LSE Media and Communications

Media@LSE Working Paper Series
Editors: Bart Cammaerts, Nick Anstead and Richard Stupart

An Impending Crisis of Imagination

Data-Driven Personalization in Public Service Broadcasters

Karin van Es

An Impending Crisis of Imagination

Data-Driven Personalization in Public Service Broadcasters

KARIN VAN ES[1]

1 Karin van Es (k.f.vanes@uu.nl) is Assistant Professor of Television and New Media at Utrecht University (the Netherlands) and coordinator of the university's Datafied Society research hub. Her current work focuses on how new forms of knowledge production through data affect public service broadcasting. She is author of the book *The Future of Live* (Polity Press, 2016) which interrogates the concept of the 'live' in the social media era. Recently, she edited (together with Mirko Tobias Schäfer) the volume *The Datafied Society: Studying Culture through Data* (Amsterdam University Press, 2016). From March to May 2017, she was visiting fellow at the department of Media and Communications at LSE.

Published by Media@LSE, London School of Economics and Political Science ("LSE"), Houghton Street, London WC2A 2AE. The LSE is a School of the University of London. It is a Charity and is incorporated in England as a company limited by guarantee under the Companies Act (Reg number 70527).

ISSN: 1474-1938/1946

Other papers of the series can be found at:
http://www.lse.ac.uk/collections/media@lse/mediaWorkingPapers/

ABSTRACT

This paper explores how the introduction of recommendation systems in public service broadcasting (PSB) poses a threat to its publicness. Relying among others on observations on how the European Broadcasting Union (EBU) and the Dutch Foundation for Public Broadcasting (NPO) are currently tackling 'Big Data', it identifies an impending crisis of imagination. Although public broadcasters acknowledge the need to do things differently from their commercial counterparts, their data-driven approaches operate within commercial frameworks. Furthermore, the paper considers how the values of public broadcasters can be implemented into the design of recommendation systems. In conclusion, it proposes 'real social analytics' (Couldry et al., 2016) as an approach that can help them explore how they can use their digital presence to fulfill their social aims, and perhaps more fundamentally redefine the terms under which they are known.

1 INTRODUCTION

To achieve legitimacy, public service broadcasters (PSBs) require mass appeal (Donders, 2012; Ibarra *et al.*, 2015). But in our current moment, fierce competition and new consumption patterns in the television landscape make it increasingly difficult for them to attract and sustain audiences. In response, PSBs are turning to Big Data. However, such measures, and specifically those pertaining to personalization, seem to be in conflict with their declared task of informing the public and providing it with shared knowledge (Scannell, 1989). They also pose a threat to information diversity and can contribute to ideological segregation (Pariser, 2011; Turow, 2011). Moreover, profiling on the basis of expected consumption affects the autonomy of consumers (Hildebrandt, 2015) and fortifies already established personal preferences. More generally, data gathering and analysis invoke systems of classification (Lyon, 2003) that are potentially at odds with PSBs' public service remit and, what's more, threaten viewers' privacy.

The European Broadcasting Union (EBU), an alliance of public service media, seeks to support its members as they struggle with both the opportunities and pitfalls of Big Data through the EBU Big Data initiative, launched in the summer of 2015. Serving as a platform for the exchange of knowledge, this initiative stimulates collaborations around the issue of Big Data. Specifically, it addresses how to balance a data-oriented approach with the six core values of PSBs: universality, independence, excellence, diversity, accountability and innovation. The initiative comprises the following four workflows: data principles, recommendation systems, media content strategy and audience measurement. These workflows are interlinked. I would argue that the first, concerned with balancing Big Data opportunities with privacy and personal data protection rights, underpins the others.

This working paper interrogates how the PSBs' embrace of a Big Data–oriented approach challenges the principle of publicness. More specifically, it offers an exploratory reflection on the relation between personal recommender systems (PRSs) and publicness. In doing so, it raises an issue central to the workflow dealing with recommendation systems, namely 'How to develop recommendation systems that translate the public service DNA' (EBU, 2017: 25). I have chosen to home in on PRSs, just one aspect of the data-driven approach, because it most explicitly provokes publicness via its concern with personal preference. Questions relating to audience measurement,

as well as to privacy and data protection rights, are tackled only insofar as they relate to PRSs. Consideration of how Big Data affects media content strategy is beyond the scope of this paper.

To begin with, I propose that PSBs are currently at a crossroads: they have to make an explicit effort to think outside the commercial toolbox and consider how they can use Big Data to support their public remits. I identify an impending crisis of imagination based on observations made thus far. I base my analysis on how EBU and the Dutch Foundation for Public Broadcasting (NPO)[2] are grappling with Big Data, drawing on their presentations and published reports, along with my conversations with industry professionals. I then explore how interactivity has challenged the publicness of PSBs in order to then think about the questions raised by recommendation systems in relation to publicness. I go on to consider ideas on how the values of PSBs can be implemented into the design of PRSs. My initial conclusion is that whilst EBU and NPO both acknowledge the need to do things differently, they continue to operate within commercial frameworks. In conclusion, I put forward 'real social analytics' (Couldry *et al*., 2016) as an approach that can help explore how PSBs can use their digital presence to fulfill their social aims, and perhaps more fundamentally redefine the terms under which they are known.

2 An Impending Crisis of Imagination

The television industry, informed by ratings and market research, has always been data-driven (Kelly, 2017). However, in recent years a new type of data has emerged, generated by the online interactions of viewers. This sort of information—Big Data—produces different types of knowledge and can be used for new ends: e.g., recommendation systems. To remain *relevant* (a dominant buzzword in industry discourse), PSBs feel they need to invest in big data, and personalization in particular. This perception derives from changing consumption patterns among the younger generations, who broadly speaking have been engaged in a shift to online and on-demand viewing. Public broadcasters hope that digital innovation will help attract younger audiences in particular. Their struggles to reach audiences in *all* segments of society, however, have made it hard for them to fulfill their claims of universality. Moreover, commercial platforms such

[2] The NPO is a member of the EBU, and is itself made up of several organizations responsible for public television and radio broadcasting in the Netherlands. More specifically, it comprises eight member-based broadcasting associations and two task-based broadcasters (an organizational structure that has its origins in the pillarization).

as Facebook and YouTube are said to have created a norm whereby personalization is something that the public expects. PSBs are now competing with commercial parties for audience share. Their drive for innovation stems from the fear that without it, they may soon be left without an audience to 'inform, educate and entertain' in the digital age.

However, the PSBs' move towards data-oriented approaches risks triggering a new 'crisis of imagination', in the sense that they may end up serving the public as customers rather than as citizens. As Ien Ang (1991) explains, to help navigate an uncertain, competitive marketplace in the late Eighties, commercial television needed to know and engage with its invisible audience. Audience measurement became the instrument to produce 'the audience'. Ang discusses how PSBs gradually succumbed to ways of knowing their audience that were similar to those of commercial broadcasters. Market competition made the audience something that PSBs needed to fight for. In her assessment, this caused a shift: having relied on normative knowledge about how the audience *should* be addressed, now the PSBs depended on empirical information produced by audience ratings.

This change reflects a fundamental difference—the former approach represents an attempt to create citizens, supplying them 'quality' programming to watch, whereas the latter simply caters to the desires of its 'customers'. As a consequence, PSBs lost 'any consideration for the living, qualitative, meaningful, truly cultural relationship with the audience—which, it should be remembered, was the very *raison d'être* of public service broadcasting' (Ang, 1991: 124). In short, she faults PSBs with a crisis of imagination. In our current context, this idea of giving the audience what it wants rather than what it needs arises in recommender systems. As Helberger *et al.* (2016: 8) remark:

> *most designers of recommender systems seem to assume that giving users more or less exactly what they want is the more preferable and economically viable option […] [This strategy] has been primarily informed by considerations of individual user satisfaction, rather than societal ideals.*

The development/purchase of PRSs by PSBs, I would argue, could be seen as the latest phase of this process of commercialization, devoted to a desperate pursuit to give customers what they want. But it is important to explore the role of Big Data in PSBs in ways other than those prevalent in the commercial sector.

3 INTERACTIVITY AS A THREAT TO PUBLICNESS

Certain values of PSBs have been identified, but these values have always been debated and never fully realized. There has been a long struggle over the identity and legitimacy of PSBs. The deregulation of broadcasting and the introduction of commercial broadcasting in the Eighties in Europe represented the first real challenge to the publicness of public service broadcasting (Van Dijck and Poell, 2015). Discussions on the role of interactivity and user choice on the operations of PSBs have ben quite prominent. To provide context for current concerns over PRSs, I want to briefly consider some of the arguments raised in these debates.

The work of Paddy Scannell (2005) is particularly useful as a point of departure in its contrast of broadcasting and interactivity in relation to the remits of PSBs. He distinguishes these terms in his exploration of broadcasting's continued relevance in the age of digital media. Referring to the work of John Durham Peters, Scannell points out how Christ's parable of the sower lay at the heart of the public service remit of broadcasting, at least in Britain. Broadcasting was seen as a form of mass dissemination that was indiscriminate, inclusive and unconditional for all. Moreover, there was no expectation of anything in return. Scannell explains how the PSBs' commitment to the common good is hard to justify in economic terms: it can only result in an inherently wasteful form of distribution. Broadcasting gave access to events previously accessible only to a select few, creating 'the general public' and providing common experiences (Scannell, 2005: 138). He further argues that the temporality of broadcasting ensured that there was a mix in programming, allowing for serendipitous encounters by its viewers.

One should not, however, overly romanticize broadcasting. In fact, it fulfills some public tasks better than others, and it has continually been criticized for failing to live up to expectations of publicness.[3] Moreover, PSBs have catered to the specific interests of certain publics in the past. In fact, as early as 1945 the BBC introduced *BBC Light Programme*, followed a year later by *BBC Third Programme* (Sørensen, 2013). PSBs have always kept local remits in mind (Kant, 2014). These have, however, been catered to through mixed-program services with a careful consideration of the general interest (Scannell, 2005: 140).

Writing about interactive television, Scannell (2005) compared watching BSkyB's (now Sky) digital satellite service to broadcast television. The service's electronic programming guide (EPG), central

[3] Thanks to Markus Stauff for providing input on this topic.

to its function, offered the convenience of having channels 'sorted' and 'stacked' in different groups, providing structure to the chaos. EPG allowed the customization of the viewing experience, promoting individual consumer choice and flexibility in viewing time. It permitted users to select programming on the basis of their own interests. This development led to the individual's withdrawal from the general public and general interest, resulting in a 'self-selecting, self-defining minority' (Scannell, 2005: 140). What is lost in the process is the creation of a 'common, public time [and] the common experience of a common world' (Scannell, 2005: 136).

Interactive features, however, weren't a pet issue of commercial broadcasters alone. In 2004, the BBC launched 190 different interactive programming services across its digital platforms. These services were promoted as providing public value. As Bennett (2006: 276) explains:

> *From the broadcaster's perspective, this empowerment and audience choice comes with the significant advantage of not having to sacrifice ratings either for its channel or the particular programme on air as, ratings-wise at least, the viewer remains on the same channel and ostensibly 'watching' the same programme.*

However, the ability to personalize content in interactive programming leads to the 'cherry picking' of items and problematizes public-service values such as sustaining citizenship and promoting education (Bennett, 2006: 277). He argues that television then becomes a 'goldfish bowl' rather than a 'window on the world', with viewers immersed in their personal preferences. This state of affairs is, as mentioned earlier, different from when television is broadcast.

These discussions raise questions about interactivity and how it threatens qualities inherent to broadcasting that are believed to be crucial for a healthy democracy, namely *diversity* and *universality*. Not surprisingly, these are core values of EBU. Let me briefly clarify these qualities in a bit more depth. As Helberger *et al.* (2016: 1-2) explain:

> *As one of the central communication policy goals, diversity refers to the idea that in a democratic society informed citizens collect information about the world from a diverse mix of sources with different viewpoints so that they can make balanced and well-considered decisions.*

When people can select which content to consume, they risk exposing themselves only to the content that confirms their existing beliefs. Within the deliberative approach connected to the

Habermasian conception of the public sphere, diversity facilitates mutual understanding and compromise by bringing people of different viewpoints and ideas into contact with one another.

Interactivity is also thought to threaten universality. As part of its commitment to universality, EBU 'strives to create a public sphere, in which all citizens can form their own opinions and ideas' (EBU, n.d.: 3). Necessary here is a 'common arena of discourse' (Couldry and Turow, 2013), or rather 'shared experiences' (Sunstein, 2017). I find it important to acknowledge, because this distinction is too often overlooked, that people can be exposed to a plurality of views and opinions without achieving commonality.

But the impact of interactivity on publicness hasn't been cast only in a negative light. Bennett (2006), for one, provides some nuance to the idea that interactivity/choice is inherently at odds with public service remits. He does so through the example of the BBC and their Athens Olympics app. This app allowed viewers access to different events happening at the same time, which allowed members of diverse audiences to create individual identities within a 'shared national moment' (Bennett, 2006: 28).

Hallvard Moe goes a step further and explores how interactivity may even enhance publicness. He (2008: 319) writes:

> *The media should both disseminate information and facilitate dialogue. As a key policy tool in Western European nation states, public service broadcasting has arguably contributed to the former task but it has persistently been criticized for not providing space for participation, neglecting the role related to dialogue.*

Whereas broadcasting is exclusively about dissemination, online communication can both disseminate information and strengthen dialogue (Moe, 2008: 329). This is possible precisely because online platforms offer forms of interactivity. Specifically, Moe imagines how public service media might create online *spaces* that can foster a healthy democracy. He writes that PSBs must aim to contribute to the construction of 'open, multi-purpose space on the internet equivalent to urban parks' (Stewart *et al.* in Moe, 2008: 331).

Furthermore, it is important to recognize that broadcasting and interactivity/choice are not mutually exclusive. Netflix, for instance, produced multiple 'personalized' trailers for their series *House of Cards* (2013). They could thus target individuals (albeit as part of larger sub-groups) and

loop them back into a mass. In many ways this is similar to how movie posters are adapted to local tastes and preferences. In fact, Couldry argues that social media and mainstream media may become 'intertwined like the strands of a double helix' (2012: 23).

4 IMPLEMENTING PUBLIC REMITS IN THE DESIGN OF PRSS

I want now to shift attention back to PRSs. First I will briefly look at how some of the worries about interactivity are revamped in this context; then I will note how PSBs are responding to these worries and how some authors propose navigating these problems. The use of Big Data 'represents a fundamental shift [from ratings] in the ways that audiences are known and acted upon' (Arnold, 2016: 59). Commenting on Netflix, Sarah Arnold (2016: 60) explains:

> *The Netflix user becomes a measurable and predictable set of data, always produced, and then acted on by the PRS. […] The user is no longer embodied in, and expressive of, an identity structured over time and in relation to an endless series of encounters and actions; the user is instead subjected to identities and interactions, governed and expressed by the PRS.*

The knowledge produced and acted upon by PRS, Arnold argues, encroaches on human agency and autonomy. Data about users construct recommendations and influence consumers' choices. As Andrejevic (2011: 281) puts it, predictive analytics is 'both pre-emptive and productive, predictive and manipulative'. PRSs are distinct from traditional audience measurement, then, where control is more indirect and assumptions about audience preferences or needs determine the schedules of broadcasters (Ang, 1991: 33).

PRSs prompt worries about democratic ideals that we also see expressed in relation to interactivity. Because of their focus on what consumers want to consume, diversity and universality are often rejected (Caplan and boyd, 2016). Most prominent in raising such concerns are Sunstein and Pariser. Sunstein fears that on the internet people can easily create their own 'information cocoons', selecting only those articles and sources that they like and agree with. PRSs automate this process, and by basing recommendations on the users' own revealed interests, they curb serendipity and discovery. Eli Pariser (2011), most notably in this context, has spoken of 'filter bubbles'. However,

an important distinction between interactivity and PRSs hinges on the question of autonomy (Kant, 2014). With personalization, the system rather than the user sorts content. This has been termed 'pre-selected personalization' as opposed to 'self-selected personalization' (Zuiderveen Borgesius *et al.*, 2016). With PRSs the criteria used to sort content are unknown to the user and often beyond their influence.

The filter bubble may indeed exist, but this has not yet been confirmed by empirical data. It is known that algorithms are not neutral and possess embedded values and biases (Pasquale, 2015; Uricchio, 2017). They support particular agendas. Commercial entities like Netflix, for instance, are primarily interested in using PRSs to maximize audience retention. As a key performance indicator, this emphasis does not accord very well with the core values of PSBs. It is not surprising, then, that James Bennett (forthcoming) has argued for the development of *public service algorithms*. Indeed, EBU recognizes that it needs to be doing personalization differently than commercial parties, and has considered how 'public service DNA' can be translated into recommendation systems. Here a strong preference has been articulated for developing one's own algorithms rather than purchasing ready-to-use commercial products. Specifically this view is interested in balancing choice with the disruption of filter bubbles and the encouragement of content discovery (EBU, 2017: 26). Thus far, both EBU and NPO are considering editorial curation as a counter to filter bubbles and the overreliance on data (see EBU 2017: 26 and CleverLions, 2015: 23). Actual specifications for PRSs are, however, still being developed.

Within academia, Bozdag and Van den Hoven (2016) and Helberger *et al.* (2016) have explored design recommendation systems intended for democratic rather than commercial purposes. Whereas the former is specifically interested in tools that break the filter bubble more generally, the latter targets the exposure of diversity as a design principle more specifically. Both articles consider the norms of democracy models inherent to the tools. They share the following three models of democracy: individual autonomy, deliberative and adversarial. Respectively, these perspectives concern an interest in extending user autonomy, the promotion of rational debate and informed opinion making, and the need to inject minority/challenging opinions into public debate.

More specifically, Bozdag and Van den Hoven (2016) explore a range of digital tools that combat filter bubbles. They see these tools as representing liberal and deliberative democracy models. The first class of filter-bubble-breaking tools addresses autonomy: these tools are directed at raising awareness among users of one's own consumption biases and giving them choice and control over how information is filtered. For instance, *Balancer* visualizes people's political slant in their reading

histories. Much like self-tracking, it promotes self-knowledge and encourages people to reflect on their consumption. The second class is focused more on the quality of knowledge and on deliberation. These tools encourage exposure to diverse views and reflection on arguments. Bozdag and Van den Hoven conclude that not all democratic models are represented in these tools, and that agonistic elements should also be included so that the needs/voices of minorities can be heard. Similarly, from a media-policy perspective, Helberger *et al.* (2016) discuss concrete design principles for the three conceptualizations of diversity.[4] They too conclude that the market is less likely to cater to the conceptualization of diversity informed by an adversarial model of democracy, which seeks to ensure that the voices of minorities are heard. This adversarial form actively forgoes neutrality in its aim to make minority voices are not marginalized or silenced.

Helberger *et al.* also note that the promotion of diversity by design raises ethical questions, since users are nudged towards consuming particular content. The design of technology is never impartial; it always embodies particular ideas and intentions (whether those of diversity or other values). To maintain trust in an institution, it is important that these ideas and intentions are made transparent and institutions ensure their own accountability. Helberger *et al.* argue that diversity-sensitive design without an encroachment on personal autonomy (avoiding coercion) is possible. This can be achieved if institutions are transparent about how users are being nudged and encouraged to engage in reflective thinking.

It is my contention that due to fears of filter bubbles and echo chambers, the attention of EBU and NPO is focused exclusively on exposure to diversity—at the cost of considering the need for common arenas of discourse. Whilst diversity contributes to a varied media diet, it does not produce shared reference points. Moreover, PRSs are more like one-way streets than town squares. They are inadequate in creating the spaces needed for genuine exchanges to take place.[5] It is worth noting, though, that the Belgian public broadcaster Radio Télévision Belge Francophone (RTBF) stresses the need for recommending offline events so that people can meet and exchange ideas beyond the digital sphere (see Schwab, 2016). Although this sort of initiative addresses the issue, it represents a change in the core activities of PSBs. This may be desirable, but it needs to be

[4] For more on the challenges in measuring diversity see Cheng (2017).

[5] I am indebted to Nick Couldry for raising this point during a presentation I gave at LSE.

discussed. Harking back to the insights of Moe, it is certainly plausible that PSBs could create online spaces to support dialogue.

5 TOWARDS REAL SOCIAL ANALYTICS

PRS can be designed to support the public remits of PSBs, as I discussed earlier. In what follows, I move to consider the importance of a concern for metrics through the lens of translation and accountability. I connect this discussion to the project of 'real social analytics' (Couldry *et al.* 2016), which can be a useful approach for PSBs as they integrate new data-driven practices into their operations.

Quantification allows us to know the audience only by analyzing patterns that emerge from the data points they generate. However, it cannot account for how television becomes meaningful to people—no matter how many data points are collected. It ignores the cultural relationship PSBs establish and sustain with their audiences, which is an important part of what they should do. But Big Data does enable new ways of knowing and acting on the world (Hildebrandt, 2015). It allows for the gauging of tastes and preferences and the prediction of consumption, but it does so through a process of translation; 'the continuous experience of sound, vision, thoughts, feelings, and so on, is cut up into discrete machine-readable unites that fit the format of a specific machine' (Hildebrandt, 2015: 32).

The danger of digital computing systems is, as Hildebrandt (2015: 36 –e mphasis added by the author) rightfully clarifies, that

> *[t]he process of discretization [a precondition for performing calculations] hides the ambiguities that would confuse the data model; it forces our mind to think in terms of specific formats and to qualify our experience in machine-understandable language. In the end, N = All assumes that the data set defines reality, instead of admitting that the data set presents a specific – hopefully relevant and reliable – model of reality. Or, even more dangerously, N = All assumes that reality defines the data set, ignoring the translations that must occur to construct the data set.*

In other words, the calculation of large volumes of data requires the use of simplified proxies for complex values (e.g., diversity and serendipity). For PSBs it is highly important that the output of these proxies credibly relates to their aims.

To align their public remits with Big Data, PSBs need to engage in what Couldry *et al.* (2016) have termed 'real social analytics'. Real social analytics considers how the digital infrastructure (i.e., algorithms, analytics, architectures and platforms) of social actors supports their social aims. It takes as it point of departure the fact that social actors such as PSBs have a digital presence that is measured and counted (analytics commonly used to establish commercial value). The approach concerns itself with how these social actors make their digital presence 'an effective object of reflection and action' (Couldry *et al.*, 2016: 127). Put differently, analytics make these social actors known to others and allow these social actors to reflect and act on that presence. At the crux of this approach, I propose, lies the idea of having a relevant and reliable model of reality. This relates directly to how values are translated into proxies and how data-mining practices are made genuinely accountable.

5.1 Translation

'Everyone is a genius. But if you judge a fish by its ability to climb a tree, it will live its whole life believing that it is stupid'. This quotation, attributed to Albert Einstein, reminds us of the importance of using appropriate benchmarks. Measures should be chosen in light of the specific goals that one sets out to realize, for metrics are powerful. The ability of metrics to affect the production, consumption and value of culture has recently been explored by David Beer. In his book *Metric Power* (2016) he proposes that the power of metrics is located in the relation among 'measurement' (what is measured), 'circulation' (how metrics circulate) and 'possibility' (the implications of metrics for what is possible).

According to Bennett (forthcoming), to determine the success of their algorithms, PSBs should be focusing on different key performance indicators (KPI) than commercial parties use.[6] From what I have learned about EBU and NPO, in pilots with algorithms success continues to be evaluated in terms of KPIs straight off the commercial shelf; namely, indicators such as stream starts and average-minute ratings (see EBU, 2017: 32 and CleverLions, 2016: 8). Such indicators are of course

[6] Helberger *et al.* (2016) also point out that desired goals should be reflected in the metrics used. In their paper they make suggestions as to what metrics might be used to determine if the desired form of diversity was being realized.

geared towards audience retention. In that case, even if the algorithm is designed with the goal of stimulating 'diversity', the assessment of its performance by other measures nullifies these good intentions. To evaluate public service algorithms, Bennett (forthcoming: n.p.) proposes the following measures:

- connecting audiences with new content
- connecting diverse audience to shared content
- connecting audiences to new experiences and forms
- connecting audiences with external services and content

I would argue that as a set of measures the proposal is not specific enough. It raises questions about definitions: What does it mean to be connected? Diverse? Shared? Moreover, it fails to achieve a goal identified by other authors, namely the desire of PSBs to make minority voices and controversial viewpoints more conspicuous and less marginalized.

More fundamentally, Jonas Andersson Schwarz (2016: 137) questions whether something like diversity can even be reduced to the satisfaction of some quantifiable quota. He points to the existence of 'majoritarian programming with minoritarian elements'. This issue harks back to the aforementioned process of translating complex values into proxies, which is necessary for computation. It relates to the contention of Beer (2017: np) that '[s]ome measures can't easily be escaped, but they can be downplayed, subverted or challenged. We should aim to rediscover and celebrate immeasurable qualities and argue for why they matter'.

5.2 Accountability

Aside from considering how social values can credibly be translated into specific measures, institutions need to maintain trust, which requires that they be genuinely accountable. It is not surprising, then, that accountability is a core value of PSBs. Important in this regard is the new General Data Protection Regulation (GDPR), which goes into effect for all EU member states in May 2018. GDPR, an effort to standardize data protection regulation within the European Union, extends regulation in an effort to ensure data transparency and accountability. However, when it comes to accountability, a striking difference between NPO and EBU is evident. Whereas the latter explicitly addresses accountability, the former is more narrowly focused on transparency.

In the Netherlands, three reports contemplating the Big Data strategy of NPO have been published: *MeTime* (2014), *NPO: Nederlandse Persoonlijke Omroep* (2015) and *Topspin* (2016).[7] In these reports, accountability is mentioned only once, and merely to point out that Big Data demands it. Transparency, on the other hand, is a central topic of concern: it is seen as a solution to privacy issues. The 'viewer promise' approach by the UK broadcaster Channel 4 is identified in the NPO documents as a prime example of how to be transparent about data practices. This broadcaster avoids the slippery slope of making profiles of viewers by tracking them without their explicit consent by establishing a contract with members of the public through login. Having a login raises the quality of information it can collect, not only by making unique viewers identifiable, but enables the broadcaster to ask viewers to volunteer additional data.[8]

Kennedy and Moss (2015) explain that while transparency addresses the opacity of data-mining practices, some critics argue that it doesn't make the companies engaging in these practices accountable. Accountability would 'requir[e] data-mining companies not just to *show* the public what they are doing, but to *tell* publics what they are doing, why, and with what effect' (Kennedy and Moss, 2015: 6, original emphasis). This is admittedly a far more complicated goal to clarify and realize.

EBU, for its part, explicitly addresses accountability. In 2015 a working group formulated a proposal for General Principles for Data Use. They identified the following principles for data collection and usage: Transparency, Relevance, Understanding, Safety, Together, Experience and Discovery. Accountability is addressed in the principles Understanding, Transparency and Together. Understanding concerns explaining to users how data is collected and used and how this benefits the users. Likewise, Transparency concerns informing viewers about what data is collected and used, but it also enables them 'to access, rectify and delete their personal profile' (EBU, 2017: 13). The principle Together is about, in EBU's own words, establishing a partnership with the audience and entails 'obtaining consent, engaging in continued dialogue and respecting the choices of users' (EBU, 2017: 23). What is actually required for these ambitions to be met remains vague.

[7] These reports were commissioned and it was CleverLions, a consultancy firm on data and content since 2013, which wrote them up.

[8] But is login really an avenue that PSBs should pursue? Schwarz (2016) points to something of a Catch-22. To have reliable data points, PSBs need to implement login, but this creates an extra barrier to entry in comparison to free-to-air broadcasts (*ibid.*, 137).

The principle of Together, for instance, raises a series of questions: What constitutes consent? What is 'dialogue'? When is dialogue constant? And what choices can users make in this regard?

It is clear that there are concerns about data collection and usage in a public-service context. Furthermore, Schwarz (2016: 137) has claimed that viewers should be able to choose not be tracked and to opt out of personalization altogether. At RTBF there are plans to implement a slider so that viewers can select the degree of personalization they prefer (Schwab, 2016). However, such a feature restores the autonomy of users only if they are informed what these different degrees entail in terms of data collection and analysis. Furthermore, accountability gets very messy and overly complicated when third parties become involved. It is worth noting that the EBU does not reflect on the problems that may emerge when working with commercial platforms such as Facebook, Twitter and Google. Van Dijck and Poell (2015) warn that the commercial aims and design of social media can compromise public values. The corporate character of these platforms has come to influence the principles that drive them. These platforms shape and monetize interaction across the web. So whilst the intentions of PSBs may be good, relations with commercial platforms may threaten their ownership over the data they collect and the agreements they have established with their audience.

6 MOVING FORWARD: AVERTING A CRISIS

The legitimacy of PSBs is currently under neoliberal attack. As they continue to face budget cuts, they are once again at a crossroads. Big Data–driven approaches affect the relationship between PSBs and their audience and, as a result, the publicness of public service. I would argue, however, that these new approaches also offer them a unique opportunity to differentiate themselves from their commercial counterparts. As such, they are crucial to their survival. Rather than compete with commercial parties over audience share, they can assert their values in practice and legitimize their existence by transforming their digital infrastructure.

So far, whilst EBU and NPO acknowledge the need to do things differently, they continue to work inside the commercial box. When it comes to PRSs, although they are worried about about filter bubbles, this concern distracts them from thinking about creating spaces for exchange. This may include thinking about how broadcasting and interactivity/choice can reinforce each other. Moreover, as specified, they continue to think in terms of commercial KPIs to evaluate the success of their algorithms. Public institutions need to address, as a central concern, how to achieve

genuine accountability for their data-driven practices—and thus need to push beyond addressing transparency.

The PSBs' data-orientated approaches have extended beyond the development of recommendation systems. In the Netherlands, to give one example, NPO plans to develop modular dashboards that would be adaptable to the different needs of different editorial boards. These are seen as a means to gain insights about target groups and their preferences and to adapt content production accordingly. The metrics and visualizations they choose will influence decision-making on the production end, and should therefore be carefully considered. Indeed, dashboards are partial in that they bracket out '[a]ll the dirty (un-"cleaned") data, the variables that have nothing to do with key performance (however it's defined), the parts that don't lend themselves to quantification and visualization' (Mattern, 2015). Also, the design of the interface 'play[s] a significant role in how metrics are accessed, understood, and used' (Beer, 2016: 101). Moreover, the NPO reports reveal an interest in using these dashboards for 'realtime' and 'actionable data'. By placing an emphasis on real-time analysis, they privilege a particular form of knowledge (boyd and Crawford, 2012). As Kelly (2017: 10) argues, 'this could lead to a greater investment in content that can more effectively deliver this kind of measurable data, such as live programming and event television'.

Helberger *et al.* (2016) contend that there needs to be a normative discussion about what exposure diversity is. But, I would argue, there should also be a broader discussion about what publicness is and how it can be served. Moreover, discussion shouldn't just target the design of algorithms, but should inform the design of the digital infrastructure of PSBs in its entirety. In other words, to avoid a new crisis of imagination, the social goals of PSBs need to be clarified and should inform their digital infrastructure. PSBs should also consider a more radical response by questioning the terms and premises behind being known to others.[9] In the end, what is needed is a strong position on the type of PSB that society ultimately wants. Establishing their normative position—or rather their *relevance* reframed in terms of the public rather than the personal—can also help PSBs clarify their worth. It would seem that in times when distrust of institutions continues to grow, and with the web increasingly commodified, PSBs are in a strong position to assert their public value. But data scientists alone cannot address the questions raised by a social-analytics approach: they need help from other disciplines, such as sociology and the humanities.

[9] I am indebted to conversations with William Uricchio about the need for PSBs to be more radical than simply working within the system, and to actively challenge the terms under which they are known.

REFERENCES:

Andrejevic, M. (2011) 'The Work that Affective Economics Does', *Cultural Studies* 25(4-5): 604-60.

Ang, I. (1991) *Desperately Seeking the Audience*, London and New York: Routledge.

Arnold, S. (2016) 'Netflix and the Myth of Choice/Participation/Autonomy', pp. ***49-62*** in ***Kevin McDonald, Daniel Smith-Rowsey (eds.)*** *The Netflix Effect: Technology and Entertainment in the 21st Century*,. ***London: Bloomsbury.***

EBU. (2017) *Big Data Initiative: Time to Invest*. Le Grand-Saconnex.

EBU (N.D.) Empowering Society: A Declaration on the Core Values of Public Service Media, *EBU*, URL: https://www.ebu.ch/files/live/sites/ebu/files/Publications/EBU-Empowering-Society_EN.pdf [Last consulted: 14 June 2017]

Beer, D. (2017) Why don't we just … stop measuring ourselves all the time?, *Big Issue North*, 19 June, URL: http://www.bigissuenorth.com/comment/2017/06/dont-just-stop-measuring-time/ [Last consulted: 23 June 2017]

Beer, D. (2016) *Metric Power*. London: Palgrave Macmillian.

Bennett, J. (Forthcoming) 'Public Service Algorithms'

Bennett, J. (2006) 'The Public Service Value of Interactive Television', *New Review of Film and Television Studies* 4(3): 263-285.

boyd, D. (2017) Why America is Self-Segregating, *Datapoints*, 5 January, URL: https://points.datasociety.net/why-america-is-self-segregating-d881a39273ab#.oiq6q68hm [Last consulted: 14 June 2017]

boyd, D. and Crawford, K. (2012) 'Critical Questions for Big Data: Provocation for a cultural, technological, and scholarly phenomenon', *Information, Communication & Society* 15(5): 662-79.

Caplan, R. and boyd, D. (2016) Who Controls the Public Sphere in an Era of Algorithms? *Data & Society*, 13 May, URL: https://datasociety.net/pubs/ap/MediationAutomationPower_2016.pdf [Last consulted: 17 June 2017]

Cheng, E. (2017) How to Measure Diversity, *The Wall Street Journal*, 14 June, URL: https://www.wsj.com/articles/how-to-measure-diversity-1497453642? [Last consulted: 17 June 2017]

CleverLions (2016) *Topspin: Eindrapport* [Topspin: Final Report]

CleverLions (2015) *NPO: Nederlandse Persoonlijke Omroep* [NPO: Dutch Personal Broadcaster}

CleverLions (2014) *MeTime! Data bij de Publieke Omroep* [MeTime! Data at the Public Broadcaster]

Couldry, N. (2012) *Media, Society, World: Social Theory and Digital Media Practice*, Cambridge: Polity Press.

Couldry, N., A. Fotopoulou, A. and Dickens, L. (2016) 'Real social analytics: A contribution towards a phenomenology of a digital world', *The British Journal of Sociology* 67(1): 118-37.

Couldry, N. and Turow, J. (2014) '**Advertising, big data and the clearance of the public realm: marketers' new approaches to the content subsidy', *International Journal of Communication*** 8: 1710-26.

Donders, K. (2012) *Public Service Media and Policy in Europe*. London: Palgrave MacMillan.

Helberger, N., Karppinen, K. and D'Acunto, L. (2016) 'Exposure diversity as a design principle for recommender systems', *Information, Communication & Society*: 1-17

Hildebrandt, M. (2015) *Smart Technologies and the (Ends of) Law*. Cheltenham: Edward Elgar Publishing.

Hofseth, A. (2014) The Cost of Personalization, *NRKbeta,* 10 October, URL: https://nrkbeta.no/2014/10/10/personaliseringens-pris-the-cost-of-personalisation/ [Last consulted: 8 June 2017]

Ibarra, A., Nowak, K.E. and Kuhn, R. (2015) *Public Service Media in Europe: A Comparative Approach*. London and New York: Routledge.

Kant, T. (2014) 'Giving the "Viewser" a Voice? Situating the Individual in Relation to Personalization, Narrowcasting, and Public Service Broadcasting', *Journal of Broadcasting & Electronic Media* 58(3): 381-99.

Kelly, J. P. (2017). 'Television by the Numbers: The Challenges of Audience Measurement in the Age of Big Data', *Convergence:* Online First

Kennedy, H. and Moss, G. (2015) 'Known or knowing publics? Social media data mining and the question of public agency', *Big Data & Society*: 1–11.

Lyon, D. (2003) 'Surveillance as Social Sorting: Computer Codes and Mobile Bodies', pp. 13-30 in David Lyon (ed.) *Surveillance as Social Sorting: Privacy, Risk and Digital Discrimination*. London and New York: Routledge.

Mattern, S. (2015) Mission Control: A History of the Urban Dashboard, *Places*, March, URL: https://placesjournal.org/article/mission-control-a-history-of-the-urban-dashboard/ [Last consulted: 8 June 2017]

Moe, H. (2010) 'Defining public service beyond broadcasting: the legitimacy of different approaches', *International Journal of Cultural Policy*: 52-68.

Moe, H. (2008) 'Dissemination and dialogue in the public sphere: a case for public service media online', *Media, Culture & Society* 30(3): 319-36.

Napoli, P.M. (2011) 'Exposure Diversity Reconsidered', *Journal of Information Policy* 1: 246-59.

Pariser, E. (2011) *What the Internet is Hiding from You*. New York, NY: Penguin.

Pasquale, F. (2015) *The Black Box Society*. Cambridge, MA: Harvard University Press.

Roettgers, J. (2016) How Netflix Wants to Rule the World, *Variety*, 18 March, URL: http://variety.com/2017/digital/news/netflix-lab-day-behind-the-scenes-1202011105/ [Last consulted: 8 June 2017]

Scannell, P. (2005) 'The Meaning of *Broad*casting in the Digital Era', pp.129-42 in Gregory Ferrell Lowe & Per Jauert, *Cultural Dilemma's in Public Service Broadcasting*. Göteborg: Nordicom.

Scannell, P. (1989) 'Public service broadcasting and modern public life', *Media, Culture & Society* 11(2): 135-66.

Schwab, P.N. (2016) 'Do we live in the Matrix?' Data Summit and Paris Mines Tech, 31 December, URL: https://prezi.com/7ub7psiwqiwn/do-we-live-in-the-matrix/ [Last consulted: 10 June 2017]

Schwarz, J.A. (2016) 'Public Service Broadcasting and Data-Driven Personalization: A View from Sweden', *Television & New Media* 17(2): 124-41.

Sørensen, J.K. (2013) 'Public service broadcasting goes personal: The failure of personalised PSB web pages', *MedieKultur* 55: 43-71.

Sunstein, C. (2017) #*Republic: Divided Democracy in the Age of Social Media*. Princeton, NJ: Princeton University Press.

Thompson. C. (2008). If You Liked This, You're Sure to Love That, *The New York Times Magazine*, 21 November, URL: http://www.nytimes.com/2008/11/23/magazine/23Netflix-t.html [Last consulted: xxx]

Turow, J. (2011) *The Daily You: How the Advertising Industry Is Defining Your Identity and Your Worth*. New Haven, CT: Yale University Press.

Uricchio, W. (2017) 'Data, Culture and the Ambivalence of Algorithms', pp. 125-38 in Mirko Tobias Schäfer and Karin van Es (eds.) *The Datafied Society: Studying Culture through Data*. Amsterdam: Amsterdam University Press.

Van Dijck, J. and Poell, T. (2015) 'Making Public Television Social? Public Service Broadcasting and the Challenges of Social Media', *Television and New Media* 16(2): 148-64.

Zuiderveen Borgesius, F. J., Trilling, D., Möller, J., Bodo, B., de Vreese, C.H. and Helberger, N. (2016) 'Should we worry about filter bubbles?', *Internet Policy Review* 5(1). URL: https://policyreview.info/articles/analysis/should-we-worry-about-filter-bubbles [Last consulted: 10 June 2017]

Media@LSE Working Paper Series

Media@LSE Working Paper Series will:

Present high quality research and writing (including research in-progress) to a wide audience of academics, policy-makers and commercial/media organisations.

Set the agenda in the broad field of media and communication studies.

Stimulate and inform debate and policy. All papers will be published electronically as PDF files, subject to review and approval by the Editors and will be given an ISSN.

An advantage of the series is a quick turnaround between submission and publication. Authors retain copyright, and publication here does not preclude the subsequent development of the paper for publication elsewhere.

The Editor of the series is Bart Cammaerts. The Deputy Editors are Nick Anstead and Ruth Garland. The editorial board is made up of other LSE academics and friends of Media@LSE with a wide range of interests in information and communication technologies, the media and communications from a variety of disciplinary perspectives (including economics, geography, law, politics, sociology, politics and information systems, cultural, gender and development studies).

Notes for contributors:

Contributors are encouraged to submit papers that address the social, political, economic and cultural context of the media and communication, including their forms, institutions, audiences and experiences, and their global, national, regional and local development. Papers addressing any of the themes mentioned below are welcome, but other themes related to media and communication are also acceptable:

Communication and Difference
Globalisation and Comparative Studies
Innovation, Governance and Policy
Democracy, Politics and Journalism Ethics
Media and Identity
Media and New Media Literacies
The Cultural Economy
Mediation and Resistance

Contributions are welcomed from academics and PhD students. In the Autumn Term we also invite selected Master's students from the preceding year to submit their dissertations which will be hosted in a separate part of this site as 'dissertations' rather than as Working Papers. Contributors should bear in mind when they are preparing their paper that it will be read online.

Papers should conform to the following format:

6,000-10,000 words (excluding bibliography, including footnotes)

150-200 word abstract

Headings and sub-headings are encouraged

The Harvard system of referencing should be used

Papers should be prepared as a Word file

Graphs, pictures and tables should be included as appropriate in the same file as the paper

The paper should be sent by email to Bart Cammaerts (b.cammaerts@lse.ac.uk), the editor of the Media@LSE Working Paper Series

ISSN: 1474-1938/1946