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Data Quirks and Impressions:

An Interview with David Beer

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Abstract

David Beer is a Professor of Sociology at the University of York. He is the author of seven books and dozens of articles that encompass the culture and politics of new media, data, and technology. His most recent works have focused specifically on the implications of data analytics industries and the social power of metrics to govern everyday life. David sits on the editorial boards of several key journals in these fields, including *Theory, Culture & Society, Information, Communication & Society, Cultural Sociology,* and *Big Data & Society.* His work has made significant contributions to advancing contemporary understandings of new media cultures, as well as the histories and philosophies of social theory, such as his most recent works on Georg Simmel. This interview examines some of the underlying rationales and approaches to David's work. We focus on key themes of 'quirks' and 'impressions'. The interview looks at how data analytics industries imagine and actualize specific kinds of relationships between populations and data, and how these relations are subsequently ordered for value production. We discuss how platforms and data analytics industries negotiate the rules of social interaction in a context of cultural eclecticism. Finally, we discuss how art and popular culture can guide the creative process for academic research and writing.

Keywords

Data analytics, Classification, Digital Culture, Platforms

Preface

How do we analyze something that moves faster than we do? This was a question asked in 2007 during the emergence of major social media platforms and web 2.0 applications, but still remains relevant for media theory today (Beer and Burrows, 2007). It is important to reflect on what social theory looks like in a context defined by variegated 'crises' of sociological knowledge and the acceleration of data analytics in everyday life (e.g. Savage & Burrows, 2007; Gane, 2011). Central to this is what happens as knowledge assembles into specific cultural practices of data production and consumption, and how these practices interface with the rise of big data analytics, commercial sociology, and 'Knowing Capitalism', a precursor to discussions of 'Surveillance Capitalism' today (Thrift, 2005; Zuboff, 2019). The conflicts between the speed of academic output and technological change pose serious questions for media theorists. What becomes of analytical knowledge? Should we try and 'keep pace' with technological change? How do you study a field characterized by disruption, eclecticism, and speed? Will technology be necessary for doing theory?

David's work has sought to negotiate these questions to understand the social and cultural implications of data-driven capitalism on mundane cultural practices and social relationships. This has included an analysis of how digital media transforms the production and consumption of cultural objects, collective practices of genre building and indexicality, the disciplinary authorities of metrics and measurements in everyday life, and the cultural imaginaries of data and algorithms in contemporary organizational structures. These works are considered essential reading for researchers at the intersection of digital media and society, and in many respects have been crucial to setting the agenda for sociological theory in digital culture.

We could cluster David's work thematically into a 'loose trilogy' of interrelated digital cultural processes and practices: archiving, measurement, and analytics. These practices broadly encompass important practices of the production, distribution, and consumption of cultural artifacts that influence the social shaping of symbolic resources. This includes the ways cultural artifacts are identified and classified into databases and platforms, the inscription of performance indicators and transactional knowledge into metrics and cultural archives, and the development of analytical

modes of knowledge through data analytics industries. These aspects reflect larger changes in the political economies of information and surplus extraction that govern systems of value production through metrics and data analytics. At the same time, while data analytics are deeply sunken into the organizational logics of contemporary organizations and businesses, they are also part of everyday cultural practices, and the ways we make sense of media and culture.

This interview reflects on some of these key themes of David's work and is oriented around a discussion of some of the 'quirks' and 'impressions' that have emerged in doing media theory in a time of platform capitalism and data-driven everything. We focus on David's most recent works in theorizing data analytics industries, including *The Data Gaze* and *The Quirks of Digital Culture*, to stimulate a general discussion of some of the larger theoretical and epistemological debates about how data intersects with the mundane aspects of living in digital cultures, as well as the larger social imaginaries and promises that guide how we internalize and value data analytics, and to speculate on future research agendas of an industry governed by speed and disruption.

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Harrison Smith (HS): Given the journal's focus on media theory, I was wondering if you could start by explaining some of the key theoretical influences and issues that have been guiding your work on data analytics (Beer, 2017; 2018; 2019). Could you say something about how you see data analytics shaping future theoretical discussions about media theory?

David Beer (DB): It seemed to me that there were some gaps. You have people theorizing data developments, the power of data, and their interfaces with algorithms. But it seemed to me that one of the things that was needed was a theory and concepts that could be used for analyzing data analytics. It was a gap between data and the effects of those data. This is where some theory needed to operate. So I was thinking what are the kinds of mediation and mediators of these systems. Data transform the world, so I was thinking about those processes of transformation and how data are operationalized, how they are deployed, how people turn data into knowledge that can be applied for decision-making. It was those things I thought we

need to start conceptualizing; we needed some further theoretical encounters with the kind of data analytics that were going on. I was also interested in the emergence of a whole industry of analytics that had occurred off the back of the expansion of data accumulation. Once the data started accumulating people felt like they should be doing something with it. Off the back of that then this data analytics industry began to expand. It seems to me that there was a need for media theory and cultural and social theory to get to grips with those in-between stages: data turned to knowledge, data turned to decision-making, data feeding back and transforming the social world.

HS: It seems that there's an emphasis right now on studying platforms and developing case studies around specific platforms. This can be things like social media, gig economies, or surveillance capitalism (Zuboff, 2019). So you're looking more at what's happening at the back end of these services, or how these companies make specific claims of delivering value to platforms?

DB: So analytics can be within the platform, on the platform or outside of it. Analytics goes beyond thinking about platform capitalism in the form of larger tech companies to include smaller organizations and organisational structures. This includes how data are conceptualised as well as how they are used. This is also to think and account for the ways that data analytics start to stretch into and spread into lots of different parts of the social world. Part of the story is about how data analytics spread through the social life of platforms, but it's also broadly about how data become embedded analytically in organisational structures and everyday lives. When I started working on this it wasn't being conceptualized as platforms at the time, other terms were being used, but that kind of terminology has emerged while the research was ongoing. We now talk in terms of platforms much more than we were only a few years ago.

HS: How would you describe data analytics and why is it important to look at it, especially for media scholars?

DB: The concept of data analytics varies and has been made and remade in lots of different ways, but in large part it's to do with the way that the accumulating data and abstractions about the world are then utilised so that they turn into data visualisations or different kinds of outputs, findings or insights that are then used to

inform decision-making. These are processes where data are used to inform or transform something. So the data is analyzed to try to create findings or insights about the way the world is, about people, about social groups, about organisational structures and about customers, and so on. It could be all sorts of things. The aim of these analytics is often to try to find underlying patterns about what's going on or about hidden values. This is one of the things people are trying to find out about by using different analytical techniques, to find and discover things that could be useful in decision-making.

HS: Do you think that data analytics can be likened to a new kind of sociological enterprise? You've talked about this in other works relating to larger changes in empirical sociology; do you see something happening like this in relation to data analytics?

DB: With the emergence of this new kind of data, and lots of it, then the question becomes one of trying to understand the political dynamics of this emergence. This is where *the analysis of data analytics* comes in. In terms of trying to understand how data becomes part of the social world, and the political dynamics of that. On the other side you've got how you can do social research using those data forms, and how you might use new types of data analytics to see the social world differently. So there's kind of a set of methodological questions that are being posed as well. I've looked into that a bit in the past, but others have done far more than me. This is an approach where a social scientist might try to think about how they can develop new types of social research that draw upon commercial forms of data and data analytics to try and see the social world in different ways. There was always this branching off effect, but the two sides should always be connected. You have the kinds of methodological questions being posed but also the political questions that these developments present.

HS: Your book is called *The Data Gaze* (2019), but you've also written another article about 'envisioning' the power of data analytics (2018). This is a theme I want to quickly pick up on as you used this idea of engaging with different modes of perception about data itself or data analytics itself. Can you say a little about why you chose to approach it that way?

DB: The first set of questions I was interested in when looking at data analytics was how data analytics are being constructed, created or imagined by the industry responsible for it. How it's being envisioned seemed to be an important step in understanding its application. *The Data Gaze* starts with that envisioning and the data imaginary and then looks at how that plays out in different infrastructures and practices in the second half of the book. That book tries to think those connections through in greater detail. It seemed to me that the kind of underpinning logic or rationale of data analytics was important to understand, particularly if you want to understand how it spreads or pushes back the data frontiers (as I call them in the book). You need to understand the sorts of promises or ideals that are projected onto data and analytics to understand how they move out onto the social world.

HS: It seems also that there's a connection between that and how we understand the inherent value in terms of how it's socially constructed as meaningful. This could also connect with sort of the larger 'hype machine' that's associated with new startups and Silicon Valley tech culture. Do you think that data analytics industries are being perhaps 'over-hyped' or will now be the new normal in terms of how these companies use data to inform decision-making?

DB: It already is ordinary. Some of the ideals about data and analytics have already spread out into most organizational structures and have become embedded in them in different forms and to different extents as well. Some are highly data-focused while others may use them for more routine forms of management or for trying to understand performance management, the marketplace, their customers, and logistics. They're all deploying the data gaze in different forms. How successful data analytics will be, however, will vary depending on the uses and what people think they will get out of them but it seemed to me that there's a set of ideals and imagined promises that would never be reached. They're like a horizon that people work towards. In that sense there's this future set of possibilities that usher in a cruder version of analytics in the present. Data analytics promises perfect decision-making, or a perfect kind of organization, efficiency, and performance that is never reached but which shapes behaviour in the present. They're almost like a disappearing horizon that you're always chasing that data analytics can find spaces to spread into as a result of those promises.

HS: So they reproduce their own legitimacy within the market and social imaginary? You now have companies like General Motors for example saying that they're increasingly going to see themselves as data companies, especially with the rise of new technologies such as autonomous vehicles. Likewise advertising industries are seeing themselves as data-driven rather than relying on theoretical constructs when deciding who to target.

DB: It's part of how an organization presents itself as forward-looking and dynamic and all these sorts of things, to attach themselves to data analytics and to try to show what they can produce. So being data-focused and data-informed can be part of how you project a sort of dynamism, forward-thinking, objective sort of image. All these things can be used to be part of the branding of an organization separate from what data analytics actually achieve.

HS: You've been quite busy publishing several books recently around data analytics and metrics. Is there a sort of larger sense of continuity, or goal, especially in regards to advancing media theory?

DB: There's this idea I borrowed from William J. Mitchell of a 'loose trilogy'. So there are three books dealing directly with data circulations. There is *Popular Culture and New Media: The Politics of Circulation* (2013), which is about how data circulations change culture. Then *Metric Power* (2016), which is about how data circulations play out in power formations and political dynamics in everyday life. Third, *The Data Gaze* (2019), which is about how circulations of data are mediated by analysts and data analytics providers and software. Those three books are a loose trilogy where I try to look at various aspects of data circulations. It's not necessarily obvious from the outside that these three books sit together, but it's kind of what I had in mind. I didn't know it's what I was going to do at the start but it unfolded that way. So I've come to think about it a little like William Mitchell's loose trilogy idea rather than a sort of grand trilogy or anything like that.

Some of the other things are a bit like me pursuing other things that I am keen to write about or learn about. I like the band the Super Furry Animals, and I like to think of books like albums. They have this thing where they try to make sure every album is different. So in a way each album, the next album, is a reaction to the last

thing they produced. That sort of happened to me a little bit. I was trying to think about what's different to what I've done and that's how the Simmel (2019) book came about because I was thinking about taking a break from data and I've tried to do a book on Simmel for a number of years. That was quite a sort of big production in a way, in that it took a lot of work on Simmel and then *The Quirks of Digital Culture* (2019) was a reaction to that: something short, quick, and accessible like a pop record off the back of something that's a bit more long-winded.

HS: Regarding Simmel, you do mention that you wanted a change of scenery and now the sociology of media and digital culture is becoming quite data-focused so it looks like you wanted to change and look backwards; can you talk about that a little?

DB: I've always had an interest in the future and the past of social thought. Turning to focus on Georg Simmel's writings was kind of an attempt to go to the theorists that inspired me. There is an underlying set of connections about how you do sociology. I ended up focusing on Simmel's later works to make the project more manageable. I had started with a bigger project in mind, but I couldn't manage it – Simmel's work is very rich and I was struggling to make the planned book work. I changed direction to do something that focused on his late writings. It's about the way that the world is mediated and the kind of experience we have with fragmentary sensory experiences. I found that there's some very relevant stuff in Simmel when it comes to what's going on in the current media political landscape. His essay on the crisis of culture from 1915 and his parallel work on the fragmentary character of modernity try to think about how people create a world out of fragments. So it's quite interesting to think about how people's conception of the world is built from fragments and how people can build quite different conceptions or reinforce different conceptions out of the multiple fragments you are faced with once you get a complex media environment. I also turned to Simmel because at the time I didn't feel that I had anything more to say about data! That set of three books was done and I needed something else to focus on. So it was about thinking what would be an engaging project until I had a chance to think about where to go next.

HS: A lot of data analytics industries themselves do create the world from fragments of data.

DB: Yeah.

HS: Yet, some try to claim they have this totalizing view of the world, such as of a consumer's lifestyle for example, but much of the time the data they extract is quite circumstantial and divorced of context.

DB: Definitely. Part of the reason I wanted to do the work on Simmel was because I think Simmel is quite useful for understanding what's happening now. It's not an attempt to do something detached, although it is a book about theory. In the preface I reflect on how Simmel was trying to ask questions about the tensions and conflicts of social life and how they play out. There's a short essay on the future of Europe that he wrote for a newspaper, for example, and it's still quite useful. But it's important to think about how to work with these theorists rather than think they've got the answers. It's about how you can bring things out of the texts that could be useful if you actively work with them, if you aim to find out their utility and apply them or update them.

HS: You mention the underlying notion of tensions and I think this relates to your latest work on *The Quirks of Digital Culture*, so there is in some sense a kind of continuity. So what's quirky about digital culture?

DB: You're right there is a direct connection, which is via David Frisby's notion of 'sociological impressionism'. So when I was working on Simmel I was doing *The Quirks of Digital Culture* in parallel. The idea was to do a piece of sociological impressionism about what's going on. I had been working on that for a while. It seemed that there was an opportunity to work a bit like Simmel did. Which is where you look at different aspects of social life and try to find connections, and you look out for the way that small things reveal underlying broader issues about the way the world is. The idea of that book is that the quirks of digital culture are these strange or unusual things that almost go unnoticed but that also reveal broader processes and forces. I've been writing these short pieces for a while, trying to get to grips with these little shifts in media and culture; it occurred to me that these are all quirks. So I brought them together and added further detail and new content. There are all sorts of things in that book; it was an experiment. There's a bit about the end of the Yellow Pages or, in the UK, the closure of the centre that sent postal stuff for bands

and music artists, the end of the *New Musical Express* and so on. There are all kinds of unusual things, and then it tries to think about the underlying social and cultural issues. So you take a quirk and think about the broader transformations it's pointing towards, like pulling on a curtain. They're like ruptures that allow you to try to see behind what's going on.

HS: You've mentioned this a couple of times, so let's talk about this theme of music because it does seem to underpin a lot of your work, especially how it guides your sociological imagination, and here I'm thinking of your book on *Punk Sociology*, for example (2014). Your book on quirks even comes with a Spotify playlist, so how do you use music, or just more broadly aesthetics and art to guide your sociological thinking?

DB: It's about using music to provoke the imagination and stimulate creativity. It's also about motivating me to do things. So punk sociology is about using a punk ethos to sort of guide a sociological imagination, and that book also had a playlist in the preface that goes with the second chapter. The aim of that music playlist is to give an unfamiliar reader a sense of the aesthetic and audio of punk. I also did a playlist for *The Data Gaze*, and I did one for *The Quirks of Digital Culture*. I like the idea that you can have a soundscape to the book. It goes back to coming home from the Derby City Centre with a new CD and a copy of the *Melody Maker* newspaper or something, and listening to music while reading as an accompaniment to thinking. Loads of other people have done this sort of thing. It's not always a direct kind of thing. I might try and work an album into the style or tone of the thing I'm writing and it wouldn't be obvious to the reader, or the structure of the book or article might relate to the structure of the song. That sort of thing. It's music as an aid to thinking, I suppose.

HS: How would you describe the musical ethos of digital culture today?

DB: [laughs] Eclectic, really. Cultural consumption as it moves away from ownership to access… the possibilities for listening to a wider range of culture seems to me to uncouple culture from fixed categorizations and patterns of consumption towards something much less anchored and more eclectic. You've now got the possibility of eclectic consumption whereas you didn't really have that before or at least not to the

same extent because you were limited by how many CDs you could afford or what was being played on the radio. So there's much more eclecticism.

HS: There's also something to eclecticism about how we come to classify culture and what happens to the nature of genre-making or boundary-drawing. When you take this in the context of the data gaze, the question becomes one of how we go about classifying culture in this context.

DB: Yeah, I think that's an unresolved issue really. The transformation of classification and classification systems by the expansion of data is a really tough thing to grasp. I touch on this in *Metric Power* too, where I go through the history of social statistics to think of how classification systems make us up and how they are made up themselves and also how they become solid or fixed where they may have been contingent or loose. It seemed to me that, in the example of music and genre, I felt that sociologists were looking at genres as being too solid, and it seemed to me that there is a much more active or playful engagement with genre within music cultures themselves. There was often a kind of cut-and-shut neologism of genres all over the place, or you got umbrella genres containing dozens of smaller genres. I think that that eclecticism has played out in a much more dynamic version of categorization being made on the ground by people. It reminded me of Bowker and Star's work on S*orting Things Out* (2000), where you've got fixed categories coming up against people's everyday categories they create for themselves. There's something very interesting in the way these classification systems work. On the one side you've got all these forms of consumption where forms of categorization can be applied, but you've also got data analytics and people analyzing data in new ways through dashboards and other things. So you've got an engagement with categorization which is interesting. I tried to think about notions of archives in my past work and how you can conceptualize classification in those, but you need to think about categorisation in these different everyday consumption type settings and data analytic settings.

HS: It's interesting how, for example, in marketing you have this discussion about exactly who individual consumers are on a whole new scale of precision, rather than engaging in a traditional classificatory imagination. I think there's something going on about how power diffuses in data analytics, and the reproduction of power differences of socio-economic difference.

DB: I think this is about knowing an individual through data and how you know an individual through that data. Part of that is how the analytics might be looking at an individual's data whilst using classifications and categories to make sense of what they're seeing in the individual. There are rules, norms, indicators, and benchmarks and these sorts of things, or categories you can put individuals into. Foucault's *Order of Things* (2001) discusses the encoded eye. You might be looking at an individual or their data but there's a grid they can be put into. You can know an individual through the data but the way it's made sense of is in relation to populations and other people that can be categorized in a similar way based upon what they liked or did. There's still tensions between the individual and the category and how they work together, it's part of the sense-making processes.

HS: I think we still haven't fully explored these sense-making practices in data analytics industries because there's so many underlying challenges around literacy, access, and how to engage data scientists around understanding their sociological background, so to speak.

DB: It's like your recent piece on locative media (2019), these categorizations work on different sorts of scales. You've got all these different analytical scales from quite broad things down to the geometrics and postcode level and then further down to the individual level. Thinking geographically you've got many scales, but in terms of classification you've also got different scales from broad umbrella categories to quite small categories with relatively small numbers of people.

HS: There's something to be said here about how these industries make particular kinds of assumptions about who you are based on the scale of data. For example, even if you're observed in a specific location, you're automatically assumed to be a member of a larger group of people that might frequent those locations. There's both an increasing precision but also real-timeness that informs what your tastes and lifestyles are. It's really interesting when these things begin to conflict like when someone is observed frequenting locations that might conflict with broad categorizations.

DB: You've got instances where the data challenges or creates problems with categories. These things are never fixed, but they do have the power to be projected

onto things. Simmel talks about boundaries. His understanding of modernity is liminal and he tries to understand people's relationships with boundaries and limits. He says that in a lot of cases people are looking to stretch or break those limits and breach them. When categories are breached they change as a result of that. It's possible to see that sort of dynamic, pulsating culture that Simmel points us toward in these contemporary media forms, rather than seeing them as walls that are never altered or challenged. But you're right about the speed of it now and the push to real-time, or what Mark Andrejevic (2013) calls 'immediation', the pursuit of the immediate.

HS: Do you think that in line with what Simmel is talking about that as data analytics continues to intensify in everyday life, and awareness continues to build in terms of what platforms are doing in terms of shaping access, do you think people will try to challenge or resist this?

DB: They might but there are a few things that might make this difficult, including how deeply sunken data analytics already are in people's everyday lives. The social world already functions on data. The material world already functions extensively on it too. So trying to reverse a direction already travelled – and it is still moving at quite a pace – is quite difficult to do. The other thing is you've got the power of the data imaginary that I describe in *The Data Gaze*, which projects all these promises. So although you might see the problems or be aware of the extent that data is being used, those powerful promises might still draw you towards increasing participation in the data infrastructure. Most of us are drawn to it, I include myself. I can get a better Spotify playlist automated for me, for example, and those things kind of draw you in. For organizations, those promises about being a kind of perfect organization makes it likely that they'll continue down that route of increasing data-led thinking. It's quite difficult to reverse the materiality of it. It's even harder to redirect the ideals or promises that draw people to it.

HS: There's also a quirk of digital culture in that if you talk to most people who work in marketing or data analytics, they will rarely if ever deviate from a sort of script that consumers want relevance to the most infinite degree possible. Often, in terms of power differentials, they will say that what they really need to do is catch up to the consumer to legitimate the continuous extraction of data.

DB: It's the promise of personalization and the promise of a seamless environment in which the media you confront know you in greater detail. It's that vision of media that are ever more predictive of what you want. That's the kind of 'perfect' media environment that is embedded in the discourse that surrounds these technologies. Personalization and notions of the convenience that come with it are quite powerful in terms of encouraging participation in data infrastructures, even when people might feel uncomfortable with some aspects of it. The quirk tends to occur when it goes wrong or misjudges you. Suddenly it becomes more visible in these little moments. That could be something like a data leak hitting the news through to people being creeped out by an advert, or a shop emailing you with birthday best wishes when you don't actually know them. In the *Quirks of Digital Culture* book I use an example of a personalized TV advert that said my name to me and spoke to me to try and sell me paint for a fence when I haven't even got a fence. It knows enough about you to be personalized, but it still might not get it quite right.

HS: There's a certain degree of awkwardness about it, like when you buy something on Amazon but then you keep getting served ads for that same product.

DB: It's a social interaction and the rules aren't necessarily in place properly, and people react differently to that level of what they know. It's like you know you're being watched by capitalist organisations, and that infuses different levels of discomfort but also at times different levels of comfort. That's what the last chapter of *The Quirks of Digital Culture* discusses, that tension between comfort and discomfort in digital culture, and that we all experience it differently on these platforms.

HS: I was wondering if we could shift gears, and talk about some of your other writings, such as your [medium blog](http://). Can you talk about your motives behind this and whether you think this is something academics should consider doing more of?

DB: For a good part of the last 10 years I've been trying to think about how to experiment with writing and to write in different styles and forms, things like that. I've been blogging and writing for different outlets for most of that 10 years, and really it's about trying to develop ideas and try out different things, or respond to things occurring in a quicker way. So it's about being part of the dialogue as it

unfolds and finding ways to communicate ideas from other texts to different audiences. In some cases these are pieces about things in books or articles but applied to instances, events or things in the news. It's about experimenting with how you might try writing for different audiences, but also how you might develop ideas and communicate more traditional academic ideas in relation to current events. It's about experimenting, trying things out. And there's a quicker feedback loop you don't necessarily get from academic writing.

HS: Sometimes by the time a publication has come out, say about a platform, the whole platform has changed.

DB: That's it. I haven't got a problem with slow academic publications or anything, it's just also good to have different outlets to try things in and that allow you to work on a different timeframe.

HS: I think this has been a sort of ongoing discussion that's been going on about the tempo of academia, and here I'm thinking of people like Nick Gane (2006) who talks about whether we should speed up or slow down, as well as so many other issues about academic output.

DB: I think it's about trying to find ways those slow and faster forms work alongside one another and in ways that are enjoyable and help your ideas develop. For me, I like writing different things, like book reviews for example, because it just keeps you writing and trying things out.

HS: One last question, and this is for early career researchers, especially those maybe interested in data analytics and digital culture; where do you see this field moving in the future and what kinds of key issues do you think need more attention?

DB: I think there are absolutely loads of unanswered questions. We spoke earlier about different levels of classification and categorization that happen with developments in data, and I think there are a lot more questions about power to be asked in terms of the way they structure power dynamics. I think there are a lot more questions about practice, in terms of the practices of data analysts and the way that software is used in analytics and how it shapes people's decision-making within organizations, and also the role of these analysts in those organizations. There are

lots of questions that could be developed, and I hint at this in the *Data Gaze*. I always wanted it to be something that could work to open up questions rather than try to make definitive statements, and *Metric Power* is like that too. One of the questions that opens up in *Metric Power* concerns resistance and how people react to and resist against their exposure to metrics and data in different settings. We tend to gravitate towards workplace-type environments, but it might be interesting to think more broadly about how people understand data analytics, and try to resist how the analytics try to cajole them in different directions. I do think the really crucial thing is ideas, and trying to find and nurture ideas that see these things in new ways, or conceptualize them in new ways.

HS: There's something about the volatility of these industries, and I know it's a cliché to say that the industry is moving very fast right now, but if you look at the political economy of data industries you're seeing lots of mergers and acquisitions, even by firms that were not previously really in the data market, so that they can sort of check off that box that lets them say 'they're a data company' as well as an automotive company, for example. I think there's something there about the speed of the industry that can frustrate doing research both empirically and conceptually sometimes.

DB: It's a difficult industry to try and tie down as a kind of single entity. What I've found is that a lot of data analytics providers are selling software packages that allow people to become their own data analysts, or allow organizations to develop their own analytics outside of the kind of data industry as you might think about it. Its tentacles stretch out into all sorts of organizational structures where people become data analysts or employ analysts within their own organizations. So the reach is far greater than the label of *the data analytics industry* might suggest.

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