

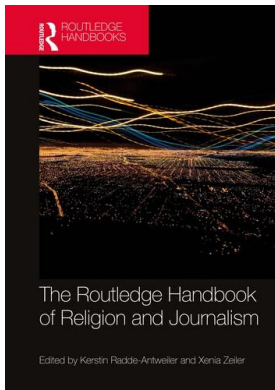
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DATAFICATION AS A TREND FOR JOURNALISM

A journalist's perspective

Andreas Mattsson

Introduction

Writing, live reporting, producing videos and podcasts, chatting, blogging and constructing datasets. The digitalization of media has had a huge impact on the demands and the requirements of the skills of journalists. The concept of a multi-tasking reporter is widely used in curriculums when teaching future journalists. In today's data driven world the nature of multi-tasking has taken on greater urgency and requires journalists to adapt a savvier way of negotiating digital opportunities. This chapter will explore how datafication has made its impact on journalism and how data-driven journalism interplays with the datafication of the society as a whole. In this chapter, datafication is not only used to understand the digital transition of media, but also to explore how data has become present in a fundamental way in how journalism is being produced (van Dijck 2014).

In my capacity as program director at School of Journalism at Lund University, the multi-tasking my colleagues and I are constantly juggling has created a huge impact on how the teaching shall be developed. Skills such as social media management, online video reporting, breaking news reporting and fact checking in real-time have made major changes in how journalists divide their everyday work life. Selfie-sticks, smartphones and Google Spreadsheets are now as important as the typewriter once was.

In Sweden, there was already a decreasing amount of special assigned reporters in the daily newspaper's newsroom before the digitalization generated a revolution in the news production. The amount and the proportion of special assigned reporters decreased 15% from 1990 to 2010. Around 2005, analogue newsrooms began the transformation into digital online newsrooms. Content Management Systems (CMS) was introduced as a supplement to the editorial systems. This allowed online editors to copy-paste the content from the print version during the evening before it was delivered to the subscribers in the morning. The articles were often scheduled to be published on the website in the morning the day after. This was several years before paywalls happened; the purpose was to increase the digital presence and the digital range of the stories that was created. This also created a situation where most content was available for free (Von Krogh 2011, 79–112).

Today, things are different. The copy pasting of print content is almost gone. The online editing is embedded into the editorial systems, which means that every journalist is her own

online editor. Websites are based on algorithms and traffic hits, and the work tasks of an online editor have become more similar those of a data analyst. Every newsroom has a division of reporters focusing entirely on breaking news that mainly reports for online platforms (Mattsson and Isaksson 2017).

This does not mean that every journalist needs to be able to write, live tweet, photograph and analyze data, but everyone needs to be able to adjust to a dynamic environment where work tasks and technical development goes hand in hand. Between 2008 and 2010, while I was working at the online desk at *Sydsvenskan*, one of the largest newspapers in Sweden, I identified how much digitalization changed people's reading habits related to their interests for news. *Sydsvenskan* attracted more readers than ever before since this newspaper was founded in 1848. Despite this, *Sydsvenskan's* financial situation and that of many other newspapers in the country was in turmoil. The decrease in people paying their subscription fees for the printed newspaper and the commercial factors by providing a platform with cheap advertising banners and a whole lot of editorial content for free, was – let's put it like this – not so good.

Between 2010 and 2012, I was working strategically to communicate the new business models at *Sydsvenskan*. In the role of a communication officer, with responsibility for the intranet and strategic communication, I could follow several projects such as e-commerce websites, market activities, loyalty clubs, staffing agencies and innovation projects. In fact, none of them was enough to change the financial development of the company. Instead, the company had to dismiss a large number of journalists: Some were leaving for early retirement, some positions became vacant and some positions was manned by colleagues from the internal staffing agency.

The digitalization creates a datafication, not only of journalism, but also of societies. When authorities and company organizations are handling the digitalization, the potentials of publishing data on digital platforms (rather than collect them in dusty books and printed reports) are obvious (van Dijck 2014). One of the aspects that caught my attention when I changed my work tasks from online editing to strategic communication was how much the newspaper industry was dependent on data in all forms; data in terms of data from the readers that made the company profitable for partners and customers, data as a tool to monitor the digital development and public data as a vital tool in the editorial development.

Despite all the dark headlines of the media businesses in crises and newspapers being shut down, there is no evidence saying that the need for journalism will decrease. On contrary, in an era where discussion about fake news are widely (and globally), fact checking and being able to analyze enormous amounts of data – the need for journalists will increase.

Starting in 2012, I have worked part-time as a lecturer in journalism studies at the Department of Communication and Media at Lund University and as a freelance reporter for various newspapers and magazines. Since 2016, I have also served the program director for School of Journalism. I am greatly interested in, and also enjoy, influencing the media landscape that surrounds me by connecting my two areas of expertise: education and practice. In this capacity, I have also had the opportunity to build platforms for knowledge exchange and experiences between journalists and media researchers in Sweden, India and Vietnam. India, which are emergent media landscapes, have given me an understanding about how the datafication of journalism impacts societies with other constitutions, media cultures and political systems. Part of this understanding is based on the insights on our mutual digital challenges.

The datafication of media also brings hate and harassment to the mainstream and social media. In Sweden and India, similar patterns of online hate against women and minority groups are evident. This hate comes with patronizing *the other* which is exemplified by growing number of islamophobia in the comments sections on Indian and Swedish news websites

(Mattsson and Rajagopal 2017). There has also been a growing number of Islamophobic comments and social media posts related to articles and reports dealing with the Muslim minority in India (Amnesty International India 2018) and similar patterns against minority groups and female Internet users in Vietnam (Hoang 2017).

This chapter will deal with the development of datafication from a journalist's perspective. It is based on my own experiences as a journalist working for 15–20 different news outlets and from my interactions with journalist students in Sweden, India and Vietnam.

The importance of data for journalism

The profession of being a journalist is under constant development. The influx of data into the newsrooms has been one of the major challenges facing journalists over the past decade and will continue to be into the future. Spreadsheets and databases have become part of everyday life in business, public administration, entertainment and sports.

Data tends to be a vague term, used by industries and academic researchers to describe – what? In journalism, it could be defined as information that can be analyzed with the help from computers. It is indeed a very broad definition, ranging from texts that analyze the most common used words or terms to behavioral data from social media platforms that analyze tweets and activities. In short, when information gets digitalized, new opportunities occurs. In the 21st century, the development has moved on from databases – that was private and not so accessible – to data that is public and accessible (Bradshaw and Rohumaa 2011).

This phenomenon could be seen as big data (Mayer-Schönberger and Cukier 2014). In the digitalized world, logs and data are created in so many aspects of life and can be analyzed in so many different ways. Mayer-Schönberger and Cukier believe it will reshape the way life and businesses are organized:

Big data is a resource and a tool. It is meant to inform, rather than explain; it points us toward understanding, but it can still lead to misunderstanding, depending on how well or poorly it is wielded. And however dazzling we find the power of big data to be, we must never let its seductive glimmer blind us to its inherent imperfections.

(Mayer-Schönberger and Cukier 2014, 197)

One can also put it as Bruns does in *The Sage Handbook of Digital Journalism* (2016): Big data is immediately valuable in journalism, but in journalist practices, big data within journalism provides new insights for the news industry. In order for big data to be relevant, it is critical to know what questions are being asked and what role big data can play in answering them (Bruns 2016).

Working with news and data

How do you evaluate news? That is one of the most common questions in the beginning of the introduction course at School of Journalism at Lund University. For many years, the role of being a news editor has been to have the perfect *gut feeling*. The gut feeling of one or two news editors, sometimes in combination with the publisher's gut feeling of the publisher, dominated the editorial work for the whole newsroom, including reporters, editors and subeditors (Olai 2016).

Understanding and analyzing data has become part of the work task that a news editor has to deal with on an everyday basis. With help from data, we know what the readers want to

read about, what kind of attention they pay to our articles and we find ideas what to report about next. Data is also what the sales department are making their best to profit on, when they sell banners and other commercial areas of the website. In other words, data provides instant feedback to the newspaper, but data should not replace the idea that journalism comes from journalistic ideas (Schori 2016).

In his book “Online Only,” the Swedish journalist Schori (2016) presents a few examples of data that is very easy to access. In fact, anyone who administrates a website can find out this with assistance from Google Analytics or from the hosting web hotel:

- *Clickbait*: what hyperlinks are people clicking on?
- *Visitors*: when does people visit the website in question? What do they read? Do their reading habits change throughout the day?
- *Behavior*: how long do people spend on the website? Do they read the full story or watch the full video clip? What do they do next?
- *Referrals*: where do they come from? Social media? Search engines? URL?
- *Social media shares*: how many times have the article been shared and where?
- *Trending topics*: what topics are trending on Twitter and Facebook right now?
- *Revenues for paywall*: how profitable is the content behind the paywall?

During my days at the news desk, I recall many times when my colleagues and I became surprised about how readers consumed our articles. With the impact from social media, we could observe a trend where popular short articles about events and incidents (mainly crimes and sports) were replaced by long read stories about identity, ethnicity and culture. When you dig a bit deeper into the data, you can find viral aspects such as the number of times a certain story has been shared on social media platforms and how many seconds, or minutes, people actually allowed themselves to read the story. Armed with this data, we learned that people were interested in more than simple click-bait articles and were able to respond to reader interest more successfully and publish more stories that were in long-read format that addressed identity, ethnicity and culture.

The significant impact of algorithms on media consumption

Everyone’s presence on the Internet generates data. This includes our web cache, our e-mails and our locations. Algorithms are automatically analyzing the collected information for different purposes. This development impacts our experience of the web; it has changed our way of searching for information and how to listen to music. It has also changed the strategies and routines for online editing in the newsroom.

The central part of most online news websites is the landing page. In different formats, with different design, all around the globe readers access a newspaper website and find similar features. The landing page comes with teasers, headlines and pictures combined with online-TV-players, blog teasers and a header with article categories and other information. Even though social media often plays a significant role in driving traffic to a site, landing pages remain an important vehicle for readers of a website.

When several Swedish newspapers relaunched their websites in 2014 and 2015, the biggest changes were not the new headlines nor layouts that were most obvious to the readers; it was the algorithms behind them. The algorithms make the front face of the website individualized by using small components and APIs (Application Programming Interface, a specification of how a certain software can communicate with other software, for instance, to specify

and read certain information from a database) that communicates with the interface that the users and readers are seeing. Using this technology, the programmers have been able to build a website that is scalable and flexible. Algorithms enable newspapers to sell advertisement based on the information they receive about their visitors. For the newsroom, algorithms should allow editors more time to work and develop editorial content rather than moving headlines up and down in a list.

Since the algorithms have become embedded into the editorial work, it is not only editors who have to spend a certain amount of their workdays with data. As the journalist students Hjelmstedt and Sellfors argues in their thesis *Robotjournalistikens nya utmaningar* (2016), algorithms are not unique to the media landscape. They are also being used in a wide range of industries, from grocery stores that can personalize their discounts to Netflix which knows what types of series you like to watch and come up with new suggestions (Hjelmstedt and Sellfors 2017).

The Swedish news agency *Siren* uses robots to collect court protocols, court decisions and other government documents. Its service is subscription based and a majority of all Swedish newsrooms are among the subscribers. By providing data to the algorithm, the robot can write simplified articles about the content. *United Robots* has developed the robot Rosalinda, which collects data from game results in different sports in order to make simple reports about the result. Several local newspaper groups have tried it out and are using it for sports coverage. The Danish news agency *Ritzau* has developed a robot that can identify ratio from companies' annual reports and publish news flashes. Swedish online website *Robosport.net* publishes reports from soccer matches from all around the globe with a robot. Citizen reporters make interviews in order to complement the material from the robot. The editorial strategy is to allow robots to do more and more simple reports, while the journalists can focus on the analytical work (Hjelmstedt and Sellfors 2017).

The impact of algorithms on editorial work is without doubt, a very significant one. In the development process, it is important that journalists are working closely with the programmers in order to create algorithms that fit within the ethical framework that surrounds journalism.

Data journalism – a new skill or not?

Data journalism (or database journalism, data supported journalism or Computer Assisted Reporting (CAR)) can be seen as journalism's response to the datafication of the society. It has initiated a discussion within the profession about what skills future journalists need to be equipped with. In listings for new journalist jobs, media companies (not only newsrooms) are searching for candidates with *data handling experience*, that are *familiar with Excel* and *knows how to find news in data set*. This trend is also obvious when looking at the winners of the *Swedish Association for Investigating Journalists'* award *Guldspaden* (lit., The Golden Shovel). Among the winners from 2017 are Joachim Dyfvermark and Sven Bergman, two Swedish contributors to the worldwide investigation *Panama papers*. The jury also gave an honorary prize to the data journalist Kristoffer Örstadius for "bringing investigative reporting to higher levels with data journalism" (TT 2017).

The development of data journalism has had an impact on the way journalism is being taught. At the Lund University School of Journalism, an annual workshop has been developed with the award-winner Örstadius where students learn how to create journalism and draw conclusions from datasets. Swedish data journalist Bengtsson argues that it is obvious that all journalists should use available tools in order to improve journalism. It has always

been so. She also argues that journalism must come first and technical skills secondary. In other words, data is not more important than journalism in data journalism. The knowledge and the basics of journalism are the guiding force when analyzing data or evaluating a table (Bengtsson 2013).

But is data journalism really new? Loosen, Reimer, and De Silva-Schmidt (2017) have analyzed the projects that were nominated for the Data Journalism Awards from 2013 to 2016. Their conclusion is that the impact of data journalism is not as groundbreaking as it might seem. For instance, they show that data journalism still requires a lot of labor and is more likely to complement traditional reporting rather “than replace it on a broad scale” (Loosen, Reimer and De Silva-Schmidt 2017). Data journalism could be seen as a new name for a work task that journalists have been handling for many decades: digging into statistics and interpreting the numbers into an understandable context.

Visualizing data to engage the audiences

The datafication of journalism provides new opportunities to explain complex stories to an audience in a more visual way. Data visualization can be used both as a tool to find patterns in huge collections of data and to illustrate stories. There are also many illustrative examples in how data visualizations can increase the interaction with the audience and contribute to the journalistic aim: to set the agenda (Figure 28.1).

In 2013, a division at the Swedish public service broadcaster *SVT* collaborated with an in-house meteorologist to collect weather data from 50 years to visualize how the temperature changed over 50 years from 1961 to 2011 in 37 different locations in Sweden. The result became an impressive interactive infographic showing how the annual average temperature has increased in all locations. With assistance from all local stations within the *SVT* network, the project was able to make several news reports with different local angles (Nosti and Sjöholm 2013).

The *SVT* climate example illustrates one way of interpreting data journalism: to find potentials of data visualizations as a complement or a new way of making relevant infographics.



Figure 28.1 Screenshot from the TED talk with Hans Rosling entitled “Religion and Babies” (2012).

Traditionally, journalism has been very good in reproducing charts in bars, pies or histograms. Two increasingly popular forms of digital visualizations are maps and bubble charts which make it possible to visualize different aspects of the data. *Bubble-charts* were popular with the respected Swedish professor Hans Rosling. In his Ted Talk entitled *Religions and Babies* (Rosling 2012), he used visualizations and demonstrations in order to present complex information in a very accessible way. What he actually did was to use data visualization to debunk the myths about the correlation between religions and population growth. By looking at world religions, average income and family planning, he related these figures to birth rates and population growth. His conclusion: Religion has very little to do with the birth rates of children around the globe. The fact that we will become 2–3 billion more people on the planet is unavoidable.

There are many more ways to do data visualizations (maps, word clouds, timelines etc.) but nevertheless, the most important question to raise is: Are the comparisons meaningful and do they contribute to the story? Data visualizations should be seen as a graphic illustration that together with the text, headlines and pictures aims to attract the readers. It is generally also a good idea to publish the raw data together with the visualization. This allows the readers to check the data with the visualization, but also to draw their own conclusions from it. In addition, data journalism should not only be seen as a way to present data, but also as a way that allow different people to reflect at it in different ways. If more journalists seize the opportunity to invite them to contribute, there are many potentials to develop journalism in a transparent, visually appealing and interactive way.

Data and religions in Sweden as a source to misinformation

Since the 1930s it has been forbidden by law to register people by their religious beliefs in Sweden, in accordance with the chapter about religious freedom in the constitution. For that reason, there is no data on how many people in Sweden have joined various religions. However, there is data from different religious communities that have a presence in Sweden are available.

In 2000, the Church of Sweden (*Svenska kyrkan*) and the state separated from each other, meaning that Sweden no longer has an official state church. Before this time, nearly 100% of the Swedish population were members of the Church because all children born in Sweden automatically enrolled. Since 2000, however, this has not been the case. Around 60% (roughly 5.5 million) of the Swedish population (which totals roughly 9.9 million) are members of the Church and people have been leaving the Church in recent years (Swedish Institute 2014).

There is no available data on how many Jewish people live in Sweden. The Official Council of Swedish Jewish Communities estimates that around 20,000 Jewish people live in Sweden and out of them, 6,000 are members of a Jewish assembly. The Swedish Institute estimates that around 130,000 people are Muslims in Sweden (around 1.5% of the population). The Pentecostal communities and the Catholic Church each have around 100,000 members (Myndigheten för stöd till trossamfund 2018).

Several researchers predict that the diversity among religions in Sweden will increase following the recent surge of immigrants and refugees entering Sweden in recent years. Nevertheless, it is difficult – or impossible – to predict any remarkable increase of religious communities in the country because Sweden registers neither people's religious beliefs nor whether they practice any particular religion (Swedish Institute 2014).

One recent attempt of making a prediction was made by the American think tank organization Pew Research Institute (PEW) who released the report *Europe's Growing Muslim*

Population in 2018. In the report, PEW estimated the numbers of Muslims in Sweden in 2050 to be 30% of the population. This report was widely quoted in Swedish media, became viral and re-published on several alt right websites. During the following days, several Swedish researchers questioned the conclusions based on facts and research methods (Sörbring 2018). The newspaper *Expressen*, for example, asked Bi Puranen, Associate Professor in economic history at the Institute of Future Studies, to comment on the report from PEW. Her views of the study are negative:

Surveys of this kind doesn't need to be wrong, even though the conclusions might be. Studies like this can be used as ammunition when someone wants to run their own agendas. For that reason, it is important that we as established researchers dare to debate it. I question why Pew Research Center doesn't consider the declining birth rates among migrants and in Muslim countries when they are conducting their calculations. Also, what is a Muslim, who counts as that? A Swedish-born person with parents with roots in Muslim countries? Do they want to lump together everyone who eventually has relationships to Islam with a few fundamentalists?

(Sörbring 2018, translated by the author)

In the same article, Ann-Zofie Duvander, Professor in demographics at Stockholm University, comments:

Statistically, it is most likely that people continues to move, and sometimes to other countries such as United Kingdom. Some also return, and these aspects are not considered in the study. As demographic researchers, we can make valid predictions for a few years ahead, if nothing unexpected happens. Thereafter, it is all estimations which are based on assumptions.

(Sörbring 2018, translated by the author)

In June 2018, The Swedish Agency for Support to Faith Communities published a report that concluded that one mosque in Sweden was attacked per week during 2017. The survey was conducted between March and May 2018 and was constructed on a questionnaire distributed to 173 Muslim communities in Sweden, out of whom 106 responded. Thirty-eight of them responded that they have been physically attacked during 2017, some of them as many as ten times. The results were highlighted in several Swedish news media who produced stories about Muslim communities and interviewed Imams.

In 2017, the Swedish magazine *Judisk krönika* (Jewish chronicle) published an article written by the editor-in-chief Anneli Rådestad where she claimed that Swedish Jews do not dare to go public with their religious identity. She wrote that the leadership is failing when condemning hate, threats and harassments, both in school management, municipalities and on the governmental level (Rådestad 2017).

The Swedish journalist Niklas Orrenius has written several articles on how antisemitism and expressions of antisemitism in our hometown Malmö is closely linked to the politics of Israel. A manifestation to support Israel during the bombings of Gaza in 2009 was interrupted by bottles, eggs, fireworks and hateful slogans against Jews. The problems with antisemitism in Malmö have been highlighted in media several times during the past years. It became world news when President Barack Obama in 2015 sent Ira Forman, the USA Special Envoy of the Office to Monitor and Combat Anti-Semitism, to Malmö to investigate the problem further (Orrenius 2017).

Based on the data available on religion in Sweden: The complexity that comes with a multi-religious society and constitutional religious freedom must not be forgotten. Journalists aim to illustrate the contemporary society as it is. When doing so, they must remember to pose the questions, illustrate the complexity and use statistics when the data is valid.

False data enabling hate

When journalists use data in order to create infographics, graphs or stories come with a significant responsibility because the results could have a tremendous impact on people's views. In the upcoming days before the Swedish elections on 9 September 2018, I was part of a team who constructed a pop-up newsroom involving journalist students from three different universities in Sweden, fact-checkers and academic researchers from various countries. The project's mission was to fact-check and debunk myths and rumors and to correct dis- and misinformation published on social media during the intensive election run-up (Bell 2018).

One of the examples that the project participants found was a viral graph posted on Twitter showing a correlation between Muslim immigration and sexually abused women in Sweden. The data on the viral graph showed a casual relationship between male Muslim migrants in Sweden between 2000 and 2016 and the percentage of women in Sweden who are victims of sexual abuse (Williams 2018). Project participants examined data from Swedish Migration Agency and other relevant authorities and successfully debunking of the graph's veracity showed that the numbers on asylum applicants from all countries were wrong and that there was no documentation to support the claim of number, according to the Swedish Migration Agency nor any other Swedish authority.

In June 2018, the extreme-right-wing Swedish newspaper *Nya Tider* (lit., The New Times) published an article (later deleted) saying that the Pope Francis has demanded "Christian woman to get pregnant with Muslim men from the Middle East and Africa" (Nya Tider 2018). The whole story is built on quotes from the website Your News Wire who first published this. The statement was debunked by the Swedish website *Viralgranskaren* (lit., The Viral Checker) which referred to the original script the Pope used in the speech where he argued for the importance of European countries to integrate migrants, not specifically Muslims, rather than isolate them in segregated areas. The Pope also said that this issue is more important today, due to the decreasing birth rates in Europe (Wikén 2018). On a regular basis, *Viralgranskaren* also debunks viral posts on social media. In 2018, a post showing young girls with hijabs praying in a Swedish school went viral together with a text saying

In more and more schools, Swedish school children are now forced to knee and pray to Allah. Löfven's (the current Swedish Prime Minister) aim is crystal clear: Sweden shall be a Muslim nation and the stupid bastard thinks he can rule by himself.

(Peterson and Joelsson, 2018, translated by the author)

The debunk showed that the picture was first published in a local newspaper showing something completely different (Peterson and Joelsson 2018).

Globally, fact-checking organizations are now growing rapidly following the trend of fake news, the development of media literacy and dis- and misinformation campaigns. What started as a temporary political fact-checking unit within many newsrooms has now developed into a permanent field of its own. Lucas Graves (2016) concludes in his book *Deciding*

What's True: The Rise of Political Fact-Checking in American Journalism that this has led to a major change in the profession.

This new style of journalism offers a window onto changes in the newsroom and the wider news ecosystem. Fact-checking combines traditional reporting tools and a commitment to objectivity with the annotative, critical style first associated with bloggers. Fact-checkers practice journalism in the network mode.

(Graves 2016)

In *Räkna med Nyheter* (2013), the Swedish journalist Martin Wicklin writes about his experiences from investigating the newsrooms' lack of knowledge about the impact of selection, non-responses and tolerance number of defects. This also showcases that skills that are necessary when working with data journalism: The journalist must be able to understand and evaluate methods in order to be able to explain, describe and provide a nuanced picture. In other words, there are several similarities between a news journalist and a researcher within social sciences. Wicklin concludes by saying that many Swedish journalists – before publishing – forgets to ask themselves the (very relevant) question: Is it reasonable? (Wicklin cited in Bengtsson 2013).

The significant responsibility of handling data in journalism is important to keep in mind. Moreover, if the presented data is not reasonable, a good advice is to always check it up before publishing. During the debunking, the journalist could sometimes find even more juicy news.

Open data as a public and political issue

The digitalization of media opens up for new potential to produce journalism from public data. The Swedish constitutional principle of public access to information (the first version of which dates back to 1666) has until today built up a system of archives, registration and distribution of public documents. Swedish citizens have gotten used to the fact that most information is available online which also includes forms and applications for different services. It is vital that governmental and state authorities adjust to this digital agenda, as it also is specified in the PSI- directive and the Inspire directive from the EU, which both have been implemented in Swedish law. PSI stands for Public Sector Information and is published in the European Parliament and the Council of Europe directive 2013/37/EU. Inspire stands for Infrastructure for spatial information in Europe. Several studies also show the democratic and economic benefits that e-governance provides (Regeringskansliet 2016).

The Swedish public sector has yet to fully adjusted to this reality. According to a governmental report, one out of five authorities does not understand the aim and the implication of the PSI directive. It is rather easy to find information and submit application forms online, but the decision or the reply will mostly be done in hard copy through the postal service. The current Swedish Minister for Public Administration, Ardalan Shekarabi, announced in in May 2017 political actions to enhance open data to increase innovations within public sector and create new effective and smart solutions. The Swedish Agency for Public Management and the Swedish Agency for Economic and Regional Growth were given mandates in order to improve the situation for open data. The result of their efforts is – at the time of writing – not yet published (Regeringskansliet 2016).

What does this mean? On one hand, there is a lot of available data for anyone to analyze with the support from the Swedish principle of public access to information. On another

hand, there needs to be much more integration to create a truly functioning digital society with full implementation of E-governance.

The impact of datafication on the profession

The ongoing datafication of media has made an impact on journalistic production and the way journalism is being consumed. It offers a broad range of opportunities for newsrooms and can be seen as one of the real benefits of the digitalization process: The news organization can identify its audience's behaviors and combine it with its own data on how to produce news.

Could data be the solution for a financially unstable newspaper industry that is struggling in building its digital business models? A data-driven approach to staffing and funding decision is necessary, but will not in itself generate better quality in the journalist product. Several examples of reorganizing Swedish newsrooms show that more and more journalists have the everyday duty to read and analyze data. Social media managers and the online desks have new tools in order to analyze data in real-time. This has also been seen as an entry to the labor market for many of our students at the School of Journalism, who have emphasized their digital knowledge when applying for jobs within newsroom organizations in Sweden. In that sense, the datafication of media has also contributed to an alternation of generations within journalism.

However, what does this say about the development of the profession of being a journalist? During 2009 until 2011, the researcher Jannie Møller Hartley conducted ethnographic fieldwork in Danish newsrooms to explore the development of the online journalist profession. Her analysis shows that the journalist profession still is deeply embedded into old forms of journalism, which includes specialist knowledge and technical skills. Her research also concludes by her interviewees stating that old journalism is seen as better journalism:

The transformations of the field of journalism, following the increased importance of online journalism, create a gap in the online journalistic self-perception, not a new gap, but the gap between the experienced ideal and practice is more substantial for them due to increased and more present constraints on their autonomy.

(Hartley 2013, 584)

Considering the development investigative reporting, a trend emerges where the influx of data into the online field of journalism creates opportunities for a professionalization of the online field of journalism, which reduces the gap Møller Hartley describes. In other words, what data driven journalism stands for is a combination between what is described as *old* ideals and *new* technology.

However, there is a risk that the focus on business decision-making on what can be measured by data, in concrete terms: article clicks and social media shares, creates a situation where it is not so lucrative to invest in activities such as investigating journalism and in-depth reporting. An increased focus on so-called clickbait also challenges one of the traditional values of journalism: to inform its audience about things they did not know, they were interested in or about beforehand. The American viral website *BuzzFeed* might be mostly famous for clickbait articles about *Netflix* dramas, relation advices and tasty recipes, but has a strategy to use these kinds of content to draw attention on more in-depth journalism. Whether it is a successful strategy – or not, remains to be evaluated (Tran 2014).

The Swedish media landscape has adapted, and struggled with, the development of easily digested click-bait stories. The online news website *Nyheter24* (lit., News24) could be seen as a Swedish attempt of doing what TMZ is doing globally: producing easy news in an almost symbiotic relation with reality-TV with an attempt to follow the young readers' interests in order to create a business. On the other hand, one can also determine how several traditional media organizations (with a traditional digital news websites) have launched websites aiming to attract traffic through social media using clickbait strategies. The newspaper *Expressen* launched *Omtalat* (lit., spoken about) in 2014 which was entirely based on viral clips, pictures and gossips and inspired by the American website *Upworthy*. A few months later, their competitor *Schibsted* (that owns the tabloid newspaper *Aftonbladet*) launched their similar website *Lajkat* (lit., liked) (Thomsen 2014). The same year *Newsner.com* was launched by the content agency News365. Newsner outnumbered the two other Swedish viral websites in shares and engagement on social media platforms. In the Swedish media landscape, it was described as a David versus Goliath competition when the small content agency in 2016 passed the two major media groups attempt of making a profit of viral media (Mackhé 2017).

The digital transition of journalism has just started and the datafication plays a significant role in the process of finding financial models, stories and news. The journalist profession is also undergoing a transition when the work skills are changing because of datafication.

Conclusion

The development of journalism over time can be seen as an ever-evolving and dynamic process rather than the consequences of deliberate changes to industry. At the School of Journalism at Lund University, it is evident that the transformation stems from a generation of journalists who (like myself) have grown up with computers and know how to use them in order to improve journalism.

As this chapter has discussed datafication influences journalism in two different ways:

- Data can contribute to journalists' stories and reports and can provide digital opportunities in research and presentation.
- Data also provides measurement tools to develop the business models in the media industry, which is vital for any newspaper company in order to develop commercial tracking of its products.

In a world with constant information overload, data-driven journalism provides an opportunity to use previously inaccessible information and tools to find the stories and people behind the numbers. Data can also be used to create more significant engagement with the audience. The datafication of media offers opportunities to engage users into the news to a much larger extent than was possible before digitalization.

The last decade has brought significant challenges for those working in the field of journalism, some of which have been exacerbated by the datafication of media. In Sweden, many news reporters lost their jobs since 2010 due to the lack of new sustainable business models in the digital era. A shift in demographics in the newsroom has led to many of the new editorial positions such as breaking news reporter, online editor, desk editor etc., being moved the fields to desks inside the newsrooms. This shift is a result of journalists' increased time pressure and creates an environment with more generalists than specialists (Palm and Bjellert 2012).

How can these challenges be leveraged to change? Embracing the development of algorithms and robot journalism, I do believe it could benefit the work inside the newsrooms.

Instead of doing monotonous work, updating tables and writing news from the stock market or the weather forecast, journalists can focus on more in-depth, analytical and reflecting journalism. This in turn should also create new financial benefits for the media companies involved.

In an era where we discuss fake news, alternative facts and evaluation of information are lively topics of debate, a more responsible and strategic use of data within news reporting is needed. Fact checkers and viral observers are spreading across the global media landscapes and some of these digital toolboxes will soon be embedded into our editorial systems.

Looking into the future, it is fair to say that the datafication of journalism will have a major impact on how the field develops. One can identify how journalism adjusts to readers' interests, in the democratic aspects of data-driven journalism and allows the media industry to develop a more diverse production of journalism. Embracing and emphasizing the diversity within journalism also justifies the diversity in the world – no matter if your coverage is based on a (hyper)local, regional, national or global level. It is fair to say that the influx of data has provided us with a new set of tools. Why not start by thinking twice about what questions we should ask?

Further readings

Graves, L., 2016. *Deciding What's True: The Rise of Political Fact-Checking in American Journalism*. New York and Chichester: Columbia University Press.

This book is based on the author's access to American outlets who are leading the movement of political fact checking in the United States. The author reflects on their remaking of journalistic ethics and practice and the professional change it has created.

Hartley, J. M., 2013. The Online Journalist between Ideals and Audiences. *Journalism Practice*, [e-journal] 7(5). Available at <https://doi.org/10.1080/17512786.2012.755386>, accessed 12 August 2018.

This paper focus on how the journalist profession has adjusted or not adjusted to the digitalization of the media industry. It shows how the online field has created new ideals and norms on how journalists view themselves.

Loosen, W., Reimer, J. and De Silva-Schmidt, F., 2017. Data-Driven Reporting: An on Going (R) evolution? An Analysis of Projects Nominated for the Data Journalism Awards 2013–2016. *Journalism*, [e-journal]. Available at <https://journals.sagepub.com/doi/10.1177/1464884917735691>, accessed July 21 2018.

This article is analyzing projects that was nominated for Data Journalism Awards 2013–2016 and is analyzing the innovative approach and the potentials of the methods on creating impact and improvement.

Mayer-Schönberger, V. and Cukier, K., 2014. *Big Data: A Revolution that Will Transform How We Live, Work, and Think*. Boston: Eamon Dolan/Mariner Books.

This book introduces the readers to big data and how it is reshaping our lives: or as the authors state: “[Big Data] is the oil of the information economy” (p. 14). It also deals with privacy issues where big data has made it more difficult to protect people's integrity.

Swedish Institute, 2014. Religion in Sweden. *sweden.se*, [online] 8 February. Available at <https://sweden.se/society/10-fundamentals-of-religion-in-sweden/>, accessed 7 June 2018.

This information pamphlet is a great start for anyone who is interested in knowing more about religions and its presence in Sweden.

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