Digital marketing has a dirty secret - one known by many in the industry but rarely aired publicly. Digital marketers do not know some of the most basic things about their audiences. They do not know if a person has seen an advert - let alone who that person is or what their interests are. In the last few years, this secret has come out and leading advertisers such as Martin Sorrell have become 'wary and suspicious' of digital advertising for its 'weak' measurements. In response, a range of stakeholders have come together to produce new standards for digital advertising through the Making Measurement Make Sense (3MS) initiative. In 'a momentous occasion for consumers, brands, and publishers' the metric they developed, viewability, became a standard basis for digital advertising transactions.

This case offers us a unique window into the nature of measurement in marketing. This is an important issue. Critical reflection highlights ethical questions about how data is collected and used (see Fuchs, 2013; Wood and Ball, 2013; Pridmore and Zwick, 2011), offers discursive analyses of the ideological foundations of marketing analysis (Zwick and Bradshaw, 2016; Schneider and Woolgar, 2012), and questions the accuracy and inaccuracy of measures (Aaltonen and Tempini, 2014; Beuscart and Mellet, 2013; Avis, Forbes and Ferguson, 2013; Hunt, 1983). Recent discussions centre on the ways data, analytics and measures are used in practice. A dominant conceptualisation here is the notion of *performativity* (Mason, Kjellberg and Hagberg, 2015). It tells us that marketing measures simultaneously produce the things that they describe (Cluley and Brown, 2015; Jacobi, Freund and Araujo, 2015; Venter, Wright and Dibb, 2015).

In the wider sociological literature, thinking about the performative practices has been matched by a "technical turn" that focus the ways measures, standards and quantitative representations are constructed before they are used (Becker, 2007; Bowker and Star, 2000; Star, 1999; Latour, 1996, Becker, 1996). This movement has taken inspiration from social sciences that may be familiar to marketing theorists such as science and technology studies and actor-network theory as well as symbolic interactionist sociology (Badje, 2013). Yet, it has a unique focus. Setting a research agenda in this area, Star and Lampland (2009) state that we need to trace the stories behind commercial, scientific and demographic data – in particular the standards that calibrate and formalise data – to see how participants in an area of activity come to agree not only on *how to count thing*s but also on *which things count*.

Inspired by the technical turn, the purpose of this study is to explore the construction of viewability through a systematic document analysis of grey literature. This produces a three phase process where an *alignment* of interests *stablilizes* an object of measurement which is then *formalized* in a standard method for measurement. This account challenges existing marketing theory in notable ways. It shows that range of actors must work together to create marketing measures. This is no easy task. Fortunately, it is made easier because they do not have to reach an explicit agreement. Instead, once the object of interest has been stablized, the work needed to stablize it slips into the background. Seen in this light, marketing data is not just performative. It is also a performance. This is much more than a pedantic difference. It shifts the moment of sociological interest from the performative act when data is captured, analysed or represented to the construction of objects that are design to provoke further

marketing work. Taken to an extreme, this challenges us to expand our understanding of what marketing is and who does it.

By way of overview, the paper opens with a brief review of the theoretical motivations for the study. There is a short introduction to the viewability case and a review of the methods used in the study. The main body of the paper is devoted to documenting the emergence and shaping of viewability standards. The aim is to let the object of interest speak for itself as far as possible. Finally, the case is positioned within the current theorization of marketing data, analytic techniques and measures.

The technical turn

The theoretical motivation for this study comes from a constellation of research in science studies, social studies of finance, critical accountancy, software studies and information science. In each of these areas there has been a move to study data itself. The central idea is that the representations that measure the world tell us important things about the people who create them. They show us what they want to do and reveal their interests and values. As Becker – an early inspiration for this approach - observes:

> Every way of doing things is perfect - *for something*. That is, every way is the best way to accomplish something someone wants done, under a specific set of circumstances. So the problem changes from what is the best way to do X to what is X such that this particular form of representation best accomplishes it? That identifies the core of whatever argument there is: the question of what people are trying to accomplish by doing X the way they propose to do it. And the answer to that lies in the organization they are doing it in, which presents makers with the users who must be satisfied, and the users with the makers who do that kind of work and might not want to satisfy those desires' (2007: 72)

Perhaps the most influential study in this regard is Latour and Woolgar's (1979) ethnography of scientific practice. They traced the steps taken by a research team as they moved from the field to a scientific discovery. One of their central findings was that, rather than a single moment of discovery, along this journey various *inscription devices* removed qualifications, uncertainties and ambiguities initially attached to the data. Instead of questioning the validity of such processes, Latour and Woolgar were attracted by the ways that scientists could use these devices without question. They argued that a discovery was produced when a network of actors could ignore the very messy nature of the data they were using to represent the world.

Latour's work is increasingly well-known in marketing theory as a foundation for actor-network theory and for sparking discussions about the diverse nature of actors in markets (Badje, 2013). As Callon explains, it ushered in a sociology that saw scientific facts and economic objects as 'a product of the interaction between a large number of diverse actors' (1990: 132). This has inspired marketing researchers to adopt a "flat ontology" and explore the

agentic qualities of humans, objects and technologies (Cochoy, 2010; Cochoy, 2008; Hagberg, 2015; Hawkins, 2013).

However, Latour and Woolgar's work has also been influential in a related but separate stream of research within science studies that focuses on the *interactions* between diverse actors. Callon (1984) marks a pivotal contribution here. He presents a study of the interactions between a team of scientists, their theories and measurement devices, fishermen, sea creatures, local politicians and others who sought to replenish the scallop stocks around St Brieuc Bay by investing in novel collector technologies. He demonstrates that these diverse actors were recruited into the policy decision through a series of translations that transformed scientific hypotheses into incontestable facts. These facts then shaped power relations between the actors, defined their roles and identities and set their capacities to act. Callon suggests that throughout this process there were a number of *devices of interessment* that aligned the interests of different actors. An example of such devices is the scientific papers and presentations that hypothesized the behaviour of scallops. Just as inscription devices made the scientists Latour and Woolgar observed more certain of their data, for Callon such devices of interessment transformed a series of questions into definite statements that could form the basis of action.

This interest in thinking about how large groups of diverse actors interact has, in turn, inspired a "technical turn" among ethnographers of science (see Star and Lampland, 2009 for a full discussion). Most large-scale scientific endeavours only work after participants have agreed on the meaning of the things they talk about – that is, once they have produced devices of interressment. This involves formally defining terms, designing systems of representation and calibrating measurement and analytic techniques. The terms, representations and techniques then translate the boundaries between different groups of actors. They create objects, define what they can do, who they can work with and where they can go. As Callon explains: 'Codes, checklists, maintenance manuals and user handbooks, all of these escort objects on their travels' (1990: 137).

Researchers inspired by this view accordingly set out to 'discover what entities are taken to exist' before scientific investigations can start and 'how their existence is stabilized via material and textual practices' (MacKenzie, 2005: 555). This often involves studying technical objects or 'boring things' such as handbooks, codes, policies and protocols (Star, 1999: 377). To understand how these things are stabilized, researchers 'seek out controversies, for it is in them—in knowledge (or machines) in the making, rather than in stable, consensual knowledge or established technologies—that the processes of construction, and what is at stake in those processes, can most clearly be seen' (MacKenzie, 2005: 555-557).

This approach has, subsequently, moved out of the lab and into other areas of activity including marketing as economic sociologists have recognized that increasing amounts of activity are coordinated within large-scale socio-technical systems and institutions – commonly described as infrastructures – which rely on standardized, formalized and, often, quantitative representations (Araujo, 2007; Muniesa and Callon, 2005; Bowker and Star 2000a, 2000b; Star, 1995). Setting the agenda here, Star and Lampland (2009) call for research that focuses on the

stories behind quantification, classification and formalization practices. They ask us to sketch out narratives which, while inevitably speculative and incomplete, help us to appreciate how particular interests and objectives shape particular types of data. Through these narratives, we can begin to appreciate whose 'ideas and whose things *matter*' (Star and Lampland, 2009: 23). Looking at standardized objects, we can ask what kind of things people designed those standards to achieve and can consider what kinds of practice they wanted to *provoke* (Muniesa, 2013).

As an example of this work, we can turn to Millerand and Bowker (2009). They explore the standardization of scientific data. Taking the case of long-term ecological research, they investigate how data standards are developed and implemented across a diverse collection of research teams. They show how these standards, which 'appear to be mere technicalities', are able to profoundly influence 'the production of scientific theories' by conditioning who can access data, which data is consider valid and by 'delimiting their interpretative uses' (2009: 154). Theories, on this view, are conditioned not by what the data allows as much as by the standards and classification systems that define data, analysis techniques and measures in the first place.

In this sense, the technical turn has theoretical consequences as well as empirical ones. It not only directs us to look again boring things. In keeping with wider theoretical discussions informed by science and technology studies and actor-network theory, it calls into question some intuitive ideas about the relationship between representation and practice. This has particular relevance for marketing data and analysis. A common way to describe such objects is to say they are *performative rather than descriptive*. That is, they produce the objects they describe (Jacobi, Freund and Araujo, 2015; Venter, Wright and Dibb, 2015). Cluley and Brown (2015), for instance, argue that a "click" is powerful in online marketing not because it accurately measures what people do but because it allows marketers to construct segments that shape what people do. Likewise, Avis, Forbes and Ferguson (2013) illustrate how brand personality measures create brand personalities – even for rocks. Zwick and Bradshaw (2016) contest brand communities can constructed solely through marketing metrics.

In this regard, researchers agree that many marketing measures add things to markets. They are active. But they also take things away. They hide things – just as the inscription devices Latour and Woolgar studied removed qualifications, mess and inconsistencies from scientific data. For example, Schneider and Woolgar (2012) and Schwartzkopf (2015) demonstrate that neuromarketing data brings with it a host of psychological and cultural assumptions which are hidden behind a veil of pseudo-science. Schneider and Woolgar, in particular, describe neuromarketing technologies as *ironically revealing* – they hide as much as they show. Similarly, Law (2009) explores how institutional, cultural and political assumptions built into consumer attitude surveys are disguised behind the seemingly objective numerical data they produce. Poon (2007) shows how consumer credit data is mediated through the use of standard scorecards. Not only are these forms filled in by humans who may have incentives to bend the truth but the criteria that are scored inscribe a variety of social and cultural assumptions. All this is ignored once the scorecards are entered into a database.

But the technical turn also forces us to address the most fundamental theoretical questions in marketing: what actually is marketing and who does it? It suggests that there is more to marketing than the work of marketers. As Araujo, Kjellberg and Spencer (2008: 8) observe: 'Regulatory and standards agencies, scientific advisors, consumer associations, business and trade groups all have a say on product formulations, how they are displayed, the inscriptions on packaging labels, etc … that help shape a particular market form'. Yet, rather than focus on the work these actors do, the technical turn demands that we consider *how they work together*. It asks us to consider how they interact and how they agree on stable objects that can organize and structure markets. Rather than discuss the agentic qualities of such actors, it asks us to think about them as authors who do marketing work as they 'define one another by means of the intermediares which they put into circulation' (Callon, 1990: 140). Put simply, it asks us to consider how the things marketers use become things for them to use.

Case and method

Based on the theoretical motivations discussed above, the objective of this study is to sketch out a story of standardized marketing data. The first task is to highlight something that *matters* to marketers. As Star and Lampland put it, the challenge is 'to figure out which threads to unravel to make visible and lively the otherwise banal and interstitial character of standards and quantified or formally represented phenomena' (2009: 13). Digital marketing is an appropriate area of practice in this regard. It has not only seen rapid growth in recent years but it is an area of contemporary marketing that has been promoted for improving accountability (Turow, 2012). Digital marketing practice has an additional benefit. As an evolving field, standards and outcomes available to digital marketers are changing. Nowhere is this clearer than in the recent move to make *viewability* the standard currency for digital marketing transactions.

To explore the development of this measure, this study analyses the *grey literature*. Grey literature is a generic name for documents that sit in-between academic research and everyday discourse. It includes industry reports, business case studies, trade press articles, technical specifications, standards and policy documents. Starting in the biological sciences, researchers have increasingly incorporated grey literature into academic research (Banks, 2006; McAuley, 2000; Alberani et al, 1990). For example, industry research may be included in systematic reviews of medical tests (Hopewell, 2007; Conn et al, 2003). Within social sciences, too, the grey literature is increasingly the subject of analysis. Social scientists have turned to the grey literature as a window into the "consultariat" who set the agenda for business and policy (Fuller and Goffey, 2010), leadership practices in financial institutions (Stien, 2004) and organizational and brand identities (Boye et al, 2002). More recently, Cluley (2016) explores the cultural representation of marketers by analysing grey literature.

INSERT Table 1. Snowball sample

In this study, the grey literature has been harvested using a snowballing approach (see Table 1.). An initial list of sources was searched using LexisNexis and the Internet Archive. LexisNexus is a proprietary database of print and web publications. The Internet Archive is an open access database storing past versions of websites. Organizations, reports, documents and notable participants discussed in these sources were used as the basis for further searches. All texts were captured. In total, over 1,500 documents amounting to over 1,000,000 words have been captured an analysed. Key texts in this dataset are detailed in Table 2.

INSERT Table 2. Landmark texts from corpus

The analysis of this dataset has been driven by a need to identify and follow interests and concerns among stakeholders in the construction of a marketing measure. To this end, an inductive method of open, axial and relational coding was employed to organize the dataset in keeping with similar studies of grey literature. Through this, three phases have been identified: *mobilizing and aligning interests*; *stabilizing the object*; *standardizing and reconciling measurement*. These are described in the remainder of the paper and are illustrated using verbatim quotes from the grey literature.

In practice, of course, there is a great deal of overlap between the phases described below. Different constellations of actors moved at different speeds and directions. As such, the following should not be read as a literal rendering of what happened but an interpretation to develop theory (see Callon 1984 for a description of interpretative methods).

The three stages in the construction of viewability
Viewability is the result of both coordinated action and a general shift in marketing common sense. In order to reveal these movements, the construction of viewability can be usefully segmented into three phases. First, a range of interests are *mobilized and aligned*. Put simply, a range of stakeholders agreed on a problem. Following this, they accepted that a particular thing needed to be measured to solve their problem. That is, they *stabilized the object*. Finally, they agreed how to measure it. They *standardized and reconciled* different measurement methodologies.

Cracking the $200 billion nut: mobilizing and aligning interests
In February 2011, three US-based advertising trade groups came together 'to fix digital measurement'. The Association of National Advertisers (ANA), the American Association of Advertising Agencies (4A's) and the Interactive Advertising Bureau (IAB) invested $6million in the "Making Measurement Make Sense" (3MS) initiative. They 'engaged Bain and Company to facilitate and manage' it. 3MS was tasked with producing 'a wholesale change in media currency with the aim of improving results for all parties in a transaction'. It began with three aims: determine the right metrics and solutions; drive industry consensus around the solutions; and establish a measurement governance model.

Digital advertising transactions have traditionally worked around a measure of *served impressions*. This is, essentially, a measurement of the number of times an advert has been requested from an ad server (a central data store housing adverts which are downloaded with a webpage). It is modelled on the measurement for traditional media - the CPM (or cost-per-mille) - which estimates the number of newspapers or TV sets that an ad has been displayed in (Turow, 2012). One problem with measuring served impressions is that a *served advert* is not necessarily a *seen advert*. According to Donaton (2004), TV executives assume that 90% of their served impressions are unseen. This is typically taken into account in the ways that advertising space is traded. Adverts displayed on the first few pages of a newspaper, for example, are more likely to be viewed by people than those in the middle pages and, as a result, they have a higher CPM.

Digital advertising platforms differ from traditional media as they have the ability to record "post view activities" which provide strong evidence that someone has seen an ad. For example, if someone clicks on a weblink embedded in an advert, it is highly likely that they have seen it. This allows marketers calculate more accountable metrics for digital media such as click-through-rates (CTR). Banner ads, for context, have a typical CTR of 0.04%. That is, one click per 2,500 served impressions. Some digital advertising platforms even allow brands to pay for advertising purely on the basis of such post view activities (known as "pay-per-click" delivery). With YouTube's TrueView system, for example, 'advertisers pay only when viewers watch their ad and not by the ad impression'.

But it turns out that these metrics have fundamental flaws for marketing practitioners. Moreover, these flaws became hard to ignore in the years after 3MS started. It is impossible to distinguish between post view activities initiated by human and those initiated by computers. The cost of this is considerable. At the start of 2014, *Business Insider* reported that advertisers were wasting up to $11billion globally 'because millions of ads are being shown not to human beings who come across them while surfing the net for information or entertainment, but by bots programmed to impersonate human web traffic'. In 2015, the US-based Association of National Advertisers (ANA) estimated that US-advertisers wasted around $6billion paying for clicks triggered by bots. Even when advertising platforms attempted to distinguish between human-generated and bot-generated clicks, the results were unimpressive. A study sent bots to visit two YouTube videos 150 times each. The video site's public view counter identified only 25 of the views as genuine. However, the researchers were charged for 91 of the fake views.

Collectively, such practices were labelled 'ad fraud'. It quickly became a hot topic in the advertising trade press and was linked to discussions about the accuracy of measurements in digital advertising. Companies like WPP publicly expressed their dissatisfaction with the situation. They went on a 'crusade' to get digital advertising platforms to 'raise their game' and provide 'advertisers with strong evidence that their ads are being seen by real people'. As *Digiday* observed, marketers had become 'increasingly frustrated that they're paying for ad impressions nobody ever sees'.

Supporting this, in 2013, comScore published figures estimating that 54% of served digital ads were not seen by anyone. This was confirmed a year later when Google reported that 56% of ads were not viewed by people. These figures were hard to ignore. The *Wall Street Journal* quoted one digital marketer as saying: 'It's a hard sell to move from traditional to digital. It hurts our case when you have headlines reading 25% or 50% of impressions are never actually seen'.

Digital advertising platforms and practitioners quickly began to air these concerns themselves. For example, Jessica Sanfilippo, group media director at 360i noted: 'With all of the advancements we've made in digital tracking technologies, we have not, as an industry, been able to assure our clients that they are paying for ads which are truly viewed by consumers. Let's face it. We operate in a view-through attribution world, where the term "view" is loose at best'. However, this problem for advertisers was presented as an opportunity for the digital advertising market. As Neal Mohan, Google's Vice President of Display Advertising, put it: 'By giving brand advertisers more confidence, we grow the pie rather than trying to grab dollars from somewhere else. This is how we crack what I call the "$200 billion nut" in brand spending for online'.

The logic behind this prediction was set out by Forrester Research in its "Digital Media Buying Forecast" report. It explained that knowing an advert had been viewed made it more valuable. As such, viewed adverts should have a higher price than adverts for which there was no data. Moreover, ads that were not viewed should have a lower price than adverts for which there was no data. They might even be worthless. The net result of trading on the basis of viewed ads rather than served impressions, then, should be that prices goes up and the supply of other digital adverts goes down. Premium advertising space, provided by premium publishers and delivered by premium platforms would command a price premium. Other advertising space would, in contrast, lose its value.

So, a constellation of actors in the digital advertising ecosystem developed a shared interest in constructing new metrics that *made sense*. This was not a natural process. It was kick started by 3MS. Its work attracted competing publishers, digital advertising platforms, advertising agencies, brands and advertisers. Although each of these groups had differing and, at times, conflicting interests, they were able to align them around the notion of improving measurement – not making it more accurate but more productive. The power of the constellation grew as more actors and organizations were sucked in. Companies like comScore and Google played an active role in mobilizing these interests by releasing data showing the poor performance of much digital advertising even though they were deeply embedded in the supply of that digital advertising. The figures they released made it difficult to convince advertisers and brands to move *from traditional to digital* media. This is odd because their business models were based on encouraging this movement. But there was a belief that mobilising interest in new measures would grow the market - or "crack the $200 billion nut". By improving the accountability of marketing practices, they were able to align this interest with brands' interests. Advertisers wanted to know there was a return on their advertising investments. They wanted tangible results. Improved measurements would allow them to direct their spending where they could

get the most bang for their buck. Advertising agencies, for their part, seemed happy to focus on distribution issues rather than creative ones. Companies such as WPP presented themselves as crusading to get better measurements for their clients.

From views to viewable: stabilizing the object
Even before ad fraud and unwatched ads had become issues, the 3MS had begun its work. The first stage in the 3MS project was to canvas opinions from 'the major players and working teams of leaders from across the ecosystem'. Nearly 50 industry executives were invited to join the 3MS 'Blue Ribbon Task Force' and over 150 other industry participants took part in discussions (see Table 3.). From these consultations, it was apparent that 'the single most important need is shifting currency from served impressions to viewable impressions'. As a result, by 2012, 3MS stated that its first guiding principle was to create 'a "viewable impressions" standard and count real exposures online' (see Table 4). In other words, as the industry was collectively coming to recognise a measurement problem, they found that a solution was already in place.

<center>**INSERT Table 3. Blue Ribbon Task Force Members**</center>

This focus on viewable impressions, though, marked an important linguistic sleight of hand that shifted the object of interest. Marketers wanted to know if ads had been *viewed* by real people. As 3MS put it, they wanted to *count real exposures online*. But the 3MS shifted focus on to measuring whether there was the "Opportunity to See" an advert. From its initial definition, viewability was designed to measure whether an ad has a particular set of properties which increased the probability that it could be seen.

We can see how quickly this linguistic slippage works in practice in this definition of viewability from Google: 'Viewability is a measure of whether or not an ad had a chance to be seen by a user. It gives marketers the base knowledge that their message was seen by providing metrics around the actual number of times an ad appeared in front of a user'. Just in these two sentences we see how the distinct concepts of *viewed* and *viewable* were conflated. First, viewability is defined as a *chance to be seen* but this measure of chance becomes *knowledge* that an advert *was seen* in the second sentence. Indeed, it becomes a much more definite metric of *the actual number of times an ad appeared in front of a user*.

Shortly after the 3MS set its guiding principles, the Media Rating Council (a USA-based accreditation body that validates audience measurements) issued an advisory warning advertisers against using viewability. They supported 'the cross ecosystem movement toward the transition from served to viewable ad impressions for online advertising transactions' but argued the relationship between viewability and views needs to be analysed. As their advisory put it: 'Currencies and standards can change for the better when the planned analyses and solutions are in place. The point of currencies and standards is to improve the supply chain. Moving to a new, as yet not fully measurable currency on a wholesale basis at this juncture could do more harm than good'.

Whether the MRC was concerned just with the ways viewability could be measured or whether they feared being cut out of the standardization process for this new measure, 3MS accordingly set about establishing that viewable ads were a good indicator that an ad had been viewed. Indeed, at this point they formally brought MRC into the discussion. They commissioned Bain Consulting and the MRC to 'examine the effects' of viewability through a pilot study involving 17 advertisers, 12 agencies, 22 campaigns, and more than 3 billion served impressions. It took place between May and June 2012. For the purpose of this pilot, a viewable advert was defined as one where 'a minimum of 50% of the ad in view for at least one second'. The results showed that a 'bafflingly broad range' of adverts were viewable. The lowest network recorded just 7% and the highest over 70%. To establish the effects of viewability, the pilot also tracked post view activities. These indicated a link between ads which were viewable and those which were viewed. As 360i put it: 'the network with the highest viewability (46.8%) also incurred the highest post-view conversion rate (0.0029%), and the lowest viewability performer (20.2%) had the lowest post-view conversion rate (0.0001%)'. Viewability, they concluded, seemed like a good 'proxy for ensuring that a client is only paying for a viewed ad'.

These findings were later supported by Google. In 2014, it issued a report on viewability called 'The Importance of Being Seen' that focused on the relationship between the length of time an ad appears on screen and post-view activities. It stated: 'While many intuitively suspected that increased viewability would directly translate into better campaign performance, we now have data to back that up'. In fact, Google found that users were up to 21 times more likely to click on an ad if it was on screen long enough.

However, there was some dissent. In March 2013, Econsultancy reported on results of its viewability tests. Accounting for a range of factors, this study found no evidence of a 'correlation between viewability and click-through rate'. Similarly, using eye tracking technology, Sticky questioned whether viewable ads according to the 3MS' definition were really viewed. It found that only 46% of viewable ads were actually seen. In 2016, Mediative published a similar study. It concluded: 'An opportunity for an ad to be viewed … does not mean that it will be viewed … buying a "viewable" ad impression does not guarantee that it's going to be seen and/or clicked on'. The data, it seems, could *back up* whatever it needed to.

INSERT Table 4. 3MS's Five Guiding Principles of Digital Measurement

This debate was never settled. No one presented conclusive proof either way. Yet, the move towards viewability continued. In this regard, it is telling that 3MS stood for *Making Measurement Make Sense*. It was not concerned with accuracy. Rather, viewability made sense because it followed the logic of traditional CPM measures Principle 5 of the 3MS's Five Guiding Principles, for examples, emphasized that: 'Digital media measurement must become increasingly comparable and integrated with other media' (see Table 4.). IAB explained why this was important:

'Marketers, agencies and publishers determined that guaranteeing the Opportunity to See for all ads made digital even more accountable and also laid the foundation for

greater comparability with other media. TV and print, despite their own measurement and accountability issues, are not challenged on Opportunity to See. This comparability paves the way to cross media platform measurement … which were determined by the industry to be of paramount importance to brand marketers' abilities to achieve the best media allocations for their goals'.

Ironically, then, key actors in the construction of viewability recognized that it could *make sense* to marketers even though it was not an accurate measure of whether an ad had been viewed. What was more important than accuracy was comparability. It was promoted because it followed measure principles developed for other media even though they had their *own measurement and accountability issues* – the very issues which mobilized the search for new measures. What was taken to be the problem with traditional media was now taken as the benefit of digital media. The argument against became the argument for (see Žižek, 2014). Tellingly, in this regard, 360i noted that before the 3MS 'agency pilot program wrapped, industry leaders in research and measurement ha[d] already begun to push usage of the new metric'. One way of interpreting the 3MS initiative, therefore, is that it set out make existing measures make sense. Put simply, in this second phase of the construction of viewability we can begin to see how the various interests that had been aligned earlier became attached to specific solutions and how other options were move out of sight because they did not make sense.

"There's a standard": Standardization and reconciliation
For viewability to become the currency for digital advertising transactions it needed to be standardized. This is not to say that everyone had to follow the same methodology. Indeed, a range of different vendors offered their own system for counting. Rather, it was important that no matter which methodology was used, a viewable ad should be counted as a viewable ad.

This was a real problem in the adoption of viewability. *Digiday* observed that there was a 'lack of consistency around what a "viewable impression" actually is and what technology could measure its viewability'. Indeed, the *Wall Street Journal* explained in telling language: 'To most across the industry, the concept of buying and selling only viewable ads *makes complete sense*. The problem is, the industry can't agree on what viewable actually means' (emphasis added). In one survey of senior executives, 'the need for a consistent, effective viewability standard across vendors' was rated at an average of 8.3 out of 10 in importance to the future of digital marketing.

The questions, then, was 'what should qualify as an "opportunity to see"?'. The original 3MS study had used a simple criterion to define viewability. It was a binary classification: an ad was either viewable or it was not. This was defined by two attributes: the percentage of pixels that were onscreen ("the pixel requirement") and how long they were on screen for ("the time requirement"). In the original study, this was benchmarked at 50% of pixels from an ad being onscreen for one second or more. According an MRC report, this criteria was 'recommended by the industry leaders who participated in Making Measurement Make Sense'. It was set in

place, therefore, before there was any hard data about the relationship between viewability and views.

Following the pilot study, two issues emerged. First, there was a 'large gap in *measurability'* of viewability. As 360i observed: 'one of the more unintended findings from the pilot program was the extreme gap in measurable vs. unmeasurable impressions'. Second, a debate developed about the pixel and time requirements. Digital advertising platforms looked to minimise them. Facebook, for instance, proposed to count video ads as viewable if 100% of pixels were onscreen for any length of time. Brad Smallwood, Facebook's Vice President of Marketing Science, explained: 'As soon as an ad comes into view it starts creating value for the advertiser'. Agencies and advertisers, for their part, wanted to increase these requirements. The media buying agency for WPP, GroupM, went on a public campaign against the initial standard. As reported in the *Wall Street Journal*, it demanded that 100% pixels from display ads needed to be visible for at least one second to be considered viewable and that at least 50% of videos ads had to be played while in view with the sound turned on and that the user should imitate the view. Other providers offered their own standards. For instance, TubeMogulset defined viewability as '50% of the video is in view for at least five seconds' and Google defined a video ad as viewable if 50% was on screen for two-seconds.

The confusion in the industry around these different definitions was clear. Martin Sorrell, CEO of WPP, described Facebook's standards as 'ludicrous'. However, he described the standard as 'Three seconds—and 50 percent of video online not listened to with sound'. This may have been ludicrous but it was not the standard Facebook actually used.

The debate was settled with the "2014 MRC Viewable Ad Impression Measurement Guidelines". It stated that a display ad was viewable if 50% or more of the pixels 'were on an in-focus browser tab on the viewable space of the browser page' for 'one continuous second, post ad render'. A video ad was viewable if any two unduplicated continuous seconds were played with 50% of the pixels on an in-focus browser tab. For both display and video ads, 'strong user interaction' could 'serve as a proxy for viewability'. A click on a video ad could, for example, 'result in a viewable video impression even if the ad does not meet the pixel and time criteria necessary for a viewable video impression'.

According to InSkin Media and FaR Partners' Digital Leadership Viewability Survey only 37% of senior agency and publishers executives thought these criteria were sufficient. But the important point was that there was now a standard. There was 'a common currency for trading' viewable ad space. In this regard, participants in the 3MS publicly emphasized the importance of working to the standard. Responding to complaints across the digital advertising industry, Sherrill Mane, SVP of Research, Analytics and Measurement at the IAB stated: 'There is a standard. For buyers to say "we don't like this" is not the way to proceed'.

In this final stage of the construction of viewability, then, *the thing that matters* had to be standardized. Everyone needed to measure the same thing. This entailed overcoming two issues. First, there was a technical question concerning measurability. That is, whether

viewable ads could be measured. Second, there was the question of defining what qualified as an "opportunity to see" in the first place. Solutions to this question were problematic because they served some interests better than others. From the perspective of advertisers, for instance, Facebook's definition of viewability was ludicrous. But a standard was preferable to no standard. A standard defined by a third party body such as the MRC had power here. It appeared neutral and objectivity even though it was clearly based on the interests of those who set the initial discussion moving. So, even though industry reports signalled that senior executives felt the MRC standard was insufficient, they went along with because it was the standard.

INSERT Table 5. MRC Accredited providers for viewability

Discussion

We are now at a stage when viewability is a common currency for digital advertising. The MRC has now accredited a range of viewability measurements (see Table 5). As such, viewability has begun to interact with marketing practices. It is starting to add things to the digital advertising market. Vendors are developing systems which ensure that any ad that meets the time and pixel criteria is measured and are developing new techniques to improve the percentage of their ads which are counted as viewable. For example, some platforms use "pre-roll" techniques to force consumers to watch videos for a set length of time; others embed ads natively around content in the hope that they stay on screen for longer; others use "sync roll" techniques which pause videos and restart them later down a webpage in order to meet the pixel and time requirements.

Thinking theoretically, though, how are we to understand the viewability case? If, as many participants in the discussions claim, their interest was in creating a measure that accurately captured if an ad was viewed by a real person, we must surely conclude that they failed. As a measure for whether an ad has been viewed, it is philosophically and empirically flawed. It measures whether there was an opportunity to see an ad not whether an ad has been viewed.

In this sense, viewability is best understood as an example of a useful but flawed measure. Millo and Mackenzie (2009) argue that accountancy measures are more valuable when they are useful rather than when they are accurate. Likewise, Power (2004) argues that standardized quantitative measures gain power behind a veil of accuracy and objectivity. This makes them hard to resist, argue against or speak back to irrelevant of whether they are accurate. In the viewability case, objectivity and accuracy acted as powerful rhetorical devices to mobilize and align interests at the start. But they had little purchase in the actual design of the measure or in forcing digital marketers to use it. It was more important for the measure to let lots of other marketing activities happen. It had to make sense. Digital advertising platforms wanted to "crack the $200 billion nut" and hoped that offering new metrics would help to pursued marketers to spend more. Marketers wanted to reduce waste and were motivated when they learned that half their digital ads were not seen by anyone. Agencies wanted to provide better services to their clients. Despite the different ends they desired, the means brought these groups together. They all wanted new measures to let them continue with their marketing activities.

It took a great deal of effort to make the inaccuracy of viewability not matter. There was an on-going process of *enrolment* with the 3MS operating as a pivotal *device of interessment*. It pulled together diverse actors and transformed their questions into definite statements. This only happened because participants agreed that other things mattered more than creating an accurate measure. Because of this they could align their competing interests.

This shows us the power of authorship in marketing practice. Standards create stable objects that do things. But those standards are the product of social interactions in which different participants seek to impose their interests, views and values onto the action. In this case, key players from some of the leading tech, advertising and media firms sought to impose their standards on others. We will, in this case, probably never know exactly how these interactions played out. But we can see traces of the battles in the texts that participants produced. This shows us the work necessary to make marketing happen and it shows us the collaboration needed to construct marketing.

In this regard, it is notable that consumers were given no voice in the construction of viewability. They were there all the time but they were never there. Consumers were an object of interest but not an interested subject. Just like the scallops Callon observed in St Brieuc Bay, they were blackbox. It was assumed that they would be ready-to-hand and comply with any measurement that was produced. Schwartzkopf (2015) suggests such attempts to extract the truth from markets illustrate a collective, if unconscious, desire among marketers to live in a world without consumers. They do so symbolically by creating measures that supposedly reveal underlying truths about markets without the need to speak to consumers themselves. This differs from Pollock and D'Adderio's (2012) and Pollock and Williams (2011) account of measurement devices in business-to-business markets where firms actively seek to shape their position in rankings systems.

So, if we think about the viewability case in relations to the long standing discussions about marketing science we can tease out three lessons. First, while some have argued that some quantitative marketing measures count more than other types of marketing data because they are objective, viewability shows us that translatability trumps objectivity. In other words, an inaccurate measure that aligns a variety of interests will have more impact on practice than an accurate measure that does not. Second, the case shows us that such alignments do not happen naturally. They are organized and coordinated by powerful groups. Opening up these blackboxes allows us to ask critical questions about the types of concerns, questions and discussions that take place in the creation of marketing measures. Finally, while we might think that this undermines the idea of marketing science, it is perhaps more realistic to acknowledge that, in this sense at least, marketing is a science - at least it is no different to other sciences in blackboxing interests into numbers.

Returning to the dominant theorisation that marketing theory has inherited from actor-network theory and science and technology studies, performativity, the case shows us the work that lies behind measures. They must be constructed for a purpose before they can do anything.

Performativity has allowed researchers to illustrate the ways marketing measures construct phenomenon as they are used and to explore the ideological and discursive assumptions that allow them to work. These are important. But, from a sociological perspective, they only tell us part of the story. They ignore the coordinated work that is put in to making such measures make sense (Bowker and Star, 2000). In other words, measures – like consumers - do not exist ready to use. They are constructed for a purpose by particular groups of people who want the measures to do productive work for them. As Bowker and Star put it, they should 'be reclassified as key sites of work, power, and technology … [t]here is a lot of hard labor in effortless ease' (2000: 147-148). Such work is a part of marketing.

An analogy comes from the sociology of culture (Becker, 1982). Focusing on a text without embedding it in the system that produced it can lead us to over-emphasise the power of individual artists. We see the song, movie or story as something an individual produced. Really many of the most important choices were made for them by the systems of production. Most artists paint with tubes of paint they bought; most musicians use standard instrument; most writers conform to conventions. Likewise, thinking about marketing data, analytic techniques and measures in terms of their ethics, use or accuracy may lead us to think that the measures do a lot. Really they are products. This is not to discount performativity but to observe that, in opening up one blackbox, we may have closed off another.

A final question that is worth considering is whether this is an isolated case? Latour observes that it is difficult to work on detailed case studies of technical arrangements 'without being immediately saddled with huge philosophical problems that are tied to your case-studies' (2000: 110). Stepping out of a case is not easy. If we look at the wider literature, it is clear that many marketing devices are constructed through similar processes. We have been willing to accept that physical objects such as shopping trolleys, store displays and shopping bags have a history that shapes their present. Marketing data, analytic techniques and measures are similar objects with histories that make them matter even if they are less material. We should not be scared from exposing these histories to critical reflection just because they are quantitative, boring or technical. We might be surprised by what we find.

Indeed, while it is easy to dismiss the technicalities of marketing data as less important than the things marketers do with data – especially in an era when big data, machine learning and analytics are presented as the solution to innumerable problems – this case suggests that the two are not so easy to separate. The variety of things that different types of marketers want to do with data shape the data they produce and vice versa. This opens up questions about the representation of marketing interests in the standardisation of data. One interpretation of this case is that a range of interests were enrolled, ultimately, to benefit particular actors. Just look at the list of organizations involved in this case – Google, Coca-Cola, Time, Yahoo to name but a few – they are many of the largest and most influential brands and organizations. The fact that they were willing to devote their resources to creating particular types of data should, surely, alter us to the importance of these processes for marketing practice. This is a high-stakes issue. Moreover, looking at this list of names, it is equally clear that it is not representative of all marketers or all marketing interests.

If marketers do not critically interrogate the nature of the data they use, they will never be anything but slaves to its potential flaws. If they are unable to reflect on the ways their interests are enrolled into others', they will routinely follow the scripts others write for them. They might be able to reconstruct their practices around those flaws and scripts but at certain points it will be impossible to ignore them. The blackboxes will open or be opened.

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