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**What Happens When Evaluation Goes Online?
Exploring Apparatuses of Valuation in the Travel Sector**

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Abstract

Our research focuses on the fast-changing landscape of contemporary social media where user-generated content is increasingly being used to evaluate a wide range of products and services. The move to online valuations is raising important questions about how valuations change when they are produced online by consumers, and what outcomes they generate for the organizations being evaluated. To address these questions, we investigate two prominent hotel valuation schemes currently at work in the hospitality industry, and identify significant differences in their valuation practices and outcomes. We develop a practice-based lens for examining the materiality of valuations, providing a way of understanding the differences we observed in terms of performativity. This lens explains both how valuations are actively produced in ongoing practice, and how their production is significantly reconfiguring everyday practices of the organizations being evaluated. We conclude by considering the implications of our findings for research on valuation and organizations.

Keywords

Valuation, Social Media, Practice Lens, Materiality, Apparatus, Performativity

Practices of valuation have been growing in salience over the past few decades as organizations, products, and services are all rendered subject to various forms of monitoring and audit (Espeland and Stevens 2008; Miller and Rose 2008; Munro and Mouritsen 1996; Pentland 2000; Power 1997; Strathern 2000). The organizational implications of such heightened scrutiny have been considerable (Espeland and Sauder 2007; Martins 2005) — increasing the visibility and accountability of processes and outcomes, while intensifying strategic and operational concerns with criteria, metrics, and assessment. Such implications are likely to become even more influential as evaluations move online, becoming widespread, consumer-based, globally dispersed, and widely accessible.

In the move to online reviewing, established forms of valuation are challenged, as the rise of the Internet and social media in particular blurs traditional distinctions between production and consumption. Valuations — which have traditionally been produced by a small number of recognized experts, critics, media, and authorities using formal, standardized and often institutionalized criteria grounded in professional knowledge and industry experience — are now also (and increasingly) being produced online by large numbers of anonymous and distributed consumers using informal, variable, and individual criteria grounded in personal opinions and experiences.

While there has been considerable research interest in valuation processes and outcomes (Callon and Muniesa 2005; Hsu, Roberts, and Swaminathan 2012; Espeland and Sauder 2007; Rao, Monin and Durand 2003; Waguespack and Sorenson 2011; Zhao and Zhou 2011), we currently know little about what happens when valuations move online. We addressed this gap by conducting an empirical study in the travel sector, focusing specifically on two primary research questions: how do practices of valuation change when they are produced online by consumers?, and what outcomes do such online valuations generate for the organizations being evaluated? To answer these questions, we investigated two prominent hotel valuation schemes that are at work in the hospitality industry: the long-standing Automobile Association (the AA) scheme that is based on specialized expertise and institutionally legitimized criteria of assessment, and the online TripAdvisor scheme that is based on informal, consumer-based content and emergent criteria of assessment. Our study identified a number of important differences in online valuation processes and outcomes from those of traditional valuation schemes discussed in the existing literature.

Prior research has found that valuations work by standardizing, simplifying, and quantifying assessment information, that they are based on the expertise of a small number of legitimized authorities, that they favor incumbent and high-status participants, and that they trigger organizations to change reactively and predictably in conformance with explicit valuation criteria. In contrast, our research into online valuations finds that a multiplicity of personalized and often contradictory qualitative assessments flourish alongside quantitative ordering, that large numbers of unregulated contributions by anonymous consumers trump the legitimized authority of experts and critics, that incumbent and high-status participants receive no particular advantage, and that organizational practices are contingently and ambiguously configured by the volatile assessments of a distributed and disembodied crowd. These differences in the processes and outcomes of valuation are both striking and puzzling, and explaining them is the subject of our paper.

Our analysis of how online valuations are produced and their organizational outcomes led us to reconsider existing views and assumptions about valuation. In particular, the literature tends to treat valuation schemes either as given — depicting more or less accurately the attributes of the products being assessed (Hsu et al. 2012; Waguespack and Sorenson 2011) — or as socially constructed — representing the particular values, interpretations, and interests of certain groups (Espeland and Sauder 2007; Zhao 2005). In contrast, we found it useful to conceptualize valuation as produced in ongoing practice. Such a practice-based view shifts attention to the specific everyday activities that constitute valuation processes, and the outcomes generated as a result.

Our research makes two specific contributions to organizational scholarship. The first, empirical contribution, offers a grounded understanding of the practices and implications of online valuations; we find that online valuations entail not simply an expansion in the number, location, and diversity of evaluators but a significant shift in valuation practices that amplifies their reach and range, and generates new and unsettling implications for organizations. The second, theoretical contribution develops a practice-based lens for examining the materiality of valuations, providing a way of explaining both how valuation is actively produced in ongoing practice and how such production is performative, reconfiguring the processes and outcomes of the organizations being evaluated.

We start by discussing the relevant literature on valuation, highlighting key prior findings and noting that the critical role played by technology — and discursive materiality more broadly— has been largely absent in considerations of valuation. Drawing on both a practice lens (Feldman and Orlikowski 2011) and recent work in technology studies (Barad 2007), we propose a practice-based, material-discursive conceptualization of valuation and show how it helps us examine the materiality of valuations and their performative implications. We then present our empirical field study in which we consider the different practices of valuation at work in the hospitality industry and consider their varied outcomes for hotels. We conclude by exploring the implications suggested by a material-discursive analysis of the significant shifts that are underway as valuations move online and become increasingly the domain of anonymous consumer reviews, social media platforms, and ranking algorithms.

Literature on Valuation

The valuation of products and services has been studied from multiple viewpoints — markets, pricing, decision-making, and judgment. Judgments are of particular relevance to our study of hotel evaluations, as hotel accommodations, along with cultural goods (e.g., art) and professional services (e.g., therapy), are a genre of products that entail uncertain value (Hsu et al. 2012, Karpik 2010, Zhao and Zhou 2011). Karpik (2010) argues that evaluating such products involves less a process of calculation, than one of judgment that requires knowledge about a plurality of criteria, suitable weightings, and appropriate preferences. Such knowledge is typically conveyed through various “judgment devices” that serve as cognitive aids and visible guideposts in the making of choices (Karpik 2010). These judgment devices, produced by sellers, advertisers, producers, experts, and critics, include: personal or impersonal networks; labels or brands that convey distinctive identities; techniques for channeling sales such as displays and spatial layouts; guides offering commentary and recommendations; and rankings expressed in terms of common metrics based on expertise or popularity.

The last two categories of guides and rankings — evaluation through specialized assessment and comparative orderings — have been expanding recently, as calls for more scrutiny, transparency, and audit within organizations, industries, and markets have grown in the past few decades (Espeland and Sauder 2007; Miller and Rose 2008; Pentland 2000; Power 1994, 1997; Strathern 2000). Such calls have increased

the number and significance of mechanisms involved in verifying, certifying, and reviewing products and organizations, and these have generated considerable research attention (Casile and Blake 2002; Corley and Gioia 2000; Covaleski et al., 1998; Elsbach and Kramer 1996; Espeland and Sauder 2007; Martins 2005; Rao et al. 2003; Zhao and Zhou 2011). Most relevant for our study of online valuations are the research findings that detail the reduction, authority, asymmetry, and reactivity associated with valuation processes and outcomes.

Reduction. The judgments of guides and rankings work by classifying, filtering, and condensing information about products, thus enabling consumers and producers to attend to a smaller set of criteria and product characteristics. This reduction process typically involves the transformation of qualities into quantities using explicit categories and standardized rules so as to restrict the information that audiences must deal with (Espeland and Stevens 1998; Glynn and Lounsbury 2005; Hsu et al. 2012). The resulting simplification increases homogeneity and comprehensibility. It also enables commensuration — the process of comparing different entities in terms of a common metric, permitting “scrutiny of complex or disparate phenomena in ways that enable judgment” (Espeland and Stevens 2008, p. 415). While information reduction affords cognitive efficiency and streamlines decision making, its glossing of complexity, multiplicity, and ambiguity can generate unintended consequences. Sauder and Espeland (2006, p. 225) highlight the hazards of reduction involved in producing rankings:

Rankings are the final product of an elaborate, often messy, and sometimes arbitrary series of practices, decisions, and coordination, the traces of which are hard to recover. For consumers of rankings, even multiple rankings, rankings appear more transparent and definitive the further removed they are from their production. The context of their production and the rich, local knowledge that permits a less simplified and more nuanced interpretation becomes increasingly difficult to recover for those who use rankings.

They caution that as rankings “absorb both the discretion and uncertainty that support their production,” audiences should be mindful “of being seduced by the apparent objectivity and rigor of the rankings.”

The seduction of objective orderings is particularly potent when ratings and rankings are rendered routine and taken for granted (Zhao 2005), as they then become normalized and normative. Espeland and Stevens (2008, p. 416) note, citing Hacking (1990):

[I]t is easy to conflate normal in a statistical sense with normal in a moral sense. The ‘outliers,’ ‘under-achievers,’ and ‘under-performers’ produced by performance measures become targets of manipulation, disapproval and anxious self-scrutiny. Measures easily become aspirations.

Covaleski et al. (1998, p. 296) similarly observe that because rankings produce hierarchical orderings of quantitative differentiation, they “not only establish the fact of individual differences but also impose a value on them.” Quantitative orderings, by stripping away context, nuance, and history, confirm certain narrow classifications, rendering ambiguities invisible, and conferring specific meanings and distinct identities on categories and products (Fleisher 2009; Zhao 2005).

Authority. Through the process of information reduction, classification, and ordering, valuation processes serve to shape and control audience perceptions and actions. This process is especially consequential when valuations are legitimized by institutionally recognized experts, professional critics, media organizations, or certifying bodies (Glynn and Lounsbury 2005; Hsu 2006; Sauder and Espeland 2006; Waguespack and Sorenson 2011; Zhao 2005). Zhao and Zhou (2011, p. 1436) argue that “when product or service quality is hard to observe or measure (e.g., hotels, colleges, movies, and other cultural products), professional critics play a crucial role in stratifying organizations or products through critical ratings or rankings (e.g., star ratings for movies, college rankings).” They find that the status and distinction conferred by the authoritative valuations of experts and critics has “more profound implications than simply conveying the information on product quality” (2011, p. 1438). As Hsu et al. (2012, p. 83) indicate, the categories employed by critics in their evaluations direct the “attention of consumers toward certain offerings and away from others.”

The knowledge and preferences of experts and critics thus lends order to the marketplace through product classification, ratings, recommendations and endorsements, while also certifying and legitimizing the market reputation and status of certain products or producers (Zhao and Zhou 2011). The influence of this authorizing practice — even though restricted to a small number of professionals — is far-reaching. The conceptual distinctions, categories, and criteria they produce become formalized and objectified within institutional regulations, norms, and sanctions, thereby reinforcing and reproducing both the valuation scheme as well as their own expertise and authority. In so doing, the measurements, assessments, and judgments of a cultural/intellectual elite contribute to the ongoing dynamics of broader institutional processes (Glynn and Lounsbury 2005; Rao et al. 2003).

Asymmetry. Waguespack and Sorenson (2011, p. 541) observe that while the reduction associated

with ratings and rankings is “more cognitively efficient,” it also introduces ambiguity “because the number of categories is generally far fewer than the combinations of attributes that they represent.” They argue that this opens the door to asymmetry in categorization processes that can stratify the marketplace and significantly privilege incumbent and high-status products and producers. In their study of classifications developed by the Motion Picture Association of America, Waguespack and Sorenson (2011) find that movie certification favors high-status and major producers while disadvantaging lower-status and peripheral participants. They show that movie ratings are influenced by producer identities and profiles through processes of power, prototypicality, and the halo effect. The resulting ratings, generated through self-reinforcing mechanisms and self-fulfilling prophecies, serve “as yet another means through which powerful actors retain their positions of privilege” (2011, p. 551).

Valuation asymmetry is consequential. Favorable valuations increase the status, sales, and financial performance of highly rated organizations, “because audiences flock to those products that receive favorable evaluations and distance themselves from those that receive less favorable ones” (Fleischer 2009, p. 557). Favorable valuations also offer such organizations greater opportunities for action. Highly rated participants have the resources and prestige to influence processes of classification and certification, and they may also be granted more leniency in subsequent assessment. As Waguespack and Sorenson note, “To the extent that high-status individuals and firms have greater freedom to deviate from [category] restrictions while still receiving desirable classifications, they can pursue profitable strategies not open to lower-status participants, thereby further stratifying outcomes” (2011, p. 551). These conclusions reinforce earlier research on corporate reputation rankings by Schultz, Mouritsen and Gabrielsen (2001), which found that even though reputation ranking schemes are unstable — reflecting changes in criteria, methods, and shifting understandings of appropriate firm performance —reputation assessments are sticky. They observe that valuation schemes favor firms already ranked near the top of the list, despite changes in assessment processes and perceptions over time.

Reactivity. The implications of valuations for the organizations being assessed are considerable, with evidence showing that ratings and rankings significantly influence resources, prices, revenues, reputations, strategic positioning, and competitive advantage (Rao 1994; Schultz et al. 2001; Waguespack and Sorenson

2011; Zhao and Zhou 2011). Furthermore, assessments catalyze organizational responses to both the valuation results (the imposed value) as well as the valuation scheme (the imposed criteria of worth). For example, researchers have shown that rankings exert normative isomorphic pressure on organizations to “conform and perform to the rankings criteria” (Gioia and Corley (2002, p. 110), in order to obtain valued resources, recognition, and rewards (Martins, 2005; Rao et al. 2003).

In a study of law school valuations, Espeland and colleagues (Espeland and Stevens 1998; Espeland and Sauder 2007; Sauder and Espeland 2006, 2009) have found that rankings such as those produced by the *U.S. News & World Report* shape organizational practices through a process of “reactivity,” which they define as “the idea that people change their behavior in reaction to being evaluated, observed, or measured” (Espeland and Sauder 2007, p. 1). Their analysis identified two mechanisms of reactivity — self-fulfilling prophecies and commensuration — that shape behavior by shifting interpretations and expectations and refocusing attention (Espeland and Sauder 2007, p. 16). They found that as rankings altered the assumptions and cognitions of both internal and external constituencies, law schools reacted by internalizing and institutionalizing the criteria and status created by the rankings: “The discipline that rankings elicited increasingly became self-imposed as schools included them in their planning and self-understandings” (Espeland and Stevens 2008, p. 416). Schools redistributed resources (of time, money, and attention), restructured priorities and incentives, and standardized programs and offerings in line with the ranking mechanism in an attempt to survive and thrive in the rankings (Sauder and Espeland 2009).

While organizational conformance to rankings can lead to improvements over time (at least on the measured criteria), they can also generate negative consequences. As Corley and Gioia (2000, p. 330) observe about business school rankings:

The mere existence of the rankings encourages changes to conform to the rankings’ measurement criteria. To the extent that these criteria focus on features associated with substantive improvement (facilities, programs, quality faculty, etc.) they can motivate constructive change in business education. To the extent that ranking measures tap less germane features, however, they discourage innovation and the pursuit of quality and encourage schools instead to focus on ‘looking good’ rather than ‘being good.’

Similarly, Martins (2005, p. 715) observes that “rankings have been found to be arbitrary and poor indicators of organizational effectiveness, and consequently, changing to conform to the rankings may jeopardize the pursuit of the long-term mission of the organization.” Specifically, by reacting to the criteria used in the valuation scheme, organizations may constrain their strategies “to focus on an externally

defined ideal of organizational performance.” Such an ideal — typically defined by the assessing organization — is often self-serving (Fleisher 2009; Martins 2005; Waguespack and Sorenson 2011).

To summarize, existing literature suggests that valuation processes reduce information through standardization, simplification, and quantification, that valuation schemes come to embody the legitimizing authority of a small, often elite group of experts or critics, that the resulting valuations tend to benefit high-status and incumbent participants, and that through gradual processes of commensuration and self-fulfilling prophecies, valuations normatively influence actors to conform to explicit assessment criteria. In contrast, our study of online valuations found substantial differences in valuation practices and outcomes. In particular, we found that a multiplicity of personalized and contradictory qualitative assessments proliferated among numeric reduction and singular ordering, that the legitimized expertise and authority of a few were not privileged over the anonymous and unregulated contributions of the many, that high status and incumbency did not bestow any particular advantage on products or producers, and that actors’ everyday practices were continually and contingently configured by the ongoing flow of volatile, personalized, and anonymous valuations of the online crowd.

Our investigation of online valuations led us to reconsider positions taken in the prior literature on valuation. Scholars are either silent on the composition of valuation schemes, or they hold one of two positions: assuming that valuation schemes are more or less accurate representations of the underlying properties of the products being assessed (Hsu et al. 2012; Waguespack and Sorenson 2011); or assuming that valuation schemes embody the values, interpretations, and interests of certain groups (Espeland and Sauder 2007; Zhao 2005). Such positions on valuation schemes treat them either as given (whether taken for granted or as mirroring reality) or as socially constructed. But in either case the schemes are presumed to be largely coherent, more or less static once produced, and as operating relatively stably and predictably in use. Such assumptions break down in the context of online valuations where data updates occur rapidly (almost in real-time) and inconsistently, where criteria, weightings, and procedures are open ended and mutable, and where assessments operate variably and unpredictably in use.

In order to make sense of these differences, we found it useful to treat valuation schemes as neither given nor socially constructed but as constituted in practice. A practice-based perspective focuses attention

on everyday activities and their structural contexts and outcomes (Feldman and Orlikowski 2011). Such a perspective does not seek to identify single, isolated tasks or roles, but focuses on practices and their complement (conditions, history, timing, spacing). We found that this perspective allows a dynamic understanding of valuation schemes and processes as ongoingly produced in practice. In particular, it helped us examine the critical role played by social media platforms in actively configuring online valuation schemes and the resulting valuations that are displayed online. That is, online valuation would not be possible without techniques that dynamically incorporate and continuously integrate the multiple and diverse assessments of large numbers of distributed and anonymous actors through mechanisms that adjust frequently in response to shifting market conditions. Understanding the specific material practices at work through the open access Internet, algorithms, databases, and browser interfaces is central to understanding how online valuations are accomplished in practice. As we will go on to argue, such an understanding requires a theoretical lens that focuses specifically on the material-discursive practices through which valuations are produced and examines how these practices are inseparable from and constitutive of the phenomena being assessed.

Valuation as Material-Discursive Practice

Existing approaches to studying materiality in organization studies have tended to focus on exogenous factors, as in studies of technological impacts or discontinuities (e.g., Huber, 1990; Tushman and Anderson, 1986) or on cultural aspects, as in studies of the social shaping of technology or the affordances of use (e.g., Barley, 1986; Garud and Rappa, 1994; Leonardi 2011; Zammuto et al., 2007). In these cases, technology is incorporated into the analytic vocabulary as an independent variable or mediator of organizational processes, and thus treated as an object distinct from and secondary to human actions and social dynamics. As such, these approaches are less focused on the *productive* role of technology in organizational life. A practice-based approach to studying technology goes further in highlighting the consequential dynamics of technology use in organizations (Boudreau and Robey 2005; Mazmanian et al. 2006; Orlikowski 2000; Vaast and Walsham 2005). Such a perspective views phenomena as produced in everyday action, as organized around shared practical understandings, and as enacting particular structural

orders (Schatzki 2002). Because practice-based studies foreground human activities in their analyses, they too tend to overlook the productive role of technology in constituting phenomena.

More useful for our purpose is the work of technology studies scholars who have developed a relational view that privileges neither humans nor technologies, but focuses instead on their constitutive entanglements (Barad 2003; Knorr Cetina 1997; Latour 2005; Mol 2002; Pickering 1995; Suchman 2007). These ideas have recently been gaining traction in organizational studies where researchers have begun to take more seriously the productive role of technology (or materiality more generally) in organizational life (Barley, Myerson and Grodal 2012; Leonardi and Barley 2010; Iedema 2007; Nyberg 2009; Orlikowski 2007, 2010; Orlikowski and Scott 2008; Pinch 2008).

Of particular interest for our study is the work of Barad (2003, 2007), whose relational view focuses on practices, and specifically what she terms *material-discursive practices*. Drawing on a Foucauldian notion of discourse that emphasizes the historical conditions that enable and constrain what can be communicated (Barad 2003), she moves beyond it by arguing that further emphasis needs to be placed on the important ways in which meaning and matter are held together. That is, “meaning should not be understood as a property of individual words or groups of words. ... Meaning is made possible through specific material practices” (Barad 2007, p. 148). In this view, discourse has to be materially expressed in specific times and places, texts, artifacts, bodies, media, intonations, and so on (Cooren, Fairhurst and Huët 2012). As Introna (2011) notes, such material enactment is constitutive and thus crucial to understanding the meaning that is produced in practice. Barad’s notion of material-discursive practices thus shifts away from linguistic notions of discourse and towards viewing discourse as necessarily materialized in some form. Iedema (2007, p. 938), citing Barad, argues:

[M]atter cannot register in and for itself alone, or un-discursively. ‘Matter is not little bits of nature, or a blank slate, surface, or site passively awaiting signification’ (Barad 2003: 821). ... Just as matter is not a blank slate, discourse is not an internally cohesive set of immaterial differentiations competing with an unruly, exterior real. Barad’s work shows that matter and discourse are mutually constituting.

For Barad (2007), there is no independent reality with well-defined properties waiting to be interpreted, measured or evaluated. Things and the way we evaluate them form inseparable wholes in space and time, and evaluation is always contingent on its relations within a broader set of material-discursive practices. Barad refers to these material-discursive practices as an *apparatus* to highlight the

inseparability of what is observed from the practice of observation. As she notes (1998, p. 98), apparatuses are “not passive observing instruments” that simply mirror nature; rather they are “productive of (and part of) phenomena,” simultaneously constituting and organizing the phenomena they observe.

Viewing valuation as an apparatus moves us away from seeing separate phenomena being assessed by distinct schemes and devices, towards understanding phenomena as entangled in practice with the schemes and devices that assess value by concentrating observations in certain ways. In so doing, apparatuses “enact what matters and what is excluded from mattering” (Barad 2007, p. 148). The familiar example of a man with a stick can serve to illustrate the dynamic constitutive practices at work here:

One need only remember here the sensation, often cited by psychologists, which every one has experienced when attempting to orient himself [sic] in a dark room with a stick. When the stick is held loosely, it appears to the sense of touch to be an object. When, however, it is held firmly, we lose the sensation that it is a foreign body, and the impression of touch becomes immediately localized at the point where the stick is touching the body under investigation. (Bohr 1963, quoted in Barad 2007, pp. 154)

To usefully serve as an instrument of observation, the person has to forget that the stick is a stick and experience it as part of their body’s capacity to analyze context. While this particular practice is being performed, boundaries are materially redrawn in crucial ways that define the meaning produced. The knowledge of the room that is generated is thus not arbitrary but defined by the details of the specific material-discursive practices (apparatus) involved. For example, the stick will give a sense of contour, but not of heat or cold. As Barad (2007, pp. 19-20, emphasis in original) puts it:

[G]iven a particular measuring apparatus, certain properties *become determinate*, while others are specifically excluded. Which properties become determinate is not governed by the desires or will of the experimenter but rather by the specificity of the experimental apparatus.

Understanding processes of valuation as material-discursive practices requires examining how the particular discursivity of valuation schemes is materially expressed in practice. The specific activities, bodies, texts, and artifacts that are engaged in valuation are not merely mediators for delivering the intangible meaning or result of valuation. On the contrary, what the valuation is, at any given time and place, is what is enacted in practice through being materialized within specific forms (e.g., activities, devices, instruments, measures, texts, media, etc.). And the specific materialization makes a difference to the kinds of valuation processes and outcomes that are produced. For example, the valuation of a consumer appliance (e.g., a dishwasher) produced through the controlled conditions and practices of the Consumer Reports product testing laboratories will differ substantively from the evaluations produced by informal

user reviews posted spontaneously and anonymously on the online Amazon website.

As valuations cannot be separated from the specific material-discursive practices that constitute them, we need to pay attention to how apparatuses of valuation define what is included and what is excluded from assessment, and how they operationalize certain criteria and measures. This is boundary-making work that produces what Barad (2003) terms “agential cuts” — local enactments that make particular distinctions, boundaries, and properties *determinate-in-practice*. Such work is deeply consequential. As Tsoukas observes, “the models through which we view the world are not mere mirrors upon which the world is passively reflected but, in an important sense, our models also help constitute the world we experience” (1998, p. 792). Or put another way, material-discursive practices enact both “models of” as well as “models for” reality (Geertz 1973); they are *performative*.

It is useful to distinguish between the ideas of performance and performativity. Performance refers to the doing of an activity in context (e.g., playing a concerto), a situated practice that is both embodied and embedded. Performativity assumes the notion of performance but points to a further claim: that reality is enacted through performance. Rather than contextualizing an activity by *putting something* or *someone* in context, a performative approach identifies the practices that are constitutive of and implicated in the world. Much of the existing literature on performativity has highlighted the importance of discursive performativity, where utterances or statements create what they purport to describe (Austin, 1962, Butler 2010). For example, a declaration of “You’re fired” in certain circumstances by someone authorized to do so produces the effect of an employment termination. We are interested here in calling out *material-discursive* performativity. This emphasizes that the forces at work in producing realities are not only discursive but specifically material-discursive.

We believe that Barad’s notion of material-discursive practices as organized through apparatuses is a particularly useful lens with which to understand the performativity of online valuation. In understanding valuation in these terms, we shift analytical attention to examining agential cuts; that is, we focus on understanding what kinds of phenomena are produced by the specific material-discursive practices of a particular valuation apparatus. The aim is to discern how agential cuts make a difference by making certain realities *determinate-in-practice*. Turning to our empirical study, we first consider the two hotel evaluation

schemes of the AA and TripAdvisor to understand their valuation processes and outcomes. We then consider these two schemes as apparatuses, examining how they are constituted through specific material-discursive practices, the agential cuts that each of them enact, and the performative implications generated for the organizations being evaluated.

Research Sites and Methods

We collected data from multiple research sites in the travel sector: two leading hotel valuation schemes (the AA and TripAdvisor), hotels affected by the valuation schemes, and the hospitality industry more generally. From April 2009 to June 2011, we conducted 55 interviews across these sites (see Table 1), ranging from 45 minutes to 2 hours. Nearly all interviews were recorded and transcribed. In addition, we collected hundreds of pages of documentation, website reviews and postings, trade press articles, and archival materials from the AA, TripAdvisor, hotels, and the hospitality industry. We have continued to monitor the hotels that we studied to date.

The *Automobile Association (AA)* of the UK was founded in 1905 and was originally intended to help motorists avoid speeding fines and traffic offences on their driving records. The Motor Car Act, which had come into effect in 1904, had introduced speeding penalties to UK motorists, and one of the primary goals of the AA was to help motorists steer clear of police traps. Over time, the association went on to develop a range of products and services for cars, drivers, and passengers, including: breakdown and roadside assistance; travel advice and route maps; hotel accreditation; accommodation discounts and support; driver training; insurance; and financial services.

Today, the AA is a private company providing services to over 15 million members as well as the general public. On his Twitter page, the current president of the AA, Edmund King, notes “We champion the interests of motorists and have done so since 1905. Governments come and go but the AA stays out there as the voice of reason.”¹ The AA is a well-established and well-respected brand that according to a 2009 survey is recognized by 98% of the UK public. The AA has been evaluating hotel accommodation since 1909, and for its most recent 2012 AA Guides, it reviewed and rated over 3,500 hotels throughout the

¹ <http://twitter.com/AAPresident> (retrieved August 16, 2013)

UK. We collected data on the AA's hotel grading scheme through analysis of its extensive archive of materials concerning the history of accreditation and grading, changes in reviewing criteria, guidebook entries and editorials, inspection standards, questionnaires, reports, and inspector training programs. We also interviewed both current and former employees of the AA, covering a range of positions including executive, inspector, and editor. Our interviews focused on understanding the history, organization, and operation of the AA star rating scheme, as well as the specific details of practices on the ground in everyday activities of classification, inspection, and editing.

TripAdvisor was founded in 2000 with a mission to "Help travelers around the world plan and have the perfect trip." Its growth has been rapid, and it is currently the world's largest travel website, acting as a repository for over 100 million reviews and opinions on some 2.7 million businesses including more than 725,000 hotels in 125,000 destinations worldwide.² TripAdvisor currently operates websites in 30 countries and its content is available in 21 languages. It is headquartered in Newton, near Boston, and employs approximately 1,600 people in various offices throughout the world. It has won numerous awards over the years recognizing its growing prominence in the travel sector.³ We collected data on TripAdvisor through the extensive content available on its English-language websites, including TripAdvisor procedures and policy statements, as well as hundreds of posted reviews on multiple hotels. We also interviewed TripAdvisor employees in both the US and UK, focusing our questions on the company's history, strategy, and operations, the technology platform and its evolution, and the specific details of reviewing, rating and ranking practices. In addition, we participated in industry events focused on TripAdvisor, and read articles, newsletters, and blog discussions about TripAdvisor published in both print and online media.

In order to understand the influence of hotel valuation schemes on organizations, we collected interview and observational data within a number of *hotels* located within a specific region of the UK. We chose to locate our hotel data collection within a single region so as to reduce the variability in economy, weather, industry opportunity, and tourism. We selected hotels by obtaining a TripAdvisor ranking of the hotels within the designated region, and then focused on the small to mid-sized hotels listed (16 in total,

² http://www.tripadvisor.com/PressCenter-c4-Fact_Sheet.html (retrieved August 16, 2013)

³ <http://www.tripadvisor.com/PressCenter-c3-Awards.html> (retrieved August 16, 2013)

including the top 4 ranked hotels in the region). We concentrated on small to mid-sized hotels as these account for 80% of hospitality businesses in the travel sector and are experiencing the effects of social media most acutely. We made a number of site visits to the hotels over a two-year period, interviewed owners and managers, and examined the ranking and review information available for these hotels on both the AA and TripAdvisor valuation schemes. Our interviews focused on understanding the hoteliers' engagements with different valuation processes, and included questions such as "What are your experiences as a hotelier with traditional valuation schemes?" "What are your experiences as a hotelier with online review websites?" and "What role does valuation feedback play in your practices at the hotel?"

We further collected data on the *hospitality industry*, interviewing a number of professionals within the travel sector, including senior executives of British tourist bodies, an influential travel magazine, and experts involved in efforts to harmonize hotel standards and grading in the UK. Our interest here was to obtain professional observations about the role of online reviews and their influence on the accrediting and valuation of hotel accommodation. We reviewed archival documents including EU and UK government reports on tourism and hospitality, articles published by UK tourist boards and travel associations, professional newsletters for hoteliers, and trade press magazines on the industry. In addition, we examined academic papers and industry articles relating to travel, ranking and reviewing systems, and recent discussions of the influence of social media within the industry. We also attended trade and academic conferences on the hospitality industry.

We began with a grounded theory approach to analyzing the data (Dougherty 2002; Strauss and Corbin 1990), informed by our focus on valuation practices, material-discursive apparatus, and organizational outcomes, while remaining alert to emerging ideas. As this study is exploratory, our process of data analysis was inductive and iterative, with the early stages being more open-ended than the later ones. We cycled through multiple readings of the interview transcripts, field notes, website postings, reports, articles, and archival documents. In our first round of coding, we focused on identifying the different practices through which valuation was conducted within the two schemes, and their varied outcomes for hotels.

We then engaged with the literature to help structure our interpretations. We found some of the existing literature on valuation to be particularly useful in explaining some of our observations about the AA scheme, although they offered fewer insights into the activities and technologies producing the AA valuations in practice. The literature was also less helpful in making sense of our grounded observations of the TripAdvisor scheme and its practices and influence on the ground in hotels. This led us to observe the critical role of materiality in the production of valuations, particularly in the case of TripAdvisor but also within the AA. To make sense of the material production of valuation in practice we found Barad's (2007) notions of material-discursive practices and apparatus to be particularly valuable. We then compared the two schemes in terms of Barad's conceptual framing and our emerging theoretical categories, iterating and interrelating these to develop key contrasts. This process led us to articulate the crucial differences in the two apparatuses of valuation, which further helped to explain their different implications for hotels' practices and outcomes. We explore these differences below.

Producing Valuations of Hotels

In discussing our findings, we first examine the AA scheme, an exemplar of the institutionalized processes and criteria that have traditionally informed hotel valuation, and then turn to the TripAdvisor scheme, the dominant example of the emerging processes and criteria that are becoming evident in online hotel valuation. We offer an account of the valuation processes and outcomes of these two schemes before discussing how they may be understood as apparatuses of valuation.

Valuation Practices in the Automobile Association (AA)

The AA Hotel Recognition Scheme has been a part of the AA corporate portfolio since 1909, when the first edition of *AA Routes* was produced listing about 1,000 hotels approved by AA scouts for the association's members. By 1912, a more formal grading system had been introduced, with different star rating and tariff for hotels:

The then AA Secretary, Stenson Cooke, had once been a wine and spirit salesman and felt that the star rating of brandy would be a familiar yardstick to apply to hotels. In his words, a "really decent, average, middle-class hotel" would merit the standard three stars.⁴

⁴ <http://www.theaa.com/aboutaa/history.html> (retrieved August 16, 2013)

Over time, a five-star scheme was developed using black stars to denote the level of award and red stars to distinguish a select band of hotels that “exceed expectation” within their award level. There are currently over 3,500 hotels in the scheme of which around 200 have been awarded red stars. The AA hotel recognition scheme for accommodation has the distinction of being based on the association’s own team of 30 full-time inspectors (highly trained, former hotel managers, housekeepers, pub owners, and chefs) who anonymously visit hotels to assess conditions and award ratings. An AA executive noted:

We’re the largest travel publisher in the UK.... unlike other Guides the inspection is completely integrated and in our control. We don’t sub-contract. It is our editorial team and we pride ourselves, as any publisher would, I suppose, on the accuracy of the information... We have people, day-in, day-out, actually experience these places, collating information that is very accurate, very comprehensive, and then feeding that back to the editorial team...[I]n terms of process, we are in full control of that data and own that data, which is a very fortunate position to be in.

Hotels must apply to become part of the hotel recognition scheme and if admitted, pay an annual fee for inclusion in the Hotel Guide. Each year, hotels are sent a detailed questionnaire on their facilities, which they complete and return. It is the editor’s job to combine the questionnaire data sent directly from the establishments with input from the inspection reports. Inspectors visit hotels once every 12-18 months. The inspection practice replicates a hotel stay by a guest and is complemented by an interim check between overnight stays. After reviewing a hotel’s previous inspection reports, an inspector initiates a new round of valuation by making an incognito telephone reservation with the hotel, an activity which itself is assessed as part of the guest experience (e.g., how long the phone rang, information provided, etc.). As this quote from a senior inspector shows, the hotel then undergoes ongoing scrutiny throughout an overnight visit:

... so I arrive at half-past one in the afternoon. On my approach, I’m looking at the signs for the hotel... the condition of the signs, whether they’re easy to read, weather beaten, and once I’m actually into the grounds, then I’m kind of looking at the tidiness of the grounds, their on-site car parking, drop-off valet parking, flagpoles, the condition of the flags, the woodwork, the weathering of the building, and the general first impression of the hotel.

During the mystery guest stay, the inspector will assess the key services and facilities at the hotel:

Once I’ve [inspected] cleanliness, I will then look at the ease of use in the bathroom and bedroom. ... Then I’m looking at the condition of the bedroom: fabrics; the pillows; the mattress; the protector; the quality of the linen. Is it marked? Is it stained? Once I’ve made my assessment notes, I will then go down ... and test the lounge service. This is a four star. I’m not expecting to go and have to order at the bar. I’m expecting to just sit in the lounge and the staff come to me. ... I’m also looking at the comfort and ease of use of the lounge, quality of the decoration, the flooring, the condition, and I’m constantly making notes.

Notes are taken throughout the stay by the inspector and written up immediately. The inspection report is based on records compiled using a laptop-based spreadsheet that incorporates the detailed 65-page Quality Standards published by the AA. Figure 1 offers an example of some of these current AA standards

for hotel bedrooms. Five key areas are covered during the inspection: bedrooms, bathrooms, cleanliness, food/service, and efficiency. Each area has between 11 and 40 check-box questions that are weighted and scored. Examples of questions relating to the room include: Did it smell fresh and homely? Was the temperature comfortable? Did the bed and pillows offer excellent levels of comfort? Was the room free of internal noise? Next to these questions is a box for a score and a space for notes that are drawn together into a summary in a free text box at the bottom of the page. In the reports that we studied, the descriptive summary for each area focused on recognized points of service (speed, accuracy, quality checks, continuity of guest care) and ranged between 30-150 words.

The inspector checks out the following day, and immediately on paying the bill, asks to see the hotel manager, at which point he/she introduces him/herself as an AA inspector. Together they tour a selection of rooms making up at least 20% of the hotel stock to compare the inspector's report with the standard of other bedrooms. A meeting is called and the inspector takes the hotel staff through her/his "guest journey" from booking, arrival, facilities, food, and service. At the conclusion, the inspector announces the star rating that the hotel will be awarded: "I leave a business card and invite the general manager to call me at any point when he gets the written report, if he wants clarification. Then I pick up my car and leave."

The inspector's final report is written up within three days of the inspection. Criticism is carefully communicated, often using standard sentences and stock phrases that strive to be professionally informative, diplomatic, and legally defensible. Key details on the hotel's website will be reviewed and this information, along with spreadsheet checklists and notes, will be integrated into a four page report that includes the

proposed entry to be published in the annual AA Hotel Guide. As an inspector noted, this entry involves:

... an attractive description of the hotel covering everything: its location, whether it is licensed for weddings, an overview of the rooms, [etc.] And we've got about 150 words to do that for a hotel... We're not proofreaders and we're not copywriters, we are chefs and ex-managers and housekeepers but there is a separate editorial department ... They take out any libel or plagiarism from the website ... 99 percent [of the editors] take the inspector's word... We are fairly transparent about what we do. The integrity of it is crucial, crucial to its worth to the customer.

To qualify as an AA hotel inspector, candidates (with a minimum of five years experience in the hospitality industry) undergo nine weeks of training followed by a period of shadowing during which they are given one-on-one coaching by senior inspectors. In early phases of their careers, inspectors concentrate on one and two star hotels, with their progress routinely monitored and checked by senior inspectors. An

AA executive emphasized that knowing what makes the difference to quality of service requires more than a short course in hotel inspection:

When we take inspectors on they need to have a professional qualification such as the Institute of Hospitality... and then we're looking for product knowledge, they must have a sound food knowledge, they must have certain training skills, but mainly you're drawing on and feeding back product knowledge developed in the sector.

The inspectors' expertise and training are then consolidated through a process of benchmarking that takes place individually as well as collectively. Up to three times a year, an area manager (who is a senior inspector) will accompany an inspector on a visit to assess his or her performance. In addition, there are two area meetings a year when a number of inspectors meet at a hotel and all conduct a room check which they individually report on as if they were conducting a routine inspection, and then the scores are compared. If an inspector's score is out of sync with those of her/his peers, s/he has to justify why. When scores are significantly different, a senior inspector will accompany that inspector on subsequent visits for one-to-one training. Honing the practice of inspection is thus ongoing throughout inspectors' careers.

On average, inspectors conduct about 135 overnight inspections and 230 interim checks per year. Gradually, the AA inspectors develop a repertoire of skills that attune them to patterns, characteristics, and trends in the hotel sector. The practice of rating hotels requires the ongoing development and refinement of expertise that the inspectors continue to invest in over time. This connects them across time and space to the evolution of the AA grading scheme which has been modified over the past hundred years to accommodate new hotel facilities, changing guest expectations and routines, and shifting government requirements for harmonizing standards across the travel sector.

In effect, the AA has three customers: travelers who buy the Hotel Guides, hotels that pay to be part of the AA rating scheme, and hotels that pay for consultancy services⁵:

... we offer a comprehensive range of training and consultancy services. Years of experience has shown us that many hotels or guest houses can benefit from a second view by a professional hotel guest, who can share best practice and great ideas. This experience has helped many establishments by highlighting areas where a little help and improvement is advisable.

In these cases, arrangements are made for a senior inspector to come for a "hard hat day" to discuss both the feasibility and means for the hotel to move up to the next level in the star ratings. The boundary between inspection and consultancy at the AA has understandably come under some scrutiny. A series of checks and

⁵ <http://www.theaa.com/hotel/hotel-services-accommodation-schemes.html> (retrieved August 16, 2013)

balances have been instituted over the years. For example there is no financial incentive for an inspector to give a hotel a higher rating. Inspectors are moved to a different geographical region every three years. The top-level star awards are assigned through a cumulative decision-making process involving multiple visits by different senior inspectors, the Hotel Guide editor, and an independent committee.

Senior inspectors also regularly conduct audits to maintain standards across the star ratings. If a complaint is made, the senior inspector will go and meet the hotelier face-to-face to discuss it. In part, this is regarded as good practice, but it is also motivated by an interest in retaining business. If these meetings reveal that there are grounds for the complaint, the inspector responsible is served with an “improvement notice” and for the next six months his/her reports are closely monitored. AA executives and editors all stressed the need for legitimacy and transparency in the hotel rating scheme. One editor explained:

[The Hotel Guide] has to have real credibility and integrity. Hotels and guests have to be able to believe in it and understand how a Guide is put together and why certain places get certain grades and others don't. ... They must see the honesty of the process and understand how that process had taken place.

Similarly, a former editor noted,

You were conscious that you had to make sure that the process was completely fair. I mean, the whole point of having a team of inspectors is that they're applying a constant set of criteria, not based necessarily on their personal likes and dislikes, but based on the application of an agreed set of criteria.

The criteria and expectations attached to AA star ratings are enacted in practice, and over time they have come to define — specifically and with detailed references to certain facilities and services — what it means to be a hotel and to offer a certain class of accommodation service. Although institutions like the AA present themselves as neutral, they play a pivotal role in the development and adoption of standards that are then extensively used in the hospitality industry. The AA rating scheme looms large in the practices of the hoteliers that we interviewed, especially the smaller hotels. It is easy to become absorbed into the day-to-day running of the hotel and as one of our interviewees put it, to just “do what you've always done.” The AA ratings serve as an annual reference point for these hoteliers, suggesting a valuation benchmark, and creating an occasion for reflection and consideration. The report and discussion with the inspector serve as a structured basis from which hoteliers can develop a strategic plan of action that includes explicit improvement goals that are in line with the AA standards and criteria.

The hoteliers we studied generally appreciated the customized feedback and recommendations offered annually by qualified professionals. While they occasionally disagreed with the star rating they had

been awarded, or complained about the annual fee for inclusion in the AA guide books, most valued the explicit guidance they received from the hotel inspectors who had carefully examined their hotel and evaluated its facilities and services using well-defined industry standards, clear criteria, and established categories of accommodation. The manager at one hotel explained how he and his staff used the AA rating scheme to agree on a strategy for improving the hotel and the operational priorities for moving forward.

[E]ach one of us had a slightly diverging image of where the [hotel] was going. Where we were going to be in five years' time? ... What were we going to be doing? What were our values? What were our priorities? What we decided we needed to do was to be on the same page of the hymnbook. ... So, what we wanted was a vision, a mission statement, and then goals and tasks for us to be able to do, collectively, independently, departmentally.

They then instituted a program of systematic changes to the hotel over time, benchmarked to the AA standards and criteria, and reflecting the specific recommendations they had received from the AA — adding conference facilities, refurbishing rooms, and hiring a new chef:

Our vision was that by 2010 we would become the best country manor hotel in England. ... So, in order to become the best country manor hotel, what have we got to achieve? So, we broke this down into a number of components. One of which is to receive two rosettes [for food quality] from the AA. And we got that one. The next one is, we needed to achieve red stars, as opposed to black stars. I'm that far away [gestures a small distance], *that* far away.

For some hoteliers, relating the AA's categories and standards to their practice was problematic, particularly when their premises were not typical. The AA hotel rating scheme places particular weight on facilities and this plays a major role in defining the number of stars awarded to a hotel. For example, the current concept of a 5-star hotel is materially grounded in the AA's definition of what "extra facilities" are required in this kind of establishment: dedicated parking spaces, a gym, access requirements such as elevators, and 24-hour room service. Some hoteliers, constrained by historical preservation orders, have struggled to manifest these facilities (e.g., installing elevators), while at the other end of the spectrum, hoteliers attempting to differentiate themselves in the market by developing distinctive features (e.g., small, modern boutique hotels) may choose not to conform to standard requirements for luxury accommodation (e.g., having a swimming pool). In such cases, hoteliers give up the option of acquiring the AA's 5-star recognition for their establishments.

Valuation Practices in TripAdvisor

TripAdvisor is currently the most visible and influential website for hosting online user reviews of hotels around the world. In contrast to the AA, the founders of TripAdvisor were not interested in

producing a hotel reference guide or supporting the development of the hotel sector; instead they were inspired by independent travel as a genre and frustrated by the limited support provided for travelers like themselves. One of the co-founders, Stephen Kaufer, a computer scientist by training, recalls how the idea for the business came from his attempt to plan a trip (Livingstone, 2007):

I had spent a couple of days in sort of mindless searches, trying to find the real scoop on the hotel, not the official blurb. My wife suggested, “You know something about technology. You could build a better search engine to find what you’re looking for in travel — not the published opinion, but the unpublished, unbiased opinion about a place, a location, something to do.”

By 1999, this idea had manifested as a search engine that businesses in the travel sector could use to locate travel information from multiple sources (e.g., guidebooks, newspaper or magazine articles, and discussion forums). Kaufer (now the CEO) acknowledges that initially, “we had never planned to appeal directly to end-users.” However, their business-to-business model did not catch on in the market place, and after a couple of years the company almost went bankrupt:

So we’re approaching late 2001, and we noticed our demo site — TripAdvisor.com — had started to get some traffic. ... [So we thought] what if we created a link from TripAdvisor deep to an online travel site like Expedia and had teaser text that said, “Book a room at the Eliot Hotel in Boston,” and, if the user clicked on that link, we took them all the way down to the booking page on Expedia? Our crawler technology knew how to do that, so it was leveraging something we were pretty good at. We approached Expedia and said, “Hey, we’d like to advertise your 50,000 hotels on our comprehensive travel site, and we want to charge you only for the leads that we’ll send you.”

The initial relationship with Expedia proved successful and TripAdvisor soon started making deals with other hotel booking sites such as Hotels.com and Travelocity to be paid fees for the consumer traffic they were passing on. Along the way, TripAdvisor added a feature that allowed users to post their own views, akin to online book reviews that were appearing on websites such as Amazon. The generation of user content grew in popularity, and today TripAdvisor hosts over 100 million user reviews and opinions on its website, with more than 70 new contributions being posted every minute. This success in both generating revenue from click-through fees and attracting traveler reviews shifted the company’s business model from being a travel information service to other businesses, to “enabling travelers to plan and have the perfect trip ... [by offering] trusted advice from real travelers.” TripAdvisor’s business model is now based on attracting prospective travelers to the website, funneling them to travel-booking sites to complete their transactions, and encouraging them to post reviews about their travel experiences. Today, TripAdvisor is

visited by more than 260 million unique visitors per month.⁶ To put this user traffic in context, the travel publisher Frommer's sells about 2.5 million travel guidebooks each year.

Hotels do not need to have a listing on TripAdvisor for reviews to be posted about them. If a user wishes to post a review for a hotel for which there is no current listing, TripAdvisor guides the user through a series of questions to capture as many details about the hotel as possible, and in this way generates an online entry for the hotel that now also includes the first user review. Alternatively, hoteliers can apply directly to TripAdvisor to have their hotel included on the site, in which case they complete an online questionnaire with the details. For an annual fee, hoteliers can also register a Business Listing, which allows additional information (e.g., phone number, web address) to be displayed more prominently with their entry.

For the consumer, TripAdvisor is simply accessed via the Internet and a networked computer. Clicking on the hotel tab, and entering the name of a destination, triggers TripAdvisor to list all hotels in its database that are categorized as within that destination. The default listing of hotels is in order of "Ranking," an ordered list calculated from user ratings of the hotels (more on which below). If further details are required, full reviews can be displayed. While TripAdvisor requests reviewers to give input on certain categories such as "Value," "Rooms," "Service," and "Sleep Quality," the meaning of these is undefined and reviewers interpret them in their own way. Reviews vary in length from a sentence to a short essay recounting reviewers' particular experiences at the hotel, as well as what they liked and didn't like. The descriptions are written in various styles from clipped accounts of operational issues such as cleanliness to intricate narratives of the hotel locale, staff, and food. Postings are often multi-media and include traveler photos (currently over 14 million) that can prove highly revealing when they illustrate critical points in the review such as dirty bed linen, broken toilets, or insect infestation. While a few users have been designated "Destination Experts" by TripAdvisor in recognition of their regular and recommended contributions to the site, the majority use TripAdvisor as a means to an end. Many users of TripAdvisor never post a review, and for them, checking TripAdvisor is part of a practice that involves cross-referencing multiple travel sources as they make decisions about trip accommodation.

Having user reviews — whether positive and negative — has a substantial effect on the business

⁶ http://www.tripadvisor.com/PressCenter-c4-Fact_Sheet.html (retrieved August 16, 2013)

that a hotel attracts. For example, a survey of the European hotel and restaurant sector found that 80% of UK consumers conduct online research before making a reservation, and half indicated that they “refrained from booking a hotel as a direct result of a negative review on websites such as TripAdvisor” (Starkov and Price, 2007). In another example, a TripAdvisor executive reported:

We work with a UK tour operator, ... and they tell us that when they have our reviews on their site, the conversion of people wanting to book that particular hotel is 200% more than if there weren't any reviews there. So it does influence people.

For each hotel, TripAdvisor computes and publishes a numerical ranking known as the Popularity Index. This assessment is based on a proprietary algorithm that ranks each hotel against others in its region based on user ratings. TripAdvisor is careful not to reveal any details about the algorithm, but it is evident that the data used to calculate hotel rankings has changed over time. For example, in 2009 the algorithm was described on the TripAdvisor website as follows:

The TripAdvisor Popularity Index incorporates Traveler Ratings, guidebook entries, newspaper articles and other web content to determine traveler satisfaction. Emphasis is placed on the most recent information. We calculate the Popularity Index using an algorithm that takes into account not only individual Traveler Ratings, but also opinions from other content sources on the web (such as guidebooks).

In 2013, the algorithm appears to rely only on user ratings, as described on the TripAdvisor website⁷:

The TripAdvisor Popularity Index incorporates traveler ratings to determine overall traveler satisfaction.

The description goes on to indicate:

Unlike sites that simply rank a hotel by price or hotel class, we use a proprietary algorithm to take into account what real travelers like you think – quantity, quality and recency of TripAdvisor reviews. ... When you do a search, hotels are ranked by quality as calculated by our Popularity Index. This ensures that you will always be looking at a fresh and unbiased view of the best hotels.

TripAdvisor employees believe “the quality of the index improves with quantity,” as one manager noted:

We want our results to be as authentic as we can possibly make them. In the end of the day, when you have 500 reviews it's almost hard for an algorithm to go wrong.

Hotels' rankings on the Popularity Index have a significant effect on the interest they get from travelers, and any changes in rank are consequential for revenue. In a published interview, the CEO commented on the growing influence of the Popularity Index (Livingstone, 2007, p. 371):

Our traffic is so high now that we know, for better or for worse, we have a significant impact on where visitors are choosing to stay. For every city, we kind of have a satisfaction index [the Popularity Index]; we rate which hotels our travelers like the most. If you're ranked first or you're ranked 20th, the number of reservation calls or bookings you're going to get is going to change. When we changed our algorithm, it dropped [the rankings of] some hotels and raised others. Our phones were ringing, because we had had a material effect on their businesses.

⁷ http://www.tripadvisor.com/help/how_does_the_popularity_index_work (retrieved August 16, 2013)

Reviews on TripAdvisor have recently been attracting considerable attention. News stories in such outlets as NBC's *Today*, the *New York Times*, and the London *Telegraph* highlight apparently slanderous or fraudulent reviews as well as reviews for non-existent businesses.⁸ A British hotel cooperative, KwikChex had prepared a class-action lawsuit against TripAdvisor on behalf of over 800 hotels that claim to have been damaged unjustifiably through false reviews. TripAdvisor contends that it has dedicated significant resources to ensuring there is a rigorous process to screen for inappropriate or fake postings, nevertheless noting⁹:

We do not fact-check reviews. With over 100 million reviews and more than 1.5 million hotels, restaurants and attractions, it would be impossible for us confirm every detail. We believe that the sheer volume of reviews ... enables travelers to spot trends among reviews and determine whether a property is right for them.

The matter of the authenticity and value of online reviews is controversial. Recent research has estimated that about one-third of all consumer reviews on the Internet are fake (Streitfeld 2012). TripAdvisor insists that the openness of the website is the best guarantee of ensuring "that the content on TripAdvisor reflects the real experiences of real travelers." TripAdvisor's logo is "Get the truth, then go!" The corporate position is that this reflects its value — providing "unbiased content" from "real travelers" — as echoed by a couple of employees:

Transparency is the word. ... So with us, we put all the reviews online and they are not edited by us, they are totally what the person is saying. It's really important for us to be trustworthy and to make sure nothing is changed and everything is transparent.

When you compare user-generated content to ... professional reviews, well, would you rather have comments from a hundred individuals about the quality of this hotel or from a single professional reviewer who works for a guidebook who stays at this hotel once every other year, who may or may not have his identity known or not, but just has the experience of one day?

In contrast, some experts in the hospitality industry argue that professional opinion is worth its weight in gold. Arthur Frommer, founder of Frommer's travel guides has noted: "I will not choose the London or Paris hotel recommendation of an amateur who has stayed in exactly one London and one Paris hotel in the course of their entire life."¹⁰ Others warn against the dangers of unregulated and anonymous reviews, for example, as another industry professional observed: "The opportunities for abuse, the lack of

⁸ For example, <http://www.telegraph.co.uk/travel/hotels/8050127/Tripadvisor-reviews-can-we-trust-them.html>, <http://www.telegraph.co.uk/travel/travelnews/10201754/TripAdvisor-fails-to-spot-fake-restaurant.html>, <http://www.telegraph.co.uk/travel/travelnews/10076753/TripAdvisor-reviewer-exposed-as-hotel-executive.html>, <http://www.nytimes.com/2010/10/26/business/26hotels.html>.

⁹ http://www.tripadvisor.com/help/does_tripadvcreen_reviews (retrieved August 16, 2013)

¹⁰ <http://blogs.palmbeachpost.com/travelsmart/2010/11/19/brit-publications-waging-battle-against-tripadvisor/>

regulation, the misleading picture that it can create, is a massive problem. And ultimately, that is not good for the consumer either.”

With respect to outcomes for hotels, some of the changes associated with online valuations were welcomed, while others were regarded as problematic. For example, some hoteliers have experienced a significant increase in bookings due to having been “discovered online.” Specifically for new, small, privately-owned and often remotely located hotels, a TripAdvisor entry has literally put them “on the map.” One hotel owner indicated that his revenues had increased “nine-fold in three years,” while another claimed that “Since we’ve achieved the top position in [named region], probably 20 to 30% more people come than would have come.” Another hotel owner told us that in 2008, 70% of his guests had found his hotel on TripAdvisor. As a result, and like many other hoteliers who were realizing that most of their guests read online valuations more frequently than guidebooks, he was giving up participation in formal grading schemes such as the AA to focus exclusively on consumer-based schemes such as TripAdvisor. [TripAdvisor] is the only way forward, I’m afraid. I’ve virtually stopped advertising in tour books now and we are only going on to websites now.

Many hoteliers were struggling to come to terms with the rapid growth in TripAdvisor and its significant influence on their business. Some report an increased vulnerability and loss of control due to their new online visibility. These hoteliers indicate feeling exposed and helpless in the face of damaging reviews that they believe are often false, unjustified, or simply reflect the inevitable “bad day” that everyone can experience. As one hotelier noted:

Those opinions, which I consider too subjective, are on that website, for life. Forever, they’re going to be on there, for anybody who wishes to see them.

A few hotel owners have responded to the perceived loss of control by joining a social media platform known as Guestscan, which offers hoteliers a guest blacklisting service claiming “to safeguard hotels ... from ‘nightmare’ guests.”¹¹

Some of the hotel managers indicate uncertainty over whether and how to respond to online reviews, and ambiguity over how to effectively incorporate the spontaneous stream of online, and very public personal feedback into the ongoing management of their hotels. As one hotelier explained in

¹¹ <http://www.guestscan.co.uk>

exasperation: “I’ll tell you what TripAdvisor is designed for, it is designed to give hotel managers psychological problems.” Hoteliers have become acutely aware of the importance of managing the expectations of guests who they have come to view as potential TripAdvisor reviewers. For example, one owner of a small hotel begins managing “the review” from before first guest contact: the visual media on her website deliberately calls out the modern (nude) art and two dogs (for preference or allergies); during the free airport collection service the staff inquire about guests’ preferences and predilections, which are then actively managed throughout the stay and in follow-up communication afterwards.

Other hoteliers have enthusiastically embraced TripAdvisor and systematically incorporate online reviews into their management practices. They typically discuss TripAdvisor reviews in their weekly staff meetings, as one hotel manager noted:

We use TripAdvisor more than anything else, we review it every week. At our management meeting, we go through everything. ... It keeps the staff on their toes all the time, because they are all terrified of a bad review.

These hoteliers also display TripAdvisor materials prominently on their hotel front doors and in the reception areas, as well as on their hotel websites where the most recent reviews are posted along with invitations for guests to contribute their own reviews. A manager summed up the emerging realization felt by many hoteliers about the influence of TripAdvisor: “Pandora’s box is open. No going back now.”

Discussion

Our study poses two research questions: how do practices of valuation change when they are produced online by consumers?, and what outcomes do such online valuations generate for the organizations being evaluated? We found that the valuation schemes of the AA and TripAdvisor are not only configured differently in practice but also that they produce significantly different valuations of hotels. Furthermore, we found that these differences in valuation are particularly consequential for hotel practices and outcomes.

Prior literature highlights processes of reduction, authority, asymmetry and reactivity associated with valuation. In many regards, the AA valuation scheme corresponds well to such expectations. Over a century of careful assessment and standards work, it has streamlined, standardized and quantified information about hotels into an objectified star-rating scheme that is grounded in and reinforces the expertise of a small group of trained, knowledgeable, and experienced staff who conduct regular

professional inspections of the establishments they assess. The authority of this star-rating scheme is well codified in training materials, inspection spreadsheets, and assessment reports, and over time it has become institutionalized within the UK travel sector as the normative measure of hotel excellence, manifesting in traveler expectations, business development strategies, and career structures. The effects of asymmetry are strongly evident within the workings of the AA scheme. Inspections are conducted in the light of incumbent ratings that anchor judgment in the history of previous assessments. Rating shifts thus tend to be incremental and gradual, and dramatic movements up or down in ratings are unlikely. For example, if one of the landmark London hotels such as The Ritz or The Savoy were to lose its 5-star rating (even for a moment) it would be a major event that would shock the industry and hit the headlines. As such, it is an improbable event given that the AA's business model and governance structure positions hoteliers as members with whom the organization works to ensure mutually beneficial outcomes. The effort with which hoteliers strive to meet the AA standards and the reliability with which travelers can depend upon the correspondence of a particular star rating to a certain standard of facilities and services confirms the thesis of reactivity. It also highlights the benefits of conformity for an industry that would otherwise be beset by uncertainties about appropriate expectations and norms in products and services. Here we see hotels' conformance with explicit valuation criteria working toward the actualization of a world of hospitality upon which travelers (and national tourist boards) can depend. For many travelers, such as those traveling with small children, or on business, such predictability is most welcome.

In contrast, the TripAdvisor scheme does not correspond well to the literature's expectations. Instead of reduction, we find the widely-accessible, Internet-based, social media platform supporting and encouraging the proliferation of detailed, personalized travel accounts extemporaneously narrated (often with candid photographs) by consumers. The production of this qualitative variety is accompanied by numerical ratings on a few categories, their definition and measurement left open ended, unfiltered by industry standards or explicit criteria, and variably reflecting travelers' own interpretations and experiences. These ratings are concatenated and computed through an algorithm to generate a singular ranking for all the hotels in a region. Rather than conveying the authoritative judgments of a few experts or critics, this ranking expresses an aggregation of the anonymous and unregulated opinions of many consumers.

While asymmetry in the AA scheme reproduces the dominance of incumbency and prestige, asymmetry in TripAdvisor is produced by the contingency of the algorithms continually at work. Rankings of hotels thus vary greatly. Over the two-year period of our data collection, most of the hotels in our study had moved up and down in the rankings (e.g., from first to fourth place) depending on what reviews had just been posted. The precise details of the ranking algorithm remain obscure, concealed behind corporate proprietary rights. What is apparent, however, is that dominant, high-status hotels classified as 5-star in the AA rating scheme are not necessarily favored in the online, anonymous assessment of consumers on TripAdvisor. Indeed, in some instances, these hotels are not ranked among TripAdvisor's top few hotels in their regions. Hoteliers' response to the TripAdvisor valuation scheme is irregular and variable, fluctuating day-by-day and dependent on the tenor of the reviews that have just been published for all the world to see. There is no opportunity here for the classic form of reactivity. No time for reflection or redemption, and no scope for a planned strategy of gradually improving facilities and services to conform to certain standards and norms. Prospective guests want to know immediately what hoteliers are doing about the problems and concerns that have arisen in just-posted online reviews. Hoteliers find themselves obsessing over the flow of current opinion about their operations as it streams into their email inboxes every day, nudging and activating them to respond. This prompts them to contingently and continually improvise their practices in an attempt to maintain or improve their current rank on the Popularity Index, while managing the multiple, divergent, and often-contradictory evaluations they are confronted with on a regular basis. Their practices are bound to the ranking algorithm and "micro-managed by the crowd."

Some of the differences in AA and TripAdvisor valuations and their organizational outcomes may be attributed to different characteristics of the rating schemes (closed vs. open) and evaluators (experts vs. consumers). However, we suggest that there is more to be learned by shifting focus from categories and actors to practices of valuation. Understanding valuation as an apparatus produced through material-discursive practices helps us focus on the particular agential cuts that make a difference to what is produced. That is, the specific observations and measurements of the valuation apparatus define and include some things in certain ways, precluding and excluding others, and making certain properties and

boundaries of the phenomenon being evaluated determinate-in-practice. In this way, valuation apparatuses are performatively entangled with the phenomena they assess.

Our analysis of the material-discursive practices constituting the AA and TripAdvisor schemes suggest that these two schemes produce two different apparatuses of valuation — one enacting a *formulaic apparatus* of valuation, and the other enacting an *algorithmic apparatus* of valuation. Table 2 identifies key differences between these two valuation apparatuses. In common usage, the terms formula and algorithm are sometimes used interchangeably but we argue that there are significant differences between them, differences that are increasingly important to understand as businesses go online. As we discuss below, viewing the AA and TripAdvisor schemes in terms of different valuation apparatuses highlights their relation to performative outcomes: how they configure different phenomena through the valuations they produce in practice.

Formulaic Apparatus of Valuation

In the case of the AA apparatus of valuation, we see a formula at work. Formulae are rules based on standards, principles, or prescriptions for achieving particular ends. For example, the “Coca Cola formula” is a 127 year-old trade secret recipe for reproducing an immediately recognizable, standard flavor in the 1.7 billion servings of Coca-Cola soft drinks sold everyday. Indeed so recognizable is the Coca-Cola flavor that attempts to alter the formula in new products have resulted in consumer protest and withdrawal from the market.¹² Formulae are concise, explicit expressions that refer to an authorized model or disciplinary logic. In practice they are normative, serving as “models of and for” a particular reality.

In the AA apparatus, we find a formula for a hotel, a standards-centered model for what constitutes hotel accommodation, enacting both a method of hotel evaluation and a plan for hotel improvement. This formulaic apparatus defines material-discursively, at particular times and places, what is required to be a certain star-rated hotel, for example, specifying the type of facilities, size of rooms, services to be offered at various times, how and when napkins are to be folded/refolded in the dining room, the number of times a phone should ring before being answered, etc. This formula is constituted through the categories and

¹² http://en.wikipedia.org/wiki/Coca-Cola_formula

standards of the AA star-ratings classification as enacted in the multiple practices of training, inspection, verification, benchmarking, editing, and publishing that entail inspectors, editors, observations, checklists, questionnaires, forms, laptops, spreadsheets, discussions, reports, manuals, databases, newsletters, and guidebooks. These recurrent material-discursive practices are grounded in the AA's professional expertise and industry experience with hotels, and in practice (re)produce the AA formula for hotel value in the UK travel sector over time. These agential cuts produce conditions of travel that appear established but through the lens of apparatus are shown to be determinate-in-practice.

While formulae appear to be relatively stable and enduring over time, these stabilizations are not given but enacted. Formulae are refined, revised, and reconfigured in recurrent practice to reflect changing facilities, expectations and regulations. As Bowker and Star (1999) note, it takes a significant amount of work to perpetuate standards, both for those responsible for institutionalizing them and those negotiating their boundaries. The AA staff spend considerable time engaging in “categorical work” — gradually adjusting the AA's valuation apparatus to accommodate new conditions and requirements. For example, in recent years, senior AA staff have engaged in a government-mandated program to harmonize hotel grades and standards across the UK travel sector, and in other forums discussed whether and how to accommodate “boutique hotels” and “green tourism” in their hotel formula.

While the idea of AA star classifications has remained in place for over a century, the specific materialization of the star-ratings has been modified over that time period. Whereas once it was possible to be rated as a 5-star hotel without *en suite* bathrooms or telephones in rooms, such a rating would be precluded by the formula active today. Enactment of the formula also shifts to reflect new requirements for distinction and operation, for example, red stars are used to denote exceptional quality when once black stars sufficed, and inspectors are now required to record their observations in spreadsheets on laptops, rather than on paper with pencil. These material-discursive practices are significant because they are boundary-making, reconfiguring the apparatus and its results. As Callon (2007, p. 30) notes “Any tinkering with the formula can have considerable consequences because it changes the world that the formula is supposed to activate.” By shifting what is observed and how, the salient facilities and services

of what constitutes a quality hotel at a certain star rating are reconfigured, redefining which hotels are included and which excluded from various classes of accommodation.

In enacting its formulaic apparatus, the AA nurtures professional relationships that connect the content of their confidential reports and ratings with practices on the ground in approximately 3,500 hotels in the UK. The AA apparatus has not only evaluated hotels, it has objectified its organizational reputation to become one of the most recognized brands in the UK. The AA has been working on standards for over a century with various stakeholders in the UK hospitality industry. It has played a developmental role in raising the quality of accommodation and increasing the UK's competitiveness in the international tourism market. During the period in which formal valuation schemes dominated the business of accreditation, the AA scheme importantly served to define what becoming a quality hotel meant: one could say that being a star-rated hotel and being formally recognized as such go performatively "hand-in-hand."

The AA's enduring focus on inspection-based travel guides and member accreditation has over time produced hoteliers who are attuned to the AA hotel formula. These hoteliers are oriented to meeting and possibly exceeding the AA standards for hotel excellence, and many of them regard these standards as aspirations. They rely on the AA annual inspection report and its recommendations to trigger consideration of problems and remedies. They are conditioned by the AA apparatus to expect a professional relationship with inspectors who are accountable for the assessments they make. In discussing problems and possible improvements, hoteliers interact with named and responsible assessors as well as an established and reputable institution that stands behind the valuation. Hoteliers trust the AA staff to offer well-informed suggestions based on detailed and customized assessment reports, long-standing industry experience, and knowledge of practices in similar hotels. Hoteliers then use this input as the basis for their systematic projects of hotel renovation and improvement.

Guests traveling with the AA Hotel Guide are also influenced by the AA hotel formula, which informs their expectations of the facilities and services they are likely to encounter and be willing to pay for. Thus they are aware of appropriate behavior for paying guests in hotels with certain star ratings, and their actions are conditioned accordingly. For example, they know they can demand room service at 2am in a 4-star hotel, whereas they would not be entitled to this as guests in a 2-star hotel. Similarly, their interactions with the

hotel staff are guided by what is required in different classes of hotel. As guests in a 5-star hotel they can expect to be treated with a certain deference, treatment that would be less likely and unexpected in a 2-star hotel. In general, the AA apparatus produces relatively quiescent guests. For the most part, their feedback and complaints are limited to one-off communications, manifest in personal conversations with the hotel manager, comment cards completed on checkout, or private letters sent to the owner after returning home.

By design, the AA formulaic apparatus entails a professional process (e.g., checklists, benchmarks, audits) that rationalizes and institutionalizes inspectors' judgements through standardized criteria and actions. Also by design, this formula does not include the personal opinions and impressions of consumers. The AA valuation apparatus thus produces hotels whose practices and outcomes are substantially configured by standardized criteria and professional expertise. The explicit exclusion of insights from critical actors (travelers) from the apparatus that produces hotel valuations has created a strategic vacuum that has recently begun to be filled by companies leveraging the open-access Internet and social media platforms to incorporate the views of consumers.

By design, the TripAdvisor apparatus specifically prioritizes content from consumers who claim a legitimate right to express and share views on their travel experiences. Afforded a forum for their opinions and encouraged to post comments "to make a difference," consumers have become energized by the opportunity provided by TripAdvisor to have a voice in an industry long controlled by professionals, government bodies, and industry gatekeepers. TripAdvisor's apparatus relies on millions of consumers around the world, each of whom can submit online hotel reviews at any time. Managing the volume, velocity, and volatility of this user-generated content requires a different apparatus, one based not on formulae but on algorithms.

Algorithmic Apparatus of Valuation

The TripAdvisor valuation scheme is an algorithmic apparatus at work. The distinction between formula and algorithm is subtle but important. Formulae are rules that when operationalized will produce a specific outcome (e.g., the "classic" Coca Cola flavor); they stand as a point of reference. Algorithms are executable procedures that solve a particular problem in a finite number of steps; they "do things." For example, the Coca-Cola Company uses an algorithm called The Black Book to engineer its orange juice.

By constantly measuring, testing, sifting, sorting, and combining the incoming flow of oranges, the Black Book ensures the production of consistent orange juice throughout the year when the peak-growing season for oranges is only three months. As the designer of the algorithm explains, “[The Black Book] isn’t really a secret formula. It’s an algorithm. ... It requires analyzing up to 1 quintillion decision variables to consistently deliver the optimal blend, despite the whims of Mother Nature.”¹³ The capacity to process and organize massive amounts of heterogeneous data to solve particular problems is making algorithms integral to many organizational processes of design, manufacturing, innovation, and evaluation.

In the TripAdvisor apparatus, we find an algorithm for producing online valuations; an algorithmically-centered business model for transforming user-generated content into “trusted advice” for independent travelers. TripAdvisor’s valuation apparatus is a relational mash of software code, weighted priorities, and filtering processes that gather, store, assemble and distill multiple hotel reviews and ratings posted by millions of anonymous users to produce specific rankings about hotels within specific regions on an almost real-time basis. Included in this apparatus are the globally accessible Internet, graphic browser interfaces for rapidly displaying information to millions of online users at the same time, content management of the data continually provided by distributed users (70 postings/minute), and dynamically computing updates to the rankings that define the “top hotels” within a region. The valuation categories that TripAdvisor provides its reviewers are open-ended and variably interpreted. While initially sprung from industry standards, these are now fragmented and disconnected from them, having little relation to cross-referencing practices. The algorithm producing the Popularity Index ranking operates sequentially, filtering and ordering the diverse “wisdom of the crowd” into a subset of data points, which is then subject to further calculation that privileges some things (e.g., recency of review) and not others.

Unlike the AA, which publishes its formula (e.g., the publicly available 65-page Quality Standards), the details of TripAdvisor’s Popularity Index remain obscure. The company declines to discuss its ranking algorithm and fraud detection tools, arguing this will prompt “gaming” and “unduly” influence outcomes. In online descriptions of the Popularity Index, TripAdvisor depicts an increasingly exclusionary algorithm whose boundaries have been redefined from “traveler ratings, guidebook entries, newspaper articles and

¹³ <http://www.businessweek.com/articles/2013-01-31/coke-engineers-its-orange-juice-with-an-algorithm>

other web content” (2009) to “traveler ratings” (2013). To the extent that consumer reviews and ratings are being influenced by other reviews on the website, TripAdvisor’s ranking algorithm produces valuations that are progressively self-referential. Considering this alongside significant revisions to its business model, it could be argued that TripAdvisor is itself a model “of and for” the world, actualizing a world in which it can be profitable and its users are “marketable members.” Unlike the century-long institutional sedimentation of the AA apparatus, here we find an adaptable apparatus of valuation in search of momentum, activated and entangled through networks, databases, algorithms, and consumers.

TripAdvisor’s valuation apparatus is defined by the material-discursive practices not of hospitality professionals but of software entrepreneurs striving to survive, grow, and realize profit from content provision on the web. Unlike the AA inspectorate, which travels the length and breadth of the UK to stay as mystery guests at hotels, TripAdvisor personnel remain on-site in the company headquarters and do not visit hotels. TripAdvisor, however, has never claimed to be close to the mode of production in the travel sector; indeed its very detachment and independence from hoteliers has been an important part of its value proposition. In contrast to the gradual processes of AA’s categorical work, TripAdvisor’s algorithmic coding work entails producing sequences of programmable operations that can be rapidly implemented with almost immediate effects (as when changes to the Popularity Index swiftly and substantially reorder hotel rankings).

TripAdvisor’s algorithmic apparatus opens up a public forum for critique and opinion on some 725,000 hotels. This consumer-focused design (constituted by breadth rather than depth of relations) helps us to understand the concerns of hoteliers who believe they should relate to TripAdvisor as if it were the AA. They are distressed to discover that TripAdvisor positions itself at a distant (e.g., automated email responses), “independent” from industry standards, and resistant to managing its data verification on anything but its own terms. As a consequence, hoteliers have limited options through which to seek redress for their grievances. Yet, the realities configured by TripAdvisor’s apparatus are hard to ignore: it has re-drawn boundaries in a way that prioritizes consumer feedback about conditions on the ground in hotels. As a result, the TripAdvisor apparatus has dramatically shifted forms of valuation as well as flows of revenue within the travel sector. It has also significantly reconfigured practices for hoteliers.

On TripAdvisor, positive user ratings and reviews effectively promote hotels by increasing their visibility, which funnels prospective guests to them and increases revenue. Hotel owners are motivated to use the content of the reviews to evaluate and revise practices in the hotel. Changing practices in response to reviews produces a hospitality business sensitized to the specific issues and interests of both past reviews and current guests (potential future reviewers). Hotel websites integrate TripAdvisor widgets, “apps” are added to mobile phones and Facebook pages, cards encouraging guests to leave online reviews are distributed on checkout, and alerts are set to trigger emails when new user reviews are posted. This dynamic process of inspiring guests to post reviews and setting up procedures designed to tune-in to them configures attention and action in hotels. Further reviews fuel hotels’ rankings while simultaneously confirming TripAdvisor’s influential role in the travel sector. Travelers continue to consult TripAdvisor where fresh reviews lead many of them to book accommodation at highly ranked hotels. The enactment of these practices in multiple, interconnected ways collectively produce the TripAdvisor online apparatus, materially reconfiguring both the valuation produced and the institutional structure of the travel sector.

Many hoteliers in our study felt obliged to monitor TripAdvisor and integrate user-generated content into their everyday practices. We also found hotel managers introducing reviews into the evaluation of staff. The class action suit developed by KwikChex includes cases where hotel employees have lost their jobs because of a TripAdvisor review. This produces hotel staff who feel that they are under constant surveillance; every guest is their boss, there is no opportunity for recovery, they are ever anxious. Hoteliers too have been reconfigured, becoming detectives working out the identity of reviewers from forensics of postings and marking out crime scenes in order to understand what went wrong with the performance of their hotel on a particular day or week. This intensifies a focus on service and service innovation — recurrently tuning and configuring sensibilities and practices at hotels.

Hoteliers aspire to give every guest a unique experience and endeavour to recognize that each guest is different. TripAdvisor magnifies this because it produces guests who are empowered (by prior reviews and their capacity to author future reviews). For example, hoteliers tell of guests demanding a discount or room upgrade and threatening to post negative reviews if such demands are not met. Many hoteliers no longer see a guest walking through the door, but a potential reviewer. Rather than responding reactively by

producing self-fulfilling prophecies, we find the valuation of user-generated content bringing irregular, dispersed points to the present attention of hoteliers who then selectively revise their everyday practices in response. The AA formulaic apparatus produces a standardized and singular account of a hotel, a valuation performed by experts primarily for hoteliers, but also through the Hotel Guides for travelers. It paints a stable and uniform portrait of a hotel that hoteliers and travelers can reliably depend on in their everyday practices. In contrast, the TripAdvisor algorithmic apparatus produces dynamic and multiple accounts of a hotel, performed by consumers for consumers. Depending on the review one is reading, one encounters a different hotel. This produces an unsettled and unsettling kaleidoscopic hotel, that leaves both travelers and hoteliers partly informed by what has gone before but uncertain about what to do or what is coming next.

Apparatuses of Valuation

Examining valuation through the lens of material-discursive practices has allowed us to distinguish between formulaic and algorithmic apparatuses of valuation, and articulate their different performative implications at work. In formulaic valuation apparatuses, we see material-discursive practices including formal standards, objectified criteria and trained expertise while excluding consumer opinion and multiple experiences. This helps to explain how and why information reduction is generated through ongoing practices of standardization and rationalization, and legitimized authority is achieved through the accretion of expertise in assessment practices on the ground. It further explicates how status asymmetries are maintained through categorical and judgment work that is anchored on incumbents, and why organizational reactivity is produced in gradual practices of conformity to existing valuation criteria.

A focus on apparatuses also helps us understand how and why valuation practices and outcomes change when valuations move online and become entangled with algorithmic apparatuses. Where formulas express explicit normative rules that relate to disciplinary or industry standards, algorithms execute step-by-step procedures to solve specific problems set by software designers. In an algorithmic valuation apparatus, we see material-discursive practices including open-ended consumer input, content aggregation, flexible parameters, and reprogrammable criteria while excluding professional classifications and formal measures. This helps to explain how and why information multiplicity, legitimacy of a disembodied and distributed

crowd, asymmetry encoded to increasing volume, reach, and revenue, and responsive organizational modifications are produced by an ongoing flux of variable and often contradictory consumer feedback.

As we have seen in the travel sector, the formulaic and algorithmic apparatuses of valuation have substantially different performative implications for the outcomes generated, producing different sensibilities, activities, expectations, standards, services, hotels, alongside different travelers, hoteliers and industry professionals. We might say that travel is performed differently now that algorithmic valuation apparatuses such as TripAdvisor exist.

Implications

Our review of the prior literature on valuation identified four themes which mapped our current understanding of this area: generation of commensurability through information reduction, dynamics of expertise and authority, self-serving asymmetry of intermediaries or incumbents, and reactivity through self-fulfilling conformity to valuation criteria. Analysis of the “AA formula” for hotel valuation in the travel sector initially produced results that exhibited alignment with extant scholarship. However when we turned to examine online valuations performed on social media platforms — thus extending the reach of current research — existing analytical categories fell short. Overcoming these difficulties involved developing conceptual tools and redefining the boundaries of study in this area. The lens of material-discursive apparatus produced a powerful explanation for what happens when evaluation goes online, while also adding new insights to our understanding of traditional valuation processes. We believe that these theoretical moves contribute important research directions for future work. Specifically, we call out four such implications.

First, we demonstrate that *valuation is constituted in practice*. While the literature has tended to focus on objective measures of an external reality or social constructions of certain interest groups, we found that adopting a practice approach generated novel insights into how everyday recurrent actions bring particular forms of valuation and their outcomes into being. This proved equally useful in our analysis of traditional and online valuation schemes. With respect to the former, our focus on everyday action allows us to explain how reduction, authority, asymmetry, and reactivity are neither given nor inevitable outcomes of valuation schemes but dynamic productions configured in ongoing practice. With respect to

the latter, our practice-based approach highlighted how the dynamic scale and scope of online valuation differs from traditional schemes by entangling algorithmic computations with continuous contributions of volatile consumer content posted by a distributed, anonymous crowd. As discussed, this entanglement engenders multiple, ongoing responses by hoteliers, characterized by heightened anxiety and activity that permeates conditions on the ground.

Such findings overflow prior theoretical approaches on valuation, and we suggest that a practice approach offers a fresh perspective with important insights for understanding not just online valuations but all valuation processes. Using a practice approach to examine a traditional valuation scheme that dates back a century alongside an online valuation scheme emerging today allowed us to go beyond a “then” and “now” comparison of change to identify the ongoing reconfiguration of hotel valuation practices, and how this is reconstituting the phenomenon of travel. We argue that framing the reconfiguration of valuation as a tale of human intentionality or institutional isomorphism neglects the constitutive materiality through which valuation is enacted.

A second implication of our study is to show theoretically how *valuations are produced through material-discursive practices*. Drawing on Barad’s (2007) work, we argue that in addition to making “explicit how actors make discourse meaningful in ways that shape their behavior” (Espeland and Sauder 2007, p. 7), it is important to understand how discourse is materially enacted. Focusing on material-discursive practices allowed us to articulate differences in valuation schemes because it led us to view valuations, not as a set of defined criteria in specific contexts, but as materially produced in bodies, things, instruments, texts, times, and places. As we have shown, it makes a difference to valuation processes and outcomes whether valuations are produced through the trained bodies of professional inspectors annually examining the quality of the bed linen and assessing it against an explicit standard inscribed in a spreadsheet, or whether valuations are produced by algorithmic aggregation of travelers’ ongoing and anonymous online descriptions of personal encounters with rude service and noisy corridors. This analysis emphasizes that by overlooking materiality, the existing literature misses the vital material-discursive constitution of valuations, and particularly limits its potential to understand online valuations and organizational outcomes.

Going forward, we call for studies of valuation — particularly of those moving online —to focus on the constitutive role of materiality. Online valuations may seem to dematerialize, appearing simply as disembodied words on screens, disconnected in time and space from the mode of production, and no longer relying on assessment practices performed by expert bodies on the ground. Yet, as we have shown, to view online valuations as dematerialized is to miss the large infrastructure of networked computers, software code, databases, algorithms and embodied consumer writing habits that are critically a part of online valuation apparatuses. This is important because these apparatuses not only lend order to the mass of online data, they also frequently become market making (Mackenzie, Muniesa and Siu 2007). Categorizing them as immaterial makes it all too easy for responsibility to be eclipsed. However invisible the material enactments may appear online, we must not let them slip from view in our research. This concern connects with a growing body of work in organizational studies that is challenging separate notions of the social and material and predefined views of boundaries and properties. Working under the broad banner of sociomateriality, these researchers have proposed seeing materiality as constitutive of all organizational practices (Orlikowski and Scott 2008). The perspective that we have drawn on in this paper offers a distinctive capacity for inquiring into such material enactments and their implications.

Third, we show that valuation practices are *organized in apparatuses and these are performative*. Our use of the notion of apparatus is not simply metaphorical. Rather, it is a powerful theoretical lens that allows us to articulate how different valuation practices enact significantly different phenomena in practice. We see apparatuses of valuation as different from the “judgment devices” discussed by Karpik (2010). While apparatuses may include the devices of Karpik’s typology (e.g., guides, rankings), a focus on apparatus helps us see these — not as prescriptive aids to cognition — but as performative practices that make a difference by making agential cuts that enact certain realities. Our analysis of the practices constituting the AA and TripAdvisor valuation schemes identified the specific agential cuts that enact formulaic and algorithmic apparatuses of valuation, producing different hotels, hoteliers, travelers, and indeed, different phenomena of travel.

The focus on performativity differs from that of the extant literature, which has emphasized the regulative influence of self-reinforcing mechanisms and the reactivity of self-fulfilling prophecies. While

valuable, these do not go far enough in showing how the agential cuts made by valuation practices constitute the phenomena being evaluated by marking out certain inclusions and exclusions, and making the boundaries and properties of those phenomena determinate-in-practice. Understanding what is excluded from consideration by a particular valuation apparatus is as important as attending to what is included. Exclusions are sources of instability, resistance, and opportunity, and thus generative. They are important not only for understanding the constitution of a phenomenon, but also for providing an alternative frame to explore innovation by seeing what is potentially available for re-articulation (Barad 2007). As we saw in our study, traditional valuation apparatuses have typically positioned everyday consumer experiences outside the formal scheme. This significant exclusion has created opportunities for the re-articulation of consumer opinion through online apparatus, generating considerable innovation and consequential outcomes within the travel sector. In a similar way, the exclusion of standardized criteria and professional expertise from contemporary online valuation apparatus is beginning to generate some instability and resistance, and may be an interesting arena for further innovation and reconfiguration.

Fourth, our examination of the performativity of valuation apparatuses suggests that the move to online reviews entails not just a reconstitution of the phenomenon of travel — but *a reconfiguring of the phenomenon of valuation itself, with significant organizational outcomes*. Our study highlights how the online TripAdvisor apparatus positions hotels side-by-side in ways that they have not been before, intensifying competition (both regionally and across categories of accommodation). Incumbent 5-star hotels have found themselves pitched into a ratings and rankings battle with chain hotels that exceed (usually low) expectations and the attentive, highly tailored service that small-to-medium privately owned hotels are able to offer. As a consequence, managers and owners have become increasingly attentive to TripAdvisor ratings and reviews. But whereas the AA steers hotels towards industry-wide compliance with evaluation criteria to align them with a standard formula, TripAdvisor's steady stream of reviews and dynamically computed rankings pixelates organizational practice and business development strategies. To draw an analogy,¹⁴ the AA valuation apparatus is akin to a boulder catapulted once every 12-18 months by a benevolent god who

¹⁴ With thanks to one of our anonymous reviewers for this evocative suggestion.

gently offers to help the hotelier improve, whereas the TripAdvisor valuation apparatus involves stones slung through a thousand slingshots each and every day by unseen and unnamed adversaries who run away immediately and have no stake in the future. Our study of algorithmic practices highlights how the momentum and scale at work in online consumer valuations make identifying a “doer behind the deed” problematic. The outcome is that, in practice, managers subject to online valuations are being micro-managed by reviews, and their responses, like the reviews, are diverse. This raises important questions for the long-term developmental trajectory of the hospitality industry. It also raises more general questions about how organizations are to effectively respond to algorithmic apparatuses whose ongoing valuations arrive via slingshot without warning, respite, regulation or accountability.

To date, the valuation literature has not recognized the significant reconfiguring of valuation practices being performed by online apparatuses. Indeed, Karpik (2010, p. 253) notes that “[t]he Internet has not yet developed to the extent that the market’s working rules have changed in any fundamental way.” We believe quite the contrary, and our evidence from the travel sector suggests that fundamental change is already under way. We see algorithmic apparatuses beginning to replace established formulaic ones as the primary (if not only) arbiter of knowledge about products and services. For example, in a recent, highly visible and controversial move by the UK government, the department responsible for tourism announced that it is discontinuing its VisitBritain star-rating system (an inspector-based, hotel grading scheme very similar to that of the AA) in favor of consumer-led systems such as TripAdvisor. As rationale for this move, the UK tourism minister, John Penrose, noted (Hastings, 2011):

The official ratings systems are too often unreliable and unfair not only for the industry but for the consumer, too. So we will encourage any rating schemes or customers websites that improve the quality of information which visitors can use to choose the right holiday for them.

The extensive and uncertain organizational implications of sector-wide shifts from formulaic to algorithmic apparatuses suggest that multiple further studies are warranted to continue investigating the emerging phenomenon of online valuations. Strathern (2000, p. 309) has observed “there is nothing innocent about making the invisible visible.” Nor, we would add is there anything innocent about making the visible invisible, which is increasingly the world we are making with anonymous consumer reviews, social media platforms, and algorithmic practices.

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Table 1: Number and Type of Interviews

	Number of Interviews	Positions
Hoteliers	21	12 Owners; 9 Managers
AA employees	11	2 Executives; 4 Editors; 5 Inspectors
TA employees	14	3 Executives; 5 Directors; 6 Managers
Hospitality industry professionals	9	Chief Executive, <i>Association of British Travel Agents</i> Former Chief Executive, <i>British Hospitality Association</i> Hotelier Representative, <i>British Hospitality Association</i> Editor, <i>Consumer Travel Magazine</i> Deputy Chief Executive, <i>Institute of Hospitality</i> Director of Marketing, <i>VisitBritain</i> Head of Business Development, <i>VisitEngland</i> Quality Development Manager, <i>VisitEngland</i> Head of Assessment, <i>VisitEngland</i>
Total	55	

Table 2: Formulaic and Algorithmic Apparatuses of Valuation

	Formulaic Apparatus	Algorithmic Apparatus
Form	Rules, explicitly expressed	Procedures, executable
Legitimation	Professional, scientific, industry, or regulatory principles, standards, norms	Situational, strategic, or market contingencies/opportunities
Temporality	Enduring, cumulative, constant	Emerging, fleeting, dynamic
Categories	Stable, well-defined, grounded in established benchmarks	Variable, open-ended, reprogrammable to reflect current interests
Source	Episodic (often annual) assessments and performance data provided by a small number of select experts	Continuous (almost real-time) data provided by large numbers of distributed sources, including consumers
Control	Operationally centralized, dependent on few long-standing mechanisms (e.g., surveys, inspections, checklists, etc.)	Operationally centralized, dependent on multiple diverse mechanisms (e.g., Internet, browsers, mobile apps, reviews, etc.)
Assessments	Standardized, singular accounts that substantiate singular rankings	Dynamic, multiple accounts, juxtaposed to singular rankings
Outcome	<p>Produces organizations attuned to defined standards and criteria, and reacting to conform to them</p> <p>Produces consumers informed by defined standards and criteria, and conditioned to act accordingly</p> <p>Produces auditable assessments and accountabilities that can be located</p>	<p>Produces organizations focused on and micro-managed by the constant flow of multiple and variable assessments</p> <p>Produces consumers empowered by existing valuations, as well as their capacity to produce new valuations</p> <p>Produces inscrutable assessments and accountabilities that cannot be clearly located</p>
Illustration	<p>AA hotel valuation scheme</p> <p>Graduate school rankings by media organizations (e.g., <i>Businessweek</i>, <i>Financial Times</i>, <i>U.S. News & World Report</i>)</p> <p>Consumer Reports product testing labs</p> <p>Wine classifications</p> <p>Food critics</p>	<p>TripAdvisor hotel valuation scheme</p> <p>Online product ratings and reviews (e.g., <i>Amazon</i>, <i>Yelp</i>, <i>Epinions</i>)</p> <p>Online service recommendations (e.g., <i>RateMDs</i>, <i>RateMyTeachers</i>)</p> <p>Online video reviews and recommendations (e.g., <i>Netflix</i>, <i>YouTube</i>)</p>

Figure 1: Example of the Automobile Association Standards for Hotels (Bedrooms)

2.0 DETAILED QUALITY GUIDANCE		
2.6 BEDROOMS		
	One Star ★	Two Star ★★
2.6.6 Bed size: quality	<ul style="list-style-type: none"> Minimum bed sizes, including sofa beds and bunks, as follows: Single: 190cms x 90cms (6ft 3ins x 3ft) Double: 190cms x 137cms (6ft 3ins x 4ft 6ins) 122cms (4ft) beds to be designated as singles. (76cms (2ft 6ins) beds are unacceptable, except in family rooms where they are clearly designated for children only.) Sofa beds are not acceptable as permanent bed spaces. Bunk beds (permanent bed spaces) are acceptable for child use only. When bunk beds are used, guests told when they make the booking. All beds, including supplementary beds, such as z-beds, sofa beds etc., to be of acceptable quality and in good condition. They should have a sound base and sprung interior, foam or similar quality, modern, comfortable mattress. Secure headboard or equivalent on all permanent beds <p><i>N.B. Bunk beds should have a minimum 75cms (30ins) clear space between the mattress of the bottom bed and the underside of the top bed. (Bunk Bed Regulations 1997).</i></p>	<ul style="list-style-type: none"> Beds and headboards of better quality and condition.
2.6.7 Bed access	<ul style="list-style-type: none"> There should be access to both sides of beds for double occupancy. 	<ul style="list-style-type: none"> Easy access to both sides of beds for double occupancy.
2.6.8 Bedding requirements	All Star Ratings <ul style="list-style-type: none"> Two sheets, two blankets and a bedspread OR one/two sheets and duvet with cover per bed. Tog rating appropriate for the time of year and location. Traditional bedding available on request when duvets are provided. Where feather duvets or pillows are used, a non-allergenic alternative available on request. 	

2.0 DETAILED QUALITY GUIDANCE		
2.6 BEDROOMS		
Three Star ★★★	Four Star ★★★★	Five Star ★★★★★
<ul style="list-style-type: none"> All children's beds to be full adult size. Single: 190cms x 90cms (6ft 3ins x 3ft.) Sofa beds meeting the bed size requirements for permanent beds. Beds and headboards of good quality and condition. 	<ul style="list-style-type: none"> A choice of larger-sized beds. Very good quality beds, e.g. pocket sprung mattress and base, in very good condition with superior headboards or similar. 	<ul style="list-style-type: none"> Beds for single occupancy to exceed 90cms (3ft) in width. Beds for double occupancy to be at least 153cms (5ft) in width. Several beds to exceed this size. Bunk beds are not acceptable. Beds and headboards of excellent quality and condition.
		
<ul style="list-style-type: none"> Good access to both sides of beds for double occupancy. 	<ul style="list-style-type: none"> As Three Star. 	<ul style="list-style-type: none"> Generous access to both sides of beds for double occupancy
All Star Ratings <ul style="list-style-type: none"> Two pillows in individual pillowcases, per person. Spare pillows and blankets available on request. Any additional bedding kept in bedrooms to be clean, fresh and wrapped. A mattress protector provided for each bed. Plastic or rubber mattress protectors are not acceptable except for children's beds. 		