

No issues without media

The changing politics of public controversy in digital societies

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Draft Chapter, February 2018

Published as: Marres, N. (2021) "No issues without media, The changing politics of public controversy in digital societies," In: Media: A Transdisciplinary Inquiry, Jeremy Swati and Janet Wasko (Eds). Chicago: Intellect Books.

1. Introduction

Technology is a favoured topic of public controversy today, arguably more so than it was before. Take Dieselgate, the emission test rigging scandal that engulfed car manufacturers in 2015. While what was ultimately at stake in this scandal was the willful deception of the public by car companies, the role of digital technology in the realization of this deceit was granted special importance in much publicity surrounding the scandal. In news and media reporting on Dieselgate, the 'defeat device' - the software that enables cars to detect test conditions and to modify their behaviour accordingly - featured prominently. An extreme case of the commitment to turn technology into the protagonist of the scandal can be found in the public demonstrations entitled the "Exhaust emissions scandal" by two self-proclaimed geeks, Felix Domke and Daniel Lange, to the Chaos Computer Club in Hamburg in December 2015, and available on Youtube.¹ Their presentation put on display the computational object that sits at the heart of Dieselgate: the Engine Control Unit (ECU) of a Volkswagen Diesel car (Figure 1). It is on this type of circuit board that the software runs that is now known as the defeat device. What Domke and Lange endeavoured to demonstrate, among others, was that to expose the deceit of a VW diesel car all one needs is an actual defeat device.

As they report in their ingenuous demonstration, Domke and Lange purchased their ECU on eBay, and then used a method called "real-time logging" to show how the device is able to rig emission tests. Hooking up the ECU to his own VW

¹ <https://www.youtube.com/watch?v=d9HJw3AUvGk>

diesel car, Domke ran the software while driving around in his own neighbourhood, initially, and then on a so-called dyno, a machine for simulating a driving environment, a pretty routine facility, in a local garage. In this way, Domke produced a log graph that shows the test rigging device "kicking into action" (Figure 2). As long as the car is driven according to the EU's regulatory specifications of emissions testing - the temperature must be 20C, and one must drive slow/fast/slow/fast -, poisonous NOX emissions remain low, but as soon as Domke shifted into a normal on-the-road- driving style, these emissions radically shot up. Presenting his graph to loud cheers of the audience, Domke and Lange made several points. Importantly, they showed that corporate deceit can be proven without access to institutions: they bought their VW ECU from eBay, they ran their test on public roads and in a local garage. But they also suggested that to demonstrate this violation, all one needs is the ECU, the technological device "itself." It is with this latter point that I would like to respectfully take issue.

There are certainly good reasons to direct attention to computational objects in making sense of Dieselgate. It seems unlikely "they" would have gotten away with it without computational ingenuity. And it is surely important to show that technical wizardry is not only abstract, but takes material, actual and concrete form in a sizable thing, the ECU, which sits in most cars on the street today, and is thus utterly mundane, even it usually remains invisible. However, the notion that if we are to understand this scandal it is sufficient to examine technology itself does not hold up to scrutiny. For one, the type of test results that Domke and Lange presented to the Chaos Computer Clude had been known *for several years* by experts and professionals familiar with the car industry (Lippert, 2016). It was only after the sustained attention from non-governmental, news and other media organisations that these "technical" results gained the capacity to cause scandal (Marres, 2018). On a more general level, a narrow preoccupation with the functioning of technology risks to contribute to a romantic misunderstanding of how scandals happen, of what is required for the enactment of public accountability, for holding industry and government to account. Briefly put, this requires not just technological demonstration, but mediatization.

In this chapter, I would like to develop this point, not only by way of a reflection on Dieselgate, but also to develop a wider argument about the relations between technology and media in a digital society. Not only in geek circles, but in

social and cultural studies of media and technology, too, there is growing agreement that we need to focus our attention on computational devices (Gerlitz and Helmond, 2013; Gillespie; 2010; Tkacz, 2014). Researchers are seeking to come to terms with the increasingly important role that digital machines for rating and ranking play in the organisation of society and culture. Faced with the increasing entanglement of technology and media in our societies, scholars in both these areas - technology studies and media studies - are today reconsidering the formative concerns of their disciplines (Turner, 2014). In the emerging field of social studies of media technologies, scholars are taking up concepts of the "agency of technology" and technical 'scripts', notions that were originally put forward in technology studies to develop the claim that machines have 'recipes for action' designed into them (Gillespie et al, 2014, Akrich, 1992). However, the uptake of these kind of concepts in the contemporary context puts social studies of media technologies at a risk, I want to argue, not dissimilar to that highlighted by Domke and Lange's presentation: we may end up attributing to computational technologies normative capacities that in fact derive from elsewhere.

The contexts in which we study technology have significantly changed since the early 1990s: back then, it was possible to claim that the role of technology in society was under-appreciated, and received too little attention from social and cultural commentators (Latour, 1991). Today the opposite may well be the case: rather than being kept in the background, technology is consistently put on public display, in political, media, cultural, activist and academic life. This situation, I would like to argue, requires intellectual strategies that move in the opposite direction from 1990s technology studies: rather than participating in the foregrounding of technology at the expense of other entities and forces, we need to find ways to better appreciate the role that media and processes of mediatization play in the conferral onto technology of normative capacities. I will argue that a focus on *public controversy* about technology, media and society enables us to make this move.² A scandal like Dieselgate demonstrates the critical importance of the mediatization of technological objects if they are to gain moral and political capacities.

² It has been proposed we should now turn our attention to 'infrastructure' or 'representation' (Turner, 2013). I would then like to add to these two concerns, that of controversy. [To make this case, I will briefly return to controversy analysis as an approach in science and technology studies, and then make the argument that digital controversies invite or indeed necessitate a re-working of this approach

2. Controversy: a changing interface between innovation and the public

The scandal of VW's emissions test rigging is special but it is not an exception. Computational devices and arrangements routinely attract societal controversy today, and there is a long list of applications that have caused public outrage in recent years, from leaky apps like the smart phone flashlight that collects mobile location data (Shklovski, 2014), to Facebook's 'dark posts' that allowed dubious or even criminal agents to target particular demographics with manipulative content.³ Steve Jackson and colleagues (2014) offer an interpretation of this situation in their article on "Policy Knots in Social Computing." Discussing a range of digital controversies, including one about the location-aware app "Girls Near Me" - which uses the geek platform's Foursquare API to identify social media users that fit this profile - Jackson et al suggest that the tech industry increasingly approaches ethical, social and political issues in 'beta-testing' mode. They rely on early releases, user trials and field tests to identify not only technical issues with products and services, but equally, social, ethical and legal problems with their functioning in society (see on this point also Neff and Stark; Marres, forthcoming). Thus, concern and outrage expressed online about the Girls Near Me app and its privacy and gender implications, resulted in a prompt decision to pull the app, and adjustment of the Foursquare API policy, as well as a public statement by said platform announcing their commitment to improve and address ethical wrong-doing. Something similar happened in the case of Facebook's social graph search engine, which allowed users to query Facebook for particular profile attributes and which was pulled after users started posting screenshots of "creepy queries" including "young women who live near me" on sites like Tumblr.⁴

Jackson et al do not quite conclude this, but it is possible to infer that in digital societies the very role of public controversies may be changing. In social studies of science and technology, public controversies have historically been analysed as processes of problematization, as public occasions in which the role of innovation in society is called into question and opened up for interrogation, as in the case of controversies about electric cars, genetically modified foods and the Challenger

³ See Thompson, N. and Vogelstein (2018) Inside the Two Years That Shook Facebook—and the World, 12 February, Wired, <https://www.wired.com/story/inside-facebook-mark-zuckerberg-2-years-of-hell/>

⁴ See <http://actualfacebookgraphsearches.tumblr.com/> (Accessed November 12, 2015)

disaster (Latour, 2005). However, in the public controversies about digital technologies under discussion here, another dynamic can equally be discerned: controversy presents not only an occasion for the articulation of public concern, it also offers an opportunity to companies for product improvement and brand positioning, and the organisation of an audience for them. Similarly, in the case of Dieselgate, Volkswagen and other automotive companies took advantage of the heightened public attention to announce a series of ambitious plans for sustainable innovation, in the area of electric cars and "intelligent" - computerized - mobility. As Mr Muller, the newly appointed CEO of Volkswagen put it to the Financial Times two years after Dieselgate first broke: "“The crisis, of course, was a huge problem and it was also rather costly,” [...] “but it actually worked as a kind of accelerator to address issues that, before, were unable to be addressed.”⁵ In this same period, another company also introduced "intelligent" automotive technology onto public roads in America, Europe and China, in the shape of "Autopilot" software, which was also controversial, and very successful in attracting public attention too.

This instrumental quality of controversy has been noted by researchers drawing on Science and Technology Studies, most recently by marketing scholar Susan Geiger (2015; see also Frankel, Ossadon et al, 2015), in her work on “concerned markets.” This work proposes that when technology becomes a matter of collective concern, this not only offers occasions for problematization - the critical interrogation of existing relations between science, technology and society - but equally provides opportunities for the configuration of new markets. Reversing the sequence of classic approaches to controversy analysis, which assumed that problematization of existing states of affairs comes first and the proposition of innovation, of new science and technology, second, Geiger et al (2015) propose that “the production of matters of concern is an ordinary consequence of the functioning of markets, and by no way a failure – to allude to the term used by economists deploring the encroachment of social and political issues into the economic area.” (p. 3). They go on to describe the opportunities that public controversies offer for the configurations of new markets from food supplements to, again, electric cars. In an aptly titled section “CONCERN, TROUBLE, WORRY – Controversies on-going” the authors claim: “At the market boundary, these matters of concern, unstable as they

⁵ McGee, P, (2018) What went so right with Volkswagen's re-structuring, Financial Times, January 18, <https://www.ft.com/content/a12ec7e2-fa01-11e7-9b32-d7d59aace167>

may be, represent a rallying point for concerned groups, who can start troubling the market space by making matters of concern visible to other market actors." From this perspective, then, the making of markets and the articulation of public concern then do not necessarily pull in opposite directions but may be aligned in their effects or even purpose.

However, while Geiger and al emphasise the alignment between market making and controversy (problematization), this leaves a different question unanswered: how does the purposeful deployment of controversy by 'market-makers' affect the status and efficacy of "public controversy" in society? To what extent are the very media and institutional architectures - the genres - of controversy affected, or indeed, actively transformed, by instrumental deployments of controversy by companies and organisations? When public controversy about technology was still defined as a moment of problematization, it was assumed to enable public knowledge and participation: it was a moment in which hidden assumptions about technology and society were revealed (Nelkin, 1979); when the range of participants in the making of opinions, decisions and policy about technology is radically extended (Callon et al, 2001); where dry, technical matters such as the protocols for the measurement of the quality of sea water are opened up to public scrutiny through media reporting (Barry, 2001). Each of these descriptions confer onto public controversy the capacities of an "accountability machine": it opens up hidden practices to wider scrutiny, allows outsiders to gain access to institutional settings; it facilitates public articulation of routine, taken-for-granted states of affairs. What happens to these capacities of controversy in digital societies marked by beta-testing? The purposeful and almost routine deployment of public issue articulation in this context brings into relief the promotional role of controversy - instead of reputational risk, controversy offers an opportunity to claim organisational "learning". Something has clearly happened to the humility that used to be associated with the enactment of "public accountability" in science and technology (Jasanoff, 2003) . But how exactly are relations between innovation and the public changing in digital societies? Controversy has long been regarded as one of the principal ways of injecting 'accountability' into this relation, but does it still have this capacity (Dean, 2002)?

3. Controversy as the curation of media ensembles

How to investigate transformations of the role of public controversy in digital societies? This is surely an interdisciplinary question, as the analysis of digital controversies is currently undertaken across diverse fields, including digital media studies, science and technology studies, digital sociology, anthropology, law et cetera (for a discussion see Venturini, 2012; Marres, 2015). However, it seems to me that if we are to formulate viable research strategies in this area, a re-conceptualization of the object of enquiry is required. Most importantly, the role of digital media technologies in public controversy requires much more attention *across disciplines* than it has received to date. Studies of public controversy in fields other than media studies have tended to de-emphasize the mediating role of news and other media (Couldry, 2008). Controversy analysts have been especially concerned to establish the significance of substantive issues - say of nuclear power, or climate change. For science and technology studies, the aim was to direct attention to interrelations between knowledge, power and nature in society, while environmental scholars aimed to shift attention to the non-human, ecological and geological scales. From these various perspectives, too much attention to the mundane realities of media circulation would risk to distract from substantive and ontological matters. However, if we make it our aim to address this lacuna, it is equally crucial that we do not end up displacing attention away from public controversy. To be sure, it has become more difficult today to bracket the role of media technologies such as social media platforms in the organisation - and dis-organisation - of public controversy. But I want to argue it is nevertheless to *the public articulation of societal problems* that we should attend. Let me unpack this point before briefly outlining the implications for public controversy in a digital society.

In an important recent article, David Moats (2017) has argued that controversy analysis offers a fruitful approach for social studies of digital media technologies insofar as it offers an alternative to the "social shaping" approach that has been prominent in Anglo-American contributions to this field. Instead than defining digital media as an "underlying structure" that has a formative influence on "discourse", controversy analysis adopts a dynamic perspective on media technologies, one that recognizes that these devices play multiple and variable roles in digital societies. It has long been argued that digital media signal a move beyond "the media" as a unified category (McRobbie and Thornton, 1995), but digital controversy analysis offers an operationalisation of this proposition. Controversy,

Moats argues, indicates a process by which heterogeneous media sources enter into relation, and in context of multi-media, or even media fragmentation, this process gains special importance as a logic of mediation. Controversy signals the formation of "media ensembles": heterogeneous sources - from 'news', to activism, organisational communication, social networks, artworks, etc. - are variously activated, brought into relation and configured into a topical assemblage through the unfolding of publically mediated events (Cf. Volkmer and Defner, 2009). Moats give the example of a terrorist incident in London in which different social media accounts were extensively quoted in the news media, and thus emerged as the designated channels in the public mediation of this event, and, indeed, as protagonists in a public dispute (was this a terrorist incident or not?).

Controversy analysis, then, does not define digital media as a substructure or even 'platform' for societal debate, of which the 'fundamental' formative attributes must be specified, in order to determine how "the media" shape "discourse" or "opinion" or "public understanding." Studying media through the lense of public controversy makes it possible to treat this as an empirical question: what is media? what sources and channels emerge, over the course of controversy, as the conduits for the enactment of public dispute? In the context of digital transformations of society and culture, Moats proposes, "media" should be understood as referring to an empirically variable assemblage - a loose collection of heterogeneous elements deriving from different media architectures that are curated by way of controversy (See also Schneider and Foot, 2005; Anderson, 2013). Did a given controversy start through a spreadsheet shared on Twitter, or was it a report leaked to a journalist? What are the contours of the digital media spheres that formed during the controversy to enable its staging? In the case of the public scandal that is now known as Dieselgate, it was a test report by an NGO - the Council for Clean Transportation - discussed in newspapers by investigative journalists which re-ingited discussions in online media about emission test rigging. As noted in the introduction, these discussions foregrounded a state of affairs that has been known among experts for years. It was the public mediation of a known circumstance that activated the scandal.

As such, Dieselgate is arguably different from other important environmental controversies, such as the Chernobyl disaster. To be sure in the case of both Chernobyl and Dieselgate, it was in the material minutae of everyday living that

environmental disaster left its most powerful and damaging traces - in the contaminated food crops in affected agricultural fields, in the air we breathe. And in both cases, invisible toxins crossed boundaries that existing governmental institutions proved incapable of policing. However, in the case of Dieseltgate it was not the big explosion of a massive factory accident, but the creeping crimes of software engineers who were allowed to get away with duplicitous programming that emerged as the object of scandal. The latter case is lacking in the sensational features of an accident and perhaps partly for this reason, the role of mediatization in the controversy is more noticeable: It was the circulation of a fact that was already well-established between experts, among environmental organisations, news papers and social media that led to its 'issuefication' (Marres and Rogers, 2005): the translation of a technical "fait accompli" into a cause of public disapproval and indeed criminal prosecution.⁶ Another difference was hinted at in the previous section. During Dieseltgate the very genre of public controversy about technology, environment and society lost its innocence.

Dieseltgate can seem to have had only superficial effects: for Volkswagen its lasting legacy is apparently to have set the stage for its continued and future success. However, I want to conclude this chapter by offering a different assessment. Even if it is the case that public controversy in a digital society has lost its innocence, it has not lost its critical capacities. Indeed, this loss of innocence can also be understood as an effect of the "mediatization" of public controversy in a digital age. As the role of digital media architectures in the cultivation of "public outrage" is becoming increasingly obvious, it is now undeniable that controversy presents as much a media genre as it is an event (Marres, 2015). However, while the role of media in the production and management of public disputes cannot longer be bracketed in digital societies - no issues without media! - , it is nevertheless on public controversy that we should continue to focus.

⁶ While the epochal importance of mediated controversies was recognized in prominent theories like Ulrich Beck's "Risk Society", Latours non-modernity and Stengers Cosmopolitics : Controversy-generating events like the Chernobyl nuclear accident, the entry of climate change into public awareness - were accorded central importance in his and related theories, indeed they were treated as indexing an epochal transformation of modern society into a different societal form. [Here according to controversy to capacity to define epoch, seemed to require the bracketing of the role of media in their public-ization]. Yet the role of public media in is not given any sustained attention, or appreciation, lest it detract from the ontological and epoch-defining significance of "the event".

4. The critical capacities of a digital controversy

Controversy analysis has sometimes been criticized for paying disproportionate attention to surface phenomena. As it is concerned with public disputes, it almost automatically privileges those conflicts that organisations, activists, institutions and media can be bothered to perform in public, at the expense of all those under-articulated tensions, neglected contestations, and unchallenged problematics that equally define social, cultural and public life in a technological society, if not more so (see for a discussion Shapiro et al, 2017). This criticism is pertinent and it gives further support to the diagnosis of the decreasing efficacy of public controversy as a mode of intervention. However, the claim that public controversies only scratch the surface leaves out of consideration a crucial circumstance: controversy is one of the very few available mechanisms by which under-explicated states of affairs may come to be explicated, in ways that are able to challenge established, i.e. under-challenged, societal understandings. In this respect, it is *not* technically correct to say that controversy analysis limits attention to the surface of social and public life: controversy is precisely a public mechanism for the explication of underlying, latent, under-explicated societal transformations. On this final point too, Dieselgate can serve as an example: this scandal did not just put on public display the dubious - indeed, criminal - operations of a respected Germany company. It brought to light a wider, more fundamental, creeping crisis of accountability in digital societies.

Dieselgate offered a public demonstration of the role of computational systems in the dismantling of institutional arrangements for evidence-based governance. The technology at the heart of the scandal has been lucidly dubbed the "defeat device": the firmware built into VW Diesel cars enables a devious type of automated intelligence, whereby a machine becomes capable of detecting an evaluative situation, to select for "virtuous" behaviour, and on this basis, to gain regulatory approval and access to society, free to cause harm while 'out on the street'. It is surely tempting to note the aptitude of this behavioural profile as a descriptor for how certain corporations operate in society. However, the public reporting of the workings of the defeat device occasioned by the Dieselgate scandal *precisely does more than exemplify a moral problem about which "everybody knows."* The scandal offered an empirical demonstration of a more complex harmful effect on society. As Doctorow (2017) has argued, the capacity of computational

devices to detect test conditions as in the case of the defeat device, changes the balance of power between companies, governments and consumers.⁷ I would add to that the public. Dieselgate brought into view a complex transformation of public politics and the public sphere, a creeping crisis of accountability that arises from the design of "intelligent" software into societal infrastructures.

What made Dieselgate powerful was its demonstration of direct harm to human and environmental health. It was found that " [...] excess emissions from Volkswagen's defeat devices will cause around 60 people in the U.S. to die 10 to 20 years prematurely."⁸ However, the scandal also demonstrated a series of indirect harmful effects. *The software designed into VW Diesel cars has the capacity to change the relations between the street - everyday environments in society - and the laboratory - the test sites of research and governance - which provide the empirical basis for regulatory regimes in democratic societies.* The defeat device makes it possible to inscribe test conditions (the laboratory) into computationally enhanced vehicles: VW diesel cars "knew" when they were undergoing tests, and because of this they were able to game these tests. This 'smartness' enabled Volkswagen to rig a lot more than emission tests: it demonstrates how computational systems are undermining the ability of governance to regulate behaviour in society through experimental evaluations of performance. As announced in frontpage news articles across the world, computationally enhanced cars are able to "change their behavior without telling us". As such, this scandal also put on public display the creeping dismantling of accountability regimes in computationally intensive societies: the car's

⁷ Doctorow notes that these developments are not just affecting the automotive sector: these developments also occur in the regulation of gambling machines, and there are many other examples, including in the field of mental health and social care, where troublingly social media companies come to be enrolled as partners in 'social care provision' (Marres, 2017). However i have a different interpretation of this behaviour than Doctorow, who writes: "Software can say, "If there's a chance I'm undergoing inspection, then be totally honest – but cheat the rest of the time." I would say that the defeat device precisely was dishonest during the test. By not calling out its deceptive operations in test environments, the crisis of public truth remains under appreciated. Doctorow notes that it is the rights of consumers that are violated by this deceptive behaviour. As he puts it " the computers we rely on are sneaking around behind our backs, treating us as their enemies." However, it seems to be the threat to consumers is not more fundamental than the threat of public accountability regimes: the latter undermines the very possibility for redress. <http://locusmag.com/2017/09/cory-doctorow-demon-haunted-world/>

⁸ Barrett, S. R., et al (2015). "Impact of the Volkswagen emissions control defeat device on US public health." *Environmental Research Letters*, 10(11), 114005.

performance in the lab may be strictly regulated, but its behaviour on the street is a different matter, and happens beyond the control of empirical forms of governance that are anchored in lab-based test regimes. They seem able to operate beyond the reach of "good governance."

However, as Dieselgate also demonstrated, the relations between smart technology and public accountability is not a simple one: after all, it was media reports of independent tests by the Council for Clean Transportation and others, that led to the outing of the 'defeat device', the criminal prosecution of Volkswagen in the US, and the PR Blitz campaign by the company that "the future is electric." Clearly, some accountability mechanisms are functioning in digital societies. At the same time, it is not just in the automotive sector but in areas as diverse as mental health care and gambling that the insertion of computational systems into existing societal infrastructures is threatening to dismantle arrangements of public accountability (Kroll et al, 2016). This surely requires more examination. However, from my discussion of Dieselgate something also follows for controversy analysis. It may well be the case that controversy about technology is purposefully deployed by the companies it targets in a digital society, and that as such, its efficacy as a mechanism of public accountability may be decreasing. However, at the same time public controversy continues to presents a key mechanism for the demonstration of this very crisis of accountability.

5. Conclusion

Dieselgate, I then propose, provides a helpful exemplary for thinking through the changing roles of and status of public controversy about technology in a digital society. In this context, "societal concern" and "public outrage" are deployed instrumentally, purposefully, and strategically by interested actors in order to further their private agendas. We should notably include in this the agenda's of digital technology and media companies themselves. Online platforms have in recent years been explicitly adapted to promote public disputes, or more accurately 'pubic outrage', insofar as the promotion of disagreeable content by way of digital selection tools (rating and ranking) has proven an effective instrument to enrol and mobilize audiences. Perhaps unsurprisingly, offensive texts and images turn out to be especially effective in mobilizing large crowds and consequently this type of content has been favoured by social media, for whom the maximization of what social media

and social media commentators doggedly continue to refer to as 'engagement' - even if 'enrolment' is the more accurate term - is the chosen commercial strategy.⁹ (Another way of putting this is that social media increasingly resemble tabloid media.) As controversy analysts have long pointed out, it is important to distinguish between controversy - which involves the articulation of a point of contention through a process of exchange between differently positioned actors - from mere dispute - which involves disagreement but not articulation (Barry, 2001). But insofar as social media are an increasingly prominent factor in the organisation of public debate in general, the enactment of controversy has not remained unaffected. In a digital society, controversy can precisely no longer be defined as an "event". It is noticeable informed and inflected by the media environments in which they unfold: controversy is always also a genre of publicity, a device of communication, and an unstable one at that.¹⁰

The multivalence of public controversy - that it is both a substantive process in which claims emerge, and eminently deployable as an instrument for mobilizing audiences - has long been foregrounded by controversy analysts. However, in a digital society, public controversy presents more than a moment in which, as the classic phrase has it, "relations between science, technology and society are rendered visible." As public controversies about digital technology are purposefully used to organise publics for 'innovation', public controversy itself loses its basic legitimacy: it is *not* self-evidently a mechanism for enacting accountability or even democratization, but may well be put to opposite ends. However, even as we must bring the genre of public controversy within the frame of critical analysis, it does *not* follow that we can or should no longer value controversy 'for its own sake.' A scandal like Dieselgate plays a critical role in the public articulation of a creeping crisis of accountability in digital societies. In this event, the mediatization of a known circumstance - software allows machines to perform to the test and evade accountability - enabled the *problematization* of relations between innovation,

⁹ Thompson, N. and Vogelstein (2018) Inside the Two Years That Shook Facebook—and the World, 12 February, Wired, <https://www.wired.com/story/inside-facebook-mark-zuckerberg-2-years-of-hell/>

¹⁰ Even if tech companies are notoriously resistant to attempts to frame their role in society and culture in terms of "publicity", preferring to label themselves as 'technology' companies, as this allows them to operate outside the regulatory frames and without the public accountability associated with the former.

government and the public. Controversy remains an important shared occasion for the critical inspection of previously unsuspected societal arrangements, assumptions, and states of affairs. And in a digital society this includes socio-technical arrangements for public accountability themselves.

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