websites examined here, the number of unique visitors on desktop or laptops fell, with 28 showing a drop of at least 10%. Conversely, unique visitors on mobile rose for 43 of the 50, with 35 showing a 10% or greater increase” (Barthel 2016: 20).

Mobile usage is not only frequent it also commands a bulk of consumers’ time each day. In 2017, the Interactive Advertising Bureau (IAB) conducted an in-depth survey of smartphone users compiled from 18 countries around the world. Nearly half (49%) of smartphone users worldwide spend at least 3 hours each day on their mobile device, 22% spend 6 hours or more. In 2017, nearly two-thirds (63%) of smartphone users worldwide use their device every 30 minutes or more, and over a fifth (22%) tap into their phones every 5 minutes (Zhang and Salomon 2017). Year by year Flurry Analytics’s annual State of Mobile report shows that U.S. consumers continue to increase their time-spent on mobile devices. In fact, the average U.S. consumer spends in 2016 a whopping 5 hours a day on these devices. That is a 20% increase in time-spent compared to Q4 2015 (Khalaf and Kesiraju 2017). The amount of time people spend on their mobile phones is representative of a massive cultural shift. Omnipresent mobile usage is a worldwide phenomenon, which creates a tremendous opportunity for journalists and marketers. People spend more time searching for answers via mobile phones than on desktops. It’s the duty of journalists and business leaders to provide answers to these searches and to tailor news portals and business websites so that they provide fast, enjoyable experiences for mobile users (Hacker Noon 2017).

In 2010, the authors of a two-year longitudinal study examined news consumption behavior on mobile news websites in response to the introduction of a mobile news app by a major media company. Pseudo-panel analysis based on repeated cross-sectional data surprisingly reveals that the adoption of a Fox News app may stimulate the corresponding mobile news web site visits by allowing consumers to sample more news content on the app (Xu et al. 2014). For advertisers and media planners, this has an important consequence. The spillover traffic from the mobile app to the mobile website suggests that advertisements that are placed on both mobile apps and websites will have repeated impressions on the same target audience, and hence a higher memory effect.

July 2015, Morgan Stanley ranked the top 50 mobile sites in the U.S. by total *mobile browser* plus *mobile application* unique visitors across all mobile platforms (smartphones and tablets). The mobile sites were ranked by “Browser Reach Advantage” (a metric that captures the size of mobile

browser traffic relative to mobile app traffic). The core claim of the US-centric Morgan Stanley report is that, while mobile apps consume circa 87% of time spent on mobile devices, more people use mobile web properties than their associated apps (Morgan Stanley 2015). The study found that mobile traffic in 3 of Google's biggest search categories (retail, finance and travel) over-indexes toward browsers. The study found that circa 90% of the companies analyzed in 3 of Google's biggest search spend categories (retail, finance and travel) are driving over 50% of their mobile traffic growth from browsers. In the U.S. for example, the large hotel chains are even more dependent on Google, as 67% don't have mobile app audiences large enough to be measured. It is arguably less efficient to use a hotel app when planning a vacation instead of opening one browser window and performing a broader Google search.

While Morgan Stanley's study is focused on unique visitors (traffic), other reports are focused on actual user time spent. Those are different measures, and it's no shock that they present different pictures of what's happening in mobile. A report released in 2015 by comScore said, that the digital landscape is very much app-focused. "Not only are we spending almost 9 out of every 10 minutes in apps, but that number has grown 90 percent since 2013, while mobile web time has grown only 53 percent in the same period" (Koetsier 2015). The IAB global research in 2017 examined how consumers access and use the mobile internet and how they perceive and react to mobile advertising. The study found that US adult smartphone users are expected spend an average of 2 hours 9 minutes each day with smartphone apps, compared with just 16 minutes using the mobile web (Melton 2017). App engagement is deepening – i.e. each individual user is spending around 1.45x as much time in each app as they used to. On the one hand most users spend the vast majority of mobile time in apps. But on the other hand people visit more websites than the number of apps they use, and they probably visit more websites regularly than the number of apps they use regularly as well (Critchlow 2015). Mobile web is generally preferred for functionality and utility (searches, purchases, accessing information about work, current events, travel, and bookings are often predominantly mobile web functions). Apps, on the other hand, are the clear favorite for consuming entertainment content (such as videos, movies, music, gaming), and are also preferred for communications activities (including email, messaging, social networking, making voice and video calls). For advertisers it is crucial to understand how people interact with mobile apps and mobile websites (Morris 2017).

The IAB study found that awareness of advertising on both mobile platforms (mobile web and/or mobile apps) is high. Digital advertising is motivating consumers to action, whether they access the internet via the mobile web or mobile apps (Zhang and Salomon 2017). If both placements

offer an equally strong opportunity, then perhaps it's time to rethink the question. Maybe it's less a matter of comparing mobile app/web placements, and more a matter of optimizing our strategy for the best results on both sides of the equation (Morris 2017). Penetration and reach are concentrated in just a few top apps. From an advertising perspective the majority of mobile ad revenues are also concentrated in a relatively small number of top properties. The obvious implication of the data is to concentrate ad spend on those apps at the top where consumers are spending most of their time. However marketers shouldn't neglect the mobile web either (Sterling 2015).

More and more consumers, especially teens and college students are using their smartphones, phablets and tablets as their primary computing device and their sole device to access email and messaging or other productivity apps. In 2016, the average U.S. consumer spends 133 minutes/day consuming media in mobile applications (including messaging, email, exchanging photos, using maps, shopping, etc.). Flurry's app usage report declared that this expanded media consumption on apps is not the standard chat or exchanging pictures over social networks. This is communication for the sole purpose of entertainment (i.e. *communitainment*, live streaming to entertain each other on dedicated apps). Live content is finally happening on mobile, as teens have become avid streamers (Khalaf 2016b). In addition to User Generated Content, premium publishers constantly recommend content to consumers and create highly personalized consumption experiences. Publishers started transfer their video content to social apps, such as Facebook, YouTube, Instagram and SnapChat. This has led to dramatic increases in time spent in these apps (Khalaf and Kesiraju 2017).

News and magazine apps grew 135% in 2015. Phablet users are engaging in news and magazines apps at a much higher rate than the average smart device user (Khalaf 2016a). In 2017, users continue to find value in the larger screen size. This correlates to the growth in media consumption app categories. As less mature smartphone markets adopt larger phones, phablet share will continue to eliminate small phones (Khalaf 2017).

Since 2013, individual mobile news consumption has grown rapidly. What should news organizations understand about their audience's changing behavior on mobile news, as they seek to better manage this digital transformation across platforms? A research study conducted with Nielsen and commissioned by Knight Foundation in September 2015, dives into how specific groups of people use different mobile platforms for news. This research (continuously monitoring the activity of 9,000 smartphone users for 2 years) offers a unique view of the behaviors that publishers need to adapt to as they target mobile users. The findings show that adult

U.S. smartphone users consume news on their devices, and more users are spending news time on social platforms. Mobile news-seekers dedicate nearly 5 percent (more than 2 hours) of their monthly mobile time to news. Mobile users who access news through apps spend more time reading the content, but the overall audience for apps is small. Mobile users spend 5x more time in social media than in news apps. Social networking apps on mobile compete as a news source with other media forms. Half of social networkers spend time looking at news. News-seekers in social networking apps “depend on friends, contacts and individuals they follow as trusted news sources as much as or more than they depend on media outlets” (Knight Foundation 2016). A high number of social network news readers take action after accessing news; 59 percent of Facebook users, for example, reported that they talk about news somewhere else in person. As publishers think about how they would like audiences to engage with their content, these different platforms offer insights into the opportunities.

However, the analysis of year-over-year changes suggests that time spent directly on mobile apps and mobile websites has declined over the past year. For the large news organizations it tracked, the amount of users reached by a mobile website is many times larger than the number of users for their apps. “Asking whether all publishers should do an app or just a mobile website is the wrong question. Each publisher must match the opportunities of the two platforms to the type of audience you intend to reach and that your business model can monetize” (Sonderman 2016). A mobile-responsive website is the cost of doing business for a larger audience to reach directly. Apps have the advantage of providing a contained environment and are more conducive for experimenting and learning about the audience.

According to a media consumption survey in 2011, 63% of the Hungarian population used television as a primary news resource; 20% used the internet, and 8 % used the radio. Another survey conducted in 2010 found that 60% of the population (aged over 18) could access the internet, but one-fifth of these did not use it. Nearly 90% of online surfers used the internet for news consumption, while 75% used it for social networking. The 2011 news consumption survey shows that 6% of the population used social networks as primary sources, and another 30 percent considered social networks important to get news (Tóth 2012: 43–44).

In 2016, 70% of all individuals in Hungary used the internet used the internet to read online news sites, newspapers or news magazines. According to data from the Reuters Institute for the Study of Journalism 2017 (RISJ), Hungarians mostly get their news online (89%) or via TV (72%), with only around a fifth (20%) reading a printed newspaper. Social media are an extremely popular source of news in Hungary, partly due to

the lack of trust in traditional media sources and partly as a result of a preference for informal personal networks.

In 2017, based on the online research conducted by eNET, 85% of adult Hungarian Internet users report using a smartphone. The three most popular types of apps are apps for social media, communication (messaging, chat, video calls) and navigation. Three-quarter of smartphone users use social media apps at least daily (8% of them hourly, 54% more than once a day). The most popular activities on social media sites are reading the news (66%), chatting (60%), voting /liking (59%), posting images (37%) and commenting (33%). Among social media apps Facebook is used on 86% of smartphones, while Twitter is used by 22% and LinkedIn by 16%. For photo sharing, Instagram takes the lead with a usage rate of 34%, followed by Pinterest (25%), and SnapChat (13%). In January 2018, pollster Ipsos conducted a survey of 501 Hungarian smartphone users. About 29% of Hungarian smartphone users say they are “addicted” to their devices. Almost two-thirds of respondents said they use their phones actively for as much as 5 hours per day, while half of respondents said they try to apply self-imposed time limits for smartphone usage (eNET Online Smartphone Study 2018).

Publishers lose control over the distribution of their content

The influence of social media platforms and technology companies is having a greater effect on journalism than even the shift from print to digital. There is a rapid takeover of traditional publishers’ roles by Facebook, Google, Twitter, Apple and Snapchat. These tech platforms and companies have evolved beyond their role as distribution channels – and now control what audiences see, and even what formats and types of journalism grow vigorously. Publishers push more of their journalism to tech platforms despite no guarantee of consistent return on investment (Bell and Owen 2017). Technology platforms and social media firms are increasingly becoming the main gateways for information. That means the news industry is rapidly losing control of the news along with the revenue that goes with it. Readers who once regularly visited publishers’ desktop websites now got their news from Facebook, Twitter, Snapchat, and other apps – outside of publishers’ control. Survival for many publishers would depend on whether they could build loyal audiences inside third-party mobile apps. However, using another company’s proprietary platform, publishers have no proof that they create a lasting and sustainable business (Battelle 2015). The question is whether it is good for the publishers that their content is downloaded from Facebook’s accelerator servers instead of the publisher’s server. However, ownership of the content and the share

ratio of the ads will change. After a while, Facebook will become a credible news source and media companies will only be suppliers.

In digital advertising it does not matter where an ad is displayed, only who sees it. Publishers determined to monetize audiences on their own sites, face an increasing threat: ad blockers. Slowed by clumsy advertising technology many publishers use for mobile devices, loading publishers' web pages on a smartphone can be extremely annoying. On mobile phones the data-heavy, intrusive ads that publishers host on their sites, cost users time and money – by chewing through their phones' data plans (Bell and Owen 2017: 46). Traditional publishers' approach to mobile devices effects unpleasant user experience, hurts user engagement and weakens their efforts to make money in a smartphone world (Carr 2014). Media companies know that users of the social networks aren't coming to their homepages. If news editors want their sites' journalism to be seen, they need to be on social tech platforms (Abrams 2017).

By encouraging news publishers to post directly onto new channels, such as Facebook Instant Articles, Apple News App, Google Accelerated Mobile Pages (AMP), Snapchat Discover and Twitter Moments, tech companies are now actively involved in every aspect of journalism. Facebook's Instant Articles, for example, not only connect readers to stories ten time faster; they also provide a richer reading experience than standard mobile web articles, with dynamic features that make the content more fluid, interactive and immersive (Cohen 2016). When a publisher shares a link on Facebook, the enhanced experience is displayed automatically if an Instant Article version is available (Reckhow 2015). The news selection process at a tech company is largely machine-based. Editors in news organizations say concerns are growing that personalized news and algorithmic selection of news will mean missing out on important information or challenging viewpoints (Lever 2016). However, native publishing products mean that a reader might look at a story from The Economist on Google Accelerated Mobile Pages without ever touching The Economist's own app or site (Bell and Owen 2017: 27). As the analytics partner for media organizations, Chartbeat enables publisher to understand and harness genuine audience engagement. Visitors to web pages that load with Google AMP are spending 35% more time with that content on average than with standard mobile web pages. Therefore, contents that load with accelerated mobile pages software are more valuable to advertisers, because visitors that spend more time with content spend more time scrolling through ads (Townsend 2017).

Publishers are responding to the distributed media environment by creating native content in the hopes of engaging social network users and generating revenue. News media executives face the challenge using multiple tech platforms to share editorial stories – more distribution

formats create more content management costs. Although a video content may be shared widely through Facebook's native player, it might not work as well on the numerous other social platforms. In adapting to the shared out media landscape, publishers need to consider the unique style, tone, and user base of each of the major social platforms (Abrams 2017). Even if a news organization limits social distribution to the main platforms – Facebook, Twitter, YouTube, Instagram and Snapchat – there is a significant investment in time, money and human resources making slightly different versions of each story work on each platform (Bell 2017). The News Feed has become synonymous with Facebook and is by far the company's most lucrative product, thanks to the targeted advertising that appears there. The draw of Instant Articles was that they load much faster than the Facebook links that take readers back to most publishers' own sites. Engagement is also supposedly higher on those articles than regular Facebook links. But Instant Articles keep people within the Facebook app, rather than sending readers through to a publisher's own sites, where they can monetize them more effectively, and have better control of reader data (Davis 2017). At the same time that Instant Articles were being designed, Facebook was beginning work on the projects that would ultimately undermine it. Facebook's decisions dictate not just which content is viewed but what kinds of content are created. In 2015, the company's algorithms began favoring video over other content types, diminishing the reach of Instant Articles in the News Feed (Newton 2017a). Between April 27 and May 27 2016, the Huffington Post posted 739 text articles and got 1,213 average shares per link. However, in the same period, it posted only 412 videos, but it got 4,715 average shares per video. So even if publishers are still posting more text articles than video, each video is likely reaching more people. In July 2015, 61 native videos were posted to the Guardian's main page, with an average share rate of 4,111. In April 2016, that number was more or less the same, at 66. What had changed was the average share rate, more than doubling to 10,028. As Facebook has changed its algorithm to put more video in people's feeds, publishers have shifted resources to video production (Moses 2016).

In 2016, Facebook adjusted the algorithm that runs the News Feed to promote posts from friends and family members over posts from publishers. Publishers that find they are unable to reach their audiences on Facebook risk seeing a collapse in their advertising-based business models (Newton 2016). In March 2017, the arrival of ephemeral stories on top of the News Feed was a milestone in the rise of camera-based communication. Image-based messaging seems to dominate the way people sharing content with one another and interacting online. Facebook's introduction of stories is also a blow to text-based communication, which has important implications for publishers, advertisers, and people who have something to

say that doesn't involve a selfie. As Facebook stories are unavailable to brands, publishers, celebrity pages, and advertisers, generating revenue for media companies is apparently not a primary goal in its development (Newton 2017b).

According to an analysis by NewsWhip in 2016, several media outlets, some of them early adopters to Facebook's fast-loading Instant Article format, seem to be posting less and less there. In April 2017, the Guardian and The New York Times ceased running content through both Apple News and Instant Articles. Meanwhile, the Guardian's use of Google's AMP, the rival to Instant Articles, seems to be going strong.

Digital journalism is looking for its business model

News production has always been subsidized by something. The news industry does not have any more a viable business model of quality journalism. Traditional business models of print media, news agencies, and broadcasters have been destabilized. Print advertising revenue continues to decline, and digital ad revenue has not filled the void. The economic volatility or vulnerability of media is an enormous challenge for journalism. It is even more difficult to find resources to finance independent and qualitative journalism.

As the news industry has gone digital, the old ways of sustaining quality journalism are breaking down. Inventory pages – available to advertise against – have exploded because it's easy to publish online (Ramirez 2016). Print media has always had the strongest business model: from the consumer (buy-in, subscription) and the advertising market. Although the decrease in the number of copies seems to have a terrible effect, this should not be confused with the decrease in revenue. The number of copies and the piece price go together in the revenue, so media companies can compensate with price increases or the sale of packaged products. The general problem with digital media is that they cannot be maintained solely from ad sales.

Adjacent display worked well in print, was largely ignored on the desktop, and has become irrelevant on a mobile screen. The big tech platforms are taking most of the new digital advertising money because of their ability to target any audience efficiently and at scale. Predictions of the Reuters Institute for the Study of Journalism say that digital advertising will become less important in 2018. Commercial media companies are looking towards different forms of reader payment. Digital subscription will be a very important revenue stream. Shifting strategy from reach plus ads to engagement plus subscriptions is a significant change. It is forcing publishers to rethink the content they create and the audience that they are

targeting (Newman 2018:22–23). In 2017, the big US publishers like the New York Times, The Financial Times and the Washington Post (which has doubled digital subscriptions), as well as the European tabloid Bild in Germany collected more revenue from subscriptions than advertisements. This method is the “metered” approach – users get a certain number of clicks free and after that they are asked to pay. Small publishers with an existing subscription business worry that they might lose out if more publishers launch paywalls.

All the Hungarian online news sites are available free of charge without paywalls and online subscriptions (Bognár 2017:74). Hungarians have become used to news portals being free. Internetto (1995) was able to do so by being funded by the IDG publishing and media service company publishing the Hungarian version of PC World magazine. From the beginning Origo (1998) was backed by the capital-strong Matáv (followed by Telekom until it was sold in 2014 due to profile cleaning). Index (1999) was unprofitable until 2003, when Wallis bound its ad sales to a focused business plan, and from 2007 it became part of a broad portfolio of Central European Media and Publishing (CEMP), which also includes transactional products: e-commerce portal (Bookline.hu), travel portal (C-travel.hu), internet language learning portal (eNyelviskola.hu), and InfoRádió.

Practicing journalism on a purely market basis in Hungary is near impossible. A few media outlets, such as RTL Klub television station owned by Bertelsmann or the market leader daily newspaper Blikk published by the integrated multimedia corporation Ringier Axel Springer Hungary group are doing great. In 2017, Blikk became also the most visited Hungarian news site on mobile. However, behind strong online and print brands there is usually not only an exclusively news organization, but a powerful media corporation with additional sources of revenue, for example, investments in digital companies and new business models. The free online content of leisure and lifestyle magazines, gastronomy sites, women’s magazines, sports and car magazines and tabloid portals could be provided in two directions in Hungary. On the one hand, free digital brands belong to the portfolio of large media companies that have diverse revenue sources in non-digital domains (print news, book publishing, conference and event organization, production of branded publications). On the other hand, since 2012, the domestic digital advertising market also grew, and in 2015, the largest segment of the advertising market became the digital market in Hungary.

Journalists report that advertising concerns and profit-making pressures have increased in their newsrooms in the last years. Furthermore, media ownership concentration is speeding up. Since news publishing is no longer a profitable business, and in the face of falling circulation, the Western media conglomerates have recently been seen restructuring their

portfolios or fleeing their Hungarian investments altogether. The Hungarian news industry has no real reserves. This is a highly vulnerable small market, since search engines hijack ad revenues, and social media demolish traditional news distribution. The most popular online news sites in Hungary are all struggling with vanishing advertisers and are financially exposed excessively to their owners' business interests. Shrinking news budgets and a lack of new investments kill the free press in Hungary (Tóth 2014).

In the last years the non-profit business models in the media became widespread, mainly due to the online distribution. Attractive entertainment contents find their audience, just like and highly specialized contents targeting niches. The content on non-profit portals (just like Pro Publica in the US) is free, but users are asked to donate. It is the most direct feedback that a media company can get. If users evaluate the performance, they contribute to the costs, but if the content is not good enough, no user pays for that. It is still a question if a viable business model can be built of donations. In search of the most efficient operations in the digital media, there was an attempt to blend the media and different services, pay gate, symbiosis of print and digital media, professional-amateur collaboration, and outsourced editorials. They are experimenting with analytical publications looking behind the news, periodicals, classic donations (the "donate" button on the portal), a club system (giving serious value to entrants), branded content, event planning service, paid mobile applications and consulting.

News organizations tend to ask for donations monthly or annually. However, to maintain a sustainable revenue model, they need to go beyond soliciting donations and find much more innovative ways for audience to contribute. They can instead experiment with collaborative relationship options to get paying users involved like never before and provide different levels of membership. The model includes perks for members, such as discounts on merchandise or members-only newsletters. Membership is a longer-term loyalty option that strengthens the user's identification with a media brand. Members need to move toward increased audience engagement, i.e. news organizations need to show members how they can go beyond passive consumption of journalism to play an integral role in its creation (Urodov 2017).

The Hungarian digital news portal 444 attempts to create native ads: journalists themselves help their advertisers integrate branded content into editorial content. Previously, it would have been impossible to break the bulkhead between editorial and advertorial content. This requires a new creativity from the journalist (for example, the MasterCard Priceless Specials discount program has brought together the news portal with the Umbrella Creative Agency to develop advertising content that can become

viral). It is difficult to incorporate in the content stream the advertorial content that is integrated, targeted and enriches the editorial experience. A branded video content, for example, needs to be eye-catching and engaging without being intrusive. Native video formats have been developed to seamlessly merge with articles. It is a format which users find interesting and sophisticated enough to be informative, useful or entertaining. This type of targeting works by “identifying the theme of the editorial to ensure that the branded video is not just relevant to the site but to the exact article on which it is placed” (Chappaz 2014). Blending the boundaries between paid, owned, earned and shared media leads to new expertise, creating new technologies and partnerships: Business Insider, Atlantic Media, Forbes, Mashable and BuzzFeed are at the forefront of finding new solutions.

In many cases, crowdfunding may serve as a successful financing mechanism for various journalistic initiatives. Direkt36 is a Hungarian centre for investigative journalism, launched at the beginning of 2015 by a group of professionals who had previously worked for the online news portal Origo and lost their jobs due to political pressure. Concerning the financing strategy and the organizational structure of its newsroom, Direkt36 has similarities with other crowdfunded publication platforms: the project uses donation-based crowdfunding, it also has sponsors among media organizations and journalism institutions, it wasn't related to any larger, traditionally-funded media organization, it has an established newsroom comprised of full-time employees and freelancers, it makes its content fully available for everyone (Zaripova 2017: 104). However, the traditional ‘watchdog’ journalism doesn't really find its place in the new business models. Investigative journalism hardly fits to the logic of commercial media, since it can hurt the interest of advertisers. Non-profit investigative journalism is also not attractive enough for the users, since following the never ending corruption stories is out of mainstream interest. Across central Europe political and economic forces are combining to put independent media under pressure. Experts in media investment say that in Hungary and Poland there has been a withdrawal of state-owned companies' ads from critical media organizations and transferring them to many pro-government media outlets. This kind of “combination of falling newspaper circulations and ad revenues has shattered the business model and left newspapers weakened and vulnerable to both political and corporate pressure” (MacDowall 2017). Some fear that as a result, the ideal of journalistic independence is being critically compromised. The freedom of press means not fearing of to write the truth because journalists can trust in the jurisdictional and law system. However, after 2010, media organizations who are not friendly with the government and do not follow its agenda can hardly defend their sources and documents in legal way.

State advertising is often used as a manipulative tool by governments, which can trigger soft censorship and self censorship. In Hungary, it has been a new phenomenon since 2014 that the government or political parties finance some news sites by placing a disproportionate number of political ads while others can not advertise at all. Political manipulation of the distribution of media resources distorts competition and hampers the development of viable business models. An analysis of the media policy interventions that influences the structure of the media market is provided annually by the Measurement Media Analysis Workshop (Bátorfy, Urbán and Gyóri 2017). Since 2017, more and more newspapers in the countryside have come under the control of businessmen with ties to the government. Some Hungarian media outlets succumb to the government influence that is rewarded with state advertising. “Newspapers launched in the past few years (Magyar Idők, Lokál, Ripost) depend to a greater degree on the state’s active support, and it is entirely conceivable that they would not be financially viable if they had to sustain themselves based on their revenue from commercial advertisers” (Máriás, Nagy, Polyák, and Urbán 2017:8). Origo, the news portal with the greatest reach in Hungary and with close ties to the government, receives the highest level of state-sponsored advertising. Advertising time for channels of TV2 Group and for state television in Hungary is sold by the government-friendly sales house Atmedia.

Switch from content to editorial product

Technological companies are unbeatable at developing products that find and even generate the needs of their users. If news companies on the content market can’t master that same discipline they will fall behind. More and more digital readers are willing to pay for their quality content and user experience. But this requires a sophisticated journalistic product. “The rise of product thinking in news industry is directly related to the imperative to get better at technology, and to find way of delighting and satisfying users who have many choices for how to spend their attention minutes” (Bode 2016). A combination of design, technology, editorial strategy, business model, and product management can meet users’ evolving needs. News organizations need to provide unique value, convenience, and pleasure to digital users in order to survive in a social network-first and mobile-first world. Digital newsrooms are thinking about good user experience design to increase the convenience and enjoyment that audiences feel when interacting with their digital news products. Personalizing news websites to users’ needs is especially useful for organizations with paid-subscription-based revenue models. The

interactive series of The New York Times on the Rio 2016 Olympics (The Fine Line) shows a good practice of combining multimedia, interactive tools, and text with an uncluttered style to deliver an informative and pleasurable experience (Gikandi 2017).

The redesign of the digital New York Times in 2013 targeted user experience. The portal is now a responsive site that offers a unified, airier experience across platforms. “Stories are infinitely scrollable rather than paginated. And all of the interactive elements – the photos, video, and infographics – are no longer relegated to a tiny media link on the left-hand side of any story. They’re embedded directly inside the text” (Wilson 2013). Some elements of the interface for this web experience are influenced by mobile. Data-dense wall of links has been abandoned for refreshing white space. As we have become accustomed to well-curated mobile media experiences, a simpler design makes a lot more sense. Turning pages was replaced with scrolling. NYTimes.com has also dropped the column setting because it is a characteristic of print job organization. The online news portal, however, constantly produces content tailored to what users are interested in. Comments are displayed in a new design that looks almost equal to the original content.

The logic of the redesign was to produce a more complex editorial product than traditional news content – as a clever blend of journalistic value judgment, community activity, software data transfer, filtering the information tsunami, and aggregation of contents. Solving the context problem for news can happen, for example, in educational and entertainment form, when the journalist outlines a background in a more engaging tutorial way. “Accurate news is essential to know the world, but reports of what just happened do not tell you what can be done about it, at a personal level” (Stray 2015). Content can only be sold if it is plausible, effective, entertaining, and useful. The shift from creating content to making great editorial products requires organizational and cultural changes and a joint effort from different parts of the operation. A product manager in a news company has to bring tech, business and editorial together to create something that people want, and “figure out how to keep improving it based on feedback that users and the marketplace are constantly giving” (Bode 2016).

Publishers who enhance the user experience design of news are building a brand personality, thereby promoting readers’ engagement. The editorial staff of Hungarian news portal 444 has built a brand: a unique feature of it is the non-news storyline of the news portal. Its homepage is like a two-story blog, on the left-hand side are the major articles, on the right-hand side there is the news stream, with big pictures, videos and few texts. They abandoned the classic article writing format. Like Tumblr posts, they can even put out two-line articles, the lead is the article itself, you do not even

have to click on it. Style is provocative – like Mashable or BuzzFeed. Features are many moving material, gif, Coub (loud gif, 10 seconds self-repeating, looping video), bullet point system (caption subheadings), and yellow highlighting (such as Hipster Runoff's 2008 design).

Ten years ago, no one would have thought a top-performing digital article could be titled “19 Reasons You Should Fall in Love with a Turkish Person.” But all of that changed with the introduction of BuzzFeed that produce open-ended lists which allow the consumers to ascribe their own meaning to a particular piece of media. BuzzFeed discovered the key to connecting with audiences that many brands haven't figured out: great content isn't about the content itself, but the emotion it can evoke from its audience (Connolly 2015). BuzzFeed has built its success on the tendency that most people share their funny, cute, pitiful, irritating things with friends in their network community. The news portal was initially specialized in developing a search engine that explores the currently-extending entertaining and provocative content (using the content of others without permission). Later they began to enrich the content market with their own content production (meme, animated GIF, funny video, cute photo). The best performing materials are quizzes, top lists, which are related to the box office hits of the media industry (Which Harry Potter character are you?). BuzzFeed is now more and more extended to long form journalism. Their content policy is successful: in February 2014 this portal attracted the greatest interest among media web forms. Thus, BuzzFeed is an attractive investment target: it has received substantial capital increases several times, and has moved to native ads from banner ads.

Content Management System

In the 1990s, newspaper publishers watched carefully the increasing popularity of the Internet. Instead of creating a long-term strategy, they were talking about protecting the printed pages. By the turn of the millennium, the media had taken the online content demand seriously; the editorial of the printed pages (or separating from them) had also become an online editorial. Integration of traditional and online editorials had been promoted by advertisers' web interest.

Between 2006 and 2008, most print newspapers already had a digital foot. Based on traditional content creation expertise, they wanted to repackage the print content online. But this was a delusion: online journalism is not a digital extension of offline journalism. There is a need for different business models, different work organizations and different genres. The integrated editorial is a matrix organization: the staff creates ad

hoc working groups to perform the given task. Work does not match the periodic (daily) content requirements of the platform used for dissemination. Integration means that, unlike the print editorial logic, there is no point in distinguishing who is working on a printed page, web, mobile, or other channel. The news comes out of the web interface immediately because of the importance of news coverage. If the subject requires or allows further processing, the information can be developed as exclusive content that can be sold on the next day's printed page. The integrated media company is already thinking of multi-platform content-generating concepts.

News organizations born in the print era have generally knit together disparate systems over the years to produce websites that integrate graphics, social media and reader comments with various degrees of levelness. Contrary to these newsrooms, many all-digital organizations have built their high-tech content management systems from the ground up with the Internet in mind. That strategy produces dynamic publishing universe a more organic melding of journalism and technology (Kaufman 2014). The workflow of online editorials built or integrated with major offline editorials is cumbersome. Their maintenance in the digital advertising market is not resolved. Much more viable is the smaller, blog like, faster, more flexible, purely digital version. Publishing has changed drastically over the last few years. Storytelling for the web is a vast field. Many newsrooms have taken advantage of this through data visualizations, interactive stories, and powerful multimedia long form pieces. The challenge and opportunity here for experimental journalism is to bring an engineering culture to newsrooms in which journalists and technologists work together by "prioritizing ease-of-use on the back end and not just a pretty product on the front" (Revear 2016).

In 2014, Jim Bankoff, chairman and CEO of Vox Media revealed that the secret to the company's growth: despite being a media company, he doesn't consider content to be their product. The product is really the overall digital experience. Vox Media's created its own content management system (CMS) called 'Chorus'. The platform allows journalists to edit and illustrate their copy in dramatic fashion, promote their work on social media, and interact with readers. The writer can start with just an idea and use the editorial workflow system to work on the draft with his colleagues. Developers of that platform call themselves journalists, and work continually with writers and reporters to build the tools they require (Barba 2014). The 'Chorus' publishing platform's toolkit allows the journalist to collect and process his newsletter from an idea by using a set of data with algorithms to create a new perspective and story (with the help of a programmer), edit, illustrate their manuscript, give it a dramatic style (with the help of a designer) and bring it to social media (decide with promo-

tional support when it is due to share, on which community platform). Unlike many media companies that delegated the web publishing problem to the IT department, Vox Media product managers, designers, social media managers and operations engineers built together a platform from the ground up by iterating with bloggers who knew how to tell stories and build communities on the web (Pfauth 2014). There is no similar business in Hungary yet.

Algorithmic Journalism (computational journalism)

Software processing data sets and news-producing algorithms increase the efficiency of editorial work, and make journalists more powerful information organisers than anyone else. If we believe that the journalist's vocation is to expand public knowledge and enrich civic life, we must realize that human writing is just one of the tools available. Editors should also be aware of how automatic news and information processing software work (Roso 2016). The superiority of algorithms and artificial intelligence over man is that they can produce structured data with intellectual connections. This is demonstrated by software optimized for automated production of stock exchanges and sports news. In the field of data-journalism, algorithms are suitable for story mining, i.e., for extracting relationships from large data sets. The promises of automated journalism are enticing. Once developed, algorithms can create an unlimited number of news stories for a routine and repetitive topic – faster, cheaper, and with fewer errors than any human journalist ever could. All is not lost for the people, though. The “Guide to Automated Journalism”, published in January 2016, provided a valuable overview of the state of automated journalism. Despite its potential, the technology is still in an early-market phase. Automated news generation is limited to routine and repetitive topics for which clean and accurate data is available and the stories merely summarize facts, therefore leaving little room for uncertainty and interpretation (Graefe 2017a:7). Contextual knowledge is a boundary of robot journalism that is reached quickly. Understanding the context is important for providing meaningful interpretation of the numbers. But contextual or unpredictable questions are hard to operationalize and to put in pre-defined rules. Journalists have plenty of opportunities to take on tasks algorithms cannot perform, like putting those numbers in proper context – as well as providing in-depth analyses, behind-the-scenes reporting and interviews with key people (Graefe 2017b). Human consciousness is unbeatable at producing drama from contexts: the communicative effectiveness of storytelling consists in provoking thought to identity search.

Combining the aspects of the automated and human journalism, the Stanford Computational Journalism Lab supports the evolution of computational approaches to public affairs journalism through research, teaching and the production of reporting (Stanford CJ Lab 2016). Journalists, academics and computer scientists – i.e. all part of the interdisciplinary ecosystem of journalism innovation – use computational methods to uncover accountability stories that would otherwise go untold. Classes and projects at the CJ Lab focus on public affairs, computational methods, investigative reporting and immersive storytelling. The projects have been exploring criminal justice data, transportation data, governmental corruption and campaign finance activity in politics. Thus, using algorithms, the role of the journalistic function of democratic control in public affairs journalism can be improved.

Following up on Bruno Latour and Christopher Anderson, Judit Barta published her article about the effect of algorithms as hybrids on online journalism (Barta 2015: 91). Datacrunching algorithms promiscuously combine human intentionality and non-human material obduracy to a degree where it becomes hard to discern between them (Anderson 2013: 1016). Therefore, a new kind of truth prevails in it. Algorithms often connote objectivity despite their embedded values. Beyond the technical assemblage there are people at every point: people debating the models, cleaning the training data, designing the algorithms, tuning the parameters, deciding on which algorithms to depend on in which context. Algorithmic procedure is not the same as suggesting that knowledge is produced exclusively by a machine, abstracted from human agency. To efficiently design algorithms that achieve a target goal, algorithms are trained on a corpus of known data. This data has been in some way certified, either by the designers or by past user practices. The algorithm may learn to pair queries and results found satisfactory in the past. “The most common problem in algorithm design is that the new data turns out not to match the training data in some consequential way. Sometimes new phenomena emerge that the training data simply did not include and could not have anticipated” (Gillespie 2014).

Algorithm may in fact serve as an abbreviation for the sociotechnical assemblage that includes algorithm, model, target goal, data, training data, application, hardware – and connect it all to a broader social endeavor. “The promise of algorithmic objectivity, too, has been incorporated into the working practices of algorithm providers, constitutively defining the function and purpose of the information service” (Gillespie 2013: 182). The presence of computational tools and algorithmic “objectivity” in the collection, evaluation and dissemination of journalistic evidence also requires reconsideration of the question of responsibility in journalism. On the one hand, algorithms transform the journalistic practice into an

operating code. On the other hand, making and altering the algorithm is a human decision. Thus, it is difficult to limit responsibilities. The question is whether it is possible to talk about human responsibility when machine-learning and adapting abilities of algorithms block the verifiability of algorithms.

The coexistence of human authors and their algorithmic counterparts raises the critical issue of the extension of the filter bubble scenario. Potential development of the expansion of automated journalism is “the creation of multiple – even personalized – version of any story to appeal to different audiences. Doing so would combine audience data with story data so that the software would decide what any individual or group of digital news audiences would want to read” (Carlson 2017: 231). In social media, personalization is algorithmic, and the news ecosystem is fragmented due to platform functionality. Community platforms and search engines create an information shell around the user based on their previous activities. Algorithms check how the platform user can meet the content of media companies. Editors need to be able to predict what content the reader wants: there is still much work to be done on targeting, transforming visiting data into a unique user experience (Lusk 2016). In the news competition, a pressing question is how to decide how newsworthiness can be delegated to algorithms. For now, it is not known how the fact that algorithms enter the shaping of newsworthiness, target audience, agenda-setting and public knowledge production will affect publicity of democracy.

Immediate action, cooperation, control, and convergence

In journalism, the last ten years have seen a wide-ranging discussion about the meaning of the people formerly known as the audience who are now producing their own information and disseminating it over the web within blogs, social media, and other websites (Vehkoo 2013). News competition has increased the immediate nature of content production: this is not only about speed but also creating a continuous content craving by offering new content. In social networks, news consumers get news indirectly from their friends. They want to read about what their acquaintances talk about. Group collaboration has changed what the journalist profession previously understood as the source of the news. The stories are documented locally, and then the web 2.0 forums (blogs, social networking, video sharing, Wikis) are almost immediately developed by enthusiastic “experts” who are unofficial journalists. Local groups want to be heard where the delegates from professional news agencies do not give any news (or just report on superficial local knowledge). The journalist has to consider what to do professionally with the enthusiastic crowd’s willingness to cooperate. Social

media provides a many-to-many network that allows for audience participation and interaction. It provides for audience comment, and these interactions can take the story forward. Crowdsourcing, co-creation and networked journalism have a common idea: the web has lowered the barrier for cooperation in tasks that would previously been executed by professionals (Howe 2008). Some news outlets have unforeseen access to their readers on the web. News organizations must have sufficient know-how to use this potential in news gathering.

The desire for verifiability is also intensified. It is important for information to come from multiple independent sources (if the source is decentralized, then it is possible to filter out a hoax). Another challenge is that with the spread of mobile devices, the diversity of content formats has become a user requirement and a professional norm (cross-media, smartphone and tablet-optimized, convergent solutions).

Open journalism is the name of journalism linked to the World Wide Web. Anyone who has a public value in the information can contact it, associate it, scan it, filter it, and collaborate with it. Anyone can create, publish, and share material and build publicity around the information. In 1999, the active commentary section of the Slashdot.org Technology Forum received an appeal from the editorial board to refine the raw version of a cyber terrorism article. The Community contribution essentially enriched the newspaper article. Salon.com, by borrowing an IT category, called the phenomenon open source journalism. Neither the tools used to produce content nor the ability to raise publicity is exclusive to professional media experts any more. This principle has many other names, each highlighting a slightly different aspect. User generated content is generated when a net user takes a photo, video, and reports what he has witnessed: the source of the information is the documentary and the sharing mood. Information gathering can be organized by crowdsourcing by business people, institutions and editors, and members of the organized or unorganized crowd will voluntarily contribute to the creation of information. Participatory journalism is realized when those who have previously been called audiences join forces with professional newsmakers for the acquisition, processing and mediation of information. In citizen journalism amateurs without practice or background do what professional journalists have always done, and publish the results of their work on their own networks (Jiang 2016). Crowdsourcing has the potential to offer journalists more insight and information as they can ask for help directly from people who are in a position to know about the topic. The 'watchdog' function assigns journalists the task to oversee the functioning of governments and society. With this mindset investigative journalists may reckon themselves as the guardians of democracy and human rights. Using social media and connectivity to reveal hidden truth, networked journalists are expanding

watchdog coverage by engaging readers online. Instead of gatekeepers they are facilitators and the public become co-producers (Beckett 2008: 147). New technologies enable journalists to do what they have always done: to uncover stories in the public interest (Carson 2016).

The open journalism methods now define the editorial work organization of successful news sites (Storyful, reported.ly, Bellingcat, UGC hub). In Hungary, Index2 shows developments in this direction, where cooperation between journalists and bloggers is being realized. The platform's motto is "the best of the popular internet". The idea is not that the audience should replace journalists. Instead, journalists have to learn to cooperate with their users. They have to work as part of the web ecosystem, not as if they were at the top of the web. The reporter must constantly learn what the web is about.

Explanatory reporting: the identity model of online journalism

Explainer journalism means journalists do what they have always been good at: they provide background information and context. This activity could be the legitimizing journalistic feature in the changed media environment. Everyone connected to the web by mobile can report on anything that is happening around them, but often without interpreting it. It is therefore critical for the journalist to provide contextual information to help understand the events. Combining the news and information into a story is a value for which the user is willing to pay. If readers understand the background, they are ready to follow the updates. A viable model of online journalism is the following: while many can be achieved through delivering the latest news, the journalist can increase the number of people who understand the story created from the news. "The aim is not just to deliver the latest news but to increase the number of people who understand the story well enough to follow future developments in it", so they will be willing to pay, too (Zhang 2016). New information needs to be supported with spectacular information graphs, data journalism and interpretations, that is, explaining the context of the current topic.

The print pages offered the contents in bundles: a little bit of everything to the superficial readers. This unsorted diversity was not ideal for the readers or the advertisers. A digital news economy undoes the logic of the bundle. People find the news they are interested in and disregard the rest. This niche model comes from the sphere of blogs: it is based on the experience that it is possible to produce valuable journalism by reviewing the same theme again and again. The news site specializing in the sub-area distinguishes itself because it accumulates superior knowledge in a well-defined subject and offers deep, ever-expanding knowledge to its audience.

The disadvantage of a paid model based on filling in a market gap is the limited number of readers due to the delimited topic area (Sánchez 2016).

Conclusion

Technology companies are fighting a rising tide of criticism about their impact on the journalism industry. Facebook stands accused of pushing misinformation, propaganda, and polarizing content into its news feed. In 2016, during the presidential election the algorithm was credited, perhaps wrongly, with delivering misinformation and divisive social and political messages in a way that affected the political process. Facebook has helped introduce thousands of jihadists to one another around the world, via its “suggested friends” feature (Tufekci 2018). Facebook’s business model is built on massive surveillance machinery, the data will eventually be used and misused – hacked, breached, leaked, pilfered, conned, targeted, engaged, profiled, sold. It’s hard to deny that technology companies are also publishers. Social platforms monetize, host, distribute and produce the cheapest and most engaging but less trustworthy contents at the expense of more credible but less marketable (because more expensive) high-quality editorial news material. As the new gatekeepers to our news, Facebook, Google, Snapchat and Twitter have the same responsibilities as any other media company, particularly when they place advertisements. The convergence between news companies and technology platforms is an economic issue. In 2017, both the fake news concerns over at Facebook and the advertising misplacement via Google were symptoms of a crisis in the public information market: “shoddy mis-sold products circulated at high speed through automatic trading systems beyond the control of even those who designed them” (Bell 2017; Grierson 2017). Many publishers say that platform companies need to do much more to face up to their wider responsibilities.

“Voice interface” and artificial intelligence (AI) seem to be the big challenges for media organizations. Voice capable AI assistants are also expanding across other devices, notably in cars and on smartphones. In 2018, a critical mass of emerging technologies (including drones, wearables, blockchain, 360-degree video, virtual reality and real-time fact-checking) will allow journalists to do richer, deeper reporting, fact checking and editing (Lever 2017).

The purpose of the study was to learn something about what we are calling a community’s “news awareness”—among other things, people’s understanding of how news works as well as their attitudes toward journalism. When the logic of community share in the new media environment began to change access to information, news production, and

news delivery, Stony Brook University's School of Journalism experts considered what to do. They began to develop an educational model that will prepare the next generation of news consumers to adjust to the new information ecosystem. The aim is for the media user to find credible news and isolate them from the figments. In 2006, the first national centre for conscious news consumption was established at Stony Brook University (Center for News Literacy Official Website 2018). *News literacy* is our ability to approach the media and forms of information through critical thinking, judging the reliability, accuracy and impartiality of news and communications.

Critical news literacy is appreciated when information and news often becomes a common product of professional online journalism and the content creator and content provider of social media users. Anyone who does not have access to network digital technologies falls behind. Those who are not supported by media literacy, critical information literacy, and media content are defenseless. The journalist's content is misjudged by those who have forgotten about ownership issues in editorials or about testing business models on the media market to maximize profits and/or maintain sustainable operations.

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