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The data analytics industry and the promises of real-time knowing: perpetuating and deploying a rationality of speed

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Abstract

This article draws upon a sample of 34 data analytics providers in order to explore the rhetorical framing of the speediness of the data analytic solutions that they offer. General perceptions of cultural speed-up frame understandings of organisational life, against this backdrop data analytics are presented as a potential solution to the need to speed-up and keep-up with the competition. As a result, it is argued that notions of speedy analytics are central to the spread and intensification of data-led decision making, governance and ordering processes. The promises of real-time knowing are one means by which organisational speed and agility are seen to be achievable, the result is the pushing back of the limits of datafication. This article is concerned with the power of the data analytics industry and the powerful ways in which this industry presents and projects properties and promises onto data and data analytics. It suggests that this industry taps into, cultivates and then attempts to solve the wider rationality of *a need for speed*.

The data analytics industry and the promises of real-time knowing: perpetuating and deploying a rationality of speed

However accurate it might be, it has become something of an accepted notion that we are living in accelerating times. Things are getting quicker. This notion is particularly notable in the coverage of the transformations associated with big data. The escalating promises of the revenue generation that will be achieved through the adoption of analytics are dramatic, as are the imagined pitfalls for those who choose not to (as summarized by the various figures captured by Columbus, 2015). The financial projections of both the analytics industry itself and the projections for those organisations who choose to integrate analytics are predictably mammoth. The faith in the transformative power of big data and their attendant analytics is also profound, with claims like 85% of business leaders believe that big data will lead to significant organisational change and 79% agreeing that 'companies that do not embrace Big Data will lose their competitive position and may even face extinction' (Accenture in Columbus, 2015). The promises and hazards are powerful in their depicted extremes. To give some sense of the scale of this emerging industry of analytics, with which this article is concerned, a 2014 'snapshot' of the total 'worldwide Business Analytics' market put it at $40.3 billion (Vesset, et al., 2015). This is an industry that is difficult to define, but this gives a sense of its apparent scale and continued growth.

In this particular article I will focus specifically upon how data are seen to provide opportunities for rapid analytics and for forms of real-time knowledge. I am concerned here with understanding how the data analytics industry attempts to perpetuate a wider perception of cultural and organisational acceleration whilst also then presenting data analytics as a potential solution to the need to keep-up. This is not a piece about the material speed-up of analytics, but a piece that explores how the perception of speed-up is used to promote the expansion of analytics processes. The accounts of data analytics that this industry provides, which of course are geared towards expanding its market and rolling out data-led processes, are premised upon a sort of accelerated knowledge that enables organisations to be increasingly responsive, nimble and reactive to market pressures. Acting as data intermediaries, by providing products and services for those desiring data analytics

solutions, this emergent analytics industry has achieved increasing influence in recent years. This influence is associated with both the analytics that they provide and also with the way in which they theorise, represent and project power upon to data. The analytics industry is tapping into a wider rationality, in which speed and agility are seen to be crucial.

Within a broader data imaginary – in which promises, ideals and values are projected onto big data – this article focuses upon the visions of speed that are promoted or conjured by this data analytics industry. This then is an article that is concerned with the narratives of data mobilities and their associated accounts of acceleration and speedy analytics. With the key focus being upon the image of a speeding-up world placing pressures upon organisations to find ways to keep-up. The feeling of the *need for speed* is paramount here. The emphasis, as we will see, is upon keeping a competitive advantage in the market. The central argument of this article is that visions of speediness and the promises of real-time knowing are central to the spread and intensification of data-led processes throughout the social world. Which is to say that by emphasising the need to turn to data analytics so as to keep-up with an accelerating world of ever speedier and more efficient competitors, the data analytics industry is generating a powerful vision of data that has consequences for wider social and organisational structures and ordering. To understand the spread of data and data analytics into the practices and routines of everyday life – as they come to lace with evaluation and judgment – we need not just to look at the practices of data analytics but also to look at how those analytics are imagined into existence (which we might see as fitting with the programme of work around the cultural dynamics of data mining suggested by Andrejevic et al, 2015). Cultivating this need for speed is a kind of prerequisite or perhaps a mechanism for the rapid spread of data analytics and what we have come to refer to as the big data revolution (for some critical reflections on this broader notion see Kitchin, 2015). This article shows how understandings of data and data analytics are actively being produced, but it also provides an explorative illustration of the construction of notions of cultural and social speed-up. We see here how analytics are presented as a powerful means by which the perceived speed-up of life might be known and managed. Here mobilities of data are presented as being so rapid that they bring knowledge about the world into real-time thus closing the gap, it is suggested, between data and knowledge or between data and decisive action.

The article begins by focusing upon wider notions of cultural speed up. This provides some sense of the conditions in which these tropes of speedy analytics are being forged. This also gives us the background for exploring the growing sense of the need to speed-up, to which data analytics is then presented as *the* solution. The article then focuses upon some of the ways in which the speed of data analytics is presented by the data analytics industry as it plays-off this backdrop of a perception of a speedier world. Drawing upon a sample of 34 data analytics companies (see appendix 1), the article explores the construction of data analytics as the solution to the apparent need to accelerate organisational practices towards what are seen to be informed, strategic and hyper-competitive processes and practices – that is to say that it explores what Doughty and Murray (2014) have referred to as 'institutional discourses of mobility'. In unpicking these framings of speedy data analytics the article looks at the breaking of the limits of 'datafication' (van Dijk, 2014), it then explores the scale of these speedy analytics, the notions of data-led keep-up and the powerful promises of real-time knowing. Together these reveal the way in which narratives of speed are utilised to push back the data frontiers and expand the scope, coverage and intensity of data-lea processes.

Cultures of speed: an accelerating world?

What this has suggested so far is that the 'social life of methods' (see for example Savage, 2013) is not just about the circulation of technique, it is also about the circulation of the imaginary that surrounds both methods and data. Indeed, Turow et al (2015) have argued that there is a 'social imaginary' around the practice of data mining that makes its associated practices feel like a 'natural part of life'. Here the practices of consumers are reconfigured by the reshaping of the social imaginary – data mining here then is a product of this imaginary as well as the technical assemblage (see Turow et al, 2015: 465-467). In this article though, we are thinking more directly about the reshaping of the social imaginary with regard to the reconfiguration of organisational practices. Before we begin to explore the details of the imaginary that is provided by the data analytics industry, it is worth pausing to reflect on the broader context in which these framings occur.

When it comes to the mobilities that constitute the social world, a key notion is that we are living in times of speed-up or acceleration. However, materially accurate this may be, there is

a dominant perception that things are getting quicker. Around fifteen years ago Scott Lash (2002: 137-9) reflected on what it means to live in an 'age of speed'. This is an age in which, he contends, we have little space for critical reflection outside of the flow of information to which we are exposed. Similarly Gane (2006: 20), around a decade ago, claimed that 'it is hard to think of an aspect of human existence that has yet to be touched by the fast technologies of the new media age'. To pick an example of this type of perception of ubiquitous acceleration, we can turn to Hand et al's (2005) discussion of the notions of speed, temporality and immediacy associated with developments in domestic showering technologies. Thinking across scales, Sassen (2006: 386) points to the ned to appreciate the variable temporalities that occur from these more bodily experiences through to global processes. Her suggestion is to focus on 'analytical borderlands' in which these varying temporalities come to intersect. Despite some questions being raised about the nature of this acceleration, Gane (2006: 21) notes that there 'is broad agreement that new media technologies are transforming lived experience (…), not least because they are introducing new, ever-faster practices of communication, which in turn are altering the basis of social interaction'. It would seem that over the last 20 years there has been some agreement that social life has been accelerating, especially in association with the integration of new media forms (see also Virilio, 1991: 59 & 95). This perceived acceleration seems to occur on a range of scales, from global processes to organisational and individual lives. As Tomlinson has put it in his book on cultural speed-up, 'acceleration rather than deceleration has been the constant leitmotiv of cultural modernity' (Tomlinson, 2007: 1). Tomlinson's observation is that we have a cultural tendency toward the perception that acceleration is desirable. Calls for slowness are relatively marginal when contrasted with the broader push towards speed.

Following on from his earlier work, Lash has argued that this speed-up has factored in the emergence a kind of 'intensive culture' (Lash, 2010). We live, Lash claims (2010: 3), 'in a culture that is at the same time extensive and intensive'. The core idea here is that capitalism both spreads outwards whilst also, simultaneously, increasing its intensity within our everyday lives. Networks for Lash, increase in both reach and density. Here, according to Lash, the 'pace' and 'volume' of experiences increases, as do our interactions and transactions. Capitalism's forces aren't seen to be watered-down, diluted are distributed as they spread, instead, for Lash, they spread whilst increasing their intensity. Capitalism then is seen to

expand outwards whilst also increasingly being focused inwards, on individual lives. From this perspective we would need to look across organisational structures to understand how broader shifts impinge on the feeling of acceleration for individual experience. In this formulation the speeding-up of culture is associated with the stretch and increasing intensity of our experiences of capitalism, on a global and individual scale. This is close to an application of what Paul Virilio famously referred to as 'dromology'. Dromology, as he puts it, refers to 'the importance of speed in history, and thus of acceleration' (Virilio in Armitage, 1991: 16). Dromology, for Virilio (as he discusses with Armitage, 2001: 26), is concerned with understanding the role of speed and acceleration in wealth and power distributions. Virilio's point is that transport and information have accelerated what he calls the 'quest for the attainment of real time' (Virilio in Armitage, 2001: 27). This quest is something to which we will return, but the point here is that these accelerations of cultural speed-up can be seen to be about the spreading *and* intensification of processes.

Indeed, these types of assertions amongst other observations have led Judy Wajcman (2015: 1) to conclude that 'there is a widespread perception that life these days is faster than it used to be'. What is crucial here is the idea that complexities around temporality and the rate at which lives are actually lived are often hidden behind such a reductive perception. As Wajcman (2015: 5-6) puts it, 'there are both different senses of feeling pressed for time and a range of mechanisms that trigger those feelings'. Which, Wajcman (2015: 9-10) indicates, then draws us towards the need for a careful unpicking of the dynamics of these feelings of time pressure, particularly as they link to the liberating and contrasting powers of new technologies. The key point here is that although it might appear that life is accelerating, this assertion may obscure the realities of temporal experience. One key issue is that, as Wajcman (2015: 6) points out, 'talk about life accelerating only makes sense against an implied backdrop of a slower past'. The issue here is one of the ability or inability to measure and compare acceleration at the level of the social, the cultural or the individual. It is, of course, almost impossible to imagine being able to verify such claims to social acceleration given these observations – it would require both a sense of the speed of life at some point in the past and a way of measuring the pace of life today. Given the complexity that Wajcman is intimating here, how could we possibly even begin to measure how time pressures are felt today, let alone in the past. What is important here, in the context of this particular article, is

the generally held perception that life is getting quicker and that time pressures are more acute. It would seem that the importance of the feeling or notion of acceleration is what is particularly powerful. This is the perception that we will later see the data analytics industry perpetuating and then using to carve out one of its key niches.

The ultimate destination of this speed-up is what Tomlinson calls the 'the condition of immediacy' (Tomlinson, 2007: 72). This is where acceleration reaches the point at which everything is experienced instantly. As Tomlinson explains, 'this is to think of immediacy particularly in its temporal mode: of closing the gap in *time* or more precisely, of abolishing *waiting*' (Tomlinson, 2007: 92, italics in the original). The closing of the gap between production and consumption, the tightening of the gap between event and realisation. A narrowing of feedback loops. We can clarify this by turning to Mark Andrejevic's (2013) concept of 'immediation'. Andrejevic (2013: 146) argues that this type of notion of a closing of the gap in production and consumption is typical of a variety of attempts to construct 'a fantasy of "immediation" that takes the shape of either direct access to knowledge in the real (neuromarketing, body language analysis) or by sidestepping the need for comprehension altogether (predictive analytics, decision markets, sentiment analysis)'. The idea here is that representation can be bypassed, or at least the impression is given that it can be bypassed, in favour of more instant or direct forms of knowledge. These, for Andrejevic, are fantasies or myths about the accessibility and form that knowledge can take with the rise of big data and what he calls the 'infoglut'. It is a story that will resonate in the descriptions I provide in this article.

This closing of *the gap* or 'immediation' is something we will revisit, especially as we explore the perception of the closing of the gap in the production of real-time knowledge about the social world. For the moment though we can see how a cultural shift in speediness, towards notions of unrelenting acceleration, creates conditions in which temporal gaps are seen to be reduced and in which the desire to avoid waiting becomes significant in the conduct of everyday life. The pressure then is upon people to manage and respond to this immediacy and to find their way around the need for flexibility and reactivity. This imperative for speed resonates across a range of scales. Tomlinson (2007: 159) closes by claiming that the 'virtue

to be found in speed is…to apply effort to become nimble and graceful life-performers'. We will see how the data analytics industry plays to such an apparent virtue, along with the appeal to be responsive and agile performers. It is in such values that we find the types of imperatives to acceleration that we will see is cultivated by the data analytics industry in the discussion that follows. The sense here is that agility in response to acceleration is a primary virtue, and that there is a need to find ways to achieve such nimbleness. If we regard these as cultivated values rather than concrete social facts, then we can begin to unpick the way in which they are cultivated, maintained and then utilised to shape change or to provoke behaviours. For the purposes of this piece it matters not so much if cultural speed-up is an empirical reality, it is the perception of speed-up that really matters here. It is the *feeling of acceleration* that is being cultivated to which we might see the data analytics industry both contributing and responding. This article aims at unpicking these vision and promises of speed associating with data analytics, and how these are presented as a response to the notions of speed-up.

To this end, this article draws upon a sample of 34 data analytics providers. This sample and the means by which it was compiled are detailed in appendix 1. To give a sense of the organisations being analysed here, of the business analytics market shares estimated in 2014 seven were had the majority of the market share: of these seven Oracle (with 17.3%), SAP (with 14.4%) and Teradata (with 3.4%) are included in the sample used for this article (see Vesset, 2015). Excluding these large seven organisations, the estimate from 2014 shows the remaining 37.4% of the market to be covered by all other providers. This then is not a complete vision of the market, plus it focuses on software providers as opposed to all analytics services, but it gives a sense of the size and make-up of this emergent industry. It also gives a sense of the sample I'm working with here, which includes analytics providers of different sizes and with varying market shares.

Based upon this sample of materials from 34 data analytics companies (see appendix 1), this article draws upon the references made to speed, speediness, rapidity and any other temporal or spatial references to the mobility and pace of the data analytics solutions that are being presented. During an initial read through of the web-based marketing materials, it was clear that speed and speediness was a dominant theme. The initial read through of the

materials produced the first insights that are described below. To further this initial analysis, the sample materials described in appendix 1 were captured in a document which was then searched for using key words relating to speed. This included speed itself, as well as a range of associated words, such as rapid, slow, quick, fast, immediate until a second document was created using these references to speed, this second document then become the basis for the following analysis.

Speeding past the limits of datafication

As mentioned, the messages associated with data analytics are dominated by notions of speed. A number of themes emerge when exploring the envisioning of the power of data analytics, but speediness, immediacy and the promises of real-time knowing are particularly prominent. These are products and solutions accompanied by claims such as: 'The fastest easiest way to understand your data' (Appendix 1, ref 3), or 'Fast analytics for everyone. (appendix 1, ref 15), or 'Fast-cycle Business-ready insights on more data' (appendix 1, ref 17) and 'We provide the world's fastest, easiest, and most secure data platform' (appendix 1, ref 22). Speed dominates. There is a sense here of a profound need for acceleration. Effective and productive data analytics are seen to be fast data analytics. Good analytics are those that are seen to produce instant results. These various formulations are clearly aimed at cultivating the image that data analytics are the means by which organisational practice and decision-making can accelerate. Of course, a key aspect of the work being done by the marketing rhetoric of data analytics is the expansion of the market in which they operate. They want more organisations to integrate data analytics within their structures of governance. That is to say, the aim of this rhetoric is to induce the expansion of the scope and intensity of data-led processes. This is about breaking through the boundaries or limits of datafication by enabling 'data collection without limits' (Andrejevic, 2013: 36). The aim is to push back what might be thought of as the data frontiers, these are the borders that data processes have not yet reached or are yet to be fully integrated. The emphasis on the speed of data analytics is designed to break through such boundaries or limits. We find then that notions of speed are imported to give the sense that such boundaries can be broken through or smashed, thus enabling new organisational possibilities. The emphasis is upon data

mobilities and the promises of real-time knowing. Speediness is the key promise that is made about the value of analytics, and is thus particularly active in attempts to make data frontiers more porous. Data analytics are presented as being able to rapidly give you what you need to know. Strategic thinking and self-training individuals are indicated as being the perquisites to organisational success. As such, promises of speedy analytics are the crux for the breaking of the limits of datafication and the spread of analytic, calculative and data-led processes throughout the social world.

This can be seen in the way that this industry presents data analytics as a proxy for organisational acceleration and the speeding past or breaking through of boundaries and limits. The seductive allure of speedy knowledge is seen to be disruptive to established boundaries. As it is put in one instance:

> 'Break the speed limit at your desk. Ready. Set. Done. Platfora's in-memory query engine and massive parallel processing architecture let you crunch petabytes of data at the speed of thought—your thoughts, that is.' (appendix 1, ref 28)

The image here is of the relatively passive user, sat at their desk, being able to suddenly achieve accelerated practices and thought through the analytic software. The organisation operates, in this vision, at the speed of thought. The image is of data analytics allowing organisational speed-up to become possible, with the only constraint being the speed of thought of the individual.

The limits of the speed of action come from the human actor rather than the analytic processes. As the machine agency meshes with human agency the decision making occurs at the speed of thought of the human actor. The image then is of rapid knowledge production that operates more quickly than human thought. The depiction of the speed of thought of the analytic device suggests that it is always ready to produce ongoing knowledge that facilitates acceleration of action. The only limit, it is suggested, being the speed at which the human actor can think and respond to the revelations and insights being produced. In other words, the above passage suggests that the analytics can enable organisations to go at speed they are able to react to the insights produced. The videos that are frequently found to support the claims made often present an audio visual image of the fracturing of boundaries and the speediness of analytics, with quick cuts and rapidly forming graphs, charts and other

visualisations appearing in a disembodied vision of active and rapid machine based knowledge formation. The result is the envisioning of the breaking of the limits of action and the limits of datafication at the same time – with new possibilities for both. This is a quicker whilst more data intensive vision of organisations in which data analytics are presented as the means to remove constraints.

Big but fast: mobilites at scale

As the above would suggest, this apparent speediness is often linked to a desire for agility. With the size of the data being presented as providing little obstacle to the speediness of the analytics. These data are said to be big but the analytics remain fast. This is a combination, we are told, of 'SCALE, SPEED, AGILITY' (appendix 1, ref 25). The idea, it would seem, is that this is speed at scale. The size of the data is not cumbersome but is a facilitator of responsiveness. As is suggested in this passage:

> 'Speed at scale. Trillion rows in 3 seconds, billions in less. Interana provides access to 100% of the raw event data with the speed to easily ask series of questions in seconds, without the consequence of being wrong. Interana's scale keeps the richness of data by not requiring aggregations or summarizations often used to shrink it into other solutions.' (Appendix 1, ref 7).

As well as drawing upon notions of 'raw' data, which we have seen questioned (see Gitelman, 2013), here we see a quantification of scale is used to emphasise the point that this is, as it is put, speed at scale. Agility is attached to the use of large-scale analytics. Despite the scope of the data, these analytics are depicted as enabling rapid inference without hesitation. This works against the probably common sense notion that increases in data are likely to slow down analytical insights. Again, this vision emphasizes the idea that these analytics are comprehensive whilst also being quick. The result, it is suggested, is that organizations can use that scale and speed to be informed and nimble in their activities. Big data, despite its apparently colossal volume, is able to facilitate agility, at least that is the message that appears to be conveyed here. Again, we see how notions of competitiveness and the need to keep-up seep through in the depictions of the power of these analytics.

Keeping-up with an accelerating world of data: the envisioning of speedier practice

The implicit diktat is that there is a need to accelerate practice so as to keep with up with the accelerating world. They cultivate and nurture the risk of being left behind if you choose to take the slow route and not adopt the speediness of these analytics. As might be expected, older and more established processes are imported as points of juxtaposition that illustrate the possibilities for the acceleration of practice that are said to be afforded by data analytics. For example, the claim is made that: 'Traditional data infrastructure procurement and deployment takes months and is too costly to support fast-growing data volumes' (appendix 1, ref 2). The costliness of such a slow pace is a central part of the message here, and the key driver for the need to speed-up. These are presented as being 'faster business outcomes at a fraction of the cost' (appendix 1, ref 2). Slowness, it would seem, is equated with wastefulness. The slowness of non-data informed practices is contrasted to the lightning speed of data analytics. Analytics are presented as solutions to slowness, with the suggestion that 'there's a way around this with built-in intelligent data inferencing, and automated data blending and harmonization solutions that speed and ease this otherwise tedious process'. (appendix 1, ref 17). This is an account in which slow organizational structures then can be circumvented, reconfigured or usurped by the knowledge provided through these data analytics.

The narratives of waste are coupled with the risks associated with of the inefficiencies of slowness. The sense is that not integrating data analytics will bring slowness, which in turn will bring on catastrophe or demise. Established practices become moribund in an age of data, it is suggested, where others will take advantage of the opportunities if you do not. As is suggested by the claim that, 'the ability to have fast, interactive, visual insights into business performance can mean the difference between success and failure' (appendix 1, ref 33). The promises of success come with being fast, whilst failure is attached to slowness. Again, we see the desirability of the hyper-competitive, strategic and knowledge based organization to be an implicit presence in these accounts. This is encapsulated in the notions of waste and wastefulness that take center stage and promote an urgency for rapid efficiency:

> **'**Today, the biggest challenge in any analytical exercise is simply getting the data you need ready. Bringing together multiple data sets from different sources, looking for duplicate data or blank fields, fixing misspellings, splitting or reshaping columns,

> adding additional data to provide more context. As quickly as data is being made available, and with all of the amazing Business Intelligence tools at your fingertips, every minute wasted on data preparation is a minute you are not asking questions and making decisions.' (appendix 1, ref 11)

We are returned in the above passage to the combination of speed and scale, but this time the scale comes from the intersectional use of multiple sources of data. The analytics here is informed by a comprehensive but instant grasp of all of the available data. This is required, the above suggests, to avoid the loss of time. Here time becomes the thing that is wasted where there is an absence of data analytics. The message is that the time spent trying to do things can be save. With this image of data analytics, wasted preparation time is redeployed to do more thinking, to ask more questions and then to be more strategic. The mere presence of the data, in the above case, exposes waste and implies the need to access knowledge more quickly to inform questions and decision-making.

These emphasise internal organizational speed-up and the possibilities that are associated with speedy analytics, but we also find visions of the acceleration of the external world. Which in turn then cultivates the need to speed up. It is not just about the wastefulness of being slow, it is that the world is an accelerating data-led place and acceleration is necessary in order to just keep-up, never mind get ahead. As is suggested by this excerpt:

> 'In this hyper-connected world, with data volumes constantly increasing, analytics solutions from SAP can help you to simplify, innovate, and accelerate. Make your life easier by analysing, predicting, and running your business in real time. Discover and execute on innovations that create value for your organisation. And achieve rapid insight into action across your organisation, closing the gap between transactions, data preparation, analysis, and action – all with analytics.' (appendix 1, ref 34)

You can both, it suggests, make life easier whilst also responding to the demands of this hyper-connected world. The software packages and analytics solutions become the means by which it is possible to accelerate to the speed of this accelerating world of data. The image then is of a world of data that is getting quicker, the only way to respond is to join-in and engage with the possibilities that those data bring. The only way to keep-up with an accelerating world and marketplace is to accelerate through the deployment of data

analytics.. We also see in the above passage the notion of 'closing the gap', to which we can now turn.

So fast it's instant: the promises of real-time knowing

Earlier we saw Paul Virilio's suggestion that there is a 'quest for real time' in the pursuit of speedier information, a quest that we tempered somewhat with Andrejevic's (2013) point about the fantasy of 'immediation'. It would seem however that this quest still pertains in the framing of data analytics. The message in this regard is that these data analytics are so fast they are instant. The move is from post-hoc analytics, to analytics that occur in the moment. These analytics are said to reveal the world as it unfolds, without delay. To refer back again to the earlier discussions, the depiction of data analytics is that there is no 'gap'. The result of closing the gap between data and insight is that the analytics are then operating, it is suggested, in real-time. The depiction is that they are 'immediated' (Andrejevic, 2013) and direct forms of knowledge that access the real in real-time. The notion of 'real-time' permeates through the industry's messages and is a commonly evoked term aimed at producing a sense of instantaneity and speed of both insight and subsequent action. The promises of real-time knowing are based around the possibility of reacting quickly, gaining an edge, winning the competition and even anticipating future events.

Visions of immediated real-time abound. Here is one typical example of the deployment of this frequently used phrase real-time: 'DataTorrent empowers today's enterprises to experience the full potential – and business impact – of big data, by enabling them to process, analyze, make decisions and take action on data in real-time' (appendix 1, ref 4). Operating in real-time here is part of enabling the full potential of big data. This is the promise that is being made. Using big data quickly gets at hidden value. As this particular organization then emphasizes, despite moving rapidly this is seen to be a form of decision making 'with no risks, constraints, management overhead or performance degradation' (appendix 1, ref 4). Despite operating in real-time, the lack of time for reflection is presented as holding no risk. So it makes it possible to be reactionary without the usual problems that we might associate with decision-making without reflection. The emphasis is upon the maintenance of accuracy whilst operating at a real-time speed of analysis. As it is put in another instance, 'the visualizations

update in real-time with the source data, so users always see the most accurate and current information at any given time' (appendix 1, ref 25). Accurate and current – these are depicted as forms of knowledge that are trustworthy despite their quick reactions.

Not only though is this thinking at speed seen to be accurate, the promises of real-time knowing are also portrayed as being smart and intelligent. These are presented as active learning systems that enable quick analytical insights. As one organization put it, 'Our software allows you to not only collect your customers' data, but also act on it intelligently in real-time' (appendix 1, ref 19). The narratives of smartness that permeate many such technologies are present here. In this case the software both is presented as intelligent itself whilst also facilitating intelligent decision making in human actors – which is part of a broader set of understandings of the way that algorithms interact with human cognition (see Williamson, 2016).

As the above suggests, the claims are about the analytics ability to facilitate quick and well informed decisions. As the same organization adds:

> Real-Time Decisioning. The days of segmentation and batch predictions sufficing for your customers are behind us. Our platform makes every decision in real-time, using everything there is to know about a customer up until the very last moment. (appendix 1, ref 19)

The quick analytics enable the decision making to occur in real-time. Thus closing the gap between data capture and action. The notion of 'the last moment' is used in the above passage to suggest that this is an ongoing production in which the most recent data feeds immediately into visualised outcomes and insights. There is an unceasing rhythm to the analytics, with decisions constantly informed by the data gathered in that very moment. Despite closing the gap and producing knowledge in the moment, these are also constantly switched on systems that produce ongoing insights – they are described as 'real-time, continuous, comprehensive' (appendix 1, ref 16).

The above illustrates the notions of accuracy and intelligence that become part of the promises of real-time knowing cultivated by the data analytics industry. Beyond this we see a predictive or prophetic element to these promises. The impression is that acting in real-time

also enables decision making that is anticipatory of future outcomes. This is illustrated by claims such as 'Neokami's algorithmic engine is able to accurately (up to 98%) partition customer base regardless of the dimensional complexity of the customer behavior and red flags high-risk churners before churning in real-time so that you can take action before its too late' (appendix 1, ref 8). Again we are reminded, in this version of what Taina Bucher (2016) has called the 'algorithmic imaginary', of the sense of burgeoning catastrophe that concerns the need to take action before it is 'too late' – with data analytics ensuring the quick action needed for survival. Beyond this though there is the idea that by operating in real-time it is possible to take action, potentially holding on to customers before they decide to move or protecting revenue streams before loss. The promise of real-time knowing in this case is one of anticipation and the ability to cultivate a kind of ramped-up proactivity. Acting before people make choices that might be to the detriment of the organization.

Finally, the promises of real-time knowing come wrapped in claims to the accessibility of the knowledge being produced by these systems. These solutions afford accessible speediness. There are, we are told, 'integrated and controllable dashboards…made for the marketer, allowing them to filter, drill down and summarize data in meaningful ways that clarify actions in real time' (appendix 1, ref 13). And elsewhere that:

> 'It speeds up big data payoff with Hadoop, through data-driven apps you create with drag-and-drop ease, eliminating barriers to big data utilization. You get fast, direct transparent visualization and analysis across all your big data' (Appendix 1, ref 1)

The term 'drag-and-drop ease', a phrase that is likely to denote a familiar technique, is used to suggest the accessibility and intuitiveness of the software and the minimal technical skill required to operate it. This is a form of analytical insight, we are told, from which meaning can be easily and quickly derived by any user. The data can be explored in ways that are seen to be intuitive and accessible, meaning that the speed at which they can be used is also instant. As it is put in one case, these packages: 'Enable behavioral analytics on event data with a fast, visual, and intuitive solution accessible to all' (appendix 1, ref 7). There is no delay in extracting meaning because of the ease with which that real-time knowledge about events can be accessed. The speediness here is in the reduced need for interpretation of these instant insights. Here we see again how those fantasies of immediation, to which Andejevic (2013: 77) refers, can be found in these visions of direct and instant knowledge that seems to

bypass mediation – somehow gaining, as he adds, direct access to a the real (see Andrejevic, 2013 112). It is suggested that such a package 'gives everyone the power to explore, analyze, and question your big data in real time' (appendix 1, ref 28) or that you can use them to 'Make your life easier by analysing, predicting, and running your business in real time' (appendix 1, ref 34). Everyone then, it would seem, has an easier and more instant grasp of the realt-time world with the integration of data analytics. This makes everyone a quick and nimble data analyst, turning the user into the expert with access to all types of data informed insights. Immediation reaches it's peak where software transforms us into our own data analysts. This is to 'combine' (appendix 1, ref 16) forms of data in a 'holistic approach' (appendix 1, ref 13) to 'support predictive analytics, real-time dashboards, master data management and more' (appendix 1, ref 31). These real-time dashboards are presented as being the means by which data is instantly accessible as it unfolds. Such promises of real-time knowing are a central part of the framing of data analytics, particularly in relation to the promotion of notions of accuracy, intelligence, anticipation and accessibility. These are the promises of the real-time knowing projected onto the affordances of data analytics.

Conclusion

We have only touched the surface of the dominant tropes of speed and speediness that are embedded in the depiction of the power and promises of data analytics. Yet, despite only beginning to unravel these narratives, the above illustrates how data analytics are presented as an antidote or solution to the problem of keeping-up with an apparently accelerating world. The data analytics industry aims to both perpetuate and the deploy the sense of social and cultural acceleration, enabling it to present data analytics as affording options for keeping-up. It would also seem that an accelerated world also means accelerated competition, at least that is how it is presented. These are market based forms of competition that are injected with the vitalising hype of big data and data analytics. Cultivating such an image of accelerating social worlds and speeding competition is a central part of how data-led processes are spreading through organisational, social and everyday life. We saw earlier in the article how this sense of acceleration operates on a range of scales. Data analytics are presented as the mechanism by which organisations can stay in the competitive game by turning to data. Andrejevic's use of the concept of 'immediation' is valuable in seeing how

these analytics are conveyed as offering accelerated and accessible form of real-time knowledge. We need to be reminded that the objectives of neoliberalism are premised upon spreading 'the model of the market' beyond the limits of directly financial exchanges (see Brown, 2015). In this case we have seen that this particular vision of the model of the market is perceived as a space of acceleration where the slow are left behind and where datafication is the only rational option.

The way that these speedy analytics are imagined – the data analytic imaginary – becomes a part of how they are understood, adopted and integrated into organisational and everyday life. It is not that they are necessarily a reality for how those data analytics ultimately play out, but they nonetheless perform a significant role in getting organisations to buy into datafication. Notions of speed are crucial then in pushing back these limits and in expanding the reach of social ordering through data. This suggests that visions of rapid and instant ways of knowing are an important if not central part of the seductive allure of datafication and the expansion of data led or data informed processes. Speediness narratives facilitate the spread of data informed social ordering and expand the limits of datafiction – breaking through the barriers. Quick analytics are seen to equate to progressive and forward looking organisational structures. The quicker the better is the reasoning. The more data informed the smarter. It has been argued that the art of neoliberal governance has been to spread the model of the market into social spaces in which it was previously absent (see Dean, 2009: 51; Peck, 2010: 24; Gane, 2012: 632; Brown, 2015). Visions of speedy analytics may be one active presence in the roll-out of such models of markets. The discursive projection of mobilities is not something that is somehow detached from the rise of data, rather it is central to how those data are understood and treated. In this regard, speediness is a key part of the promises being made about data analytics. The objective is to make organisations of different types *feel the need for speed*.

The promise is that competitive positioning and future proofing is to be achieved through the speed of the analytics being used. Speedy analytics are the means or mechanisms by which this type of competition-savvy organisation is said to be reachable. If the ethos or aim is to draw upon knowledge and an understanding of the game (Davies, 2014: 30), then the

desirable nimble organisation of today, it would seem, is based on an expertise and knowledge that draws upon real-time analytics. The nature of the knowledge base that is to be drawn upon and the imaginary that surrounds it is changing the perception of the market, of competition and of what it is to be competitive. This is the discursive realisation of what John Tomlinson (2007) previously called the 'condition of immediacy'. We see that there is an impulse to be immediate and to respond to the broader conditions of instantaneity. The visions of speedy analytics and the need to keep-up with an accelerating world are propagated by the data analytics industry as they seek the expansion and intensification of data informed processes throughout the social world. These powerful imageries are the means by which these processes spread and are therefore the means by which big data become a mundane and everyday reality at both an organisational and even bodily scale. Far from being peripheral, these visions are aimed directly at the data-frontiers and are geared towards promoting the spread of data analytics within social ordering processes of many different sorts. What I have described here is a part of the building and deployment of a rationality of speed. A rationality in which we are made to feel our slowness and where we are led to believe that we need to speed-up and be more agile. The data analytics industry may not be the only source of such a prevalent logic, but they appear to be keen to both tap into its presence and to use it as an opportunity to unveil data as the means by which we might answer such pressures to accelerate.

References

Andrejevic, M. 2013. Infoglut: How too much information is changing the way we think and know. London: Routledge.

Andrejevic, M., A. Hearn and H. Kennedy. 2015. "Cultural studies of data mining: Introduction." *European Journal of Cultural Studies* 18(4-5): 379-394.

Armitage, J. 2001. *Virilio Live: Selected Interviews*. London: Sage.

Brown, W. 2015. Undoing the Demos: Neoliberalism's stealth revolution. New York: Zone Books.

Bucher, T. 2016. “The algorithmic imaginary: exploring the ordinary affects of Facebook algorithms”. Information, Communication & Society 20(1): forthcoming. Doi: 10.1080/1369118X.2016.1154086

Columbus, L. 2015. “Roundup of analytics, Big data & business intelligence forecasts and market estimates, 2015.” *Forbes*, 25 May 2015, http://www.forbes.com/sites/louiscolumbus/2015/05/25/roundup-of-analytics-big-data-business-intelligence-forecasts-and-market-estimates-2015/#327d14254869 (accessed 17 July 2016)

Davies, W. 2014. *The Limits of Neoliberalism: Authority, Sovereignty and the Logic of Competition*. London: Sage.

Dean, J. 2009. *Democracy and other neoliberal fantasies: Communicative capitalism and left politics*. Durham: Duke University Press.

Van Dijck, J. 2013. “Datafication, dataism and dataveillance: Big Data between scientific paradigm and ideology.” *Surveillance & Society* 12(2): 197-208.

Doughty, K., and L. Murray. 2014. “Discourses of mobility: Institutions, everyday lives and embodiment.” *Mobilities* (online first) DOI: 10.1080/17450101.2014.941257

Gane, N. 2002. “Speed up or slow down? Social theory in the information age.” *Information, Communication & Society* 9(1): 20-38.

Gane. N. 2012. “The governmentalities of neoliberalism: panopticism, post-panopticism and beyond.” *Sociological Review* 60(4): 611-634.

Gitelman, L. (ed.) 2013. *“Raw Data” is an Oxymoron*. Cambridge, Mass.: MIT Press

Hand, M., E. Shove and D. Southerton. 2005. "Explaining showering: a discussion of the material, conventional, temporal dimensions of practice." *Sociological Research Online* 10(2): http://www.socresonline.org.uk/10/2/hand.html

Kitchin, R. 2014. *The Data Revolution: Big data, open data, data infrastructures & their consequences*. London: Sage.

Lash, S. 2002. *Critique of Information*. London: Sage.

Lash, S. 2010. *Intensive Culture: Social Theory, Religion and Contemporary Capitalism*. London: Sage.

Peck, J. 2010. *Constructions of neoliberal reason*. Oxford: Oxford University Press.

Sassen, S. 2006. Territory, Authority, Rights: From Medieval to Global Assemblages. Princeton: Princeton Universtity Press.

Savage, M. 2013. "The 'Social Life of Methods': A Critical Introduction." *Theory, Culture & Society* 30(4): 3-21.

Tomlinson, J. 2007. *The Culture of Speed: The coming of immediacy*. London: Sage.

Turow, J., L. McGuigan and E.R. Maris. 2015 "Making data mining a part of life: Physical retailing, customer surveillance and the 21st Century social imaginary" *European Journal of Cultural Studies* 18(4-5): 464-478.

Vesset, D., B. McDonough, D. Schubmehl, C.W. Olofson, A. Woodward and S. Bond. 2015. "Worldwide Business Analytics Software Market Shares, 2014", *IDC*, http://www.sas.com/content/dam/SAS/en_us/doc/analystreport/idc-business-analytics-software-market-shares-108014.pdf (accessed 18 July 2016)

Virilio, P. 1991. *Lost Dimension*. New York: Semiotext(e).

Wajcman, J. 2015. *Pressed for time: The acceleration of life in digital capitalism*. Chicago: University of Chicago Press.

Williamson, B. 2016. "Computing brains: learning algorithms and neurocomputation in the smart city". Information, Communication & Society 20(1): forthcoming. Doi 10.1080/1369118X.2016.1181194

Appendix 1: The sample of data analytics companies

The following table details the sample created for this project. The sample was created by first searching on Google for three different combinations of terms (the Google search was used as it was imagined that this is likely to be where organisations start when they are looking for analytics expertise). These search terms were: (1) data analytics companies; (2) data analytics organisations; (3) data analytics solutions. These were felt to be the most appropriate terms that were likely to be used by organisations who were looking to try to locate data analytics services. The sample was then created using search terms 1 and 3, which created the most useful and extensive lists of the type of organisations that were being sought. Two different approaches were then used to create a list of organisations that varied in type. The top 10 for search term 1 included two recent magazine articles that provided overviews of a range of data analytics companies. *NetWorkWorld* and *Forbes* magazine had both published articles on big data companies 'to watch'. These lists were used to create a list of data analytics companies that were in some way notable in the industry. I used these two magazine lists, visiting the websites of the named analytics companies, and included within my sample any companies that described themselves as providing data analytics. It was felt that some supplementary examples beyond those contained in the magazine articles were needed. I used search term 3 to locate a further six data analytics providers. To do this, I simply selected the first six companies that were listed in my Google search that in some way identified themselves as providing data analytics (excluding those that had already been included in my sample as a result of being named in one of the magazine lists). This created a sample of 34 data analytics organisations of different types, ranging from consultancy to software package providersThe material was gathered between the 25th of November and the 2nd of December 2015.

Reference Number	Organisation name	Organisation URL
1	Arcadia Data	http://www.arcadiadata.com
2	Cazena	https://www.cazena.com

3	DataHero	https://datahero.com
4	DataTorrent	https://www.datatorrent.com
5	Enigma	http://enigma.io
6	Experfy	https://www.experfy.com/
7	Interana	http://www.interana.com
8	Neokami	https://www.neokami.com/
9	Mapr	https://www.mapr.com
10	Wise.io	http://www.wise.io
11	Paxata	http://www.paxata.com
12	Informatica	https://www.informatica.com
13	Syntasa	http://syntasa.com
14	Actian	http://www.actian.com
15	Tableau	http://www.tableau.com
16	Sight Machine	http://www.sightmachine.com
17	Clear Story Data	http://www.clearstorydata.com
18	Ayasdi	http://www.ayasdi.com
19	Wibi	http://www.wibidata.com
20	Tamr	http://www.tamr.com
21	Trifacta	https://www.trifacta.com
22	Cloudera	http://www.cloudera.com
23	Datameer	http://www.datameer.com
24	Premise	http://www.premise.com
25	Palantir	http://www.palantir.com
26	Teradata	http://www.teradata.co.uk
27	Splunk	http://www.splunk.com
28	Platfora	http://www.platfora.com
29	Avalon	http://www.avalonconsult.com
30	Das	http://www.dasconsultants.com
31	CSC	http://www.csc.com/big_data
32	Avanade	http://www.avanade.com

33	Oracle	https://www.oracle.com/solutions/business-analytics/index.html
34	SAP	http://go.sap.com/uk/solution/analytics.html