Technological Innovation and Legal Knowledge

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1 Introduction

This paper addresses the effect of emerging technologies on legal knowledge. How, I ask, does the practice of law address the products of legal AI, specifically the products of 'predictive coding'? Legal AI is not simply an efficiency tool: ultimately its distinct character generates interesting and challenging dynamics in everyday legal practice, diffusing practice across multiple sites and displacing the individual as the 'knowing' actor. Legal AI in other words makes manifest knowledge's status as a social artefact, with the law firm itself as the method of its discovery.

Technological change in general may see a shift to across the regulatory environment;[1] or law's subjects may come increasingly to be treated as 'cybernetic organisms;'[2] or rule of law might be engineered 'by design.'[3] In the context of legal practice, 'LawTech' products – technologies that "aim to support, supplement or replace traditional methods for delivering legal services, or that improve the way the justice system operates"[4] – have also drawn significant attention

[1] Roger Brownsword, *Law, Technology and Society: Re-Imagining the Regulatory Environment* (Routledge 2019); Hin-Yan Liu and others, 'Artificial Intelligence and Legal Disruption: A New Model for Analysis' (2020) 12 Law, Innovation and Technology 205.

[2] Mika Viljanen, 'A Cyborg Turn in Law?' (2017) 18 German Law Journal 1277.

[3] Monika Zalnieriute, Lyria Bennett Moses and George Williams, 'The Rule of Law 'By Design'?' (2021) 95 Tulane Law Review 1063.

[4] The Law Society of England and Wales, 'What Is Lawtech?' (5 June 2019) https://www.lawsociety.org.uk/campaigns/lawtech/guides/what-is-lawtech (accessed 4 August 2023); also The Law Society of England & Wales, 'Artificial Intelligence (AI) and the Legal Profession' (Law Society of England & Wales 2018) horizon scanning report.

in recent years. The emerging roles of artificial intelligence processes have already come into everyday practice.[5] For some the profession faces profound and possibly catastrophic change,[6] while for others any shifts might be more subtle[7] and we should focus for instance on managing ethical risks that the technologies bring.[8] This especially in the context that legal AI is not produced *within* the practice of law but is supplied and mediated by corporate actors; platforms; and expertise.[9]

While as Rodgers et al state, "technology has not yet ushered the end of law firms as we know them today,"[10] any transformation in law will be down in part to the impact technology has on what it is to *know*, specifically, how and where laws 'knowledge objects'[11] are made, managed and understood. Approaching AI as little more than a tool delivering more efficient paths to knowledge is insufficient. Rather than being inert, law's knowledge objects are constantly changing and 'unfolding.'[12] They are dynamic and 'vibrant'[13] and are wholly entangled with the practices and the pratitioners through which they are made and through which they emerge as 'signs' and 'texts.'[14] They are, that is, enfolded in 'intra-actions,'[15] inseparable from their computational apparatuses, from methods applied and indeed from the experts who steward and disseminate them.

LawTech is not made *in legal practice*: it is procured *into* legal practice from vendors that are themselves wrapped in a web of client service imperatives and norms; regulatory contexts and security controls. And legal AI's impacts will

[5]The Law Society of England & Wales (n 4); John Armour, Richard Parnham and Mari Sako, 'Unlocking the Potential of AI for English Law' (2021) 28 International Journal of the Legal Profession 65; John Armour and Mari Sako, 'AI-enabled Business Models in Legal Services: From Traditional Law Firms to Next-Generation Law Companies?' (2020) 7 Journal of Professions and Organization 27; also an important review in Ian Rodgers, John Armour and Mari Sako, 'How Technology Is (or Is Not) Transforming Law Firms' (2023) 19 Annual Review of Law and Social Science 5.1; for similar changes in Ireland see Rónán Kennedy, 'Algorithms, Big Data and Artificial Intelligence in the Irish Legal Services Market' (Houses of the Oireachtas 2021) Library & Research Service Spotlight 2.

[6]Richard E Susskind, *Online Courts and the Future of Justice* (Oxford University Press 2019); Richard Susskind, *Tomorrow's Lawyers: An Introduction To Your Future* (2nd edn, Oxford University Press 2017).

[7]Lisa Webley and others, 'The Profession(s)' Engagements with LawTech: Narratives and Archetypes of Future Law Symposium: Automation, Innovation and Disruption in Legal Practice' (2019) 1 Law, Technology and Humans 6.

[8]Rónán Kennedy, 'The Ethical Implications of Lawtech' in Denis Dennehy and others (eds), *Responsible AI and Analytics for an Ethical and Inclusive Digitized Society: 20th IFIP WG 6.11 Conference on e-Business, e-Services and e-Society, I3E 2021, Galway, Ireland, September 1–3, 2021, Proceedings*, vol 12896 (Springer International Publishing 2021).

[9]For one example see Laurence W Bebbington, 'IT in the Law' (2002) 2 Legal Information Management 67.

[10]Rodgers, Armour and Sako (n 5) 5.13.

[11]Karin Knorr Cetina, 'Sociality with Objects: Social Relations in Postsocial Knowledge Societies' (1997) 14 Theory, Culture & Society 1, 15.

[12]Ibid.

[13]Jane Bennett, *Vibrant Matter: A Political Ecology of Things* (Duke University Press 2010).

[14]Knorr Cetina (n 11) 15.

[15]Following Karen Michelle Barad, *Meeting the Universe Halfway : Quantum Physics and the Entanglement of Matter and Meaning* (Duke University Press 2007) 170.

be felt and will operate towards an already-shifting legal services context.[16] Given all this an 'object-oriented'[17] picture of AI and legal practice and legal knowledge – of its contours; rituals and sites – offers a fruitful path both into scoping out AI's impacts on law.

(1) The paper begins by focusing on law's institutional objects and the normative in everyday 'business as usual' legal practice. Specifically I argue that knowledge objects often emerge from protocols and practices, relying on a norm of 'attention to imitation' in accounting for those objects. **(2)** I go on to discuss the generation of knowledge objects from the machinery of legal AI. These objects are an entanglement of their already-processual inputs; of their complex and multi-site computational apparatus; of methods applied; and of their human stewards. Just as in physics laboratories, where as Karin Knorr Cetina puts it, "scientists are methods of inquiry; they are part of a field's research strategy and a technical device in the production of knowledge,"[18] so it is in legal practice, where multi-disciplinary teams emerge as methods of inquiry, part of the research strategy and technical devices in the production of legal knowledge. **(3)** Finally I argue that its 'processual-in-entangled-out' knowledge objects mean that legal AI perhaps uniquely displaces the individual lawyer as the core the 'knowing' actor in legal practice, replacing them with a more complex and multilayered agency at the whole-firm level and beyond.

The paper is organised into **three** sections. In section 2 I begin by situating the discussion in the distinction between 'brute' and 'institutional' facts, introduced by Neil MacCormick and others. I build on Neil MacCormick's perspective through a discussion of the institutional and technological entanglements that objects undergo. From there, following Gabriel Tarde, I discuss the 'somnambulent' character of institutional process: not only that institutional objects emerge in the context of repetition and procedure, but that practice relies on imitation, albeit at the same time leaving some space for the 'super-social' possibility of invention.[19] In section 3 I move on to a discussion of AI and especially to legal AI: the application of machine learning processes in legal practice. I draw legal AI out across two dimensions: the more or less *processual* character of the objects that acts as inputs for a machine learning system and the more or less entangled intra-actions of the system's outputs. I drill down on various aspects of legal AI in 'business as usual' practice, pointing out that AI, unlike other processes

[16] On generational, geographical and structural shifts, see Lydia Bleasdale and Andrew Francis, 'Great Expectations: Millennial Lawyers and the Structures of Contemporary Legal Practice' (2020) 40 Legal Studies 376; Emily Carroll and Steven Vaughan, 'Matter Mills and London-Lite Offices: Exploring Forms of the Onshoring of Legal Services in an Age of Globalisation' (2019) 22 Legal Ethics 3; Hilary Sommerlad, 'The Commercialisation of Law and the Enterprising Legal Practitioner: Continuity and Change' (2011) 18 International Journal of the Legal Profession 73; Margaret Thornton, 'Towards the Uberisation of Legal Practice' (2019) 1 Law, Technology and Humans 46.

[17] Graham Harman, *Immaterialism: Objects and Social Theory* (John Wiley & Sons 2017).

[18] Karin Knorr Cetina, *Epistemic Cultures: How the Sciences Make Knowledge* (Harvard University Press 1999) 29.

[19] Gabriel Tarde, *The Laws of Imitation* (Henry Holt and Co 1903) 88.

requires constant invention.

In section 4 I discuss the turn to legal AI as the emergence of (somewhat) laboratory techniques in legal practice. I discuss how this might interact with processes of institutional legitimation, especially in how people draw on Civil Procedure Rules. I conclude with a discussion of business-as-usual law, its objects and why the manner of their institutional presence matters. AI's being enfolded in our 'built moral environment'[20] brings the intra-actions of practice and apparatus to the fore at a firm and a beyond-firm level. In these circumstances lawyers and the increasingly multi-disciplinary teams of which they are just one part *are* the method through which practice is made. Any emerging ethic around the use of legal AI can only rely on efficiency to a degree. It must give an account of AI's knowledge objects – of the object *being its process* – instead of losing sight of them in patterns of imitation. Such an account can lead us to a more explict discussion of where the sites of legal knowledge lie.

2 Institutional facts: law's objects in context

My aim in this section is to think about how law attends to facts and objects more broadly. I begin, first, by drawing on Neil MacCormick's account of institutional facts to give an account of how objects are drawn into law and specifically into 'business as usual' legal practice.[21] Second, I give an account of the *normative* in legal practice's institutional normative order by drawing on Tarde's idea of society as somnambulent 'imitation.' The practice of legal practice is organisational and administrative, perhaps especially in large commercial practices that "are better understood as Professional Service firms (PSFs) rather than law firms."[22]

MacCormick's account of the normativity focuses on law as "a sub-type of 'normative order,' " as Dwyer puts it, "because it seeks to impose an order

[20]Geoffrey C Bowker and Susan Leigh Star, *Sorting Things Out: Classification and Its Consequences* (MIT Press 1999) 326.

[21]Neil MacCormick, *Institutions of Law: An Essay in Legal Theory* (Oxford University Press 2007); Neil MacCormick and Ota Weinberger, *An Institutional Theory of Law: New Approaches to Legal Positivism* (Springer Science & Business Media 1986); see also essays in Maksymilian Del Mar and Zenon Bankowski (eds), *Law as Institutional Normative Order* (Routledge 2016); MacCormick's (and Weinberger's) work draws on John Searle. Searle in turn drew heavily on Elizabeth Anscombe's work. See GEM Anscombe, 'Modern Moral Philosophy' (1958) 33 Philosophy 1; GEM Anscombe, 'On Brute Facts' (1958) 18 Analysis 69; John R Searle, *Speech Acts: An Essay in the Philosophy of Language* (Cambridge University Press 1969). Note MacCormick and Weinberger depart from Searle in their focus on social institutions and their combination of 'definitional' and normative rules. Neil and Weinberger, *An Institutional Theory of Law*, 23.

[22]Hilary Sommerlad and others, 'England and Wales' in Richard L Abel and others (eds), *Lawyers in 21st-Century Societies: Volume 1: National Reports* (Hart Publishing 2020) 4; for a similar discussion, albeit from a different perspective see Salvatore Caserta, 'New Technologies and Law Firms-an Uneasy Relationship: A European Perspective' (2022) 4 Law, Technology and Humans 183, on Denmark and Italy; see also Sommerlad (n 16); and essays in Steven Vaughan, 'Corporate Lawyers and Corporate Clients' (2016) 19 Legal Ethics 1.

in our social world which we accept as proper."[23] Law is an institution, and creates instituutions (marriage; contracts etc) that generate 'institutional facts.' And law itself is an institutional fact. Such facts are as Ola Weinberger has it "*meaningful normative constructs and at the same time they exist as elements of social reality.*"[24] The normative forms that institutional rules uphold can "turn out to be impenetrable practical constraints" because institutions (including law) deploy tools to *enforce* their preferred norms. People mostly only board airplanes with valid tickets for instance, not just because that is the 'proper' thing to do but because airports are designed to stop them doing otherwise.

Law as such "exists in the consciousness of people, meshes in with interconnections of behaviour-patterns and expectations, has standing relationships towards social institutions and observable events."[25] How this consciousness; set of interconnections and relationship plays out in the everyday corporate settings of legal practice is at this paper's heart however. What is it to act, on an everyday basis, certainly in the context of law's normativity but also in the midst of organisational governance; regulatory stipulations and other constraints? This is key to understanding the everyday reconfiguration of objects 'in the world' into law's knowledge objects and ultimately provides the context for legal AI.

The world being composed "not only sheer physical facts and realities, but also institutional facts"[26] Law's operation in and on society is characterised by 'institutional facts': facts and knowledge that have no substance beyond the institution's normative and coercive power. A range of arrangements (contracts; marriages; trusts etc) and things (shares; patents etc) are made available through law and are put to use in society at large.[27] Law's objects operate in and on the world by being 'humanly conditioned' as MacCormick sees it.[28] Physical objects become institutionalised when 'other information' adheres to them through a "formidable body of legal and other rules" an dwithout which "the physical object would lack or lose its current meaning."[29] In the absence of institutional facts we would face "the chaos of a world in which there were no 'states of affairs' that we could recognise or describe, and nothing that we would recognise as human life and action."[30]

[23]Déirdre Dwyer, 'Beyond Kelsen and Hart? MacCormick's Institutions of Law' (2008) 71 Modern Law Review 823, 825.

[24]In MacCormick and Weinberger (n 21) 113 [emphasis in original].

[25]Ibid.

[26]MacCormick (n 21) 11.

[27]Ibid 35–6.

[28]MacCormick and Weinberger (n 21) 82; on brute facts see Elly Vintiadis, 'Introduction' in Elly Vintiadis and Constantinos Mekios (eds), *Brute Facts* (Oxford University Press 2018).

[29]MacCormick (n 21) 12.

[30]Rachael Wiseman, 'Anscombe on Brute Facts and Human Affairs' (2020) 87 Royal Institute of Philosophy Supplements 85, 99. Here Wiseman distances herself from Anscombe's pessimism regarding the possibility of us making 'moral ought' statements in the absence of a coherent philosophy of human action; Anscombe, 'Modern Moral Philosophy' (n 21) 18; see also the discussion in Ram Neta, 'On the Normative Significance of Brute Facts' (2004) 10 Legal Theory 199.

As such we might have purely institutional objects. Contracts and companies and treaties are species of objects as institutional facts in this sense, situated in statute and enumerated by courts[31]. They are facts by virtue of the kinds of rules law makes and would not exist absent law:[32] they have no 'brute' existence. Law is "institutional, authoritative, and heteronomous, contrasting with the personal and controversial, the discursive, and the autonomous character essential to morality."[33] MacCormick points to the necessarily institutional setting for such facts about the world and for our interactions with legal objects. They don't make legal knowledge: they *are* meaningful knowledge by virtue of the regulatory and normative landscapes we occupy.

We ought not to ignore how law sets the status of more 'brute' objects (blood; balance sheets; Bloomberg Terminal chat logs) though.[34] Objects that begin outside law's institutions can play interesting and often profound roles when they come to be known through law.[35] They already exist 'in the world' but gain new meaning by virtue of institutional process turning them into murder weapons; or confessions; or forensic evidence. Where their social meaning interacts with health or gender for instance law might reconfigure them as vehicles of vulnerability and domination.[36] Kinship records – kinship *facts* – have played an unfortunate role in classification of populations;[37] and continue to tie personal identity through scientific process and on to legal status.[38] Seemingly mundane objects – viruses maybe – can raise and reset how relationships are conceptualised in and managed through law.[39] Very often, once institutionality adheres to an object it cannot easily be shaken off. We can only observe the object as a single item alongside its institutional being. That is to say, the object is in a state of entanglement with institutional norms and rules. To know the object is to know its institutionality (and *vice versa*).

The institutional normative order in a sense both answers to the objects and renders them accountable. Where for instance interrogation rules had not been followed what would otherwise be a confession is nothing more than a series

[31]MacCormick and Weinberger (n 21) 13.

[32]Dick WP Ruiter, 'Structuring Legal Institutions' (1998) 17 Law and Philosophy 215.

[33]Neil MacCormick, 'The Concept of Law and "The Concept of Law"' (1994) 14 Oxford Journal of Legal Studies 1, 1.

[34]On chat logs see Gavin Finch and Liam Vaughan, "'Cartell" Chat Room Traders Boasted of Whacking FX Market' *Bloomberg* (12 November 2014); Martin Arnold, 'UK Watchdog Fines Ex-Deutsche Bank Trader £180,000 over Libor' *Financial Times* (5 March 2018).

[35]As for instance Hohmann and others have shown with regard to international law. Jessie Hohmann and Daniel Joyce (eds), *International Law's Objects* (Oxford University Press 2018).

[36]Valeria Gomez and Marcy L Karin, 'Menstrual Justice in Immigration Detention' (2021) 41 Columbia Journal of Gender and Law 123.

[37]Bowker and Star (n 20) 195ff.

[38]Janet Carsten, 'Constitutive Knowledge: Tracing Trajectories of Information in New Contexts of Relatedness' (2007) 80 Anthropological Quarterly 403.

[39]Lisa M Austin, 'COVID-19 and the Data Governance Gap' (2023) 19 Annual Review of Law and Social Science 7.1; Naomi Finch and others, 'Undermining Loyalty to Legality? An Empirical Analysis of Perceptions of "Lockdown" Law and Guidance During COVID-19' (2022) 85 The Modern Law Review 1419.

of glyphs on paper.[40] Where laboratories had not applied their rules precisely, what would otherwise be DNA evidence becomes a 'brute' vial of blood or saliva.[41] Where data retention laws have not been adhered to, evidence becomes either bits or at a certain point nothing more than silicon where bits used to reside. These and other objects are known through their entanglements with legal institutions and their supporting procedures and norms.[42] Legal knowledge is formed not around objects' 'innate' characteristics, but around terms under which they are introduced in any proceeding; the manner in which they are handled and shared by police officers, scientists, lawyers and judges, and the accounts attached to them in doing so.

To take one example of this, we might turn to the Forensic Science Regulator's Code of Practice in England and Wales. The Code stipulates standards for maintaining and recording both physical and digital objects as they make their way through legal processes.[43] The Code focuses on ensuring the 'integrity' of results and data, including risk assessment and testing of procedures against contamination or even manipulation.[44] For digital evidence, such as messages or even step counts, procedures apply across preservation of devices and data; data acquisition; and analysis.[45]

All such standards and procedures perform two functions. They are involved first in transforming 'brute' objects into institutional objects for the purposes of law. Forensic science processes act to give objects the status of evidence for the purposes of criminal proceedings etc. A DNA sample or a cell tower log can be used to 'place' somebody at a location for instance. Or a chat log can identify collaboration in say market manipulation. All only if specific processes

[40]For instance *Gäfgen v Germany* [2010]; *GD V Commissioner of An Garda Síochána, Minister for Communications, Energy and Natural Resources, Attorney General* [2022].

[41]For example Forensic Science Regulator, 'Code of Practice' (FSR 2023) Code of Practice; ISO 17025: General requirements for the competence of testing and calibration laboratories 2017.

[42]For instance the various accounts given in Hohmann and Joyce (n 35).

[43]Forensic Science Regulator (n 41); also Gary Edmond, Sophie Carr and Emma Piasecki, 'Science Friction: Streamlined Forensic Reporting, Reliability and Justice' (2018) 38 Oxford Journal of Legal Studies 764.

[44]Andrew Rennison, 'Performance of Cellmark Forensic Services in the Case of R v [S]' (FSR 2013) report FSR-R-625; Forensic Science Regulator, 'Lessons Learned, Issue 5' (FSR 2019) Code of Practice; also ISO 17025; on the FSR see Stephen Mason and Daniel Seng (eds), *Electronic Evidence and Electronic Signatures* (5th edn, University of London Press 2021) 430ff.

[45]Richard Ayers, Sam Brothers and Wayne Jansen, 'Guidelines on Mobile Device Forensics' (National Institute of Standards and Technology 2014) NIST Special Publication (SP) 800-101 Rev. 1; The Crown Prosecution Service, 'Social Media and Other Electronic Communications' (CPS 2022) The Code for Crown Prosecutors; also Anang Marfianto and Imam Riadi, 'WhatsApp Messenger Forensic Analysis Based on Android Using Text Mining Method' (2018) 7 International Journal of Cyber-Security and Digital Forensics 319; Imam Riadi, Sunardi and Ammar Fauzan, 'Examination of Digital Evidence on Android-based LINE Messenger' (2018) 7 International Journal of Cyber-Security and Digital Forensics 336; Jan Peter Van Zandwijk and Abdul Boztas, 'The iPhone Health App from a Forensic Perspective: Can Steps and Distances Registered During Walking and Running Be Used as Digital Evidence?' (2019) 28 Digital Investigation S126.

are followed in delivering an object to counsel and to courtroom argument.

The second function enshrined in standards and procedures outline parameters of professional conduct towards such objects. *They outline the forms of institutional practice through which objects ought to be known* and in doing so tell lawyers and others how their practices ought to be conducted. Institutional knowledge about objects is inherently normative as such. It emerges through complex networks of multidisciplinary collaboration, across for instance laboratory technicians; training staff; and quality managers[46]. And after myriad forensic laboratory staff hand objects off, or hand knowledge about objects off, other professionals engage, for instance policy, lawyers, and judges, each with their own challenges and imperatives in managing evidence.[47] How are we to understand this normative element in business as usual practice however? While MacCormick is helpful in pointing to law's *being* normative, we might ask how this might be experienced in the pursuit of legal work.

The work of the sociologist Gabriel Tarde is instructive here. A contemporary of Durkheim, Tarde's theory of society, rather than seeking to link autonomous individual actors to macro-level institutions, identified social behaviour as largely *unconsciously imitative*. "*Society is imitation*," as he put it, "*and imitation is a kind of somnambulism*."[48] Order emerged for Tarde from emulation where "the individual entity was not an isolated unit but a point of intersection or interference between diverse lines of imitation."[49] Where "the little imitations, oppositions, and inventions constituting an entire realm of subrepresentative matter,"[50] the individual – human or non-human 'monads' in Tarde's view[51] – is a 'flow or a wave' rather than an autonomous unit, bringing those divers lines of imitation together.[52]

Note for Tarde imitation was not often a matter of constraint: rather it is simply an unconscious facet of being. For the most part, these lines of imitation could be described as somnabulism, as subconscious and unthinking, although the possibility always exists for invention, for a 'super-social' production of novel

[46]Forensic Science Regulator (n 44) 3.

[47]Dana Wilson-Kovacs and others, 'Digital Evidence in Defence Practice: Prevalence, Challenges and Expertise' (2023) 27 International Journal of Evidence & Proof 235.

[48]Tarde (n 19) 87.

[49]Andrew Barry and Nigel Thrift, 'Gabriel Tarde: Imitation, Invention and Economy' (2007) 36 Economy and Society 509, 513; also Marilyn Strathern, 'Afterword' in Matei Candea (ed), *The Social after Gabriel Tarde: Debates and Assessments* (Routledge 2010).

[50]Gilles Deleuze and Felix Guattari, *A Thousand Plateaus: Capitalism and Schizophrenia* (Brian Massumi tr, Bloomsbury Academic 2013) 255.

[51]Gabriel Tarde, *Monadology and Sociology* (Theo Lorenc tr, repress 2012).

[52]Ibid 11; Tarde's work was unsurprisingly raised by Bruno Latour, focused on the idea of the individual as emerging from their network of relations and imitations rather than as a privileged standalone being. See Bruno Latour, 'Gabriel Tarde and the End of the Social' in Patrick Joyce (ed), *The Social in Question. New Bearings in History and the Social Science*, vol 31 (Routledge 2002); Bruno Latour and others, "'The Whole Is Always Smaller Than Its Parts" - a Digital Test of Gabriel Tardes' Monads: "The Whole Is Always Smaller Than Its Parts"' (2012) 63 The British Journal of Sociology 590.

ideas and actions.[53] "New inventions or entirely fresh sources for imitation [which are] … necessary for the timely reanimation of expiring social energy"[54] can emerge and circulate. In the context of organisational routine however, imitation can be key.[55] Indeed legal practice relies on invention and innovation as practitioners seek pathways within the familiar parameters of pratice. That said, it also relies on everyday business as usual tasks. These patterns of imitation are perhaps overlooked as mundane, but are at the heart of how practice interacts with its objects.

Going back as such to the forensic laboratory and the institutionalising of, say DNA samples, the construction of a legal knowledge object requires a full range of protocols – of 'little imitations' – across a range of forensic functions. Establishing, say, that 'DNA x is a property of individual y and is also adhered to object z' requires individual somnambulism, not as unconscious performance of tasks but in terms of precise and unvarying and skilled imitations of laboratory and other tasks. Those tasked with reconfiguring DNA into its institutional manifestation must become little more than 'methods of inquiry,'[56] albeit shorn in any specific moment of any propensity for invention and innovation.[57] Everything from working an apparatus to affixing identifying stickers must be a matter of imitation.[58] And the DNA itself must imitate previous DNA objects - it must be a viable sample; it must not be degraded or 'tainted' etc. It is in other words also an 'actant'[59] in its production as an institutional fact.

Work as imitation could on the face of it expand an individual's 'zone of acceptance' around an activity,[60] Imitation as acceptance however is not outside normative reasons. That is, the normative can itself be thought of as grounding patterns of imitation. We might see the everyday of legal practice as purely imitative. It is somnambulist by necessity. But we ought not to think of it as stripping normativity out. The kinds of normativity contained in the institutional order are available as references for making sense of everyday practices. In the case of forensics laboratories, everyday scientific processes are also rules of

[53] Although somnambulism ought to be thought of as an analytical tool, not a literal instance of suggestion. See Bruno Karsenti, 'Imitation: Returning to the Tarde–Durkheim Debate' in Matei Candea (ed & tran), *The Social after Gabriel Tarde: Debates and Assessments* (Routledge 2010) 49.

[54] Tarde (n 19) 210.

[55] For a perspective on organisations and Tarde, see Barbara Czarniawska, 'Gabriel Tarde and Big City Management' (2004) 5 Distinktion: Journal of Social Theory 119; Barbara Czarniawska, 'Gabriel Tarde and Organization Theory' in Paul Adler (ed), *The Oxford Handbook of Sociology and Organization Studies* (1st edn, Oxford University Press 2009).

[56] Knorr Cetina (n 18) 29.

[57] On invention and innovation see Barry and Thrift (n 49); Czarniawska, 'Gabriel Tarde and Big City Management' (n 55).

[58] For an example of what occurs when this does not happen see Rennison (n 44).

[59] Bruno Latour, *Reassembling the Social: An Introduction to Actor-Network-Theory* (OUP Oxford 2005) 53ff.

[60] Herbert A Simon, *Administrative Behavior* (2nd edn, Free Press 1950); also Melvin J Dubnick and Jonathan B Justice, 'Barnard's Regret: Zones of Accountability and the Limits of Authority' (2014) 16 Public Integrity 141.

evidence and are also linked to norms of fairness and transparency in justice. In a real sense normativity becomes and takes its reassurance from being *attention to imitation*. The object – the DNA – is ultimately expressed through these processes; rules and norms and the individual *doing* the processing is a point where these all come together (until each moment when the object is handed on). Imitation of protocol in a sense is a deep institutional attention to the institutional object. In large part the object *is* the imitation.

With this in mind professional practice involves something other than employing expertise that is "esoteric, evanescent and fiduciary - beyond the layman's knowledge or judgment, impossible to pin down or fault even when it fails, and which must therefore be taken on trust."[61] Nor is it simply a set of monopolised functions (and jostling) arranged around jurisdictional groups.[62] 'Expert systems' of professional practice in modernity articulate the kinds of standards and judgements - whether they be explicit and rule-bound or implicit and imitative – encompassed by the kinds of 'institutional normative orders' articulated by MacCormick.[63] Such skills are and always have been inherently machine-based. They are an entanglement of *person, method and apparatus*.

The discussion thus far has taken us from MacCormick's perspective on law as a procedural and normative order through the institutional facts law makes to the (more) 'brute' objects law must incorporate. At the ground-level of legal practice however such orders are also *imitative*: law's institutional objects rely on imitation for their very being. Imitation is a reflexive process, with legal practice; practices of investigation and observation; the objects themselves; *and the practitioners* all interacting to create new knowledge forms. In the next section I move on to engage with AI and its objects and then with legal AI. I go on to give an account of technology's characteristics more generally. My aim here is to get at what is interesting about legal AI: how the knowledge objects it created within AI systems evade accounts that are separate from the systems themselves.

3 Artificial Intelligence Processes and their knowledge Objects

As I have it above, the institutional normative order of legal practice is in many respects founded on imitation. The 'somnambulism' of practice is itself

[61] Harold Perkin, *The Rise of Professional Society: England Since 1880* (2nd edn, Routledge 2002) 117.

[62] Andrew Abbott, *The System of Professions: An Essay on the Division of Expert Labor* (University of Chicago Press 1988).

[63] Anthony Giddens, *The Consequences of Modernity* (Polity Press 1990) 34; this take on institutional normative orders has parallels to Pinkard's discussion of Hegelian *Sittlichkeit*: an 'ethical virtuosity' as Pinkard put it, involving "learning and being trained in practices such that we acquire a certain type of skill, a virtue, a way of orienting ourselves in social space." Terry Pinkard, 'Virtues, Morality and Sittlichkeit: From Maxims to Practices' (1999) 7 European Journal of Philosophy 217, 226.

a normative device. Practice involves engagement with objects as they forge their institutional presence, rendering them vibrant and dynamic through their acting on other objects, becoming known and placed in their relationships and the like. A strand of DNA becomes evidence; both a kind of portrait[64] and a node in a network of protocols; processes and norms. In this section I discuss the knowledge objects produced by legal AI in business as usual settings. I bring out the contrast with DNA as an institutional knowledge object in order to ground our sense of legal AI's transformative role in law's knowledge. In short, while DNA is institutionalised through somnabulant adherence to (transparent and regulated) protocols, AI is institutionalied as a set of products that accept already institutionalised objects as its inputs and that produce profound entanglements, including with invention, as its outputs.

We must be careful to distinguish between artificial intelligence and machine learning. AI is a broader field that "can generally be understood as 'all attempts to automate human cognitive processes' " ranging, as Chollet puts it, "from the very basic, such as an Excel spreadsheet, to the very advanced, like a humanoid robot that can walk and talk."[65] Machine learning is a "specific subfield of AI that aims at automatically developing programs (called models) purely from exposure to training data. This process of turning data into a program is called learning."[66] For the most part when people talk about AI they mean the subset described by ML. While 'legal ML' would be more accurate I use the term legal AI in large part to adhere to the kinds of terminology used in practice.[67]

In order to approach this it is helpful to consider the objects that emerge through computational processes along two dimensions: the degree to which their inputs are already a product of computation first and second how entangled their outputs are (see Table 1). This is a somewhat artificial distinction, not least given that the discussion above suggests that few knowable objects – physical laws aside maybe[68] – exist outside some institutional form. The dimensions (effectively computationally-entangled-in; computationally-entangled-out) helps in clarifying varying kinds of computational process; and their intensity. No doubt the distinctions are far from discrete; but they highlight real variation in computational objects and as we shall see the particular objects produced by legal AI.[69]

[64]Marilyn Strathern, *Property, Substance, and Effect: Anthropological Essays on Persons and Things* (Hau Press 2022) 40.

[65]François Chollet, *Deep Learning with Python* (2nd edn, O'Reilly 2022) 432.

[66]Ibid.

[67]The Law Society of England & Wales (n 4); although see also Rodgers et al's use of 'Legal AI/ML' in (n 5).

[68]For a discussion see John Heil, 'Must There Be Brute Facts?' in Elly Vintiadis and Constantinos Mekios (eds), *Brute Facts* (Oxford University Press 2018).

[69]Contrast for instance Rubel et al's approach treating AI technologies as neutral and focusing instead on their effects. Alan Rubel, Clinton Castro and Adam Pham, *Algorithms and Autonomy: The Ethics of Automated Decision Systems* (Cambridge University Press 2021) 24.

Table 1: *Institutionalising computational processes acting on 'brute' objects*

Output ⇒ Input ⇓	**More separation from apparatus**	**More entanglement with apparatus**
Brute	Inputs *animated* by computation	Inputs animated in computation but are then inseparable from their apparatus
Processed	Inputs created computationally; outputs separable from the apparatus of their creation	Exotic objects emerge from and are inseparable from their apparatus

The vertical dimension – whether inputs are computationally brute or processed – does not involve necessarily input objects to be physical or not. The dimension denotes a spectrum across which inputs are more or less computationally derived in themselves. Brute objects emerge more outside computational systems whereas processed objects emerge more from within. As such, whereas 'found' objects are regarded as fundamentally stable in their 'brute' form, computationally processed objects are by their nature at least somewhat in flux, always as Kitchin puts it, 'in a state of becoming,'[70]. Such a spectrum does not describe discrete distinctions however. DNA is brute *and* captured. That is, at some level DNA is *found*, but must then be institutionalised at the interface of forensic science and legal procedure if it is to be accounted for. In city governance 'code and space are mutually constituted'[71] such that the more 'brute' facts of human movement; ambient temperatures; or particulate matter in the atmosphere must be detected and encoded by sensors; tabulated and rendered legible. Likewise an cybernetic object more fully initiated from code, a call log for instance, is recorded and disseminated computationally, but has a 'brute' substrate in the calls themselves, even if they are lost in time.

The horizontal dimension focuses on the degree to which the technology produces objects that can only be observed in an entangled state composed of the objects themselves; the apparatus through which they are examined; the methods applied to those apparatuses; and the people who conceptualise the methods and the outputs. When knowledge forms around an entanglement of brute objects, rules of evidence, document management procedures and professional norms, the only available information about the properties of such objects is composite

[70]Rob Kitchin, 'Thinking Critically about and Researching Algorithms' (2017) 20 Information, Communication & Society 14, 18.

[71]Rob Kitchin, 'From a Single Line of Code to an Entire City: Reframing the Conceptual Terrain of Code/Space' in Rob Kitchin and Sung-Yueh Perng (eds), *Code and the City* (Routledge 2016) 16.

information about the properties of the object, the rules, the procedures and the norms. Entangled objects are not just illegible or illegitimate absent their institutional setting (although they may be so): they are literally unaccountable in the sense that no account of them is available within the paradigm of law. From the perspective of law they are invisible.

The dimensions give some sense of the different kinds of object that might emerge from computational technologies, although the quadrants are only useful for analysis: actual technological operations do not exist in a binary state on these dimensions, they differ by degree. And, given code's always unfinished properties,nor are they situated in the same place over time. Moreover, technologies operate on objects that are in turn more or less institutionalised, are more or less a product of different sets of meaning and sensemaking themselves. The technologies produce objects that can more or less stand apart from the technological apparatus involved in their manufacture. That is those who work from and upon those objects regard them to a greater or lesser extent as either bounded and discrete in their own right or as composites. They are never discrete but only perceptible and manageable as part of a greater whole, composed of an apparatus; a method applied; and expertise and experts required to execute the process.

It is important to emphasise that these dimensions point to a *computational* distinction. AI – recalling that we are talking about machines applying statistical models to large training datasets then computing outputs for new data – produces outputs that are always in an entanglement with data and method. That is, the training data and the method acts on the new data such that the output can only be understood on 'whole system' terms. And AI, certainly within the institutional systems of legal practice, draws on inputs that are themselves often captured and made.

A range of computational systems in legal practice can be disaggregated along these dimensions. These might involve the relatively straightforward animations of documents already found in business premises for instance, perhaps especially in practice management. They might also involve operations on objects that are increasingly computationally processes: think for example electronic identification protocols (eg e-signatures). On the other dimension, some innovations, addressing inputs that are more or less computationally brute, produce outputs that are entangled with the apparatus used in their production. Others are less entangled, producing outputs where knowledge of the object is more separable from knowledge of the apparatus and process as a whole. The former might be more exotic – statistical clusters; metadata objects; sentiment metrics. The inputs are themselves already computed and produced. Such innovations produce knowledge in new sites and availing of new forms of commercial and in-house expertise, accessed on commercial platforms and served by their own techniques. The latter may be less exotic, relying on less processed objects as inputs but producing outputs that cannot be discerned absent their apparatus.

Each of these is an example of 'business as usual' legal practice. Such practice

is increasingly distributed across technical – and spatial – sites of expertise, with computation itself entangled with the selection and management of those sites. Firms engage with platform-based suppliers of technology and attendant expertise. This gives rise to questions of where legal practice resides in these situations; to the question of when and where legal services firms 'do' legal practice; and of how the resulting knowledge objects are 'chaperoned'[72] as they are further engaged and managed through legal processes and norms.

Electronic disclosure is one area that covers both everyday business as usual practice and that speaks directly to the vast range of data captured especially by large sophisticated corporate and state actors.[73] Disclosure aims to provide parties with fair access to relevant evidence, electronic or otherwise, thereby enabling them to build their cases. The challenge facing practice now is, as Zuckerman has it:

> The disclosure rules were developed at a time when documents were hand written and therefore expensive to produce and to store. Today documents are electronically generated and archived at virtually no cost. While in the past commercial litigation might have involved documents running into hundreds or a few thousands, today electronic communications may run to hundreds of thousands or even millions. The old practices are wholly unsuited to this new reality, not least because the traditional way of managing disclosure could now consume large numbers of billable hours and exorbitant cost.[74]

Across a range of moments, from case management conferences to trials; and a range of sites, from partners' office to onshored legal tech offices[75] to corporate vendors[76] electronic discovery sees algorithms utilised to track lawyers labelling practices and then match as-yet unlabelled documents to those labels: predicting relevance; isolating privileged documents etc.[77] Clustering algorithms might

[72]Harman (n 17) 5; regarding Knorr Cetina's discussion of knowledge objects in (n 11).

[73]Gregg Rowan and others, 'E-Disclosure: The State of the Art' (2014) 3-584-9345 Practical Law UK; Johannes C Scholtes and Hendrik Jacob van den Herik, 'Big Data Analytics for e-Discovery', *Research Handbook on Big Data Law* (Edward Elgar 2021); Donna Maddux and Susanne Luse, 'Don't Let Discovery Keep You Awake at Night: Best Practices for AUSAs eLitigation' (2020) 68 Department of Justice Journal of Federal Law and Practice 27.

[74]Adrian Zuckerman, 'Artificial Intelligence in the Administration of Justice' in Andrew Higgins (ed), *The Civil Procedure Rules at 20* (Oxford University Press 2020) 294.

[75]Carroll and Vaughan (n 16).

[76]For instance CosmoLex, 'CosmoLex Legal CRM Software' (2023) https://cosmolex.co.uk/features/legal-crm-software/ (accessed 9 August 2023); Themis Solutions, 'Clio Manage: Legal Practice Management Software' (2023) https://www.clio.com/uk/manage/ (accessed 9 August 2023); Shoosmiths - Eight, 'Cia® - Contract Review Service' (2023) https://www.shoosmiths.com/shoosmiths-eight/innovation-lab/cia (accessed 11 August 2023); Katie Pecho, 'Intro to Analytics and Automation for In-house Legal Teams' (10 August 2023) https://www.relativity.com/blog/intro-analytics-and-automation-for-in-house-legal-teams/ (accessed 17 August 2023); also Crispin Passmore, 'The Solicitors Regulation Authority: Looking to the Future' (2016) 19 Legal Ethics 145; Jonathan Kembery, 'The Evolution of the Lawyer's Lawyer' (2016) 19 Legal Ethics 112.

[77]Gregory L Fordham, 'Using Keyword Search Terms in E-Discovery and How They Relate to Issues of Responsiveness, Privilege, Evidence Standards and Rube Goldberg' (2008–2009)

seek to uncover documents by computing similarities across linguistic and other features in the documents and their metadata. Sentiment analysis algorithms, or search algorithms tracking sentiment labels can be employed in for instance harrassment disputes.

Ultimately a corpus of disclosed documents will be constructed on a probabilistic basis: that further exploration of the original data is unlikely (say 99% unlikely) to produce additional data.[78]. So while undoubtedly a barrister might end up with a printout of an email in a courtroom, this is no 'brute' object. It sits in multiple entanglements - with data storage; with data search algorithms and then perhaps with a clustering process. And the narrative the email represents is itself a product not just of a corpus of brute objects but of their emergence from an apparatus that includes the algorithms; the storage; methods applied; and the experts who have stewarded these.

E-disclosure relies most often on already computed and captured inputs: internal communications archived and logged; metadata devised and attached; images and videos digitised and tagged; client communications and interactions recorded and tabulated through Customer Relations Management platforms; transcripts automatically produced (on yet more platforms) and logged etc. E-discovery's fodder is already entirely entangled in endless iterations with computational techniques and the expert stewards of those techniques, many drawing on other layers of computational 'ontology' engineered towards readings of legal practice.[79] The disclosure processes themselves will often rely on a combination of platform-based sites and in-house specialist expertise.[80] Finally the outputs will be a product of yet more algorithmic methods and techniques. It is perhaps understating it to say that discovery practices introduce probabilistic knowledge objects into legal practice, although they do. Rather they intensify and clarify the processes of entanglement through which computation works.

Recalling the picture of DNA's reconfiguration as institutional object, rooted in the imitative somnambulance of laboratory protocols, it is important to note how distinctive legal AI's outputs are. Wilson et al's comment about electronic evidence perhaps applies to all computational knowledge objects. They require:

> more than simple reproduction of data. The process of adducing

15 Richmond Journal of Law & Technology 1; Jacob Tingen, 'Technologies-That-Must-Not-Be-Named: Understanding and Implementing Advanced Search Technologies in E-Discovery' (2012) 19 Richmond Journal of Law and Technology 1.

[78]While 99% certainty would be an impressive result for an AI algorithm, say with a corpus of 159 million emails (as recalled of one case in Peter Coulson, 'Discovery: To Disclosure and Beyond' in Andrew Higgins (ed), *The Civil Procedure Rules at 20* (Oxford University Press 2020) 65) and imagine that 0.01% of documents in the whole corpus ought to be disclosed, one might still imagine 1,590 'false positive' emails being disclosed and a similar number of 'true positives' being witheld.

[79]For a discussion see Kevin D Ashley, *Artificial Intelligence and Legal Analytics: New Tools for Law Practice in the Digital Age* (Cambridge University Press 2017).

[80]Joseph P Derrig and Hetal J Doshi, 'Effective Document Review Techniques in Eclipse and Relativity eLitigation' (2020) 68 Department of Justice Journal of Federal Law and Practice 147.

> evidence and determining proof relies on the systems used and the training and experience of the people creating and using them. Both people and systems need to meet significant accreditation and demanding validation to demonstrate that all such interpretations of data have been performed accurately. This is partly because of the unique nature of electronic evidence: it is extremely volatile and subject to being altered with ease, even by the simple act of switching a computer on or off.[81]

'Performed accurately' is not an exact measure however given that computational systems are always 'in a state of becoming.' They are "teased into being: edited, revised, deleted and restarted, shared with others, passing through multiple iterations stretched out over time and space."[82] Or as Knorr Cetina says about knowledge objects in general, they "are more like open drawers filled with folders extending indefinitely into the depths of a dark closet. Since objects of knowledge are always in the process of being materially defined, they continually acquire new properties and change the ones they have."[83] 'New invention' and 'fresh sources for imitation' that is "necessary for the timely reanimation of expiring social energy"[84] certainly drives technological change, but invention is also a function of processes drawing on the interpretation of already-processual computational inputs; require active decision-making from legal experts, including in labelling and managing data; avail of corporate-delivered platforms and products and draw on both vendor and in-house expertise to manage the processes those products require.

An expansion of 'expert work' introduces new 'processes and projections'[85] that not only reproduce objects in innovative ways but, importantly for our purposes, drawing new 'expert-object relationships,' as Knorr Cetina has it, into practice. Making sense of objects comes to configure work, not simply in terms of using objects as instruments, but 'as forms of sociality' including with the objects themselves.[86] Not only must diffuse forms of specialist expertise be integrated into specific workflows, attending to what objects need in order to be produced and then managed and understood,[87] but they must ultimately be worked on as complete, legible wholes. Expertise as such is not merely an 'instrumental' skill: it in part gives an account of, stewards and tames 'exotic' objects such that they may take on an institutional form. Indeed, reliance on the expert lawyer as data labeller is a recurrent theme when courts seek to reassure themselves of new

[81] Nigel Wilson and others, 'Proof: The Technical Collection and Examination of Electronic Evidence' in Stephen Mason and Daniel Seng (eds), *Electronic Evidence and Electronic Signatures* (5th edn, University of London Press 2021) 430.
[82] Kitchin (n 70) 18.
[83] Knorr Cetina (n 11) 12–13.
[84] Tarde (n 19) 87.
[85] Karin Knorr Cetina, 'Objectual Practice' in Karin Knorr Cetina, Theodore R Schatzki and Eike von Savigny (eds), *The Practice Turn in Contemporary Theory* (Routledge 2000) 181.
[86] Knorr Cetina (n 11) 23.
[87] Perkin (n 61) 24.

technologies.[88]

Expertise makes sense of objects by placing them in 'object-systems,' by making them *sensed*. Law's institutional objects have come to depend more or less on computational techniques; corporate platforms specialising in and marketing those techniques; and in-house experts required to produce, steward and disseminate the objects that are outputs of such techniques. We might think of such settings as less like workshops and more like 'ecological niches,' that is "field[s] of intervention in which success depends on relationships of care and desire and which is less a rational truth-finding engine than a field of practice whose normative foundations are operative fiction."[89] For MacCormick procedural method and norms are inseperable. In order to operate in and on such an environment requires individual and organisational *attention*,[90] that is the channeling of priorities and action. Attention is not necessarily a hierarchical phenomenon;[91] it is not necessarily steered by expicit authority. It is, across its various sites, also an institutional phenomeon: a product of attention as itself an interplay of process, work and norms.[92]

When it comes to DNA, the sites and forms of expertise for instance that underpin an emerging entanglement of genetic knowledge and law well beyond criminal forensics has as Van Wichelen and De Leeuw have it "greatly altered the status of evidence and truth, affecting not only the way legal institutions and their professional communities perform their responsibilities but also how individual citizens appeal to these institutions."[93] The phenomenon of 'biolegality' – how "developments in biological knowledge and technique are attuned to requirements and constraints in the criminal justice system, while legal institutions anticipate, enable, and react to those development,"[94] points the way towards how the institutionalisation of objects – how they come to be *knowledge objects* can iterate across legal practice. This is linked to people's experiences as subjects and users

[88]For example *Pyrrho Investments Ltd v MWB Property Ltd* [2016] Ch 256 [10]; *Irish Bank Resolution Corporation Ltd & ors -v- Quinn & ors [2015] IEHC 175* [17]; for the formative account see *Goodale v Ministry of Justice* [2009]; also *IBM United Kingdom Ltd v LzLabs GmbH and others [2023] EWHC 2072 (TCC).*

[89]Karin Knorr Cetina, 'Epistemics in Society' in Willem Heijman and others (eds), *Rural reconstruction in a market economy* (Agricultural Univ 1996) 75.

[90]William Ocasio, 'Towards an Attention-Based View of the Firm' (1997) 18 Strategic Management Journal 187.

[91]William Ocasio and others, 'It's a Different World: A Dialog on the Attention-Based View in a Post-Chandlerian World' (2023) 32 Journal of Management Inquiry 107.

[92]In addition to organisational theory, the concept of attention has been the focus of moral philosophy as well, with for instance Iris Murdoch, following Simone Weil, describing attention as "the characteristic and proper mark of the active moral agent." Iris Murdoch, *The Sovereignty of the Good* (Routledge 1970).

[93]Sonja Van Wichelen and Marc De Leeuw, 'Biolegality: How Biology and Law Redefine Sociality' (2022) 51 Annual Review of Anthropology 383, 385.

[94]Michael McNally and Ruth Lynch, 'Forensic DNA Databases and Biolegality: The Co-Production of Law, Surveillance Technology and Suspect Bodies', *The Handbook of Genetics & Society* (Routledge 2009) 284; also Christopher J Lawless, 'The Low Template DNA Profiling Controversy: Biolegality and Boundary Work Among Forensic Scientists' (2013) 43 Social Studies of Science 191.

of law certainly,[95] but also to science's constituting and being constituted by society more generally and legal practice specifically.[96] Scientists interact with their objects of interest through imitative protocols that "align natural orders with social orders by creating reconfigured, workable objects in relation to agents of a given time and place. But laboratories also install reconfigured scientists who become workable (feasible) in relation to these objects.,"[97] Before systems of biolegality can emerge and be problematised in other words, DNA needs to be made as a knowledge object.

AI sits in a similar but not identical space. Its knowledge objects constantly unfold not just through somnambulent imitation but through necessary invention. The objects are made across multiple sites and organisational kinds (vendors; platforms; in-house teams), each with their own imperatives; transparencies; and vocalbularies. DNA's entanglements therefore allow at least some distance to be created between object and method but with AI such a distance is not possible: AI's knowledge objects *are* its methods. In the next section I develop a closer account of entanglement and of laboratory techniques focused on the legal AI's "world of signs and often fictional reflections, of echoes, footprints, and the shimmering appearances of bygone events"[98] My aim is to highlight the echoes of laboratory practice that emerge through legal AI and then to discuss the ways in which accounts might be developed that help draw innovative techniques into legal practice. How might lawyers make sense of their own normatively-intensive work in light of technological innovation? And where does agency reside in light of that innovation?

4 Laboratory techniques and legal AI

Thus far we have drawn links between legal institutionalism, the institutionalising of objects and the knowledge objects constructed through legal AI. The 'epistemic machinery'[99] of law shift as the tools that generate its knowledge objects shift. This especially given that the machinery from which law's knowledge objects emerge – a machinery that includes physical apparatus; experts and expertise across their sites; and methods researched and applied – are the infrastructure underpinning law's 'built moral environment.'

In her work on high-energy physics (HEP) experiments at CERN, Karin Knorr

[95] Patricia Ewick and Susan S Silbey, *The Common Place of Law: Stories from Everyday Life* (University of Chicago Press 1998); Susan Silbey, 'Everyday Life and the Constitution of Legality' in Mark Jacobs and Nancy Weiss Hanrahan (eds), *The Blackwell Companion to the Sociology of Culture* (Blackwell 2005).

[96] For instance Sheila Jasanoff, 'Ordering Knowledge, Ordering Society' in Sheila Jasanoff (ed), *States of knowledge: The co-production of science and the social order* (Routledge 2004).

[97] Knorr Cetina (n 18) 29; also Giovanni Forero, 'How Scientists Interact with Bacteria: Creating New Knowledge' (2019) 56 Proceedings of the Association for Information Science and Technology 98; Bruno Latour, *Science in Action: How to Follow Scientists and Engineers Through Society* (Harvard Univ Press 1987).

[98] Knorr Cetina (n 18) 46 writing about high-energy physics laboratories.

[99] Ibid 3.

Cetina describes the "empirical machinery of HEP [as] a sign-processing machinery. It moves in the shadowland of mechanically, electrically, and electronically produced negative images of the world – in a world of signs and often fictional reflections, of echoes, footprints, and the shimmering appearances of bygone events."[100] HEP's objects are "in a very precise sense 'unreal' – or, as one physicist described them, 'phantasmic' (*irreale Gegenstande*); they are too small ever to be seen except indirectly through detectors, too fast to be captured and contained in a laboratory space, and too dangerous as particle beams to be handled directly"[101] Observation of HEP's objects is indeed impossible without an account of "mutal action between the objects and the means of observation."[102] "In our description of nature," as such, "the purpose is not to disclose the real essence of phenomena … but only to track down, so far as it is possible, relations between the manifold aspects of our experience"[103]

Following Barad's building on Niels Bohr's 'complementarity' theory, regarding the object's evasion of direct scrutiny, we can note as well that the observer is part of the apparatus: that:

> *practices of knowing are specific material engagements that participate in (re)configuring the world* … Making knowledge is not simply about making facts but about making worlds, or rather, it is about making specific worldly configurations—not in the sense of making them up ex nihilo, or out of language, beliefs, or ideas, but in the sense of materially engaging as part of the world in giving it specific material form.[104]

AI's knowledge objects must be engaged with in similar ways. Narratives that establish a distance between object and observation are more difficult to hold than they are for instance regarding DNA. While HEP's objects are 'too small ever to be seen' etc, AI's data objects are not only themselves sets of signs but are held in such vast quantities that for all intents and purposes they cannot be 'seen' except indirectly. At a practical level AI emerges as a tool in legal technologies precisely because data is *too vast to be seen*. Efficiency narratives are in part narratives about the nature of these objects and about the impossibility of engagement absent a computational apparatus. Just as important as volume however, chat logs; emails; video footage; filenotes; and other phenomena are *already the output of computational processes*: they are tabulated; recorded; tagged with metadata; then further organised and categorised already. The 'brute' data (the original documents) are already probabilistically captured and procesed. Legal AI operates on and against these processes; then producing outputs that are themselves subject to further tabulations; organisations and categorisations.

[100] Ibid 46.
[101] Ibid 48.
[102] Niels Henrik David Bohr, *Atomic Theory and the Description of Nature* (Ox Bow Press 1987) 18.
[103] Ibid.
[104] Barad (n 15) 91 [Barad's emphasis].

E-disclosure's knowledge objects are not simply, say, a corpus of documents, but an engagement with method; a facing down of a long chain of computational capturing, itself often entangled with law's own institutional objects. Further it is an engagement with expertise, with the people who apply the method, not as simple mechanism but through multiple engagements with uncertainty and unpredictability arising from the data; from the mechanical apparatus; and not least from the social contexts driven by litigation itself. Knorr Cetina discusses scientists interacting "with their objects of interest in processes that"align natural orders with social orders by creating reconfigured, workable objects in relation to agents of a given time and place. But laboratories also install reconfigured scientists who become workable (feasible) in relation to these objects."[105] The multidisciplinary teams[106] and disparate experts across platforms and other sites that emerge in legal practice reconfigure practice and each other, reconfiguring lawyers and the expert stewards of knowledge objects as "methods of inquiry"[107] alongside data science tools; civil procedure rules and case management processes.

MacCormick's interplay of norms and rules in the production of law feeds over into legal practice more generally. Civil Procedure Rules govern how litigants engage over the terms of disclosure for instance.[108] Litigants must agree for instance on search terms for their respective AI tools; and on the broad scope of the corpus to which the tools might be applied (whose emails; which documents). Rules attend to proportionality and, including in the more recent practice pilot, to the constantly shifting question of cost burdens arising from litigants exploring their data.[109]

We should note however that the application of rules is not a solely instrumental affair: the instruments are wielded according to a normative framework; notably regarding 'effective' or 'meaningful' access to justice' for litigants.[110] Effective disclosure, done 'expeditiously'[111] as Zuckerman has it, is necessary to ensure that the court is in possession of all pertinent evidence, *to enable it to determine the true facts*."[112] This is accompanied however by a sense that the determination of 'true facts' must possess "normative as well as epistemological credentials"[113]

[105]Knorr Cetina (n 18) 29; also Forero (n 97) 105; Latour (n 97).
[106]Armour, Parnham and Sako (n 5) 70.
[107]Knorr Cetina (n 18) 29.
[108]Department of Justice, 'Practice Direction 31B – Disclosure of Electronic Documents' (HM Courts and Tribunals Service 2022) Rules and Practice Directions; also Andrew Higgins (ed), *The Civil Procedure Rules at 20* (Oxford University Press 2020).
[109]Stuart Sime, 'Proportionality and Search-based Disclosure' in Andrew Higgins (ed), *The Civil Procedure Rules at 20* (Oxford University Press 2020); Coulson (n 78); Tracey Stretton, Mark Surguy and Johnny Shearman, 'A Step (Change) in the Right Direction?' (2020) 170 New Law Journal 18; also *McParland & Partners Ltd & Anor v Whitehead [2020] EWHC 298 (Ch)*.
[110]Adrian Zuckerman, *Zuckerman on Civil Procedure: Principles of Practice* (Sweet & Maxwell 2021) 789.
[111]Adrian Zuckerman, 'The Challenge of Civil Justice Reform: Effective Court Management of Litigation' (2009) 1 University of Hong Kong Law Review 49, 51.
[112]Zuckerman (n 110) 784 [my emphasis].
[113]Paul Roberts, 'Adrian Zuckerman's New Evidence Scholarship' in Rabeea Assy and Andrew

5 Conclusion

Writing of AI in Law, Armour et al give an account of emerging multidisciplinary teams in legal practice, whereby legal experts have emerged whose work "looks very different to that of traditional lawyers, as it is built around multidisciplinary engagement." "It remains unclear," they write "whether the term 'lawyer' is appropriate to describe their roles."[114] Armour and Sako envisage moreover a turn in legal practice to a 'hybrid-profession,' driven by a need for instance, for revised 'compensation and promotion procedures' or enhanced capital requirements.[115] It would also be useful to think of governance as addressing the formation of knowledge objects themselves, objects sitting not with 'the lawyer' but with a network of actors and objects, a dynamic and 'vibrant' entanglement of person; method and apparatus. Fundamentally, the legal services function itself is the knowing object in an era of AI, spread across the firm, its vendors and the built moral environment law provides. The individual lawyer is displaced.

Proponents and users of Legal AI can turn to the interplay of norms in the Civil Procedure Rules in order to legitimate the introduction of AI's knowledge objects into legal practice: a narrative of efficiency can be a narrative of *meaningful* access to justice; a probabilistic search or a clustering exercise can support the determination of 'true facts' and the like. We must recognise however the 'greatly altered status of knowledge and truth' here too. Legal knowledge has always involved an entanglement of objects with practice's process and norms: technology's entanglements involve inscrutible objects; a sign-procuding apparatus; expert stewards; their methods. Ultimately the lawyers *themselves* are the method of inquiry as their knowledge interacts with these practices. In this context governance would not just need to address the autonomous individual but would have to attend to the entanglment of persons and things.

Qualitative transformations are not always the product of profound swerves in history, of shocks and disruptions. Sometimes they are an adjustment to place and time. Or they might emerge incrementally through practice; in turns of phrase at professional conferences; in 'gems of wisdom';[116] or in everyday asides. People make sense of what they do in the first instance *by attending to what they do* in its business as usual form: their picture of the world is at best not clear until the practice is around them and until they are part of the practice. Even when their tasks are imitative, they are so in a normative context. And, as with AI, where practice is a constant picture of change, itself scrutinising other objects that are constantly in flux, attention to the entanglement will be key.

This attention will for instance need to focus on legal AI's 'error bars,' to "knowledge of the limits of knowing, of the mistakes we make in trying to know, of the things that interfere with our knowing, of what we are not interested

Higgins (eds), *Principles, Procedure, and Justice: Essays in honour of Adrian Zuckerman* (Oxford University Press 2020), writing about Zuckerman on criminal evidence.

[114] Armour, Parnham and Sako (n 5) 78.

[115] Armour and Sako (n 5) 35.

[116] Knorr Cetina (n 18) 109.

in and do not really want to know."[117] The knowledge objects that feed legal AI and that are undoubtedly their product, are not pure objects 'in the world.' They are *signs*, a product of multi-site; multidisiplinary processes of capturing; of processing; of stewarding and ultimately of both normative attention and procedural work. Ultimately these processes are not simple tools: they are new kinds of institutional fact drawing on new kinds of practice. Through their emergence, through the method being both 'what' and 'who' ultimately these practices will be the practitioner. A transformation of lawyers and *law firms* as knowing objects is underway.

[117] Ibid 64.