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**DIGITAL WEBERIANISM:
BUREAUCRACY, INFORMATION, AND THE TECHNO-RATIONALITY OF
NEOLIBERAL CAPITALISM***

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Abstract

The social infrastructures that constitute both public and private administration, are increasingly entangled with digital code, big data, and algorithms. While some argue these technologies have blown apart the strictures of bureaucratic order, we see more subtle changes at work. We suggest that far from a radical rupture, in today's digitizing society, there are strong traces of the logic and techniques of Max Weber's bureau; a foundational concept in his account of the symbiotic relationship between modernity, capitalism and social order. We suggest that these logics also go some way to helping explain the remarkable legitimacy digital governance has acquired as they shape contemporary systems of social administration. We do this by exploring how digital technologies draw from, and give new substance to, the three key principles of Weber's theory of the bureau—efficiency, objectivity, and rationality. We argue that the crucial substantive shift that has occurred is that these logics have been conditioned by the economization of the political through neoliberalism as an organizing political project, not least through the subordination of social ends to technical means. At the same time we argue that digitalism engenders the privatization of authority, not least through its 'elective affinity' with market logics.

Keywords: Bureaucracy, Max Weber, social order, data, digital, information technology, control, rationality, neoliberalism

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1. New Order

At the heart of our digitally mediated world is a social paradox that arcs between order and emancipation. On the one hand, digital technologies appear to have contributed to a new era of openness, adaptability, and transparency in the spheres of public and private administration¹. It requires little effort, cost, or transportation for instance, to enroll in online university classes with preeminent scholars. Or, one can track passport renewals through the Home Office and know in every instance its change in status. We can view seemingly endless hours of legislative deliberation, sometimes in the form of leaked documents, from the comfort of our homes, or contribute to publicly visible accounts of government (in)efficiencies or corporate performance or through on-line ratings.

These affordances have led celebrants of digital technologies to argue that the hierarchical governing typical of the classic bureaucracy has collapsed². It is proposed that the porosity of boundaries around previously impervious social categories, like public and private, can be understood as the proverbial rusting away of the iron cage of modern bureaucratic life, giving rise to new freedoms, new social relations and new cognitive orientations³. In this emancipated world, cities are now “smart” because of constant data representations and possibilities for real-time feedback. Science and academic research are now “open”, no longer cloistered in intellectual citadels. Data is now “big” and exposed to interrogation and interpretation by amateurs and experts alike.

Yet, on the other hand, rather than less bureaucracy, we seem to experience its propagation and expansion at every turn. There has been a rapid proliferation of procedures, rules, and new forms of surveillance approaching what some have called “total”⁴ or “universal” bureaucratization⁵. Whether interacting with corporations, markets, governments, or just other people, contemporary life seems to be drowning in a tsunami of rule-based, digitally-mediated, interactions. The list is long and growing, from e-government to on-line commercial transactions, navigation systems, credit and identity checks, data-driven reputation tables, and so

¹ YOCHAI BENKLER, *THE WEALTH OF NETWORKS: HOW SOCIAL PRODUCTION TRANSFORMS MARKETS AND FREEDOM* (2006)

² see generally Daniel Kreiss, Megan Finn, and Fred Turner, *The limits of peer production: Some reminders from Max Weber for the network society*, 13 *NEW MEDIA & SOCIETY* (2011)

³ *Id.*; R.A.W. RHODES, *UNDERSTANDING GOVERNANCE: POLICY NETWORKS, GOVERNANCE, REFLEXIVITY AND ACCOUNTABILITY* (1997)

⁴ DAVID GRAEBER, *THE UTOPIA OF RULES: ON TECHNOLOGY, STUPIDITY AND THE SECRET JOYS OF BUREAUCRACY*, 18 (2015)

⁵ BEATRICE HIBOU, *THE BUREAUCRATIZATION OF THE WORLD IN THE NEOLIBERAL ERA: AN INTERNATIONAL AND COMPARATIVE PERSPECTIVE*, 15 (2015)

on. Purchases are logged, performances are evaluated, preferences and decisions are archived, and suggestions are put to us based on what others are reading, doing, and thinking.

This accumulation of data and extraction of stories is not only tied to individuals. Large data sets are being created and consumed by public and private institutions alike. From small spinoff companies to large corporations, governments to think-tanks and specialist data firms, all are engaged in combining, re-combining and presenting data in order to tell new stories about social life. Universities, publishers, and funding bodies track academic texts with digital object identifiers like ORCID, not unlike the radio-frequency identification (RFID) microchips embedded in commodities, passports, and pets, if not human bodies. Universities gather massive amounts of data on their researchers, teachers, and student bodies, buy space on commercial platforms, upload data and buy it back as reputational values. The list goes on.

What are we to make of this state of affairs? The apparent paradox, of both greater transparency and greater opacity, or of emancipation, but with greater control and order, produces more questions than it answers⁶. What, for instance, does “openness” really mean, to whom, and in relation to what? If, as Deleuze argued, the important institutions of modernity, such as the factory, the school and the family, are doomed in the new “society of control”, what roles are digital technologies and big data playing in their reformulation⁷? If the old bureaucratic hierarchies have come tumbling down, how do we explain greater inequalities and new forms of stratification? In this paper we explore these paradoxes. However, rather than argue that the old bureaucratic order has collapsed and that a radically new, post-bureaucratic order has now emerged, we suggest that key features of Weber’s political bureaucracy—efficiency, objectivity, and rationality—have morphed and given form to a less visible, but no less powerful *digital bureaucracy*.

No longer is the modern bureaucracy an anonymous world of “papers in motion”⁸. Rather, the digital bureaucracy is a world of *data in motion*, given direction and shape by new kinds of digital infrastructures—from codes to algorithms to platforms, whose digital footprint replaces the material archive, and whose experts are the new data scientists (see Figure 1). However, like all institutions of rule, the new digital bureaucracy—like Weber’s classical bureaucracy, faces challenges to its legitimacy, especially following the erosion of the border between economic and

⁶ On this general paradox between emancipation and control, not tied directly to digital technologies, but nevertheless apt to our general argument, see Gilles Deleuze, *Postscript on Societies of Control*, 59 OCTOBER (1992) at 4; ZYGMUNT BAUMAN, *LIQUID MODERNITY* (2000)

⁷ Deleuze, *supra* note 6

⁸ PETER BERGER, BRIGITTE BERGER, HANSFRED KELLNER, *THE HOMELESS MIND: MODERNIZATION AND CONSCIOUSNESS*, 47 (1974)

political, and public and private life. This struggle over legitimation is intensified by the post-modern ‘condition’ where it is seemingly impossible to form consensus around any sort of universal truth or knowledge claim, particularly when concerned with a *social* ambition⁹.

Legitimation is now managed through the *relative disinterest* of numbers, the *relative distance* between the architects/experts managing the digital bureau and those that it is governing, and the *relative alignment* between the digital and the creation of knowledge-based economies and information societies.

The paper proceeds in the following way. We begin with an account of Weber’s notion of bureaucracy, focusing on its DNA: the principles of efficiency, objectivity, and rationality. We then review the emergence of digital technologies in the context of theories of the information society and economy, and transformations of the bureaucratic state as a result of neoliberal political projects, and show how digital technologies are changing organizational structures. We then revisit the three fundamental components of bureaucratic order, and investigate how they have changed in the digital age. In the penultimate section we explore the issue of the legitimation of digital governance, and show how techno-scientific rationality combined with neoliberal ideology have worked together to subordinate social ends to economic means. We conclude by questioning the future possibilities of fracturing what we call the *silicon web*¹⁰.

2. Defining Order

The Oxford English Dictionary defines bureaucracy in the first instance as “Government by officials; a system of government or (in later use) administration by a hierarchy of professional administrators following clearly defined procedures in a routine and organized manner.”¹¹ In this organizational structure of public administration, Hegel saw the consummate historical manifestation of human reason and social ethics as exemplified in the Prussian state¹².

⁹ David B. Clarke, *Space, knowledge and consumption*, in KNOWLEDGE, SPACE, ECONOMY (Bryson, Daniels, Henry and Pollard eds. 2000)

¹⁰ Our invocation of a web is not unlike the sieve or mesh that Deleuze uses to describe the society of control. Referring to the change from Foucault’s “closed” disciplinary institutions to the relatively open institutions of the “society of control” he says, “Enclosures are *molds*, distinct castings, but controls are a *modulation*, like a self-deforming cast that will continuously change from one moment to the other, or like a sieve whose mesh will transmute from point to point.” Deleuze, *supra* note 6, emphasis in original.

¹¹ “bureaucracy, n.” OED Online. March 2017. Oxford University Press.

<http://www.oed.com.openathens-proxy.swan.ac.uk/view/Entry/24905?redirectedFrom=bureaucracy> (accessed April 07, 2017).

¹² M.W. Jackson, *Bureaucracy in Hegel’s Political Theory*, 18 ADMINISTRATION & SOCIETY, 139 (1986).

Jackson argues that a key distinction between Hegel’s and Weber’s theories of (state) bureaucracy is that the former imbues bureaucracy and bureaucrats with an ethical imperative to serve the common good. Weber is not unconcerned with ethics, but is more interested in the autonomy of bureaucratic structures

Marx drew upon Hegel's arguments, but was much more critical, in that he saw the bureaucracy as the direct link between civil society and the state, and as such, a symptom of the bourgeoisie's influence over the state¹³. For Marx, then, bureaucratic public administration was one of the many manifestations of the class dynamics of capitalism¹⁴.

But it was Max Weber who was particularly interested in exploring and explaining the institutions of state rule, and particularly how the operations of bureaucratic organization produced the legitimacy necessary for domination by legal-rational means¹⁵. For Weber, bureaucracy was the organizational manifestation of a formal techno-scientific rationality that in part defined modernity. However, as Berger et al. point out, whilst technologically-driven production and bureaucratic administration are both key phenomena of modernity, there is an important difference between them in that bureaucracy is not intrinsic to a particular goal—such as profit making¹⁶. In other words, it is not necessary that the bureaucratic form becomes dominant in modernity and capitalism. That said, Weber's bureaucratic form of organization, whilst a contingent alignment in the sense referred to above, has nevertheless been a highly synergistic form for the expansion of modern capitalism, and as a primary carrier of modernization.

Weber was broadly interested in how, throughout history, social domination appeared as a legitimate form of social order. As opposed to “traditional” or “charismatic” domination, which were more common in patrimonial or feudal systems, bureaucratic organization is based on legal domination, or power that is limited by an abstract, but codified, set of rules¹⁷. Weber argued that it was possible to observe bureaucratic structures throughout human history, but it was only in the modern industrial socio-economy that he found truly efficient and rational bureaucratic structures. Crucially, in the maturing industrial capitalism of the early 20th Century, he observed that bureaucratic ordering was important not only for public administration through

from the realm of moral-ethical or ‘political’ questions. For Weber, the bureaucracy is driven first and foremost by what we might today call ‘technocratic’ rationality (see the below discussion of various forms of Weberian rationality).

¹³ NICOS P. MOUZELIS, ORGANIZATION AND BUREAUCRACY: AN ANALYSIS OF MODERN THEORIES (1968)

¹⁴ DANIEL BELL, THE COMING OF POST-INDUSTRIAL SOCIETY: A VENTURE IN SOCIAL FORECASTING (1999). Marx did not spend much time on bureaucracy, particularly after his turn to economics, although a critical analysis of bureaucracy is implied in much of his critique of the capitalist state. For a thorough discussion of Marx's and Marxism's conceptions of bureaucracy, see *Id.* at 49-119.

¹⁵ MAX WEBER, ECONOMY AND SOCIETY, VOLS. 1 & 2, (Roth and Wittich eds., 1978)

¹⁶ BERGER, ET AL., *supra* note 8 at 41

¹⁷ WEBER, *supra* note 15 at 217-226; see generally MOUZELIS, *supra* note 13

what he called the “agency”, but also the private administration of large-scale production, or what he called the “enterprise”¹⁸.

Weber’s description of the modern bureaucracy in Chapter XI of *Economy & Society*¹⁹ is extensive, and many readers will be familiar with the key arguments. There are, however, *three crucial characteristics* of a Weberian bureaucracy that for our purposes need a clear definition at the outset²⁰. The first is that the labour of bureaucratic administration is divided up into offices or “bureaus” constituted by professional and specialized workers who are, or have, the potential to become, technical experts. Bureaucratic officials are thus hired and promoted based on objective criteria related to this vocation or expertise. Second, the bureau is managed according to a codified and exhaustive set of procedures or rules, as well as through a managerial hierarchy, the rulings of which are subject to appeal and potential redress. And third, the bureau is constituted out of its management of communication and information, or what Weber called “the files”, and Berger et al. call “papers in motion”²¹. In other words, a bureaucracy is an organizational form reliant upon, and designed to, exert control over information, knowledge and communication²².

Extending his argument from these three characteristics, Weber explores the broad outcomes of social ordering based on these *three interrelated principles* that are constitutive of bureaucratic ordering: efficiency, objectivity, and rationality. *Efficiency* is a measurement of the appropriateness between the means and the ends as it relates to an organization’s goals²³. In other words, to be efficient is to choose the best technique to achieve a desired result. Weber argues that particularly in modernity, bureaucratic structures are designed around this logic and they become so good at routinizing the means of achieving their ends that they resemble well-oiled machines. He notes; “The decisive reason for the advance of bureaucratic organization has always been its purely technical superiority over any other form of organization. The fully

¹⁸ WEBER, *supra* note 15 at 956

¹⁹ *Id.* 956-1005

²⁰ We are abridging Weber’s six key characteristics of “modern bureaucracy”, *Id.* 956-58. Furthermore, we are largely referring here to Weber’s “ideal type” of bureaucracy, something he says can “seldom if ever” be found in the real world, WEBER, *supra* note 15 at 20-21. Nevertheless, we follow Weber’s suggestion that great analytical value can be found by exploring the essential characteristics of the bureaucratic form particularly in attempting to conceptualize what we see as a broad historical shift towards digitalism and the related contradictions of “data” obsessed governance. Simply stated, the ideal type is a starting point for a more concrete analysis of the bureaucratic qualities of digitalism. For a discussion of the analytical benefits and drawbacks of employing the ideal type of bureaucracy see MOUZELIS, *supra* note 13 at 38-54; HIBOU, *supra* note 5 at xiv-xv.

²¹ BERGER ET AL., *supra* note 8

²² Weber writes “Bureaucratic administration means fundamentally domination through knowledge. This is the feature of it which makes it specifically rational.” WEBER, *supra* note 15 at 225. see generally JAMES R. BENIGER, *THE CONTROL REVOLUTION: TECHNOLOGICAL AND ECONOMIC ORIGINS OF THE INFORMATION SOCIETY* (1986)

²³ MOUZELIS, *supra* note 13

developed bureaucratic apparatus compares with other organizations exactly as does the machine with the non-mechanical modes of production”²⁴.

The second principle is the *objectivity* of bureaucratic operation, or autonomy from the influence of short-term political whims or human passions. However, as Weber observes, “Bureaucracy develops the more perfectly, the more it is ‘dehumanized,’ the more completely it succeeds in eliminating from official business love, hatred, and all purely personal, irrational, and emotional elements which escape calculation. This is appraised as its special virtue by capitalism”²⁵. In the public realm, this bureaucratic objectivity reflects the “procedural neutrality” of the state²⁶, or the broader liberal principle of the rule of law, both of which are crucial for maintaining the legitimacy of bureaucratic rule. In the private realm, the objectivity of bureaucracy relates not to politics, or a lack thereof, but rather to the management of the enterprise based on techno-scientific principles²⁷.

Weber’s concept of *rationality* is notoriously difficult to define and is entangled with his broader arguments about modernity and cultural meaning. At its simplest, Weberian rationality is the socio-cultural manifestation of Western reason in the context of capitalism²⁸. In relation to Weber’s discussion of bureaucratic order, rationality mainly refers to the procedural efficacy of bureaucratic operations. All decisions at every level of the bureaucratic hierarchy should be rational to the extent that they employ scientific knowledge to calculate the efficiency of the execution of tasks, all in a repetitive manner. Bureaucracies, according to Weber, leave little room for inefficiencies, and eventually become machines for ‘rationalizing’ work processes.

While this version of *formal* rationality dominates in bureaucratic capitalism, and appears as an imposed form of hierarchical domination, Weber’s full conception of rationality is more nuanced. Kalberg divides Weber’s rationality into four interrelated categories: practical, theoretical, substantive and formal²⁹. In this article we are mainly concerned with the latter two, but the former two are also important. *Practical* or pragmatic rationality is the set of egoistic interests through which individuals evaluate mundane day-to-day decisions. At a basic level it is this rationality that guides routine means—ends actions. *Theoretical* or “intellectual” rationality refers to the conceptual or metaphysical framework that most humans find necessary to make

²⁴ WEBER, *supra* note 15 at 973.

²⁵ *Id.* at 975

²⁶ Paul du Gay, *Bureaucracy and Liberty : State, Authority, and Freedom*, in THE VALUES OF BUREAUCRACY 48-9 (du Gay ed. 2005)

²⁷ HIBOU, *supra* note 5

²⁸ Herbert Marcuse, *Industrialization and Capitalism*, I/30 NEW LEFT REVIEW (March-April 1965)

²⁹ Stephen Kalberg, *Max Weber's Types of Rationality: Cornerstones for the Analysis of Rationalization Processes in History*, 85 THE AMERICAN JOURNAL OF SOCIOLOGY, 1145 (1980)

meaning out of mundane daily life. This sort of rationality is not directly implicated in actions, but rather in thought and contemplation. *Substantive* rationality is the value-laden framework that helps individuals negotiate “...reality’s flow of unending empirical events”³⁰. This type of rationality does not determine means—ends decisions in the same way that practical rationality does. Rather, it is a broader, albeit individualized, ethical framework or set of “value postulates”³¹ through which humans determine action in particular situations. Substantive rationality is always in relation to a broader theoretical rationality, but it is based on an individual perspective and may vary across situations. *Formal* rationality is the depersonalized, even dehumanized, set of codified rules, laws, and regulations. This sort of rationality is based on scientific and economic calculation, is historically predominant in capitalistic societies, and is most closely associated with bureaucratic order.

In these three bureaucratic principles, Weber imagined—in the ideal—a level of perfection³² in social administration. As a result, he believed that historically bureaucratic administration would emerge as the primary form of social organization and wipe away others based on inheritance, myth, or charisma. But, for Weber, the adherence to rational social ordering by bureaucratic rationality also produced an “iron cage”, where substantive rationality was significantly constrained across social institutions, with non-conforming action inside instrumental bureaucratic structures virtually impossible³³. So whilst the authority of procedure, and the science and hierarchy of decision making together produce a separation from whim and passion, the trade-off is a level of “disenchantment” that takes its toll on human creativity and will, if not liberty³⁴.

Consequently, bureaucratic social ordering is a means of domination in both its hierarchical form but also as a result of its capacity to engender in individuals a substantive ethic—or a value system—based upon calculation and techno-scientific reason. In other words, capitalism is historically remarkable for its capacity to produce an affinity towards, or a unity of, ordering across the four categories of rationality, and increasingly beyond the formally economic

³⁰ *Id.* at 1155

³¹ *Id.*

³² See generally Marcuse, *supra* note 28 for a lengthy discussion and critique of the normative and teleological implications of Weber’s theory of rationality (and bureaucracy).

³³ MAX WEBER, THE PROTESTANT ETHIC AND THE SPIRIT OF CAPITALISM 181 (1978). The “iron cage” is an infamously controversial translation by Talcot Parsons from the German *stahlhartes Gehäuse* that we will not attempt to adjudicate here, other than to say it could instead be translated to something akin to a “shell as hard as steel”. See Peter Baehr, *The "Iron Cage" and the "Shell as Hard as Steel": Parsons, Weber, and the Stahlhartes Gehäuse Metaphor in the Protestant Ethic and the Spirit of Capitalism*, 40 HISTORY AND THEORY 153-169 (2001)

³⁴ Michael Reed, *Beyond the Iron Cage? Bureaucracy and Democracy in the Knowledge Economy and Society*, in THE VALUES OF BUREAUCRACY (du Gay ed. 2005)

or scientific fields towards—particularly in neoliberal capitalism—virtually every facet of social life.

3. In-forming Order

For much of the 20th Century, the strengths of bureaucratic organization were “functionally indispensable to the operation of the modern capitalist state and enterprise”³⁵, not least because of what Weber called the “increasing complexity of civilization”³⁶. The modern bureaucratic state, formed from legal-rational principles and designed to cope with this complexity, also created a separation from both the interests of private capital, on the one side, and the whims of public politics, on the other. In other words, the modern bureaucratic state claimed its legitimacy through serving a public function—or the collective interest—by being blind to the influence of individuals.

Beniger argues that it was not civilization, per se, but the increasing complexity of economic production, distribution, and consumption in the second industrial revolution, beginning in the late 19th Century, that created the conditions for the functional centrality of the bureaucracy³⁷. Following advances in telecommunications which caused a “crisis of control” for the socio-economy, the only reasonable solution was rationalization through bureaucratic management. For Beniger, Weberian rationalization was a practice of “pre-processing” of information³⁸, or the “destruction or ignoring of information in order to facilitate its processing”³⁹. In this sense, the essence of contemporary bureaucracy is its capacity to create abstractions through devices like formalized codes, categories, and rules based upon, not actual lived experiences but the imperative to govern life through market-like mechanisms⁴⁰. In other words, the technological transformation of the economic system, beginning in the late 19th

³⁵ Michael Reed, *supra* note 34 at 119

³⁶ WEBER, *supra* note 15 at 972

³⁷ BENIGER *supra* note 22.

³⁸ See BENIGER *supra* note 22 at 390-425. Beniger’s fascinating, book-length argument is impossible to succinctly summarize, but his description of the “control revolution” of the second industrial revolution is concerned first with the invention of all sorts of new information-processing technologies (broadly defined) such as the modern typewriter (1873), the stock ticker (1870), and the “systematization of office record keeping” (early 1870s), but also things like the first university business, commerce, and administration schools (1880s), and the US national professional organization of accountants (1886). More importantly, Beniger is interested in various components of the “centralized, functionally departmentalized organizational structure in the mid-1890s”, which was accompanied by a startling growth in bureaucratic workers. Compared to overall 28% growth of the US workforce between 1900-1910, he cites a 45% growth in managers and a 127% growth in clerical workers. His argument is that more than anything else, these new workers were *information processors*.

³⁹ BENIGER *supra* note 22 at 15.

⁴⁰ HIBOU, *supra* note 5 at 24-32

Century and continuing today, which included an intensifying spatial division of labour and the vast circulation of raw and finished goods, necessitated a new system for sorting and sifting of immense amounts of information. The answer to this systemic need was the modern bureaucracy; it provided speed of administrative operation and unique efficiency for managing information. As a result, it became the model for both the corporation and the state, and thus private and public administration.

The important question for us is how—and through what kinds of processes and logics, and with what kinds of outcomes—have digital information technologies changed bureaucratic structures? The scholarly literature on digital technologies, as they relate to transformations in the socio-economy, is too extensive to attempt to summarize here⁴¹. There is a long history of theorizing the information society and economy⁴². This goes back at least as far as Bell's 1973 argument that post-industrial society would increasingly assume technical characteristics particularly around the importance of codified knowledge⁴³. More recently, Castells elaborates a “network society” where he attempts to grasp the informational flows that underpin interconnection and globalization, particularly in relation to the changing dynamics of production⁴⁴. Benkler, who concentrates on shared computing software, extends Castells's work, focusing on the breakdown of centralized and hierarchical organization—or the flattening out of processes of production into what he calls “commons-based peer production” where information is no longer walled off inside organizational structures⁴⁵. However, there have been far fewer attempts to interrogate common processes of social ordering that cut across institutional and organizational types⁴⁶.

The importance of the bureaucracy as an organizing social structure, and its demise, is looming in the background in all of these studies. The immanent passing of bureaucratic

⁴¹ Although see FRANK PASQUALLE, *THE BLACK BOX SOCIETY: THE SECRET ALGORITHMS THAT CONTROL MONEY AND INFORMATION* (2015); Christian Fuchs, *Capitalism or information society? The fundamental question of the present structure of society*, 16 *EUROPEAN JOURNAL OF SOCIAL THEORY*, 413 (2012); CHRISTIAN FUCHS, *DIGITAL LABOUR AND KARL MARX* (2014); Paul Langley and Andrew Leyshon *Platform capitalism: the intermediation and capitalization of digital economic circulation*, *FINANCE AND SOCIETY*, (pre-publication on web, 2017); Daniel Marcus Greene and Daniel Joseph, *The Digital Spatial Fix*, 13 *TRIPLE C*, 223 (2015); Jim Thatcher, David O'Sullivan, and Dillon Mahmoudi, *Data colonialism through accumulation by dispossession: New metaphors for daily data*, 34 *ENVIRONMENT AND PLANNING D: SOCIETY AND SPACE*, 990 (2016)

⁴² ARMAND MATTELART, *THE INFORMATION SOCIETY* (2003); FRANK WEBSTER, *THEORIES OF THE INFORMATION SOCIETY*, 3rd edition, (2006); Christian Fuchs, *Capitalism or information society? The fundamental question of the present structure of society*, 16 *EUROPEAN JOURNAL OF SOCIAL THEORY*, (2012) 413

⁴³ DANIEL BELL, *THE COMING OF POST-INDUSTRIAL SOCIETY* (1999)

⁴⁴ MANUEL CASTELLS, *THE RISE OF THE NETWORK SOCIETY* (1996)

⁴⁵ Benkler, *supra* note 1 at 60

⁴⁶ For one notable exception see Jannis Kallinikos, *Bureaucracy under Siege: On Information, Collaboration, and Networks*, in *MANAGING MODERNITY: BEYOND BUREAUCRACY?* (Clegg, Harris and Hopfl eds. 2011).

ordering has been predicted since Weber theorized its emergence⁴⁷. Not surprisingly, those who advocate ending the bureaucratic structuring of social life usually invoke some version of the *iron cage* that might be overcome through things such as information sharing, institutional transparency, open innovation systems, or just participation. Benkler in particular, presents a utopian account of the breakdown of hierarchy, organizational rigidity, and the exclusive private ownership of the means of production, all of which lead to increasing freedom and autonomy for individuals⁴⁸. In collaboration with others, individuals will build networks of information sharing and will, in turn, liberate themselves from a reliance on the strictures of formalized and procedural bureaus and their incipient forms of information management.

Embedded in the critique of bureaucracy is a desire to separate the economic and the social, or at least to produce the conditions whereby social life and its reproduction need not be dominated by the calculative rationality of capitalist bureaucracy⁴⁹. Particularly in the 1960s, the bureaucratic structures that became the basis of social organization in the early to mid-20th Century came to be seen as a tool of domination by the capitalist establishment. In the case of corporate bureaucratic apparatuses, they achieved domination by keeping wages low. But they also enshrined what were seen as outdated social values including forms of racial and gender discrimination and modes of secrecy, shielding tendencies toward imperialism and war, and were generally being criticized as an impediment to individual development⁵⁰. Beginning in the 1960s and culminating in the 1990s, critics increasingly emphasized the rationalizing and disenchanting properties of bureaucracies, which fuelled a diminished legitimacy for the bureaucracy as a means of organizing social life.

If the new communications technologies of the 1980s and 1990s were part of the nascent reorganization of the social and new forms of consciousness, the digital technologies of today now constitute a fully-fledged digital way of life. Over the last 25 years, digital logics, machines, and techniques have moved from the background to the foreground of both capitalist production as well as capitalist social relations. This is closely related to the growing importance of information and knowledge to the production of economic value. Whilst the importance of discursive phenomena like the “information society” or the “knowledge economy”⁵¹ have been

⁴⁷ Martin Harris, Stewart Clegg and Harro Hopfl, *Introduction: Managing Modernity: Beyond Bureaucracy?*, in *MANAGING MODERNITY: BEYOND BUREAUCRACY?* (Clegg, Harris and Hopfl eds. 2011).

⁴⁸ BENKLER, *supra* note 1

⁴⁹ Kallinikos, *supra* note 46

⁵⁰ LUC BOLTANSKI AND EVE CHIAPELLO, *THE NEW SPIRIT OF CAPITALISM* (2005) at 167-215

⁵¹ Bob Jessop, *A Cultural Political Economy of Competitiveness and its Implications for Higher Education*, in *EDUCATION AND THE KNOWLEDGE-BASED ECONOMY IN EUROPE* included in (Jessop, B., Fairclough, N. and Wodak, R., eds. 2008)

hotly debated in economics and sociology, there is little question that 1) there is simply more data, information, and codified knowledge available now, and 2) as a result, its management has become considerably more complicated⁵².

In the digital economy, consolidating control over information is no longer a secondary process in support of some other production process. Rather, the management and manipulation of data and information is itself increasingly the object of value creation⁵³. Graeber observes that “...the algorithms and mathematical formulae by which the world comes to be assessed become, ultimately, not just measures of value, but the source of value itself”⁵⁴. But in this reaction to the new *control crisis*, where information management has seemingly switched from the cost of doing business, to the actual object of value production, what are the consequences for the principles of bureaucracy? Put differently; is it possible that the visible manifestations of the bureaucracy as we once knew it has been transformed in this rapidly digitized and data-filled world, though its organizing logics remain?

3.1 Intelligent efficiency

One of the fundamental justifications for the massive expansion of digital information technologies has been their purported efficiency⁵⁵. Of all the reasons efficiency is important for capitalist social relations in the 21st Century, perhaps the two most powerful are financial and environmental. Not surprisingly these are also the two most crisis-prone spheres of socio-economic life over the last decade⁵⁶.

Whilst improving efficiency in these spheres is not unique to the digital age, it has taken on greater importance with the advancement of information technologies. For much of the political class in the US, and even more so in the UK and Europe, the financial crisis of 2008 has translated into drastic budget cuts or “austerity”⁵⁷, in what the former UK Prime Minister David Cameron was fond of calling, “doing more with less”⁵⁸. Cameron specifically addressed “making government digital” in a September 2015 speech when he labeled “efficiency” as one of his three

⁵² ROB KITCHIN, *THE DATA REVOLUTION*, (2014)

⁵³ Jim Thatcher, David O’Sullivan, and Dillon Mahmoudi, *Data colonialism through accumulation by dispossession: New metaphors for daily data*, 34 *ENVIRONMENT AND PLANNING D: SOCIETY AND SPACE*, (2016), 990; See generally DEBORAH COWEN, *THE DEADLY LIFE OF LOGISTICS* (2014)

⁵⁴ GRAEBER, *supra* note 4 at 41

⁵⁵ KITCHIN, *supra* note 52 at 113-127

⁵⁶ Nancy Fraser, *A Triple Movement?*, 81 *NEW LEFT REVIEW* (May-June 2013)

⁵⁷ See generally MARK BLYTH, *AUSTERITY: THE HISTORY OF A DANGEROUS IDEA* (2013)

⁵⁸ See <https://www.theguardian.com/politics/2013/nov/11/david-cameron-policy-shift-leaner-efficient-state> (accessed on 27 Sept. 2016)

principles for “delivering a smarter state”⁵⁹. With regard to the environment, reducing the carbon footprint of pretty much everything has become a socio-economic imperative in the face of human-induced climate change. Attempts to more efficiently produce and use energy are heavily dependent on information technologies. Just one example is the management of the electricity infrastructure through “smart grid” technology, which in turn is dependent on an interconnected system of sensors and meters that collect information about energy production and consumption⁶⁰. Households can, for example, monitor their usage via dedicated digital tools aimed at teaching them the value of switching off lights in unused rooms, or appreciate the costs of having digitally-based equipment ‘on standby’. More broadly, whilst not actually proven to improve efficiency, saving time and resources is one of the key driving forces behind the “internet of things,”⁶¹ or better yet, the “internet of everything”⁶² where all kinds of everyday objects and devices, from the mundane to the sophisticated, are connected to wireless networks in hope of saving time and energy.

These two discourses of financial austerity and sustainable environments intersect in the smart city discourse⁶³. In promises of more efficiently delivering city services, as well as reducing the carbon footprint of urban dwellers and institutions, the data-driven smart city represents the vanguard of digital bureaucratic efficiency. Smart city boosters, the most influential of whom are private corporations like IBM, Cisco, and Siemens, all promise to employ information and communication technologies to make more efficient the provision of water and electricity, trash and sewer administration, traffic management, and policing and public safety⁶⁴. Driven by “big data”, it is argued that real-time visualizations in centralized control rooms and web-based data dashboards allow both city administrators and residents to quickly make decisions about broad spheres of governance and urban life⁶⁵. And whilst the surveillance of the city through data collection, processing, and visualization represents the frontier of a new realm of urban

⁵⁹ David Cameron, *Prime Minister: My vision for a smarter state* (September 11, 2015) <https://www.gov.uk/government/speeches/prime-minister-my-vision-for-a-smarter-state> (last visited on 9 April 2017).

⁶⁰ Pedro S. Moura, Gregorio L. Lopez, Jose I. Moreno, and Anibal T. De Almeida, *The role of Smart Grids to foster energy efficiency*, 6 ENERGY EFFICIENCY, 621-639

⁶¹ Luigi Atziori, Antonio Iera, and Giacomo Morabito, *The Internet of Things: A Survey*, 54 COMPUTER NETWORKS, 2787-2805 (2010)

⁶² John Chambers and Wim Elfrink, *The Internet of Everything will Change How We Live*, Foreign Affairs “Snapshot” (October 31, 2014, last accessed April 8, 2017) <https://www.foreignaffairs.com/articles/2014-10-31/future-cities>

⁶³ Taylor Shelton, Matthew Zook, and Alan Wüig, *The ‘actually existing smart city’*, 8 CAMBRIDGE JOURNAL OF REGIONS, ECONOMY AND SOCIETY, 13-25

⁶⁴ Rob Kitchin, *The real-time city? Big data and smart urbanism*, 79 GEOJOURNAL, 1-14 (2014)

⁶⁵ Rob Kitchin, Tracey Lauriault, and Gavin McArdle, *Knowing and governing cities through urban indicators, city benchmarking and real-time dashboards*, 2 REGIONAL STUDIES, REGIONAL SCIENCE, 6-28 (2015)

competition⁶⁶ and modulated social control⁶⁷, this is often justified though appeals to improving efficiency.

Here the acceleration of information collection, its filtering, and new forms of provision at the pace of “real time” is one of the key drivers of efficiency. Crucially, however, just because information is available at rapid speed does not mean decisions become easier. On the contrary, instead of dealing with “batches” of information that may have arrived on a weekly, daily, or hourly basis, information now flows through the bureaucracy almost constantly⁶⁸. While this real-time flow may make some decisions easier (or just hidden through automation), it also raises expectations for hasty bureaucratic information management, making some decision-making more difficult, if not prone to dis-function and crisis⁶⁹. But this acceleration is only possible because the process of data collection, processing and presentation has been automated so as to remove the necessity (or possibility) of human decisions, or at least filtered through a system of abstract categories to present humans with a limited number of options. This is Weberian efficiency writ large.

3.2 Sizing up objectivity

Similarly, the bureaucratic principle of objectivity is changing in relation to digitization, though it has become no less important. Where the modern or industrial bureaucratic apparatus once achieved its political legitimacy through its separation of from the whims and passions of politics through professionalization (see Hartmann this issue), on the one hand, and its commitment to procedural neutrality, on the other, the digital bureaucracy would appear to achieve its legitimacy through apparent data and algorithmic neutrality. This is best exemplified through the discourse of “big data” where “big” implies not so much a large size, but that data is unfiltered, unadulterated, and semi-autonomous—as if it can speak for itself, or for ‘all of us’. These ontological assumptions about data help justify the realist conception that people, institutions, and technical sensors simply collect data about a world that *already exists*.

There is a broadening assumption that the substance of the world *is data*, what Hand refers to as the “Dataverse”⁷⁰. Similarly, Kitchin refers to the “big” dataset as “n=all”⁷¹. These

⁶⁶ Shelton et al., *supra* note 63

⁶⁷ Jathan Sadowski and Frank Pasquale, *The spectrum of control: A social theory of the smart city*, 20 FIRST MONDAY (2015)

⁶⁸ KITCHIN, *supra* note 52

⁶⁹ Adrian Mackenzie and Theo Vurdubakis, *Codes and Codings in Crisis: Signification, Performativity and Excess*, 28 THEORY, CULTURE & SOCIETY, 3-23 (2011)

⁷⁰ Martin Hand, *From Cyberspace to the Dataverse: Trajectories in Digital Social Research*, in BIG DATA? QUALITATIVE APPROACHES TO DIGITAL RESEARCH 1-27 (Hand and Hillyard eds., 2014)

assumptions lead to the view that data is now everything that matters, and conversely everything that matters is now data⁷². Even for the boosters of data-led governance, this may be an exaggeration, but discourses like “evidence-based policy” and “data-driven governance” continue to nurture these views. At the same time there is a growing realization that the human brain cannot actually process and identify patterns out of big data without the assistance of machines; indeed this has become part of the definition⁷³. For its own part, “small” data is considered flawed because it cannot be sufficiently separated from direct human experience and subjectivity⁷⁴.

In the dataverse it is no longer professional autonomy and control of the bureaucratic “files” that constitute objective decision making. Rather the “post-bureaucratic organization”⁷⁵ must make sense of *data in motion*. Through sophisticated processes of data capture (e.g. digital sensors, Internet surveillance, relentless feedback surveys) governance systems have gained access to much more data, though in Beniger’s terms of a *crisis of control*, the fundamental problem has not changed. While gaining access to data and information continues to be a challenge for every institution, the crucial issue is turning data and information into useful, meaningful or actionable knowledge. Simply stated, the problem is not a lack of data, but keeping up with too much data moving at speed.

Here the algorithm is enrolled as the perfectly objective procedural processor; a recursive data filtering mechanism designed to eliminate subjective and inefficient human decision-making. The algorithm is thus entangled in every socio-economic process that has a digital component. Through their capacity as routinized filtering devices, the coded algorithm brings single data points with little value or meaning into a relation with countless other data points in a process which produces a “...smoother, more predictable surface for capitalist consumption”⁷⁶. While algorithms are designed by people and situated in particular social contexts, they also tend to recede into obscurity as they endow routinized operations.

⁷¹ KITCHIN, *supra* note 52 at 72

⁷² danah boyd and Kate Crawford Critical Questions for Big Data, 15 INFORMATION, COMMUNICATION & SOCIETY, 662-679 (2012)

⁷³ At the same time, powerful computers are now widely available across society meaning that non-institutionalized or non-bureaucratized actors can now analyse large data sets. This is changing the nature of, among other things, expertise and research both in- and outside the academy. See generally Hand, *supra* note 70; Mike Savage and Roger Burrows, *The coming crisis of empirical sociology*, 41 SOCIOLOGY, 885-899 (2007).

⁷⁴ KITCHIN, *supra* note 52

⁷⁵ Michael Reed, *supra* note 34

⁷⁶ Thatcher, et al., *supra* note 41 at 9

There is in this process a tension reminiscent of Weber's bureaucracy. On the one hand, there is the faceless procedure, resistant to appeals by individuals to view the client as more than a category or component⁷⁷. On the other there is the potential to obscure corruption by economic or political power in a mundane, recursive process. Yet, this surface contradiction masks a deeper underlying logic; in this way the algorithm has become a seamless carrier of modernization for the interests of both the political classes and capitalist enterprise⁷⁸. Put differently, the practical rationality of the algorithm quite easily translates into the formal calculative rationality that dominates most modern capitalist organizational structures, leaving little room for alternative or substantive rationalities.

Finally in the realm of bureaucratic objectivity, we emphasize the importance of quantification, or what Weber called the "romanticism of numbers"⁷⁹. What began in the emergence of statistics and modernity as an "avalanche of numbers"⁸⁰ has intensified in the digital age. While statistical modeling was crucial to the development of the modern bureaucratic state, today it seems that almost everything is evaluated according to numerical indicators, benchmarks, ratings, and rankings. Porter referred to this as the growth of "mechanical objectivity", where numbers are considered considerably more trustworthy than the modified templates or contextualized accounts offered by elite, professional, decision-makers⁸¹. This notion of objectivity is not, however, limited to facts about the external world. On the contrary, the mechanical objectivity of numbers is powerful because it tends to reorganize bureaucracies around rule-based decision making, and numbers and mathematics are better suited to the objectivity of rules—the most pure manifestation of which is the algorithm. As Porter says, "quantification is a way of making decisions without seeming to decide"⁸². Indeed there is seemingly less room for substantive human decision-making, but only because the algorithms have been designed to limit that capacity to begin with. In conclusion here, we suggest that quantification and numbers, with their distinct air of *relative disinterest*, do work producing legitimacy for the governance of the neoliberal market society, something that relative autonomy did for the Weberian bureaucracy and its political institutions.

3.3 Remotely Rational

⁷⁷ BERGER ET AL., *supra* note 8 at 49

⁷⁸ PASQUALLE, *supra* note 41

⁷⁹ WEBER, *supra* note 33 AT 71

⁸⁰ IAN HACKING, *THE TAMING OF CHANCE* (1990)

⁸¹ THEODORE M. PORTER *TRUST IN NUMBERS: THE PURSUIT OF OBJECTIVITY IN SCIENCE AND PUBLIC LIFE* (1995)

⁸² PORTER, *id.* at 8

To put it in Weber's terms, the celebrants of the digital information revolution argue that digitalism has weakened domination by formal rationality by flattening and opening up the structures of socio-economic administration. Not least as a result of access to more knowledge and information, individuals have more opportunities to cultivate their own substantive rationalities, if not influence others by easily distributing knowledge. On the surface it certainly appears that formal rationality, which became most legible in the bureaucracies of modernity, has come under increasing pressure as widely available information and knowledge have 'empowered' individual creativity, encouraged entrepreneurship, widened opportunities for social networking, and engendered social difference.

Indeed, there is little doubt individuals are now more easily able to disseminate information. However, whether individuals are any more empowered to actually create new knowledge, and/or whether this knowledge has more impact on the structuring of society, is an entirely different inquiry. It is quite possible that individual "creativity" or entrepreneurship is rather more like a survival mechanism for those individuals (the vast majority) who have become disenfranchised from the benefits of Fordist bureaucratic structures⁸³ such as the welfare state, organized labour, or just relatively stable employment in a large corporation⁸⁴.

Our argument is that whilst the bureaucratic skeleton that emerged in modernity may be under pressure, its ordering DNA—techno-scientific rationality—is not⁸⁵. It is alternatively, manifesting itself in a new, digitized form. Rather than a centralized hierarchy dominated by professionals and managed by experts, digital information technologies and an intensified division of labor have dispersed bureaucratic logics making them less legible, but no less consequential. This is bureaucracy at *relative distance*. To again invoke Beniger, the digital

⁸³ du Gay, *supra* note 26

⁸⁴ See generally RICHARD SENNETT, *THE CULTURE OF THE NEW CAPITALISM*, (2006); URSULA HUWS, *LABOR IN THE GLOBAL DIGITAL ECONOMY* (2014), BAUMAN, *supra* note 6.

⁸⁵ On this topic, Bauman's interpretation of Weber is insightful. See ZYGMUNT BAUMAN *HERMENEUTICS AND SOCIAL SCIENCE: APPROACHES TO UNDERSTANDING* 77 (1978 emphasis in original)

"One could almost say that in such conditions, which become dominant with the advent of the capitalist market, value-judgements merge with objective interpretations. This, however, relates only to those value-judgements which are value-relevant, i.e. accept the dominant ultimate values of the era and, therefore, limit themselves to purely instrumental questions, and take the means as their sole object. Here lies the secret of the unsurpassed achievement of the civilization which, by securing an unchallenged domination of instrumentally rational conduct, took the sting of relativism out of evaluation. It is in this way that the practical utility of social science has become possible for the first time *without* sacrificing the principle of non-partisanship and value-neutrality of science. To be more precise, the one battle science can fight legitimately (i.e. whilst remaining true to its nature) is the one aimed at facilitating and prompting the tendency of our civilization towards reason, efficiency, instrumental perfection, and rationality".

revolution has caused a new “control crisis”, the solution to which includes formal bureaucratic rationality, but operating at scattered locations across a hybrid of geographic scales⁸⁶.

For Hibou, the defining characteristic of bureaucracy is its capacity to formalize diverse and contingent social relationships into abstract categories that more easily align with calculation and rule-based systems⁸⁷. In the Weberian bureaucracy of modernity, much of this process was driven by the codification of text inscribed on “papers in motion” through the bureaucratic structure, and their archiving in ‘the files’⁸⁸. Today this formalization and abstraction happens through the categorization processes of digital code, which engenders both an atomized level of detail as well as increased mobility of information, the ultimate goal being the instantaneous diffusion of tightly categorized information across space in ‘real time’.

The ability to “know” and thus manage operations at a granular level, all within the language of digital code, contributes to an environment where different kinds of information and information systems across various fields become interoperable⁸⁹. And it is in this sense that there is an emergence of new socio-informational infrastructures⁹⁰ where human bodies, industrial production, climate-controlled buildings, and surveillance and policing systems are increasingly integrated and assembled into what Kallinikos refers to as the common “institutional matrix” of the “modern social arrangement”⁹¹. Crucially, however, the interoperability between these systems is not driven only by the common language of digital code, but an automated rule-based rationality.

These innovations in digital technologies and their ‘rationalizations’ have contributed to an acceleration of the spatio-temporal dynamics of life. Weber presciently described communications infrastructures, as the “pacemaker of bureaucratization” and suggests that the speed at which public information is circulated “...exerts a steady and sharp pressure in the direction of speeding up the tempo of administrative reaction towards various situations”⁹². In the same way as paper files, telegraphs and radio signals in Weber’s time, the “real time” and automatic feedback loops⁹³ of digitalism produces both an individual and an institutional

⁸⁶ BENIGER, *supra* note 22

⁸⁷ HIBOU, *supra* note 5

⁸⁸ BERGER ET AL., *supra* note 8 at 47

⁸⁹ Kallinikos, *supra* note 46 at 136

⁹⁰ KITCHIN, *supra* note 52; KELLER EASTERLING, *EXTRASTATECRAFT: THE POWER OF INFRASTRUCTURE SPACE* (2014)

⁹¹ Kallinikos, *supra* note 46

⁹² Max Weber, *Bureaucracy*, in *FROM MAX WEBER: ESSAYS IN SOCIOLOGY*, at 211 and 215 (Gerth and Mills eds. 1948)

⁹³ CASTELLS, *supra* note 44

reorientation toward speed and reactivity⁹⁴, which as Virilio has pointed out, increasingly resemble military style logistical management⁹⁵. This constant and instantaneous surveillance, measurement, and assessment further necessitate bureaucratic alignment with algorithmic governance.

Where once information and rules, or files and procedures, were separated by time and space, real-time algorithmic control has collapsed them into *governance in motion*. Governing in motion sets the tempo, in tune with the cognitive orientation of the neoliberal market society, on the one hand, and the rhythm of the digital bureaucracy, on the other. Innovation and adaptation in this often chaotic environment becomes not only an entrepreneurial strategy but a survival skill⁹⁶. Individuals and institutions that are unable or unwilling to keep pace are simply left behind.

This new temporal logic of instant feedback and real-time innovation is not limited to formal institutions and organizations. It is also integrated into the thoughts and bodies of workers and consumers through constant processes of valuation and measurement⁹⁷. For instance, personal identity is increasingly entangled with social media⁹⁸ as people spend significant time managing their online life, including the ways their identity and real-time locations are marketized in the ‘like economy’⁹⁹.

It is through such valuations that a different kind of future is now imagined and produced, in turn constituting this new organizational form. Gone is the Weberian bureaucracy’s assumed possibility of upward progression through large hierarchical organizations or the “internal labor market”¹⁰⁰. Experience and loyalty, once valued by large organizations¹⁰¹, is now traded for the ubiquitous demeanor of “talent”, which is itself parsed as the quality of adaptability to novel and often chaotic conditions. Permanent disruption and innovation replace relative stability and security, whilst the ad hoc project team replaces Weber’s bureaucratic

⁹⁴ Kitchin, *supra* note 64

⁹⁵ PAUL VIRILIO, *SPEED AND POLITICS* (2006), see also COWEN, *supra* note 53

⁹⁶ Eran Fisher, ‘Upgrading’ Market Legitimation: Revisiting Habermas’s ‘Technology as Ideology’ in *Neoliberal Times 2* *FAST CAPITALISM* (2007)

⁹⁷ Simon Lilley and Dimitris Papadopoulos, *Material Returns: Cultures of Valuation, Biofinancialization and the Autonomy of Politics*, 48 *SOCIOLOGY*, 972-988 (2014)

⁹⁸ John Cheney-Lippold, *A New Algorithmic Identity: Soft Biopolitics and the Modulation of Control*, 28 *THEORY CULTURE & SOCIETY*, 164 (2011)

⁹⁹ Agnieszka Leszczynski, *Spatial big data and anxieties of control*, 33 *ENVIRONMENT AND PLANNING D: SOCIETY AND SPACE*, 965–984 (2015)

¹⁰⁰ HUWS, *supra* note 84, at 27-45; SENNETT, *supra* note 84

¹⁰¹ SENNETT, *supra* note 84

experts¹⁰². Furthermore, the routinization that Weber identified and compared with machines has been intensified where seemingly almost any repetitive process can now be mechanized through digital algorithms leaving behind a growing reserve army of labor that puts downward pressure on wages¹⁰³.

There is little question that digital information technologies have reframed bureaucratic rationality. But instead of opening it up to alternative values they have, instead, intensified its techno-scientific character. While, on the surface, digital information technologies allow for the reproduction of existing, and cultivation of new substantive rationalities, the dominant techno-scientific rationality of modernity is enhanced, not diluted by digitalism. Put differently, while the conventional bureaucratic structure appears to be disintegrated and dispersed, the social order engendered by information technologies transports the logic of bureaucracy more deeply into society. The effect is something like Bauman's "fluid modernity", where the market becomes the perfectly adaptable (price) mechanism through which to order society, and explains why as Hibou argues, "we are all neoliberal bureaucrats"¹⁰⁴.

This does not mean that hierarchical organization has disappeared. It is simply located in a different place—the digital platform, where the filtering and enclosure of information is more important than the explicit discipline and enclosure of laboring bodies on the factory floor or in the corporate cubical¹⁰⁵.

One example that has recently attracted attention is the Chinese state's pilot "social credit system" where every citizen and company will be assigned a trustworthiness score¹⁰⁶. The plan is for the score to automatically update based on innumerable digitally traceable social interactions from minor traffic violations to using the Internet to falsely accuse others, to whether one has provided suitable care for aging parents. Similar to credit scoring in the US, though on a colossal scale, the system will be fuelled by big data and driven by an algorithmic logic that both disciplines society as well as capital—a particular concern is fraudulent corporations that have, for instance, marketed tainted baby formula and all in an effort to improve the functioning of China's growing market economy. As a digital footprint, the score

¹⁰² Stewart Clegg and Carmen Baumeler, *Essai: From Iron Cages to Liquid Modernity in Organization Analysis*, 31 ORGANIZATION STUDIES, 1713–1733 (2010)

¹⁰³ HUWS, *supra* note 84

¹⁰⁴ HIBOU, *supra* note 5 at xvi

¹⁰⁵ Greene and Joseph, *supra* note 41; Thatcher et al., *supra* note 41

¹⁰⁶ Simon Denyer, *China's plan to organize its society relies on 'big data' to rate everyone*, THE WASHINGTON POST, October 22, 2016 (last accessed on April 8, 2017)

https://www.washingtonpost.com/world/asia_pacific/chinas-plan-to-organize-its-whole-society-around-big-data-a-rating-for-everyone/2016/10/20/1cd0dd9c-9516-11e6-ae9d-0030ac1899cd_story.html

would determine the possibility of travelling abroad, placing children in particular schools, or even getting a seat in a top restaurant. This is a fascinating example of the transformation of more conventional state bureaucracy into a digitized social order; one where the formal rationality of quantification and calculation now give new form to efficiency, objectivity and rationality. Not unlike a conventional bureaucracy, there is little room here for substantive interpretation, exceptions, or alternatives, and while the authority of the state may be less visible, there is little question it is operating in the shadow of the platform.

Figure 1

Weberian bureaucratic concept	Digital bureaucratic concept
Knowledge	Data
The Public	Big Data
Bureau/Office	Platform
Professional/Expert	Data scientist
Charismatic Leader	"Talented" Innovator/Disruptor
Rule	Code
Procedure	Algorithm
Files & Archive	Digital footprint
Iron cage	Silicon Web

Figure 2

Bureaucratic Principle	Political Economic Discourse	Means of Digital Manifestation/Transformation
Efficiency (of means to ends)	Austerity, Sustainability, Logistics, Competition	Routinization, Financialization, Accountability, Smart City
Objectivity (procedural neutrality, autonomy from "politics")	Big Data, Evidence-based policy	Big Data, Openness, Crowdsourcing, Algorithm, Quantification
Rationality	Techo-Scientific Innovation, Digital 'Disruption', Neoliberalism	Formalization, Ranking, Machine Logic, Acceleration, Automated Trading, Logistical Management

4. Digital Neoliberalism Means (and Ends)

Our 21st Century communication network, regarded by its early adherents with a religious fervor, has been turned into a surveillance and advertising mechanism. The World Wide Web is just that—a web that ensnares everyone who uses it.

--T Bone Burnett, September, 2016¹⁰⁷

What, then, of the politics surrounding these digital transformations? Does society, or the public, retain any power to decide how—if at all—these technologies should be employed to achieve particular ends? In other words, might one assume that these technologies are ultimately subject to both individual human will and/or democratic institutions? At least in the current political environment, on these questions our answers are relatively pessimistic. In this section we outline our main reasons for this pessimism. They are all related to the erosion of the boundary between the social and the economic that is one of the key characteristics of neoliberal order¹⁰⁸. As mentioned above, erosion of this boundary is one of the qualities of a conventional bureaucratic structure where formal calculative rationality tends to dominate, but we see an intensification of this erosion in neoliberalism. As a result, the possibility of a social ethics—one where social ends might be agreed upon or even just debated—is seriously diminished.

While Weber explains the efficiency of bureaucracies in the terms of appropriate means to achieve particular ends, he is not naïve about the possibility of the means becoming a driving force. In fact, one of the enduring criticisms of bureaucracy is that it becomes internally obsessed with its own reproduction and loses sight of its larger purpose. Weber explains at length how difficult it can be to dislodge a bureaucratic structure once it is firmly in place¹⁰⁹. Castells, who is more explicitly critical of bureaucracy actually defines the organizational type by the characteristic of a focus on means over ends¹¹⁰.

¹⁰⁷ Stacy Chandler, “*Music Confounds the Machines*”, NO DEPRESSION, (T Bone Burnett’s Keynote Address to AmericanaFest) last accessed April 8, 2017 <http://nodepression.com/article/music-confounds-machines>

¹⁰⁸ WILLIAM DAVIES, *THE LIMITS OF NEOLIBERALISM: AUTHORITY, SOVEREIGNTY AND THE LOGIC OF CAPITALISM* (2014)

¹⁰⁹ WEBER, *supra* note 15

¹¹⁰ CASTELLS, *supra* note 44 at 171: “In a dynamic, evolutionary perspective there is a fundamental difference between two types of organizations: organizations for which the reproduction of their system of means becomes their main organizational goal; and organizations in which goals, and the change of goals, endlessly reshape the structure of means. I call the first type of organizations bureaucracies; the second type, enterprises.”

Nevertheless, during the post-World War II height of Fordism, embedded liberalism, or what Bauman called “solid modernity”¹¹¹, the bureaucratic welfare states of Western Europe and the US were largely successful in producing socially beneficial ends. Inequality was reduced, the social safety net protected the most vulnerable, speculative finance was tightly controlled, and supported by state institutions, capital and labor compromised to the benefit of the working and middle classes.

Furthermore, there was during the middle of the 20th Century a widespread assumption of a *socially* progressive telos. One of the key components of modernity was that modernization would deliver, over time, “development” for all nation-states, especially those in the Global South¹¹². There was a widespread notion that intellectual knowledge or reason, operationalized through science and technology, and enabled to do public work through rationalized politics, would eventually improve the conditions for *everyone*. While this linear development model, envisioned by scholars such as Walt Rostow, was in many ways flawed (i.e. “written” from the Global North and largely build on racist, colonial, and imperial logics, as well as carried out through highly gendered and racist institutions), it was also based on the ethos that those individuals who “played by the rules”, or abided by the dominant rationality, would be rewarded. In other words, it was assumed that science and technology enacted through formal and relatively rigid social structures were the means to a broader end of social development.

The digital as a basis of social organization, comes at a time when this imagined telos of modernity has largely disappeared, and been replaced with a neoliberal capitalist ethos, where *economic* development is both the means and the end of social development. After the ‘end of history’, or the end of actually existing communism, it is much more difficult to theorize an outside to capitalism, or invoke social emancipation and development as a public good outside of the terms, motives, and means of private profit and economic growth¹¹³. This is not to suggest that modernity was somehow purely driven by emancipatory goals. The seeds of the post-modern obsession with creative destruction, ephemerality, and uber-flexibility, were important parts of both enlightenment thought and the social structures of modernity¹¹⁴. These qualities simply became more dominant in the socio-cultural structures of post-modernism, or what in political-economic terms we should call neoliberalism.

¹¹¹ BAUMAN, *supra* note 6

¹¹² JAMES FERGUSON, *GLOBAL SHADOWS: AFRICA IN THE NEOLIBERAL WORLD ORDER* (2006)

¹¹³ Boaventura de Sousa Santos, *The Fall of the Angelus Novus: Beyond the Modern Game of Roots and Options*, 46 *CURRENT SOCIOLOGY*, 81-118 (1998), see also BAUMAN, *supra* note 6.

¹¹⁴ DAVID HARVEY, *THE CONDITION OF POSTMODERNITY* (1990), see also BAUMAN, *supra* note 6

These conditions have worsened since the 1970s to the point where there is now hardly the political possibility of debating, let alone mandating, social ends via state means. As Davies points out, the more that the state relies on the calculative rationality of markets in an effort to appear objective and in turn regain legitimacy, the less authority it is able to retain¹¹⁵. The neoliberal state, having mostly given up on appealing to an external social referent, has lost the moral authority to act in most social contexts. Instead the state is dominated by economic and financial calculation. However this logic hardly lends itself to widespread legitimacy to accomplish anything other than constant attempts to reproduce the conditions for economic growth, or to just reproduce the market itself. In the US and the UK in particular, this has contributed to a deligitimation of any sort of *public* administration, in many cases reducing state bureaucracy to its capacity to encourage competition between *private* actors.

These conditions are only worsened in an environment where both the state and private capital are in increasingly adopting the general logic of mechanized technologies—or what Ellul calls “technique”¹¹⁶. Carried by digital technologies, and emboldened by hegemonic discourses around the centrality of technical innovation, every social process now seems to be subject to the ‘disruptive’ forces of, and potential within, the digital. Ellul’s point, made in the 1950s, was that technical procedures and processes were no longer something that “man” put to use for particular ends, but that technique had become an end in itself. He called it “the consciousness of the mechanized world” that “...does in the domain of the abstract what the machine did in the domain of labor”¹¹⁷. For Ellul, technique had become the very substance of society. This matters because digital code, the digital algorithm, and the digital platform are nothing if not dominated by the recursive logic of machines¹¹⁸. In this sense, the digital machines that drive social administration are examples of a perfectly calculative apparatus.

This also helps explain why there is an “elective affinity”, between market ‘solutions’ to political problems and the reformatted principles of bureaucracy in the digital age. Setting aside the contradictions of technological advance in capitalism, in the sphere of private enterprise it is relatively straightforward that capital would put digital means to work to achieve the ends of competing for profitability in the market. But in the sphere of public administration, the neoliberal evacuation of collective goals plug into the relative disinterest of digitized objectivity and the relative distance between state bureaucrats and the governed, separated by the

¹¹⁵ DAVIES, *supra* note 109

¹¹⁶ JACQUES ELLUL, *THE TECHNOLOGICAL SOCIETY*, (1964)

¹¹⁷ *Id.* at 5

¹¹⁸ Paolo Totaro and Domenico Ninno, *The Concept of Algorithm as an Interpretative Key of Modern Rationality*, 31 *THEORY CULTURE & SOCIETY*, 29–49 (2014)

formalization of the algorithm or the rationalization of the platform. For a neoliberal thinker like Hayek, market mechanisms ought to replace centralized and relatively autonomous state bureaucracies exactly because they wrongly assume to grasp social ends. In this sense, encouraging the marketization of the pre-processing of bureaucratic information through routinized filters aligns perfectly with neoliberal ideology by doubly removing the possibility of public interference—once through the private market and once through technique. After all, for many neoliberals, the market is assumed to take the place of human knowledge and judgment, if not turning ignorance of anything resembling society into a virtue¹¹⁹.

To summarize, the emergence of digital media has been concurrent with the emergence of a neoliberal political economy which is consonant with a bureaucratic rationality where innovation, adaptability, and efficiency are the functional means, but without the progressive ends. In other words, innovation, adaptability and efficiency are the means without purpose or intent—at least outside of the logics of wealth accumulation. They are the means *and the ends*. This is driven by what Davies¹²⁰, gesturing to Weber, calls the “disenchantment of politics” where political discourse is delegitimized as ambiguous, subjective and irrational¹²¹. In neoliberal politics there is little room for a discussion of public goods¹²², and discussions of society are almost exclusively framed by ‘financial realities’.

5. Concluding Thoughts (in Motion)

These pieces are written at that border between what one knows and what one thinks it might be possible to think, between what little one grasps and the great gulf of ignorance which that partial grasp reveals.
--Nikolas Rose—*Powers of Freedom*¹²³

In writing this paper, we have constantly found ourselves writing at the edge of our capacity to grasp, in part because our cognitive frames for understanding are anchored in a relatively distant world, and in part because information economies and the “data revolution” conceal so much of what could and should be revealed. Not only is it difficult to bring some of these processes into clear view, it is even harder to predict just what sort of society will emerge

¹¹⁹ PHILIP MIROWSKI, NEVER LET A SERIOUS CRISIS GO TO WASTE: HOW NEOLIBERALISM SURVIVED THE FINANCIAL MELTDOWN (2013) at 78-83

¹²⁰ Davies, *supra* note 109

¹²¹ *Id.* at 4, Davies explains further: “But the central defining characteristic of all neoliberal critique is its hostility to the ambiguity of political discourse, and a commitment to the explicitness and transparency of quantitative, economic indicators, of which the market price system is the model. Neoliberalism is the *pursuit of the disenchantment of politics by economics*” (emphasis in original).

¹²² WENDY BROWN, UNDOING THE DEMOS (2015)

¹²³ NIKOLAS ROSE, POWERS OF FREEDOM: REFRAMING POLITICAL THOUGHT 13 (1999)

over the next generations as digital technologies become ever more prevalent in daily life. Where will the line fall between a world fully engrossed with data in motion, and a world where new, non-digital, possibilities emerge? Put another way, will data in motion over-determine, for example, the future shape of the globally-ranked university, as it becomes a recursive socio-technical machine for producing ranking data. Will the city cease to be a system of living and working communities, but rather become a recursive engine for producing smart city efficiencies? Will the logistical management of the socio-economy no longer be a coordinating undercurrent, but the productive object of value itself? If the answer to these sorts of questions is “yes”, the silicon web may be more like Weber’s iron cage than even our relatively gloomy account has suggested.

There is considerable risk that governing the social, already significantly de-legitimated by neoliberalism, is further undermined by digitalism. When relative autonomy is replaced by the projection of relative disinterest, and where Westphalian democratic orders are undermined by governing in motion, and governing through relative distance, shortfalls in legitimacy emerge and questions of rule are posed. In other words, if digital technologies are no longer just tools we employ to accomplish tasks but they become the task and the object itself, as well as an authority in neoliberal market societies, the ethics of public or democratic authority will continue to suffer. This is where we must consider the very possibility that the logic of the algorithm is more than that which drives the digital machine. Rather, we need to ask to what extent the logic of the algorithm is the new ordering and organizing device of social opportunities, identities, consciousness and life itself? We ought to furthermore ask if there are limits to a mode of production that seems to produce profits by rationalizing social order itself.

Undoubtedly, social systems are unpredictable and difficult to enclose. Even recursive algorithms engaging in real time with the social world will occasionally produce the unexpected. Viewed in this way, it is likely that the diffusion of information and the forms of consciousness and socialities that are opened up might well prove too difficult to contain in a metaphoric silicon web. In this light, “hactivist” culture is something to be celebrated. Just as there was nothing inevitable about the advancement of modernity through the conventional bureaucracy, the growth of digitized bureaucratic administration is contingent and reversible. Nevertheless, as long as society and economy continue to produce exponentially more data and information, the principles of efficiency, objectivity and rationality continue to drive social administration, and the private accumulation of capital is the goal of economic life, we believe the silicon web will only become more sticky, rigid, and difficult to dismantle.