



## MOBILE NEWS

A review and model of journalism in an age of mobile media

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# MOBILE NEWS

## A review and model of journalism in an age of mobile media

Oscar Westlund

*The technological convergence of mobile “phones” and multimedia has been taking place since the 1990s, but it was not until the commercial birth of touchscreen-enabled mobile devices, offered with flat-rate subscriptions for mobile internet, that widespread production and use of news-related content and services began to flourish. Accessing mobile news has gained traction in the everyday life of the public. In parallel, legacy news media have in recent years developed news provision, by repurposing or customising journalistic content published for mobile sites and/or applications. This article explores the production of mobile news, by discussing and synthesising the findings of the contemporary literature found in the nexus of journalism and mobile media. It posits a model of journalism focusing on the roles of humans and technology in activities characterised by customising or repurposing. The article also presents a research agenda focusing on the production of mobile news.*

KEYWORDS mobile journalism; mobile media; mobile news; MoJo; model of journalism

### Introduction

Today's increasingly expanded, fragmented and digital mediascape is marked by uninterrupted change. There are reconfigurations of legacy media such as newspapers as well as the ways in which information and communication technologies (ICTs) are developed and used. Citizens of this information age are provided with a plethora of opportunities not only for accessing information such as news, but also for producing and sharing such information themselves. Many people nowadays have access to updated news in any place and at any time, since some sort of medium or ICT is seldom further than an arm's length away. Consequently, many citizens have diverted their attention and media spending away from legacy media such as newspapers. The strong uptake of online news has not only fuelled readership decline (e.g. Westlund and Färdigh 2011), but also threatened the business models of newspapers (Nel 2010). Consequently, academics and pundits routinely speculate about the possible, if not imminent, death of printed newspapers. Advertisements and charging for news content have been integral to the business model of legacy news media and, in order to survive, they have developed omnipresence strategies. More importantly, after many years of online news publishing, the production and consumption of mobile news has gained a foothold in recent years.

Functioning as an interpersonal communication device (i.e. for voice calls and text messaging), the mobile has become deeply embedded into contemporary social life

(Ling and Campbell 2011). Similar to time-keeping and cars, mobiles have become a taken-for-granted part of society (Ling 2012). The mobile “phone” has its offspring in the trajectory of the telephone and telecommunication developments but has undergone extensive technological transformations. This device now enables the processing of communication and information through audio, video, graphics, text and animation (Westlund 2008a). In concert with this statement, Wei (2008) reasons that it has been transformed into a media-rich platform that makes disseminating information, entertainment and news possible. Its transformation has been influenced by messaging services such as the pager (Leung and Wei 1999), and convergence processes that have involved accommodating functionalities such as the camera, GPS and music player. Since 2007, there has been a convergence of telecommunications and computing as voluminous companies such as Apple, Google and Microsoft have entered as powerful shapers of the mobile media industry alongside giants such as Samsung and Nokia. A plethora of other actors, such as Amazon and Xiaomi, have recently mobilised their forces to take part in the shaping of global mobile media.

Nowadays, mobile news publishing involves multiple means of distribution, from customised news alerts by SMS or MMS to mobile news sites and convergent mobile news applications (which commonly and hereafter are referred to as apps). The term *mobile device* will be used in this article to convey this ubiquitous ICT more broadly than a mobile “phone”. However, it does not make reference to other sorts of portable devices (such as tablets and netbooks) that possess the facility for making voice calls over mobile networks. The popularised but ambiguous term *smartphone* is avoided here, since it was actually used prior to the launch of touch-screen devices with downloadable and customisable content and services (by Nokia for instance), but also because there are inconsistencies in how to define this continuously transforming object. A recent journal special issue has contributed to our understanding of the ways in which smartphones are “smart” (Watkins, Hjorth, and Koskinen 2012), but many issues remain unresolved and, moreover, the smartphone terminology mostly still connotes to the “phone” dimension. *Mobile device* constitutes a more inclusive yet more precise term, here referring to a range of devices; feature phones (i.e. Nokia 100), smartphones (i.e. iPhone 5) as well as the emerging so-called phablets category (i.e. Samsung Galaxy Note) which include devices with a touch-screen sized between five and seven inches.

While mobile news consumption has recently gained popularity, the situation was remarkably different only a few years ago. Early studies witnessed a reluctance towards accessing news using mobile devices (Westlund 2007), which seemed to find a niche only in the interstices of everyday life, mainly accessed whilst “on the go” when other news media were not available (cf. Dimmick et al. 2011). Other studies have confirmed that novice users only access news on the go, in a complementary fashion when other media are unavailable. However, they also identified that advanced users access news both in public and domestic contexts (Westlund et al. 2011). A global study (with so-called smartphone owners) by telecommunications company Ericsson (2011) reported that commuting was the most common situation for using mobile apps (54 per cent), although many also used them before getting out of bed (38 per cent), during the morning (54 per cent) as well as whilst in bed in the evening (50 per cent). Their findings provide evidence that mobile media have gained significant usage everywhere in everyday life, which is confirmed by other

studies on the use of mobile devices for the internet (Lebo 2012; Radwanick and Aquino 2012), and news (Radwanick and Lipsman 2012; Mitchell and Rosenstiel 2012). Internet browsing scored slightly higher figures than news accessing prior to the launch of touch-screen devices (Westlund 2008a, 2008b). However, with the rise of mobile app ecosystems, the uptake of the internet has grown faster than news. Nevertheless, with 15 per cent daily users amongst the Swedish public (16–85 years) in 2011, it scores only slightly below social media (18 per cent), search (18 per cent) and e-mail (20 per cent). Amongst those who have acquired touch-screen devices, 34 per cent accessed mobile news daily, compared to 1 per cent among others. Socio-demographically, accessing mobile news was more common amongst men, the educated and people aged 16–49 years (Westlund 2012a). It is worth noting that not only mobile apps and mobile sites have become widely used for mobile news consumption, since news publishers are also seeing growing figures to their traditional web-sites being generated by mobile devices. In conclusion, more and more digital news accessing is becoming mobile.

Legacy news media are aware of contemporary changes in how people access the news, with some news media managers anticipating mobile news consumption surpassing that of personal computers within a few years (Seale 2012). In addition to mobile news consumption gaining popularity, the production of mobile news services has also thrived. This article on the production of mobile news discusses and synthesises literature found in the nexus of journalism and mobile media. It introduces the main themes and findings from the growing body of journalism literature whilst giving less emphasis to business dynamics and technological developments. The article is thematically organised into four substantive sections. The first reports on the ways that legacy news media have embraced and developed mobile news publishing, from both an industry and organisational perspective. The second discusses literature on the potential emergence of mobile journalism, focusing on editing practices for mobile news platforms as well as how both journalists and citizens utilise mobile technology in news reporting. The third discusses the main findings and presents a model of journalism. The fourth and final section highlights important areas for future research into journalism in an age of mobile media.

### **Legacy News Media Turning to Mobile News Provisioning**

Many contemporary legacy news media strive towards omnipresent news publishing by mobilising for cross-media news work. In the late 1990s, some legacy news media experimented with publishing news for the pager. In the twenty-first millennium, the mobile device started to be used for news publishing, and this has certainly gained in popularity in recent years (Cawley 2008; Goggin 2010; Westlund 2011). From Sydney to San Francisco and Salamanca, legacy news media are currently offering news for mobile devices. A plethora of mobile news platforms have been developed, including manually crafted pushed message news alerts by SMS and MMS as well as pull news tailored to interfaces such as mobile news sites and mobile apps. Formative developments are discussed first followed by contemporary developments.

### *Formative Developments*

In the early 2000s, pushed news alerts utilising SMS and MMS technology were provided by numerous news publishers in the developed world, such as the BBC and *El País* (Fidalgo 2009), including German (Wolf and Hohlfeld 2012) and Swedish news publishers (Westlund 2011). Several studies illustrate the dynamic changes taking place in the developing world, reporting on the prevalence of pushed news services in Brazil (Fidalgo 2009), China and several African countries. Two newspapers of the China-based Yunnan Daily Press Group launched an SMS news alert service in 2002. Their service peaked at 290,000 subscribers in January 2005 but had declined to 120,000 only a year later. Other Chinese newspapers also experienced a similar rise and fall of SMS news alerts, with the fall being explained by a more general trust crisis concerning SMS services. As their SMS service continued to decline, they launched an MMS news alert that attracted growing figures (Cheng and Bruns 2009). A recent industry project found that publishing news by SMS and/or mobile news sites was operating at six selected case studies among African newspapers in Kenya, South Africa and Uganda. *The Daily Monitor* in Uganda, for example, a newspaper with a daily circulation of 22,000 copies, launched an SMS-based news service in 2007 (fee-based) and an auto-directed mobile news service the following year (free of charge). As of 2010–11, 30,000 subscribers were receiving three or four daily SMS alerts and approximately 10,000 monthly unique visitors to their mobile news site. Some of these SMS alerts were generated from their so-called fantasy football service offering personalised news subscriptions of specific players (Büren 2011). Another African qualitative research project, with four South African news publishers, reported on the use of pushed news alerts, although more of these news publishers offered mobile news sites (Van Noort and Mavhungu 2012).

Although timing has varied, the formative use of pushed news alerts strikes a cross-cultural similarity when comparing news publishers in the developed and developing world. Several of these case studies report the existence of mobile news sites in the developing world, and such developments have also taken place elsewhere. Research from Germany reveals some efforts towards mobile news sites and also the customised publishing of mobile news videos (Wolf and Hohlfeld 2012). Close scrutiny actually reveals that various experiments have taken place, from which mobile news sites have crystallised as a more common approach. A longitudinal study providing an insider's perspective into *Göteborgs-Posten* (Westlund 2011), the second-largest quality newspaper in Sweden, can shed light on procedures performed to resolve the direction of Web-based mobile news publishing. Their experimenting started in the early 2000s through news publishing on telecommunications operators' portal sites (e.g. Vodafone Live) as well as for portable digital assistants (PDA). Their PDA service involved a limited selection of journalistic content, primarily displaying text whilst containing few images. The reason was that, at the time, data-transfer speeds were slow and the cost of usage was high, whilst advertisements and usage levels were limited. During these years, *Göteborgs-Posten* also developed a fee-based and award-winning mobile news app (built with JAVA technology) providing personalised sports news and results. Nevertheless, this app was terminated since it attracted few subscribers. *Göteborgs-Posten* thereafter turned to mobile news sites, launching their first version in 2005.

Mobile sites were customised for accessing with mobile web browsers, since these typically could not access traditional websites prior to 2006 (when XHTML started

to become widely available). Mobile sites typically contained mostly text, whilst limiting pictures, video and audio to reduce the inconvenience of long page loading (3G networks had not yet been widely deployed) and high costs (users typically paid per minute or per Mb of data). Experimentation with various approaches was common and aimed to achieve better exposure, usability and user-friendliness. Many news publishers invested considerable effort in ensuring mobile device manufacturers added their mobile site as a bookmark in the default settings. They also formed agreements with telecommunications operators to be displayed in their portals. In this context, Japan stood out as an international innovator, mostly because telecommunications operator NTT DoCoMo launched the i-Mode service for customised mobile content in 1999 (Westlund 2010). The formative developments of legacy news media, mainly involving pushed news alert messages and mobile news sites, eventually changed with the rise of new mobile ecosystems in late 2007.

### *Contemporary Developments*

Legacy news media continued experimenting with how to make mobile news provision more user-friendly through dedicated services. At the end of 2007, *Dagens Nyheter*, the largest quality newspaper in Sweden, launched a specific mobile device (by Nokia) with an exclusive flat-rate subscription (from Pan-European telecommunications operator Telenor) through a partnership with these companies. Their bundled service provided print subscribers with a dedicated button for accessing their mobile news site at a fixed charge. The international news industry widely acknowledged their service and their chief of mobile presented it at events such as the annual conference organised by the World Association of Newspapers (WAN-IFRA). In 2008, *Aftonbladet*, the largest newspaper in Scandinavia at the time, employed a dozen media workers, as part of their programme to establish a company dedicated to developing and managing mobile media. One of their inventions involved implementing so-called QR coding technology, which they used to display bar code tags next to newspaper articles. When users took a photo of the tag with their mobile camera, it redirected them to enriched and updated content on the company's mobile news site. This was aimed to provide a direct and user-friendly gateway from print to mobile that stimulated complementary news accessing (Westlund 2011).

However, in spite of substantial efforts and considerable industry recognition, both of these trials were soon terminated and did not prove to be significant in the long run. Rather, it is other inventions which should be credited with sparking the tremendous growth of mobile media that emerged at the time. Much of this began when Apple launched the iPhone in the United States in 2007, with a growing diffusion elsewhere in the following years. The hardware and software circumventing the iPhone represented a relatively new approach to shaping mobile media ecosystems; this consequently inspired other significant telecommunications and media companies. As this resulted in a plethora of high-stake lawsuit battles over technology patents, typically between Apple and the companies circumventing the Android ecosystem, it is worth noting that researchers had already started envisioning and experimenting with touch-screen devices in the 1980s.

In parallel to the rapid diffusion of touch-screen mobile devices, third-party content producers such as legacy news media have experienced a tremendous growth of mobile apps. The first generation of iPhones was actually marketed displaying the logo-type of the *New York Times*. News providers first ensured their news content was accessible with mobile browsers such as the Safari browser for iPhones, and secondly started developing so-called native apps providing news and/or utility services. Initially their efforts were typically directed towards creating apps for iOS-based iPhones. Following the commercial launch of Android in September 2008, by Google and the Open Handset Alliance, many producers of mobile devices have developed such handsets (e.g. HTC, LG and Samsung). Conversely, third-party content producers such as news publishers have also invested in developing Android apps. Research-in-Motion (Blackberry) and Symbian have suffered tremendous declines in recent years. Nokia's transfer to Microsoft's Windows Mobile has to date attracted only marginal portions of the global mobile media market, in which Android has an unrivalled leader position and Apple iOS comes second.

From the perspective of news publishers, several mobile platforms have emerged on which they can, and increasingly do, feel pressured to publish their news. This has created ever more complex and costly challenges for news publishers, who must explore new ground when developing attractive mobile apps. Nevertheless, a global 2010 newspaper industry survey reported that 51 per cent of media managers found mobile platforms an important priority for the future (Stone, Nel, and Wilberg 2010). Another study reported that mobile media were already considered increasingly important prior to the diffusion of contemporary touch-screen mobile devices. Managers and media workers, from the editorial and IT departments in particular, expressed a conviction about the rise of mobile media, already taking roles as movers within the organisation prior to the diffusion of mobile devices with touch-screen. Conversely, businesspeople took a more guarded approach (Westlund 2011). The following presents an insider's view into the development processes of *Göteborgs-Posten* from 2007 to the present. Thereafter, quantitative audits inform on the contemporary mobile endeavours of legacy news media in various countries as of 2011. Finally, an industry report containing 15 case studies provides glimpses into current mobile endeavours amongst newspapers.

The media managers and media workers at *Göteborgs-Posten* were hesitant about developing mobile apps throughout 2007–2009. This was partly due to path dependency and their heavy investment in a mobile platform oriented towards their mobile news site. Other explanations included the recession and prioritising their other development projects. Nevertheless, the media workers monitored the emergence of mobile apps, and became increasingly convinced that they should develop and provide such apps (Westlund 2011). By the beginning of 2010, the recession had turned and the other development projects had been completed, offering enhanced opportunities to invest resources in the development of mobile apps. Media workers in different departments, however, developed distinctive understandings of the project requirements. A team of media workers representing the editorial and IT department, for example, conceptualised a news app in ways that can be termed a “producer-centric approach” which greatly emphasised conventional as well as local news reporting.

The business department, on the other hand, had collaborated with a public relations firm to shape something innovative and interactive. Their “participation-centric



approach” promoted participatory journalism and other sorts of user-generated content on equal grounds with their own news reporting. Their internal negotiations resulted in releasing a producer-centric app with free news content in June 2010. It is important to note that soon after they also launched a niche app for a local sailing event. *Göteborgs-Posten* continued to release updated versions of the iPhone app, which included fee-based niche news as well as an interface for listening to their news articles. They also launched native news apps for Android, Symbian and Windows Mobile, plus an HTML 5 app aimed to serve the needs of tablet users. Within two years of launching their first iPhone app, mobile traffic had increased by more than 1700 per cent. The media workers at *Göteborgs-Posten* generally expressed satisfaction with their chosen paths for mobile media developments (Westlund 2012b).

To explore more general developments in mobile news services, this article now turns to an annually conducted (2008–2011) quantitative audit of mobile activities among metropolitan newspapers in 66 cities of England, Scotland, Wales and Northern Ireland. The analysis focused on performance regarding channels, content, conversation and commerce (i.e. the 4C’s). In brief, the results showed that the number of newspapers offering SMS- or MMS-based news alert increased between 2008 and 2009. However, thereafter it decreased, in favour of mobile news sites and apps. The news publishers did little to facilitate conversation themselves, although an increasing number appropriated the third-party micro-blog service Twitter. News publishers mainly auto-directed content in terms of traditional journalism categories such as general, sports and entertainment news, and also included weather, traffic and travel. Little original content was on display. Lastly, with commerce, there was also an analogy to the Web, since content was typically free and the main commercial initiative involved advertising. Advertisements were present however at only some mobile sites (Nel and Westlund 2011). Findings from a 2011 American survey reveal that 62 per cent of daily newspapers with circulations above 25,000 had a mobile app, while the figure for dailies with lesser circulations was 21 per cent. A majority (59 per cent) of those without a mobile app planned to develop one within a year, and nearly half (45 per cent) of these considered a fee-based app (Fidler 2012). An audit conducted in Sweden during 2011 serves as a comparison. The results showed that 44 per cent of Swedish newspapers offered a mobile news site, 24 per cent had an iPhone app, and 12 per cent offered an Android app. General news and sports were also prominently displayed in Sweden, together with reporting on crimes and accidents. In addition, most newspapers offered some sort of conversational functionality (Eriksson and Tomic 2011). It is worth noting that mobile apps nowadays are also offered by legacy news media in numerous other countries from South Africa (Van Noort and Mavhungu 2012), to China, Australia and India. *The Times of India*, for instance, provides different news apps for iPhone, Android, Blackberry, Symbian and Windows. Legacy news media nowadays also customise tweets with news for Twitter, often with links to the full news story on the website. It is worth noting that a growing number of people access these instantaneous news briefs, and also typically do so with their mobile devices. Nevertheless, these tweets are generic in the sense that people also access the same tweets with laptops and tablets. Another issue worth noting is that mobile apps have turned into a powerful tool for news provisioning by content aggregators such as Flipboard and Pulse Reader, which have enjoyed strong uptake by people interested in individualising



their experiences with mobile news. In conclusion, native apps have gained traction among both legacy news media and other stakeholders.

The International Newsmedia Marketing Association (INMA) released a case study-based report in June 2012 titled *Emerging Mobile Strategies for News Publishers* (Seale 2012). The interviews emphasise both similarities and differences concerning the perceptions and actions of various news publisher representatives from Europe and North America. Respondents typically argue that mobile news consumption provides a valuable opportunity to reach users anytime and anyplace. Mobile news is perceived to expand the clock for news consumption and that a cross-over point will be reached within two years. This leads many of these news publishers to invest in mobile technology and services to develop their omnipresence, amongst which some state that they have adopted a “mobile first” strategy. Nevertheless, there is an emphasis on experimentation and being flexible, since it is difficult to predict what will happen next. Some outsource development work, whereas others create in-house mobile developments.

Differences concern their contrasting approaches towards publishing news for mobiles. On the one hand, news publishers such as *The Guardian* focus on publishing tailored content such as live and breaking news plus news summaries, whereas the *San Francisco Chronicle* prioritises opinion articles and blogs, since mobile users are often the most engaged. One also finds niche apps promoting in-depth information on topics such as the *New York Times*’ election app or the *Chicago Tribune*’s app for the Chicago Bulls (Seale 2012), as well as utility services such as restaurant guides by *Göteborgs-Posten* and sudoku games by *Svenska Dagbladet* in Sweden. On the other hand, companies such as the *Financial Times* are taking a platform agnostic approach by not publishing mobile editions of their digital content through native apps. In fact, they have instead used responsive web design (HTML5), which other companies such as Sanoma, the *Chicago Tribune* and Deseret News are also considering. Other companies like US-based Digital First Media, express that their strategy involves not using either native apps or responsive web design, but rather doing both and also including SMS news alerts (Seale 2012). Responsive web design translates into fluid websites that automatically adapt the content to any screen, such as a mobile device, computer, tablet or television. The main philosophy is to avoid quarantining content for different screens, even different sorts of native app ecosystems, and making content more easily accessible and manageable (Marcotte 2010). Native apps have more restraints when it comes to hyperlinking and sharing via social media such as Facebook and Twitter. This is not only a disadvantage in terms of generating user traffic, but also from a business perspective regarding measuring traffic and redirecting users to other sites through advertisements.

There has essentially been a movement amongst news publishers towards adding more and more customised mobile news apps to their cross-media portfolios. Managing a variety of news platforms is, however, a daunting task about which media managers have expressed their concern. Technological auto-direction and more platform-agnostic approaches have been seen as feasible approaches to overcome the difficulties and tardiness involved when making continuous improvements to several mobile app platforms at once. Nevertheless, newspaper industry isomorphism, organisational path-dependency and the desire to offer the solutions users ask for (typically iOS and Android) obviously create substantial difficulties for accomplishing a transition.

So far as making profits is concerned, this has been viewed as an important yet insurmountable challenge within legacy news media, although businesspeople have been waiting for mobile media to make a breakthrough amongst users first (Westlund 2011). To sustain the mobile media business, sales staff must get involved and be convinced about the idea of mobile, and integrate this into all of their sales. Danish *Ekstra Bladet* finds that dedicated sales staff for mobile sales is beginning to pay off. While many give away their content for free, other publishers such as the *Denver Post*, *The Daily Telegraph* (Seale 2012), *Göteborgs-Posten*, *Verldens Gang* charge for accessing (specific) news with the mobile. The bottom line is that legacy news media must work with publishing news, as well as developing technological solutions and their mobile business.

### Mobile Journalism?

The first mobile devices equipped with internet access, camera functionality and messaging services became precursors to a growth in using mobile devices for reporting news. More recent technological landmarks have significantly improved such possibilities. This has, on the one hand, led to journalists working for legacy news media adopting such mobile devices in their reporting. On the other, this has also fuelled a rapid growth in citizen journalism. Does the introduction of mobile devices into the equation of journalism radically transform work practices? Obviously, the pervasive nature of mobile devices has made numerous tasks possible for journalists whenever and wherever, such as to receive and send e-mails to each other. Nevertheless, legacy news media have taken divergent approaches to employing mobile devices for reporting from the field, distinctive approaches to what sorts of content to publish for mobile devices, along with a variety of stances on whether manual editing is a prerequisite for achieving acceptable quality levels.

### *The Shaping of Journalism for Mobile News Platforms*

News media firms with cross-media portfolios use several platforms to publish. There are various models and understandings of how journalism *is* and/or *should* differ in the digital habitat compared to journalism for radio, television or printed newspapers. Journalism has been closely connected to the media platform on which it is distributed, although it often imitates its predecessors. Pavlik (1996) discussed that repurposing practices in which articles from printed newspapers are published online essentially translate into shovelware. Since the birth of online journalism in the mid-1990s, numerous academics and industry practitioners have deemed shovelware as insufficient. Rather, they propose that news media must accommodate the various potentials which digital media offer. More broadly this relates to theoretical conceptions of media having different logics and affordances (Dahlgren 1996).

In his review article, Steensen concludes that many journalism scholars have measured the extent to which legacy news media utilise technological assets such as multimedia, hypertext and interactivity with ambitions to assess whether these are successful in the digital habitat. He finds that legacy news media often lag behind

contemporary technological developments, but that alternative research inquiries must be addressed to understand why online journalism develops as it does (Steensen 2011). Differing perceptions of logic amongst journalists, businesspeople and technologists signal that different dynamics are at play that convinces legacy news media to embrace some technological assets while maintaining a guarded approach to others (Nielsen 2012; Westlund 2011, 2012c).

In the case of news publishing for mobile platforms, publishers seem to approach the publishing of SMS news alerts in terms of manually writing customised messages. Conversely, their approaches to mobile news sites and apps have varied between companies and over time (Westlund 2011). A qualitative study focused on four Swedish news publishers concluded that these not only engage in repurposing, but do so especially for publishing news on mobile devices (Nygren and Zuiderveld 2011). There are obviously divergent approaches, considering the previous discussion of *The Guardian* significantly customising journalism for native apps whilst *The Financial Times* uses responsive web design in an explicit embrace of a sort of platform-agnostic approach (Seale 2012). To employ a mobile editor for the manual crafting and editing of journalism for mobile devices signifies explicit intentions for customising content flow. This can involve producing unique content designated for mobile devices, as well as manually reducing or adding elements to the content published on other news platforms. Added elements may involve infographics, edited pictures or videos, or news summaries.

In 2008–9, one or several journalists were employed to work exclusively as mobile editors at larger newspapers such as *Aftonbladet*, *Expressen* and *Göteborgs-Posten*, which first employed a mobile editor in 2008. The members of the editorial department at *Göteborgs-Posten* considered the employment of a mobile editor in 2008 as necessary to ensure the quality of journalism. The editorial media workers essentially extracted cues from the other newspapers that engaged mobile editors, which were interpreted as important signs of its significance. Employing a mobile editor was part of a strategy to mark the symbolic importance of mobile news publishing to their own employees, to the newspaper industry, and to the public. The mobile editor worked full-time on these duties in 2008 but, in 2009, she was given additional work and, beginning in 2010, she received an internal job transfer. No other mobile editor was employed, and much of her previous mobile editing was seemingly replaced by machines in the form of content management systems used for the auto-direction of content. Media managers had by then changed their approach to mobile news, reasoning that mobile distinction could not be achieved through manual editing, but rather through the purposeful selection and presentation of news articles through auto-direction. The institutionalisation of mobile news, however, also involved that journalists were forced to become aware of auto-direction's shortcomings for mobile news platforms. Not all types of article formats and multimedia content from the news site could be auto-directed to mobile news platforms. Journalists started to think one step ahead when reporting on breaking news to ensure that it was also displayed on mobile devices. This shows how old practices coupled with the news site transformed, as they had to contemplate the new mobile news platforms (Westlund 2011).

In fact, not only *Göteborgs-Posten* but other Swedish newspapers downscaled or terminated their mobile editing from 2009 onwards. Generally, there were shifts from pure auto-direction to a combination of auto-direction and manual editing (when

mobile editors were on duty) and then back to auto-direction. Supporting the finding that auto-direction was used more than manual editing, a study of German publishers revealed that few employees worked exclusively on preparing and publishing news for mobile devices (Wolf and Hohlfeld 2012). *The Guardian*, by contrast, hired its first dedicated mobile editor in March 2011, with the aim of publishing news manually adapted for the mobile. Evidently, there are exceptions to this general trend towards more auto-direction of mobile news, although neither of these approaches should be translated as mere repurposing. Expanding on this discussion about mobile journalism, it is important to consider that although the same content can be published on various news platforms, different presentation forms and technological assets can be used to provide customised experiences. Acknowledging that the mobile device is personal and typically within arm's length, legacy news media can utilise functionalities such as personalisation and positioning to provide both instant and in-depth news in the folds of everyday life. The roles of humans and technology to journalism will be discussed at greater length in the final section, which posits a model of journalism.

### *Mobile Journalists*

Mobile devices have enhanced the possibilities for journalists to work and report from the field. They can be used for news reporting for mobile news platforms but also for the entire cross-media portfolio. Internet connectivity and advanced search functionality, along with a myriad of intelligent and easily accessible apps, have obviously provided journalists with new and powerful tools for reporting news. Google queries, facts from databases, as well as gateways to informants are typically only a couple of clicks away. Bivens (2008), for instance, notes that journalists are empowered to instantly double-check earlier statements and facts while interviewing a politician. Mobile technology generally stands out as making news reporting more efficient in times when journalists in many legacy news media organisations are shrinking. Mobile devices, which nowadays can be used not only for communication but also information searching and news reporting, represent a game changer both for journalism and legacy news media.

Mobile journalists (MoJos) are journalists who use mobile devices (extensively) in their news reporting. Such practices have grown considerably around the globe, from Asia and Australia (Quinn 2009) to Africa (Mabweazara 2011), North America (Martyn 2009) and Europe (Westlund 2011). Industry examples of MoJos include the iReport by CNN and the MoJo kit developed through collaboration between Reuters and Nokia. The merger between the news industry (Reuters) and telecommunications (Nokia) through their collaboration in 2007 has been widely quoted. A toolkit was developed for the Nokia N95 model that facilitated instant reporting from the field with functionalities for easy text editing and video streaming. Furthermore, the journalist could easily include contextual metadata on location, time and data that were extracted by the mobile device.

Their toolkit sparked a growth in using mobiles for reporting, although this development seems to have taken other turns since then. Many newspaper companies instead seem to have chosen to provide employees with iPhones or mobile devices equipped with the Android interface (i.e. Samsung, HTC, LG and Sony). In addition, rather than using the mobile only for traditional reporting, journalists have also used

applications for live video streaming (e.g. Bambuser) and live blogging (e.g. Disqus). Contemporary research does not provide a general outlook on the extent to which legacy news media have engaged in reporting with mobile devices. The case study with *Göteborgs-Posten* suggests that increasingly more journalists were both provided with and used their mobile device for news reporting from the field. Nevertheless, no formal strategies were developed to spark such growth (Westlund 2011). The situation differed substantially at another Swedish newspaper (*Helsingborgs Dagblad*), which provided a journalist with training in mobile reporting (through WAN-IFRA), and then assigned this individual to train a dozen other journalists in these practices. The ambition was that this group should function as opinion leaders, who in turn also stimulated others to adopt mobile reporting. One presumably finds newspapers elsewhere in the world that have adopted strategies at both ends of this spectrum. In conclusion, the uptake of mobile devices for reporting may differ significantly from one newspaper to another. Nevertheless, such opportunities seem to have opened for new kinds of news-making practices.

Several Nordic studies have explored how mobile technology has created new possibilities for journalism. Some of these have focused on how mobile news reporting influences the organising and practice of journalism (e.g. Jokela, Väättäjä, and Koponen 2009; Koponen and Väättäjä 2009). The peculiar features of mobile devices, such as positioning, have been given specific attention. For example, one study explored how location-based functionalities can be used to manage news work, such as managers giving assignments to journalists in the field as well as employing mobile devices for brief news reporting. Despite some concerns about privacy, journalists accepted being located when on duty, and to being given location-based assignments on accidents and crises, etc. The authors concluded that such mobile assignments transform work practices and responsibilities for both journalists in the newsroom and those in the field (Väättäjä and Egglestone 2012). Additional studies into experimenting with mobile journalism platforms among legacy news media suggest that costs, usability and functionality constitute challenges newsrooms must deal with (Mills et al. 2012).

Other researchers have also explored the possibilities for journalism provided by positioning services. Early findings from a Norwegian research project concluded that GPS-assisted information gathering could result in journalists achieving greater accuracy, although the author found that the investment necessary would probably be too high for news media (Nyre 2010). In later work, Nyre et al. built further on their study of developing journalism for mobile devices with positioning technology. The authors discuss location-dependent journalism in terms of presenting stories on maps, utilising an implied position for the reader, so-called “zoom in stories” which are fully accessed only when the reader approaches the location of the story, as well as reshaping news criteria to focus on spatial proximity rather than the classical criteria of temporal actuality. Interestingly, the authors conclude that journalists involved in testing these functionalities experienced problems adapting to the spatial proximity news criteria, which seemed almost counter-intuitive to them. Consequently, the authors express concern that the great potential of location-dependent journalism may not be appropriated, and the public miss out on services providing a more sensitive understanding of their local spaces (Nyre et al. 2012).

*Citizen Journalism in an Age of Mobile Media*

In 2002, Rheingold argued that in the future personal technologies would make it possible for individuals to publish news instantly to the Web as events unfolded before their eyes. His prediction proved to be correct, as the mobile device has opened new spaces of citizen journalism. This is a precursor to contemporary developments involving SMS technology, which legacy news media have used to facilitate interactions with their readers in both the developing (Mabweazara 2011) and developed world (Erjavec and Kovacic 2009). To date, Associated Press, CNN, Al Jazeera and several other news agencies offer mobile apps displaying content created by citizen journalists (Mills et al. 2012). Similar activities are found also among numerous legacy news media companies.

A growing number of people are equipped with mobile devices that have a camera, web browser and access to social media apps such as Twitter. Hence, mobile devices are used for reporting live from both everyday life events and more significant events such as natural disasters, crises, civil wars and riots including recent occurrences such as the Arab spring and the looting, arson and rioting in England in 2011. A number of studies worldwide have noted a far-flung use of mobile technology at moments of crisis. Bivens (2008) suggests that the use of mobile devices for sending SMS, MMS and e-mails with images and videos has reached an unprecedented volume at a number of international crises, such as the South Asian tsunami in December 2004 and the London attacks in July 2005. Mabweazara (2011) also notes that in Zimbabwe, the use of mobile technology amongst citizens has been most prevalent at times of crisis and large national events. Gordon (2007) has published an in-depth analysis focusing on citizens' uses of the mobile in the public sphere during three major crises: the SARS outbreak in China (2003), the tsunami in Southeast Asia (December 2004), and the bombings in London (July 2005). She discusses that citizens were equipped with numerous options for communicating with their families and friends, as well as documenting and reporting directly from the locations of these events. By shooting pictures and short films which are distributed to individuals and the media, they contribute perspectives, images and stories that otherwise would not be reported. Meanwhile, Gordon also notes that legacy media accommodate citizen journalism but on their terms, functioning as gatekeepers and editors of such content (Gordon 2007). Conversely, Mortensen (2011) found that news media seem to lack editorial procedures for managing footage originating from the use of mobile devices amongst citizens.

Lorenzo-Dus and Bryan (2011) have also studied the role of mobile media in citizen journalism, focusing in depth on the 2005 London bombings (also referred to as 7/7). Their distinctive approach, however, focused on how British broadcasters used citizens' photographs and videos in news reportage. The authors conclude that these legacy news media mostly used user-generated content for their live reporting, which then largely consisted of selected uniform mobile media footage. Furthermore, this footage was not only sanitised by the journalists when selected, but the citizens who had generated the mobile footage were typically marginalised or even made invisible (Lorenzo-Dus and Bryan 2011).

Mobile-enabled citizen journalism obviously involves facilitating two-way communications between people who have traditionally been considered producers and users of media. This topic has, in recent years, spurred much journalism research years under headings such as participatory journalism (Singer et al. 2011) and produsage (Bruns

2012). A prevalent tension exists between the producers and users of media that seems to be especially pronounced in the salient case of journalism. Seemingly reluctant to relinquish their historical authority and control, the long-established ideologies and practices of legacy news media continue to guide their approaches to participation, in general (Lewis 2012; Westlund 2012c), and mobile-enabled citizen journalism, in particular (Westlund 2012b).

### A Model of Journalism

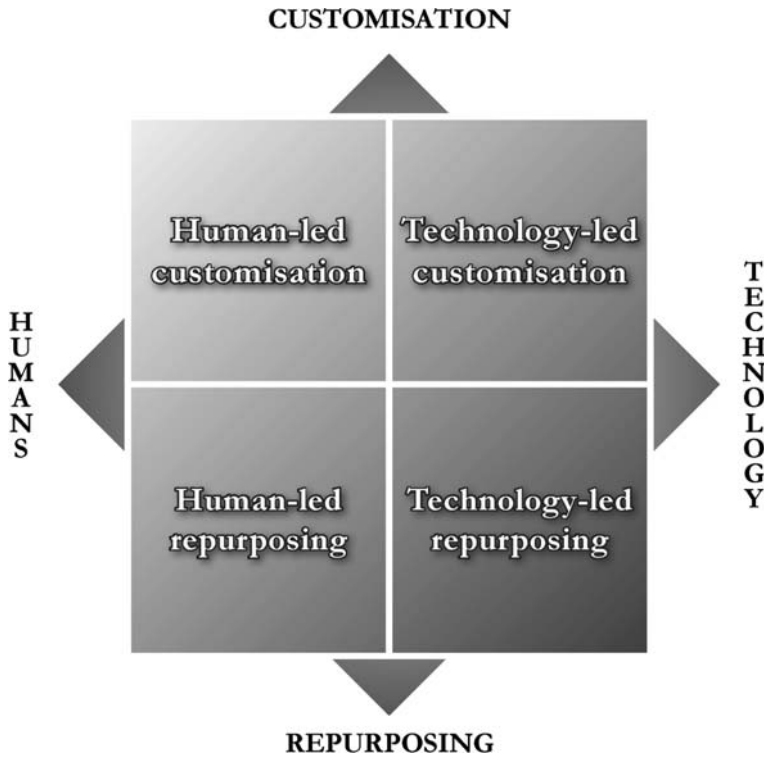
Across the globe, news publishers started distributing SMS or MMS news flashes, which were typically manually crafted and customised by journalists. Although many continue to provide these, efforts increasingly favoured publishing news through mobile news sites. This was followed by an explosion of native mobile apps (mainly for iOS and Android), which has recently become accompanied or even displaced by initiatives towards responsive Web-designed apps. These provide enjoyable user experiences with less effort for news publishers and improved opportunities for advertisements. Nevertheless, many news publishers currently engage in a sort of cross-media publishing for various mobile platforms, most notably native mobile apps, that involves both free and fee-based approaches towards charging users. In conclusion, this review suggests that more and more legacy news media no longer rely on journalists' manually crafting unique journalistic content for mobile devices. Instead they are increasingly leaning on utilising machines for automated repurposing of journalistic content, while at the same time making use of technological functionalities to provide an experience with the news customised for the (perceived) affordances of the mobile device.

Following from this, the article posits a *model of journalism* that can be used for comprehending different approaches to the shaping and distribution of journalism. While the model derives from the present analysis of mobile journalism, its broad conceptualisation is applicable also for analyses of other kinds of journalism. It offers an analytical framework for studying journalism in terms of the human actors and technological actants performing the work, *vis-à-vis* the degree to which content and services are platform-agnostic or coupled with specific affordances and logics. The model presents two interrelated continuums: (1) *humans* versus *machines* and (2) *customisation* versus *repurposing*. The first and horizontal continuum is used to specify the degree to which humans (i.e. journalists or citizen journalists) or machines (content management systems) are engaged for the publishing of news for mobile devices. The second places the activities for mobile news publishing along a vertical continuum stretching from complete customisation (i.e. content and/or services unique to the mobile), to repurposing exactly the same content being published for other news platforms. It offers a record of the overall degree of customising the user's experience with his/her mobile device. The two continuums of the model form a  $2 \times 2$  matrix with four dimensions, where activities characterised by being equally weighted to the two ends consequently are placed adjacent to the boundary lines.

### A Model of Journalism

There are two opposite approaches to customising content and services for the perceived affordances of the mobile interface (see Figure 1). Formative activities for





**FIGURE 1**  
A Model of Journalism

mobile news among legacy news media are typically found in the *human-led customisation* dimension. Such work involved manually crafting and publishing SMS news alerts as well as employing mobile editors dedicated to manually customising journalistic content. This can also involve journalists or citizen journalists creating new and unique material which is published exclusively with mobile news platforms. Contemporary practices seem to be more inexorably connected to technology, and are often found in the *technology-led customisation* dimension. Moving upwards the upper-right corner of the model resembles increasing levels of technological proliferation. This involves the use of technology for customising the ways one can access the news, such as by offering news provisioning with personalised and location-based functionalities in a mobile app interface. Conversely, there are also two approaches to the repurposing of mobile news, displayed in the two bottom spaces. *Human-led repurposing* involves activities in which journalists manually repurpose and publish content from the newspaper or other digital news platforms, while not making any significant changes to the content itself. *Technology-led repurposing* describes practices where a news publisher utilises content management systems for publishing the same news story across several news platforms without any significant change to its content or the way it is presented. Such machine-led repurposing takes place simultaneously through parallel cross-media news publishing, but also when a mobile application is programmed to extract a predefined number of articles from different news site categories. A prerequisite for being placed in this dimension concerns that no functionalities tied to medium-specific affordances are being used.

Embedding the results of the literature review into the posited model of journalism, one finds that the production of mobile journalism has generally travelled from the human-led customisation dimension towards the technology-led customisation dimension (alongside some who exercise only different kinds of repurposing). Mobile news publishing seems to have become increasingly synonymous with excelling in technological customisation, harnessing technological assets that enhance the perceived affordances of mobile devices. Despite exceptions, developments among several news publishers indicate a move towards treating journalistic content as platform-agnostic, as mobile news platforms are becoming intertwined with news publishers' cross-media news work. This marks a potentially important shift away from established and normative conceptions, suggesting that for any emerging medium journalism must be shaped in a distinct way. However, this obviously depends on the importance given to humans *vis-à-vis* technology when we speak of "journalism".

There are at least two important explanations to legacy news media making augmented use of technology-led customisation while taking a platform-agnostic approach for journalistic content. On the one hand, this may simply reflect perceptions of not having to customise journalism content when technological assets are seen to provide more valuable distinctions for packaging and presenting news and utility services. On the other hand, it may reflect the difficulties and costs of engaging journalists to work manually with the growing number of news platforms. If so, it could be an effect of economically pressured legacy news media that have displaced human labour with technology in their search for effectiveness and efficiency. This would then, in fact, place journalistic institutions along the same lines of development as most other contemporary commercial enterprises.

### **Towards a Research Agenda**

Evidence suggests that there has been a tremendous uptake of mobile media and mobile news in recent years, amongst the public as users and citizen journalists, but also by legacy news media, for news reporting and news publishing. The ubiquitous presence of computer-like mobile devices has become a game changer to instant news reporting by both journalists and the public. From a historical perspective, contemporary citizens have gained incomparable opportunities to access and contribute to news reporting. Although a shift towards the production of mobile news is not a tenet of inevitability for legacy news media organisations, many have certainly mobilised their forces to address their users' shifting ways of accessing news. The literature reviewed here reveals how news publishers have experimented with publishing news for various media platforms over the years. Mobile media certainly make a moving target that involves continuous transformations to both the technology and usage patterns of mobile devices.

This review article has discussed industry developments in various countries based on studies using quantitative audits and surveys as well as interview-based case studies. These studies with mixed methodologies provide various insights into the changing perceptions and actions relating to the production of mobile news. The posited model of journalism offers an analytical framework for future research into the dynamics at play between humans and technology in the salient case of customising

or repurposing journalism. It acknowledges tensions between manual editing and technology-led auto-direction and offers a framework for detecting whether journalism content is being taken for granted in certain kinds of news publishing activities. Legacy news media are certainly becoming increasingly blended with technology in their production, presentation and distribution of journalism in an era increasingly marked by cross-media approaches. Important future research activities certainly involve applying the model of journalism presented here to studies of how publishers work with journalism for various kinds of news platforms. The model and literature review also present us with several topics for a research agenda on the production of mobile news. For instance, what are the various approaches to manually editing and publishing news for mobile devices? How do journalists assess auto-direction, and how do they adapt to it in their own journalistic work?

The review has witnessed the emerging practices of using mobile technology for reporting news, both by journalists and citizens. Researchers should also explore how journalists manage their transforming tensions regarding their readers in the salient case of citizen journalism. Editorial procedures and journalism ethics must be considered in relation to citizens providing captivating footage and disclosing valuable information. With shrinking numbers of journalists in legacy news media and growing numbers of potential citizen journalists, mobile technology certainly holds a greater potential for news reporting than it has previously enjoyed. Ultimately, mobile technology provides both improved and new opportunities for legacy news media. Theoretically, mobile media have expanded spaces for journalism "on the go" and also enhanced effectiveness and efficiency. However, future research should delve into the scope and various ways it has become appropriated by journalists in legacy news media.

Snapshot interviews or surveys with representatives of news publishers, such as journalists and media managers, can certainly provide cursory reports on organisational dynamics. However, one gains other sorts of insights through in-depth and longitudinal qualitative studies of development processes within one or a few news organisations. Here, interviews, ethnographic observations and document analysis can yield different knowledge about how actions and perceptions change regarding issues such as native apps versus responsive web design, but also fee or free-based models, etc. The classical organisational approach has involved studying only the journalists and/or the newsroom. Much more can be attained by expanding the gaze to study the perceptions and actions of businesspeople and technologists. The ways in which legacy news media shape digital and mobile media is a dynamic interplay between these three communities, which calls for studies involving their experiential and vicarious learning. There is also a need for scrutinising how, why and with what effect legacy news media approach mobile news publishing in terms of content, commerce and conversations.

All in all, the future research agenda should involve mixed approaches and methods, preferably aiming for cross-cultural comparisons rather than national studies, and time-series rather than cross-sectional studies. Moreover, not only the production but also the consumption of mobile news marks a critically important area for future research. To date, more than six billion people worldwide have access to a mobile device, which surpasses not only any other medium and ICT but also the diffusion of electricity. The current rapid uptake of advanced touch-screen mobile devices fuels the usage of both mobile communications and mobile media. Just as the dot.com era eventually turned into a dot.mom era where all generations have embraced the Web,

mobile internet accessing is also evolving rapidly towards becoming used by the great mass of people. To some, the mobile device will complement accessing the internet with computers, tablets, televisions, etc., whereas others will displace these in favour of the mobile. Many others, in the developing world and future generations, will first experience the internet using a mobile device. New mobile media services will continuously be invented, and while people will use these in ways that stretch beyond our current imagination, these services will eventually become taken for granted in everyday life. Fortunately, this review has shown that legacy news media are mobilising to ensure journalism flourishes in this rapidly transforming mediascape.

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