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Published in:
Valuation Studies

DOI:
10.3384/VS.2001-5992.2022.9.1.1-10

Valuation Studies 9(1) 2022: 1-10

Theme issue editorial

Digitizing Valuation

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There is hardly anything that has not been digitized these days. Healthcare, finance, insurance, science, warfare, work, and social life have all been subject to technoscientific practices that process data in the form of 1s and 0s (Negroponte 1995). This shift, which is commonly glossed as "digitization," is sometimes described as radical or recent, when in fact it has been going on for almost a century (Grier 2007). By now, we are confronted with an expansive ecology of smartphones, data centers, platforms, and algorithmic computation, which is unprecedented in terms of its scale and influence. Digitization has become inextricably woven into the social fabric and practices of valuation are no exception (Kornberger et al. 2017; Lee and Helgesson 2020; Mennicken and Kornberger 2021).

But what does it mean to study digitized valuation practices? On the one hand, valuation has been digitized through algorithmically generated ratings, metrics, scores, and rankings – all of which more or less visibly drive contemporary data economies. On the other hand, it

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https://doi.org/10.3384/VS.2001-5992.2022.9.1.1-10
Hosted by Linköping University Electronic press
http://valuationstudies.liu.se

is not clear what exactly has been changing in the process. Digitizing does not simply mean that we translate analogue practices of valuation into code. It also involves delegating the task of generating moral judgments to increasingly sophisticated technical systems. Do seemingly new practices of valuation like predictive analytics, sentiment analysis, and emotion recognition require new concepts and methods for their study? What does it take to study a phenomenon that is so obvious at a distance and yet so murky when we have a closer look?

Our themed issue comprises a series of papers which attempt to answer these questions through a set of empirically grounded studies. All papers respond to our initial call and will be published in two parts: Part 1, which is featured here, includes the first four papers, whereas Part 2 will follow in the coming months.[2] However, before we introduce the contributions in more detail, we outline six themes that summarize how we as editors have come to think about "digitizing valuation" in the course of working on this themed issue. We believe that these themes are useful as a springboard for thinking about new directions in the study of digitized valuation, and we will revisit them in an afterword to Part 2 of the themed issue.

Digitization

The idea of digitizing valuation is often associated with increasing the speed, scale, or variability of how valuation occurs. In practice, however, the situation is more complex. How do other terms like quantification (translating things into numbers), computation (bringing mathematical operations to bear on quantified things),[3] datafication (rendering things in the world as data which can be saved, edited and circulated), or automation (delegating actions to machines) relate to notions of digitization? Do these distinctions matter when it comes to scrutinizing valuation, and if so, how? Are some things easier to digitize than others? What things are excluded from the databases and processes of valuation (e.g., Bowker 2000)? How are valuation practices and metrics digitized, and what becomes excluded as an overflow or externality (Lee 2022; cf. Callon 1998)? What things, objects, people, or contexts are lost, and with what consequences? The answers to these questions should help parse out the different facets of

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[2] Unlike traditional *Special Issues,* Valuation Studies uses *Themed Issues* to refer to a series of papers responding to a particular theme. These papers can appear in one, two, or more issues of the journal. The original call for papers related to our themed issue is available here: https://valuationstudies.liu.se/Theme_Call_Digitizing_Valuation

[3] In general language use, the idea computation is distinguished from digitization in that it applies mathematical or statistical methods to numbers. Computation can be done not only by machines, but also by humans (Grier, 2007).

digitization, and provide insights about the ways value practices are organized.

Infrastructures

While digitization is an important concept to unpack, our understanding of its characteristics and consequences can be bolstered by acknowledging the infrastructures through which it is enacted. Digitized forms of valuation do not emerge out of nowhere, and they do not appear in isolation. Rather, they are supported and changed through various forms of infrastructure (Bowker et al. 2019). Dissecting digitized valuation in this manner would allow us to ask questions about the intertwining of valuation and different means of organizing knowledge, sorting things out (Star and Ruhleder 1996; Bowker and Star 1999; Star 1999), and governance that are prevalent in infrastructure studies (Ziewitz 2012; Kornberger et al. 2019). Where can we locate the infrastructures underpinning digitized valuation? How are valuation practices infrastructured? What changes with digitization? What remains unchanged? Who is doing the infrastructuring? Which actors or what valuations are assembled and made visible through these infrastructures (Star 1991; Star and Strauss 1999)? How do new digital infrastructures reshape the practices of valuation, or the very things being valued (Kornberger et al. 2017; Reilley and Scheytt 2019)?

Power and agency

Opening up our inquiry of digitized valuation to infrastructure points us toward questions of power and agency. Valuation is never a neutral or objective practice, but is always informed by judgments, norms, and habits, as well as competing attempts to appraise and evaluate (Dewey 1939). How are some valuations granted precedence over others, and does this occur differently in digitized environments than it does in analogue ones? How does digitization shape which valuations "matter"? How do we deal with technologies that (re)configure the power over valuation? Can we explore the reconfiguration of calculative agencies (Callon and Muniesa 2005; cf. Cochoy 2008), i.e., how the digitization of valuation re-forms spaces and collective agencies that give certain actors more power than others? We might also ask how actors value different configurations of agency (Lee and Helgesson 2020), or how the actors we engage with study, analyze, and think about what a good set-up of agency would be (Ziewitz 2019; Ziewitz and Singh 2021). What new modes of intervention are enabled by digitizing valuation? In this context, it might be fruitful to explore the power effects of "protocol" (Deleuze 1992; Galloway 2004; Galloway and Thacker 2004; Kornberger et al. 2017;

Mennicken and Kornberger 2021).[4] The notion of protocol, which is borrowed from computer science, can be useful, as it helps demarcate the contradictory nature of the power apparatus that underlies and is made up by digitized valuation (see here for instance the case of platform ratings and rankings, as in the case of Uber but see also the case of changes in hotel ratings as discussed by Balsinger and Jammet in this issue).

Automation and judgment

Attending to the power effects of "protocol" also draws our attention to the ways judgment and automation are (re)configured digitally. What is the relationship between human judgment and digital infrastructures? Where is judgment possible and for whom (cf. Cochoy 2008)? Posing such questions would allow us to examine how the space for human judgment is reconfigured by digitization, and the extent to which automated systems give certain actors more space for judgment then others. We encourage more in-depth investigations of the specific situations in which human and automated judgments are valued (cf. Lee and Helgesson 2020). For instance, the automatic ranking of call-center workers' call-rate might be performed as a valuable thing to automate in some situations, while in other situations this might be abhorred. Automated, digitized categorization has been shown to be less able to accommodate conflicting rationalities. As Alaimo and Kallinikos (2020: 1398) note, the objects stemming from algorithmic categorization have the potential to form "Babel Towers." Algorithmic categorization tends to displace, relocate, and conceal human inputs; yet, at the same time, human biases and stereotypes are injected into algorithmic work, including digitized valuation work (Bechmann and Bowker 2019).

Accountability, fairness, recourse

The topics of automation and judgment raise potent questions about accountability, fairness, and recourse. When power and agency are moved around by digital infrastructures (c.f. Lee 2021), and when the boundaries between human judgment and automation become blurred, how are accountability, fairness, and recourse factored into the digitized infrastructures of valuation (Citron and Pasquale 2014; Benjamin 2019)? This is an interesting question to ask while examining digital infrastructures that are in the making. How is fairness (re)configured and (re)valued in the nascent stages of digital infrastructure formation? Who and what do we measure, and how are

[4] According to Galloway and Thacker (2004: 8), "protocols are all the conventional rules and standards that govern relationships in networks." In this sense, a protocol is a technology that regulates flow, directs space, codes relationships, and connects life forms (Galloway and Thacker 2004: 10).

questions of fairness addressed within these practices? How are relations of accountability reconfigured, and who or what becomes accountable to whom (Ziewitz 2012)? Often it is those people or objects that are measured that are being implicated in accountability webs while the people who construct the measurements of valuation are not (Ziewitz and Singh 2021). How might agencies and infrastructures be reconfigured so that there are possibilities for recourse? For addressing what are perceived as improper valuations?

Generativity and performativity

Finally, it can be useful to draw specific attention to the emergent properties of quantification and measurement in digitized valuation. Digital infrastructures of valuation do more than assess or evaluate (e.g., a taxi ride, a trip). They help link up and connect (e.g., service providers and users on platform organizations). In so doing they provide not only an important interface for interactions and exchanges over distance. They are also at the heart of the creation of new markets and forms of organizing (Kornberger et al. 2017; Mennicken and Kornberger 2021). They provoke the creation of new worlds through the creation of objects that are not so much the outcomes of programmatic aspirations or models, but of a surplus of data and traces, which produce new possibilities for discovery and intervention (see also Alaimo and Kallinikos 2022).

Many of the contributions in this themed issue, including the four in this first part, allow us to compare and contrast new forms of automated algorithmic valuation with older forms and practices of valuation. They enable us to take a closer look at what is new or distinctive with digitized valuation.

We open with Krüger and Petersohn and their article entitled "From Research Evaluation to Research Analytics." This article explores from a historical perspective changes in the digitization of bibliometric measurement and their effects on academic performance evaluation. In so doing it helps us reflect on what is specific about new digital forms of research evaluation. Whereas the bibliometric measurement of academic performance has been digital since the computer-assisted invention of the Science Citation Index, more recently we have been witnessing some key shifts. Citation databases are not only indexing an increasing variety of publication types, as exemplified by the proliferation of altmetric data aggregators. New ways of digital bibliometric data production and assessment have also contributed to an extension of indicator-based research evaluation towards data-driven research analytics. Focusing on interoperability, scalability, and flexibility as core material specificities of the new digital infrastructures of bibliometric evaluation, Krüger and Petersohn trace their emergence

and examine their consequences for our understanding of academic performance and practices of academic performance (e)valuation.

Next, Balsinger and Jammet investigate the intertwinement of automation and judgment in the context of hotel ratings in the Swiss hospitality industry. They explore how new platform-generated valuations intersect with older forms of professional valuation. Going beyond describing the opposition between online consumer reviews and traditional judgment devices, their analysis shows that valuation on the platform is based upon a permissive hierarchical integration of a plurality of valuation poles with algorithmic valuation at its center. This shift destabilizes the evaluative landscape with regards to three issues: lack of transparency of the algorithmic ranking, the weakening and even undermining of formulaic valuation, and the issue of singularization of the online offer.

Arnelid, Johnson, and Harrison scrutinize implications of emotion recognition in digitized valuation, zooming in on the specific case of a care robot that was introduced at a Toronto hospital. The article unpacks not only how emotion detection works in this context. It also queries whose emotions are being measured, and what the use of care robots can say about the norms and values shaping care practices today. The authors show how a fragmentation and associated commercialization of care work is exemplified by the introduction of care robots. In doing so, the article explores the generative nature of valuation (e.g. in provoking certain emotional responses and new relations of accountability).

Finally, Cevolini and Esposito take us to the field of car insurance. In the insurance industry, algorithmic predictions are increasingly being used to assess the risk exposure of potential customers. The article examines the impact of digital tools in the field of motor insurance, where telematics devices produce data about policyholders' driving style. Cevolini and Esposito argue that current experimentation with such new digital tools is moving in the direction of proactivity: instead of waiting for a claim to occur, insurance companies intervene in people's behavior to mitigate risks. The authors go on to explore potential consequences of such practices on the social function of insurance, which makes risks bearable by socializing them over a pool of insured individuals. They query how such a shift can lead to an isolation of individuals in their exposure to risk, affecting in turn their attitudes toward the future, as well as broader societal understandings of fairness, accountability and power.

Moving forward, we believe that it is fruitful for the social and human sciences to attend to the dynamics between digitization and valuation for years to come. In an age of machine learning, algorithms, and big data, we need to keep exploring the themes and questions outlined here in order to "stay with the trouble" (Haraway 2016) represented by digitized valuation. By attending to and asking critical

questions about the themes we outline above—digitization; infrastructures; power and agency; automation and judgment; accountability, fairness, and recourse; as well as generativity and performativity—we can start a much-needed critical inquiry into what digitization means for valuation and its study. After all, to digitize is to value.

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