Indian Journal of Law and Technology

Volume 14 | Issue 1 Article 1

2018

Law and Technology: Two Modes of Disruption, Three Legal MindSets, and the Big Picture of Regulatory Responsibilities

Roger Brownsword

Recommended Citation

Brownsword, Roger (2018) "Law and Technology: Two Modes of Disruption, Three Legal MindSets, and the Big Picture of Regulatory Responsibilities," *Indian Journal of Law and Technology*: Vol. 14: Iss. 1, Article 1.
DOI: 10.55496/OYVV9809
Available at: https://repository.nls.ac.in/ijlt/vol14/iss1/1

Law and Technology: Two Modes of Disruption, Three Legal Mind-Sets, and the Big Picture of Regulatory Responsibilities

Roger Brownsword[*]

I. Introduction

In a series of articles, I have argued that lawyers need to engage more urgently with the regulatory effects of new technologies;[1] and, while I have argued this in relation to the full spectrum of technological interventions, whether they are 'soft' and 'assistive' or 'hard' and fully 'managerial',[2] my concerns have been primarily with the employment of hard technologies. For, whereas assistive technologies (such as those surveillance and identification technologies that are employed in criminal justice systems) reinforce the prohibitions and requirements that are prescribed by legal rules, full-scale technological

[*] King's College London and Bournemouth University. I am particularly grateful to Hans Micklitz who read an earlier draft and made many valuable comments that made me think more than twice about what I was saying. That said, of course, the usual disclaimers apply.

[1] *See*, e.g., R. Brownsword, *In the Year 2061: From Law to Technological Management*, 7 Law, Innovation and Technology 1 (2015); *Field, Frame and Focus: Methodological Issues in the New Legal World* in Rethinking Legal Scholarship 112 (Rob van Gestel, H. Micklitz, and E. Rubin, eds., Cambridge: Cambridge University Press, 2016); and, *Law as a Moral Judgment, the Domain of Jurisprudence, and Technological Management*' in Ethical Rationalism and the Law 109 (P. Capps and S.D. Pattinson, eds., Oxford: Hart, 2016).

[2] For an illustration of this spectrum, *see*, e.g., P. O'Malley, *The Politics of Mass Preventive Justice* in Prevention and the Limits of the Criminal Law 273, 280 (A. Ashworth, L. Zedner, and P. Tomlin, eds., Oxford University Press, 2013):

> In the 'soft' versions of such [speed-regulating] technologies, a warning device advises drivers they are exceeding the speed limit or are approaching changed traffic regulatory conditions, but there are progressively more aggressive versions. If the driver ignores warnings, data—which include calculations of the excess speed at any moment, and the distance over which such speeding occurred (which may be considered an additional risk factor and *thus* an aggravation of the offence)—can be transmitted directly to a central registry. Finally, in a move that makes the leap from perfect detection to perfect prevention, the vehicle can be disabled or speed limits can be imposed by remote modulation of the braking system or accelerator.

management introduces a radically different regulatory approach by redefining the practical options that are available to regulatees.[3] Instead of seeking to channel the conduct of regulatees by prescribing what they 'ought' or 'ought not' to do, regulators focus on controlling what regulatees actually can or cannot do in particular situations. Instead of finding themselves reminded of their legal obligations, regulatees find themselves obliged or 'forced' to act in certain ways.[4]

If lawyers are to get to grips with these new articulations of regulatory power, I have suggested that they frame their inquiries by employing a broad concept of the 'regulatory environment' (one that recognises both normative rule-based and non-normative technology-based regulatory mechanisms);[5] I have identified the 'complexion' of the regulatory environment as an important focus for inquiry (because the use of technological management can compromise the context for the possibility of both autonomous and moral human action);[6] and I have argued that it is imperative that the use of regulatory technologies is authorised in accordance with the ideal of the Rule of Law.[7]

I have also posed a number of questions about the future of traditional rules of law where 'regulators' (broadly conceived)[8] turn away from rules in

---

[3] *See*, e.g., R. Brownsword, *Whither the Law and the Law Books: From Prescription to Possibility*, 39 Journal of Law and Society 296 (2012); and *Law, Liberty and Technology* in The Oxford Handbook of Law, Regulation and Technology 41 (R. Brownsword, E. Scotford, and K. Yeung, eds., Oxford: Oxford University Press, 2016 [e-publication]; and 2017).

[4] Compare S. Veitch, *The Sense of Obligation*, 8 Jurisprudence 415, 430-432 (2017) (on the collapse of obligation into obedience).

[5] *See*, e.g., R. Brownsword, *Comparatively Speaking: "Law in its Regulatory Environment"* in The Method and Culture of Comparative Law 189 (M. Adams and D. Heirbaut, eds., (Festschrift for Mark van Hoecke) Oxford: Hart, 2014); and *In the Year 2061: From Law to Technological Management*, 7 Law, Innovation and Technology 1 (2015).

[6] *See*, especially, R. Brownsword, *Lost in Translation: Legality, Regulatory Margins, and Technological Management*, 26 Berkeley Technology Law Journal 132 (2011).

[7] *See*, R. Brownsword, *Technological Management and the Rule of Law*, 8 Law, Innovation and Technology 100 (2016).

[8] In this article, we should understand 'regulators' in a broad way as covering those whose function is to direct, guide, or channel human conduct. This is to be contrasted with a narrow understanding of 'regulators' as those who staff (what we commonly refer to as) regulatory agencies, who are part of the State apparatus, and who regulate by issuing and enforcing standards. Rather, in the broad sense employed, regulators reach beyond those who work in regulatory agencies to include members of legislatures and executives as well as members of the Judiciary (when undertaking regulatory functions); regulators as broadly employed also include agents who undertake regulatory functions in the private sector; and, following from my broad conception of the 'regulatory environment', regulators may be employing both standards (rules) and technologies to direct, guide, or channel the conduct of their regulatees. *See* further, R. Brownsword, *In the Year 2061: From Law to Technological Management*, 7 Law, Innovation and Technology 1, 14-24 (2015).

favour of technological solutions or where historic regulatory objectives are simply taken care of by automation—such as will be the case, for example, when it is the design of autonomous vehicles that takes care of concerns about human health and safety that have hitherto been addressed by legal rules directed at human drivers of vehicles.[9] Hence, if we look ahead, what does the increasing use of technological management signify for traditional rules of criminal law, torts, and contracts? Will these rules be rendered redundant, will they be directed at different human addressees, or will they simply be revised? In short, how are traditional laws disrupted by technological innovation and, in an age of technological management, how are rule-based regulatory strategies disrupted? It is questions of this kind that I want to begin to address in the present article.

Yet, why linger over such questions? After all, the prospect of technological management implies that rules of any kind have a limited future. To the extent that technological management takes on the regulatory roles traditionally performed by legal rules, those rules seem to be redundant;[10] and, to the extent that technological management does not supersede but co-exists with legal rules, while some rules will be redirected, others will need to be refined and revised (imagine, for example, a legal framework that covers both autonomous and driven vehicles sharing the same roads). Accordingly, the short answer to these questions is that the destiny of legal rules is to be found somewhere in the range of redundancy, replacement, redirection, revision and refinement. Precisely which rules are replaced, which refined, which revised and so on, will depend on both technological development and the way in which particular communities respond to the idea that technologies, as much as rules, are available as regulatory instruments—indeed, that legal rules are just one species of regulatory technologies.

---

[9] *See*, e.g., R. Brownsword, *Field, Frame and Focus: Methodological Issues in the New Legal World* in Rethinking Legal Scholarship 112 (Rob van Gestel, H. Micklitz, and E. Rubin, eds., Cambridge: Cambridge University Press, 2016); *The E-Commerce Directive, Consumer Transactions, and the Digital Single Market: Questions of Regulatory Fitness, Regulatory Disconnection and Rule Redirection* in European Contract Law in the Digital Age 165 (S. Grundmann ed., Antwerp: Intersentia, 2017); and *The Rule of Law, Rules of Law, and Technological Management* (edited version of an introductory keynote given at the ACELG's sixth annual conference, Amsterdam, November 4, 2016) [The Rule of Law in the Technological Age Challenges and Opportunities for the EU Collected Papers (July 20, 2017) 9-17. Amsterdam Law School Research Paper No. 2017-35, *available at* https://ssrn.com/abstract=3005914].

[10] However, we might find that there are some contexts in which, although 'rule compliance' is technologically guaranteed, agents will continue to be guided by rules that are familiar or by a rule-book. *See*, further, R. Brownsword, *Technological Management and the Rule of Law*, 8 Law, Innovation and Technology 100 (2016).

This short answer, however, does not do justice to the deeper and distinctive disruptive effects of technological development on both legal rules and the regulatory mind-set. Accordingly, in this article, I want to sketch a backstory that features two overarching ideas: one is the idea of a double technological disruption and the other is the idea of a regulatory mind-set that is divided in three ways. With regard to the first of these overarching ideas, the double disruption has an impact on: (i) the substance of traditional legal rules; and then (ii) on the use—or, rather, non-use—of legal rules as the regulatory modality. With regard to the second overarching idea, the ensuing three-way legal and regulatory mind-set is divided between: (i) traditional concerns for coherence in the law; (ii) modern concerns with instrumental effectiveness (relative to specified regulatory purposes) and particularly with seeking an acceptable balance of the interests in beneficial innovation and management of risk; and (iii) a continuing concern with instrumental effectiveness and risk management but now focused on the possibility of employing technocratic solutions.

If what the first disruption tells us is that the old rules are no longer fit for purpose and need to be revised and renewed, then the second disruption tells us that, even if the rules have been changed, regulators might now be able to dispense with the use of rules (the rules are redundant) and rely instead on technological instruments. Moreover, what the disruptions further tell us is that we can expect to find a plurality of competing mind-sets seeking to guide the regulatory enterprise. However, what none of this tells us is how regulators *should* engage with these disruptions. When there is pressure on regulators to think like coherentists (focusing on the internal consistency and integrity of legal doctrine), when regulators are expected to think in a way that is sensitive to risk and to make instrumentally effective responses, and when there is now pressure to think beyond rules to technological fixes, what exactly are the responsibilities of, and priorities for, regulators? Without some critical distance and a sense of the bigger picture, how are regulators to plot a rational and reasonable course through a conflicted and confusing regulatory discourse? Although these are large questions, they are ones that I also want to begin to address in this article.

Accordingly, the shape of the article, which is in four principal Parts, is as follows. We start (in Parts II and III) with some questions about the future of traditional legal rules, the backstory to which is one of a double disruption that technological innovation brings to the law and, in consequence, a three-way re-configuration of the legal and regulatory mind-set. While the double disruption is elaborated in Part II of the article, the three elements of the re-configured legal and regulatory mind-set (namely, the coherentist,

regulatory-instrumentalist, and technocratic elements) are elaborated in Part III. Given this re-configuration, we need to think about how regulators should engage with new technologies, whether viewing them as regulatory targets or as regulatory tools[11]; and this invites thoughts about the bigger picture of regulatory responsibilities as well as regulatory roles and institutional competence. Some reflections on the bigger picture are presented in Part IV of the article; and, in Part V, I offer some initial thoughts on the competence of, respectively, the Courts and the Legislature to adopt the appropriate mind-set. While this discussion will not enable us to predict precisely what the future of legal rules will be, it will enable us to appreciate the significance of the disruption to traditional legal mind-sets, to understand the confusing plurality of voices that will be heard in our regulatory discourses, and to have a sense of the priorities for regulators.

II. Law and Technology: A Double Disruption

It is trite that new technologies are economically and socially disruptive, impacting positively on some persons and groups but negatively on others.[12] Famously, for instance, Instagram, a small start-up in San Francisco, disrupted the photographic market in a way that benefitted millions but that wiped out Eastman Kodak, one of the biggest corporations in the world.[13] However, it is not just economies and social practices that are disrupted by the emergence of new technologies; the law and legal practice, too, is disrupted.[14] Currently, law firms are taking up new technologies that enable much routine documentary checking to be automated; and new technologies promise to make legal services more accessible and cheaper.[15] Without

---

[11] Compare the structure and organisation of the essays in Regulating Technologies (R. Brownsword and K. Yeung eds., Oxford: Hart, 2008).

[12] Compare, e.g., C.M. Christensen, The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail (Boston: Harvard Business Review Press, 1997); and M.E. Price, *The Newness of New Technology*, 22 Cardozo Law Review 1885 (2001).

[13] Evidently, in its final years, Kodak closed thirteen factories and 130 photolabs, and cut 47,000 jobs. *See*, A. Keen, The Internet is not the Answer 87-88 (London: Atlantic Books, 2015).

[14] *See*, e.g., R. Susskind and D. Susskind, The Future of the Professions (Oxford: Oxford University Press, 2015).

[15] *See*, e.g., The Future of Legal Services 38 (London: the Law Society, 2016), where technology is said to be impacting legal services in the following ways: enabling suppliers to become more efficient at procedural and commodity work; reducing costs by replacing salaried humans with machine-read or AI systems; creating ideas for new models of firm and process innovation; generating work around cyber-security, data protection and new technology laws; and, supporting changes to consumer decision-making and purchasing behaviours.

doubt, these developments will shake up employment patterns in the legal sector. My focus in this article, though, is somewhat different. The double disruption to which I am drawing attention concerns, first, the substance of legal rules and, secondly, the use of technological management rather than legal rules.

Given that this is not an essay in legal or social history, we should think of these disruptive effects as particular modes or types rather than as features that distinctively characterise a certain period or a certain time and place. Nevertheless, I take it that signs of the first disruption emerge in the industrialised societies of the Nineteenth Century and persist as the pace of technological development accelerates; and I take it that signs of the second disruption emerge at the Millennium and are with us right now.

A. The first disruption

The first disruption (technology impacting on the substance of legal rules) is highlighted in a seminal article, published in 1933, by Francis Sayre.[16] In this paper, Sayre remarks on the 'steadily growing stream of offenses punishable without any criminal intent whatsoever'.[17] In what was apparently a parallel, but independent, development in both England and the United States, from the middle of the Nineteenth Century, the courts accepted that, so far as 'public welfare' offences were concerned, it was acceptable to dispense with proof of intent or negligence.[18] If the food sold was adulterated, if vehicles did not have lights that worked, if employees polluted waterways, and so on, sellers and employers were simply held to account. For the most part, this was no more than a tax on business; it relieved the prosecutors of having to invest time and resource in proving intent or negligence; and, as Sayre reads the development, it reflected 'the trend of the day away from nineteenth century individualism towards a new sense of the importance of collective interests'.[19]

Although there was no mistaking this development, and although in a modernising world it was not clearly mistaken—as Sayre recognises, the 'invention and extensive use of high-powered automobiles require new forms of traffic regulation;…the growth of modern factories requires new forms of labour regulation; the development of modern building construction and

---

[16] F.B. Sayre, *Public Welfare Offences*, 33 Columbia Law Review 55 (1933).
[17] F.B. Sayre, *Public Welfare Offences*, 33 Columbia Law Review 55 (1933).
[18] So far as the development in English law is concerned, illustrative cases include R. v. Stephens, (1866) LR 1 QB 702; Hobbs v. Winchester Corpn., (1910) 2 KB 471; and Provincial Motor Cab Co. v. Dunning, (1909) 2 KB 599.
[19] F.B. Sayre, *Public Welfare Offences*, 33 Columbia Law Review 67 (1933).

the growth of skyscrapers require new forms of building regulation',[20] and so on—Sayre emphatically rejects any suggestion that it would, or should, 'presage the abandonment of the classic requirement of a *mens rea* as an essential of criminality'.[21] In a key passage, Sayre says:

> The group of offenses punishable without proof of any criminal intent must be sharply limited. The sense of justice of the community will not tolerate the infliction of punishment which is substantial upon those innocent of intentional or negligent wrongdoing; and law in the last analysis must reflect the general community sense of justice.[22]

In other words, so long as there is no stigmatisation or serious punishment of those (largely business people) who act in ways that deviate from public welfare regulatory requirements, dispensing with *mens rea* is tolerable. However, what is not to be tolerated is any attempt to dispense with *mens rea* where the community sees the law as concerned with serious moral delinquency and where serious punishments follow on conviction. As Sayre puts it:

> For true crimes it is imperative that courts should not relax the classic requirement of *mens rea* or guilty intent.[23]

False analogies with public welfare offences, in order to ease the way for the prosecution to secure a conviction, should be resisted. He concludes with the warning that the courts should avoid extending the doctrines applicable to public welfare offenses to 'true crimes', because this would be to 'sap the vitality of the criminal law'.[24]

---

[20] F.B. Sayre, *Public Welfare Offences*, 33 Columbia Law Review 68-69 (1933).
[21] F.B. Sayre, *Public Welfare Offences*, 33 Columbia Law Review 55 (1933).
[22] F.B. Sayre, *Public Welfare Offences*, 33 Columbia Law Review 70 (1933).
[23] F.B. Sayre, *Public Welfare Offences*, 33 Columbia Law Review 80 (1933).
[24] F.B. Sayre, *Public Welfare Offences*, 33 Columbia Law Review 84 (1933); Compare, R.A. Duff, *Perversions and Subversions of Criminal Law* in The Boundaries of the Criminal Law 88, 104 (R.A. Duff *et al*, eds., Oxford: Oxford University Press, 2010): 'We must ask about the terms in which the state should address its citizens when it seeks to regulate their conduct, and whether the tones of criminal law, speaking of wrongs that are to be condemned, are more appropriate than those of a regulatory regime that speaks only of rules and penalties for their breach.' According to Duff, where the conduct in question is a serious public wrong, it would be a 'subversion' of the criminal law if offenders were not to be held to account and condemned. For questions that might arise relative to the 'fair trial' provisions of the European Convention on Human Rights where a state decides to transfer less serious offences from the criminal courts to administrative procedures (as with minor road traffic infringements), *see* e.g., Öztürk v. Germany, (1984) 6 EHRR 409.

Similarly, in their Preface to Miquel Martin-Casals' edited volume, *The Development of Liability in Relation to Technological Change*,[25] John Bell and David Ibbetson remark that, as new technologies developed from the mid-Nineteenth Century, we can see the beginnings of a movement from 'tort' to 'regulation'. Thus, they say:

> We see the way in which regulatory law, private insurance and state-run compensation schemes developed to deal with the issues the law now confronted. Regulatory law and inspections by officials and private insurers and associations dealt with many of the issues of preventing accidents. Compensation systems outside tort offered remedies to many of the victims of accidents. In this matrix of legal interventions, we can see that the place of tort law and of fault in particular changes. We become aware of [tort law's] limitations.[26]

In a similar vein, Geneviève Viney and Anne Guégan-Lécuyer remark that a tort regime 'which seemed entirely normal in an agrarian, small-scale society, revealed itself rather quickly at the end of the nineteenth century to be unsuitable'.[27] So, for example, in Sweden, following a railway accident in 1864 when seven people died and eleven were seriously injured, and with no realistic claim for compensation (the train driver being in no position to satisfy a personal tort claim), a petition was presented to parliament to respond to the special needs created by the operation of the railways.[28] However, the movement to regulation was not only about easing the way to compensation for the victims of accidents, it was (and it continues to be) also about ensuring that innovative businesses are not over-exposed to liability. Accordingly, for tort law, the challenge provoked by the first kind of disruption is not simply to change the rules but to achieve an acceptable balance between, on the one hand, supporting and shielding vulnerable enterprises and, on the other, managing the risks now presented by those enterprises and their new technologies.[29]

---

[25] The Development of Liability in Relation to Technological Change (M. Martin-Casals ed., Cambridge: Cambridge University Press, 2010).

[26] The Development of Liability in Relation to Technological Change viii (M. Martin-Casals ed., Cambridge: Cambridge University Press, 2010).

[27] G. Viney and A. Guégan-Lécuyer, *The Development of Traffic Liability in France* The Development of Liability in Relation to Technological Change 50, 50 (M. Martin-Casals ed., Cambridge: Cambridge University Press, 2010).

[28] *See*, S. Friberg and B.W. Dufwa, *The Development of Traffic Liability in Sweden*, The Development of Liability in Relation to Technological Change 190 (M. Martin-Casals ed., Cambridge: Cambridge University Press, 2010).

[29] Compare J. Morgan, *Torts and Technology*, in The Oxford Handbook of Law, Regulation and Technology 522 (R. Brownsword, E. Scotford, and K. Yeung, eds., Oxford: Oxford University Press, 2016 [e-publication]; and 2017).

In contract law, too, the technologies of the Nineteenth Century had a significant disruptive effect on transactional doctrine. Notably, there was a shift from a 'subjective' consensual (purely transactional) model to an 'objective' approach. In the United States, against the background of an 'increasingly national corporate economy, the goal of standardization of commercial transactions began to overwhelm the desire to conceive of contract law as expressing the subjective desires of individuals';[30] and, in English law, in addition to the general shift to an objective approach, there was a particularly significant shift to a reasonable notice model in relation to the incorporation of the terms and conditions on which carriers (of both goods and persons) purported to contract. In the jurisprudence, this latter shift is symbolised by Mellish LJ's direction to the jury in *Parker* v. *South Eastern Railway Co.*,[31] where the legal test is said to be not so much whether a customer actually was aware of the terms and had agreed to them but whether the railway company had given reasonable notice. In effect, this introduced an objective test. However, as Stephen Waddams has pointed out, there was an even more radical view, this being expressed in Bramwell LJ's judgment in *Parker*, the emphasis of which is 'entirely on the reasonableness of the railway's conduct of its business and on the unreasonableness of the customers' claims; there is no concession whatsoever to the notion that they could only be bound by their actual consent'.[32] With this embrace of objectivism and reasonableness, contract law was able to shield the carriers of the Nineteenth Century against otherwise crippling claims for compensation (when valuable packages were lost or when there were accidents on the railways); and when, in the middle years of the last century, a mass consumer market for new technological products (cars, televisions, kitchen appliances, and so on) developed, it was able to make a fundamental correction to the traditional value of 'freedom of contract' in order to protect consumers against the small print of suppliers' standard terms and conditions. Today, at any rate, in the English law of consumer contracts, the abandonment of traditional transactionalist thinking is complete. Following the Consumer Rights Act 2015, we can say that consumers engage, not so much in contracts, but in regulated transactions.

So, while intentionality and fault were set aside in the regulatory parts of criminal law and torts, classical transactionalist ideas of consent and agreement were marginalised, being replaced in the *mainstream* of contract

---

[30] M.J. Horwitz, The Transformation of American Law 1870-1960 37 (Oxford: Oxford University Press, 1992); at 48-49, Horwitz notes a parallel transformation in relation to both corporate forms and agency.

[31] Parker v. South Eastern Railway Co., (1877) 2 CPD 416.

[32] S. Waddams, Principle and Policy in Contract Law 39 (Cambridge: Cambridge University Press, 2011).

law by 'objective' tests and standards set by reasonable business practice. In short, as Morton Horwitz puts it, with the disruption of legal rules, there was a dawning sense that 'all law was a reflection of collective determination, and thus inherently regulatory and coercive'.[33]

What we see across these developments is a pattern of disruption to legal doctrines that were organically expressed in smaller-scale non-industrialised communities. Here, the legal rules presuppose very straightforward ideas about holding to account (moreover, holding *personally* to account) those who engage intentionally in injurious or dishonest acts, about expecting others to act with reasonable care, and about holding others to their word. Once new technologies disrupt these ideas, we see the move to strict or absolute criminal liability without proof of intent, to tortious liability without proof of fault, to vicarious liability, and to contractual liability (or limitation of liability) without proof of actual intent, agreement or consent. Even if the development in contract is less clear at this stage, in both criminal law and torts we can see the early signs of a risk management approach to liability. Moreover, we also see the early signs of doctrinal bifurcation,[34] with some parts of criminal law, tort law and contract law resting on traditional principles (and representing, so to speak, 'real' crime, tort and contract) while others deviate from these principles—often holding enterprises to account more readily but also sometimes easing the burden on business for the sake of beneficial innovation[35]—in order to strike a more acceptable balance of the benefits and risks that technological development brings with it.

B. The second disruption

Arguably, the second technological disruption (manifesting itself in the turn to architecture, design, coding, and the like as a regulatory tool) is as old as the (defensive) architecture of the pyramids and the target-hardening use of locks. However, the variety and sophistication of the instruments of technological management that are available to regulators today is strikingly different to the position in both pre-industrial and early industrial societies. Whether or not this amounts to a difference of kind or merely one of degree scarcely seems important; we live in different times, with significantly

---

[33] M.J. Horwitz, The Transformation of American Law 1870-1960 50 (Oxford: Oxford University Press, 1992).

[34] As recognised, for example, in the Canadian Supreme Court case of R. v. Sault Ste. Marie, 1978 SCC OnLine Can SC 37: (1978) 2 SCR 1299, at 1302-1303.

[35] For example, in the United States, the interests of the farming community were subordinated to the greater good promised by the development of the railroad network: *see* M.J. Horwitz, The Transformation of American Law 1780-1860 (Cambridge, Mass.: Harvard University Press, 1977).

different regulatory technologies. In particular, there is much more to technological management than traditional target-hardening: the management involved might—by designing products and places, or by coding products and people—disable or exclude potential wrongdoers as much as harden targets or immunise potential victims; and, there is now the prospect of widespread automation that takes humans altogether out of the regulatory equation. Crucially, with a risk management approach well-established, regulators now find that they have the option of responding by employing various technological instruments rather than rules. This is the moment when, so to speak, we see a very clear contrast between the legal and regulatory style of the East coast (whether traditional or progressive) and the style of the West coast.[36]

Two things are characteristic of technological management. First, as I have emphasised elsewhere, unlike rules, the focus of the regulatory intervention is on the practical (not the paper) options of regulatees.[37] Secondly, whereas legal rules back their prescriptions with *ex post* penal, compensatory, or restorative measures, the focus of technological management is entirely *ex ante*, aiming to anticipate and prevent wrongdoing rather than punish or compensate after the event. As Lee Bygrave puts it in the context of the design of information systems and the protection of both IPRs and privacy, the assumption is that, by embedding norms in the architecture, there is 'the promise of a significantly increased *ex ante* application of the norms and a corresponding reduction in relying on their application *ex post facto*.'[38]

This evolution in regulatory thinking is not surprising. Having recognised the limited fitness of traditional legal rules, and having taken a more regulatory approach, the next step surely is to think not just in terms of risk assessment and risk management but also to be mindful of the technological instruments that increasingly become available for use by regulators. In this way, the regulatory mind-set is focused not only on the risks to be managed but also how best to manage those risks (including making use of technological tools).

---

[36] Seminally, *see* L. Lessig, Code and Other Laws of Cyberspace (New York: Basic Books, 1999); *See*, too, R. Brownsword, *Code, Control, and Choice: Why East is East and West is West*, 25 Legal Studies 1 (2005).

[37] *See*, e.g., R. Brownsword, *Whither the Law and the Law Books: From Prescription to Possibility*, 39 Journal of Law and Society 296 (2012).

[38] L.A. Bygrave, *Hardwiring Privacy* in The Oxford Handbook of Law, Regulation and Technology 754, 755 (R. Brownsword, E. Scotford, and K. Yeung, eds., Oxford: Oxford University Press, 2016 [e-publication]; and 2017).

For example, with the development of computers and then the Internet and World Wide Web, supporting a myriad of applications, it is clear that, when individuals operate in online environments, they are at risk in relation to both their 'privacy' and the fair processing of their personal data. Initially, regulators assumed that 'transactionalism' would suffice to protect individuals: in other words, it was assumed that, unless the relevant individuals agreed to, or consented to, the processing of their details, it would not be lawful. However, once it was evident that consumers in online environments routinely signalled their agreement or consent in a mechanical way, without doing so on a free and informed basis, a more robust risk-management approach invited consideration. As Eliza Mik, writing about the privacy policies of Internet companies, puts the alternative:

> What could be done…is to cease treating privacy policies *as if* they were contracts and evaluate consent and disclosure requirements from a purely regulatory perspective. Enhanced or express consent requirements may constitute a good first step. It could, however, also be claimed that the only solution lies in an outright prohibition of certain technologies or practices. In this context, the difficulty lies in regulatory target setting. The first overriding question is what is it that we are trying to protect? It can hardly be assumed that the 'protection of autonomy' is sufficiently precise to provide regulatory guidance.[39]

We might, however, take this a step further. Once we are thinking about the protection of the autonomy of Internet-users or about the protection of their privacy, why not also consider the use of technological instruments in service of the regulatory objectives (provided that they can be specified in a sufficiently precise way)? Indeed, in Europe, this is just what we find in the General Data Protection Regulation (GDPR)[40] which comes into force this Spring.

Following Recital 75 of the Regulation, which lays out a catalogue of risks and harms that might impact individuals as a result of the processing of their data,[41] we have in Recital 78 an enjoinder to data controllers to

---

[39] E. Mik, *Persuasive Technologies—From Loss of Privacy to Loss of Autonomy* in Private Law in the 21st Century 363, 386 (K. Barker *et al* eds., Oxford: Hart, 2017).

[40] Regulation (EU) 2016/679.

[41] According to Recital 75:

> The risk to the rights and freedoms of natural persons, of varying likelihood and severity, may result from personal data processing which could lead to physical, material or non-material damage, in particular: where the processing may give rise to discrimination, identity theft or fraud, financial loss, damage to the reputation, loss of confidentiality of personal data protected by professional secrecy, unauthorised reversal of pseudonymisation, or any other significant economic or social disadvantage; where

take 'appropriate technical and organisational measures' to ensure that the requirements of the Regulation are met. In the body of the Regulation, this is expressed as follows in Article 25 (Data protection by design and by default):

1. Taking into account the state of the art, the cost of implementation and the nature, scope, context and purposes of processing as well as the risks of varying likelihood and severity for rights and freedoms of natural persons posed by the processing, the controller shall, both at the time of the determination of the means for processing and at the time of the processing itself, implement appropriate technical and organisational measures, such as pseudonymisation, which are designed to implement data-protection principles, such as data minimisation, in an effective manner and to integrate the necessary safeguards into the processing in order to meet the requirements of this Regulation and protect the rights of data subjects.
2. The controller shall implement appropriate technical and organisational measures for ensuring that, by default, only personal data which are necessary for each specific purpose of the processing are processed. That obligation applies to the amount of personal data collected, the extent of their processing, the period of their storage and their accessibility. In particular, such measures shall ensure that by default personal data are not made accessible without the individual's intervention to an indefinite number of natural persons.

While talk of 'privacy enhancing technologies' and 'privacy by design' has been around for some time,[42] in the GDPR we see that this is more than talk; it is not just that the regulatory discourse is more technocratic, there are signs that the second disruption is beginning to impact on regulatory

---

data subjects might be deprived of their rights and freedoms or prevented from exercising control over their personal data; where personal data are processed which reveal racial or ethnic origin, political opinions, religion or philosophical beliefs, trade union membership, and the processing of genetic data, data concerning health or data concerning sex life or criminal convictions and offences or related security measures; where personal aspects are evaluated, in particular analysing or predicting aspects concerning performance at work, economic situation, health, personal preferences or interests, reliability or behaviour, location or movements, in order to create or use personal profiles; where personal data of vulnerable natural persons, in particular of children, are processed; or where processing involves a large amount of personal data and affects a large number of data subjects.

[42] *See*, L.A. Bygrave, *Hardwiring Privacy* in The Oxford Handbook of Law, Regulation and Technology 754, 755 (R. Brownsword, E. Scotford, and K. Yeung, eds., Oxford: Oxford University Press, 2016 [e-publication]; and 2017); and A. Cavoukian, Privacy by Design: The Seven Foundational Principles (Information and Privacy Commissioner of Ontario, 2009, rev. ed. 2011) *available at* https://www.ipc.on.ca/images/Resources/7foundationalprinciples.pdf (Last visited on 5 February 2018).

practice—although how far this particular impact will penetrate remains to be seen.[43]

Having sketched the ways in which the development of new technologies can shake up our thinking about the law, we now need to look more carefully at the way in which regulators are likely to frame their thinking about modifications to the regulatory environment. In short, we now need to turn to the characteristics of the particular regulatory mind-sets that are disrupted and provoked by technological development.

III. Three Regulatory Mind-Sets: Coherentist, Regulatory-Instrumentalist, and Technocratic

According to Edward Rubin, we live in the age of modern administrative states where the law is used 'as a means of implementing the policies that [each particular state] adopts. The rules that are declared, and the statutes that enact them, have no necessary relationship with one another; they are all individual and separate acts of will'.[44] In other words,

> Regulations enacted by administrative agencies that the legislature or elected chief executive has authorized are related to the authorizing statute, but have no necessary connection with each other or to regulations promulgated under a different exercise of legislative or executive authority.[45]

In the modern administrative state, the 'standard for judging the value of law is not whether it is coherent but rather whether it is effective, that is, effective in establishing and implementing the policy goals of the modern state.'[46] By contrast, the distinctive feature of 'coherentism' is the idea that law forms 'a coherent system, a set of rules that are connected by some sort

---

[43] L.A. Bygrave, *Hardwiring Privacy* in The Oxford Handbook of Law, Regulation and Technology 754, 755 (R. Brownsword, E. Scotford, and K. Yeung, eds., Oxford: Oxford University Press, 2016 [e-publication]; and 2017) argues, at 756, that, despite explicit legal backing, 'the privacy-hardwiring enterprise will continue to struggle to gain broad traction.' Most importantly, this is because this enterprise 'is at odds with powerful business and state interests, and simultaneously remains peripheral to the concerns of most consumers and engineers' (ibid). So far as the engineering community is concerned, *see* Adamantia Rachovitsa, 'Engineering and Lawyering Privacy by Design: Understanding Online Privacy both as a Technical and an International Human Rights Issue' (2016) 24 *International Journal of Law and Information Technology* 374.

[44] E.L. Rubin, *From Coherence to Effectiveness* in Rethinking Legal Scholarship 310, 311 (R. van Gestel *et al* eds., New York: Cambridge University Press, 2017).

[45] *Id*., at 311.

[46] *Id*., at 328.

of logical relationship to each other'[47]—or 'a system of rules that fit together in a consistent logically elaborated pattern'.[48] Moreover, within the modern administrative state, the value of coherence itself is transformed: coherence, like the law, is viewed as 'an instrumental device that is deployed only when it can be effective'.[49] In a concluding call to arms, Rubin insists that legal scholarship needs to 'wake from its coherentist reveries'[50]; and that legal scholars 'need to relinquish their commitment to coherence and concern themselves with the effectiveness of law and its ability to achieve our democratically determined purposes'.[51]

There is much that we might want to say in response to Rubin's view. For example, we might want to say something about the relationship between regulatory effectiveness, regulatory economy, and regulatory efficiency—although, in my view, this would be little more than a relatively unimportant footnote.[52] Far more importantly, we might wonder how regulatory legitimacy fits into this account and whether the effective realisation of democratically mandated purposes can take the full justificatory strain without support from, or a cross-checking by, some version of 'coherentism'.[53] For my purposes, however, we can draw on Rubin to construct two ideal-typical mind-sets in thinking about the way that the law should engage with new technologies and, more generally, about the reform and renewal of the law. One ideal-type, 'regulatory-instrumentalism', views legal rules as a means to implement whatever policy goals have been adopted by the State; the adequacy and utility of the law is to be assessed by its effectiveness in delivering these goals. The other ideal-type is 'coherentism', according to which the adequacy of the law is to be assessed by reference to the doctrinal consistency and integrity of its rules. Where 'regulatory-instrumentalism' informs a proposal for reform, the argument will be that some part of the law 'does

---

[47] *Id*., at 312.
[48] *Id*., at 313.
[49] *Id*., at 328.
[50] *Id*., at 349; For scholarly concerns that include but also go beyond coherentism, *see* R. Brownsword, *Maps, Critiques, and Methodologies: Confessions of a Contract Lawyer* in Methodologies of Legal Research 133 (M. van Hoecke ed., Oxford: Hart, 2011).
[51] E.L. Rubin, *From Coherence to Effectiveness* in Rethinking Legal Scholarship 310, 350 (R. van Gestel *et al* eds., New York: Cambridge University Press, 2017); and, compare the seminal ideas in H. Collins, Regulating Contracts (Oxford: Oxford University Press, 1999).
[52] Compare my (sceptical) remarks on this matter in R. Brownsword, *So What Does the World Need Now? Reflections on Regulating Technologies*, in Regulating Technologies 23 (R. Brownsword and K. Yeung eds., Oxford: Hart, 2008).
[53] Compare my references to a 'new coherentism' in Part IV of this article; and, *see* R. Brownsword, *Regulatory Coherence—A European Challenge* in Varieties of European Economic Law and Regulation: Essays in Honour of Hans Micklitz 235 (K. Purnhagen and P. Rott eds., Heidelberg: Springer, 2014).

not work' relative to desired policy goals. By contrast, where 'coherentism' informs a proposal for reform, the argument will be that there is a lack of clarity in the law or that there are internal inconsistencies or tensions within the law that need to be resolved.

Although Rubin does not suggest that the shift from a traditional coherentist to a regulatory-instrumentalist mind-set is associated with the emergence of technologies, it is of course precisely this shift that I am suggesting reflects the first technological disruption of the law. In this part of the article, we can say a bit more about both coherentist and regulatory-instrumentalist views before focusing on the technocratic mind-set that is distinctively provoked by the second disruption; and then we can begin to reflect on the question of which of these mind-sets should be engaged when.

A. Coherentist

It is axiomatic within coherentism that the law should be formally consistent; and, while there might be some confusion, uncertainty and inefficiency if legal rules are contradictory or in tension, the coherence of legal doctrine is typically viewed as desirable in and of itself.[54] However, coherentism also has a substantive dimension. Thus, in Rubin's account of coherentism, the law (when satisfying coherentist standards) not only displays an internal consistency and integrity, it also expresses and concretises higher 'natural law' principles, all this being distilled by an intellectual elite applying their rational wisdom.[55] Although, even now, we might detect traces of such top-down 'pre-modern' thinking (as Rubin puts it), this is not a necessary characteristic. Rather, coherentists draw on simple traditional principles that are generally judged to be both reasonable and workable. The law, on this view, is about responding to 'wrongs', whether by punishing wrongdoers or by compensating victims; it is about correction and rectification, and holding wrongdoers to account. In the field of transactions, there are echoes of this idea in the notion that the law of contract should be guided, as Lord Steyn has put it, by the simple ideal of fulfilling the expectations of honest and reasonable people;[56] and, in the field of interactions, it almost goes without

---

[54] The jurisprudence is replete with illustrations but *see*, e.g., Arden LJ in Stena Line Ltd. v. Merchant Navy Ratings Pension Fund Trustees Ltd., 2011 EWCA Civ 543 at [36]:

> The internal coherence of the law is important because it enables the courts to identify the aims and values that underpin the law and to pursue those values and aims so as to achieve consistency in the structure of the law.

[55] E.L. Rubin, *From Coherence to Effectiveness* in Rethinking Legal Scholarship 310, 311 (R. van Gestel *et al* eds., New York: Cambridge University Press, 2017).

[56] Seminally, *see* J. Steyn, *Contract Law: Fulfilling the Reasonable Expectations of Honest Men*, 113 Law Quarterly Review 433 (1997).

saying that the law of tort should be guided by the standards and expectations of these same honest and reasonable people.

Anticipating the contrast between this coherentist mind-set and mind-sets that are more instrumental and/or technocratic, we should emphasise that the formal and substantive dimensions of coherentism betray little or no sense of the direction in which the law should be trying to move things. Coherentism looks up and down, backwards, and even sideways, but not forward. To be sure, there might be acts of reliance on coherentist confirmation of the legal position. However, coherentism is not directly instrumental; it is not about engineering change. Moreover, insofar as coherentists are focused on righting wrongs, their gaze is not on prevention and certainly not on the elimination of practical options.

There is one further important aspect of coherentist thinking, a feature that manifests itself quite regularly now that new technologies and their applications present themselves for classification and characterisation relative to established legal concepts and categories. Here, we find not only a coherentist focus on the recognised legal concepts, categories and classifications[57] but also a certain reluctance to abandon these concepts, categories and classifications with a view to contemplating a bespoke response. For example, rather than recognising new types of intellectual property, coherentists will prefer to tweak existing laws of patents and copyright.[58] Similarly, we will recall Lord Wilberforce's much-cited remarks on the heroic efforts made by the courts—confronted by modern forms of transport, various kinds of automation, and novel business practices—to force 'the facts to fit uneasily into the marked slots of offer, acceptance and consideration'[59] or whatever other traditional categories of the law of contract might be applicable. And, in transactions, this story continues; coherentism persists. So, for example, coherentists will want to classify e-mails as either instantaneous or non-instantaneous forms of communication (or transmission),[60] they will want to

---

[57] *See*, e.g., the excellent analysis in S. Bayern *et al*, *Company Law and Autonomous Systems: A Blueprint for Lawyers, Entrepreneurs, and Regulators*, 9 Hastings Science and Technology Law Journal 135 (2017), where company structures that are provided for in US, German, Swiss, and UK law are reviewed to see whether they might plausibly act as a host for autonomous systems that provide a service (such as file storage, file retrieval and metadata management).

[58] Compare the analysis of multi-media devices in T. Aplin, Copyright Law in the Digital Society: the Challenges of Multimedia (Oxford: Hart, 2005).

[59] As Lord Wilberforce put it in New Zealand Shipping Co. Ltd. v. A.M. Satterthwaite and Co. Ltd., 1975 AC 154, 167: (1974) 2 WLR 865.

[60] *See*, e.g., A. Murray, *Entering into Contracts Electronically: the Real WWW* in Law and the Internet: A Framework for Electronic Commerce 17 (L. Edwards and C. Waelde eds., Oxford: Hart, 2000); and E. Mik, *The Effectiveness of Acceptances Communicated by Electronic Means, Or – Does the Postal Acceptance Rule Apply to*

apply the standard formation template to online shopping sites, they will want to draw on traditional notions of agency in order to engage electronic agents and smart machines,[61] and they will want to classify individual 'prosumers' and 'hobbyists' who buy and sell on new platforms (such as platforms that support trade in 3D printed goods) as either business sellers or consumers.[62] As the infrastructure for transactions becomes ever more technological, the tension between this strand of common law coherentism and regulatory-instrumentalism becomes all the more apparent.

B. Regulatory-Instrumentalist

'Regulation' is generally understood as a process of directing regulatees, monitoring and detecting deviation, and correcting for non-compliance, all of this relative to specified regulatory purposes. The regulatory mindset is, at all stages, instrumental and instrumentally rational. The question is: what works? When a regulatory intervention does not work, it is not enough to restore the status quo; rather, further regulatory measures should be taken, learning from previous experience, with a view to realising the regulatory purposes more effectively. Hence, the purpose of the criminal law is not simply to respond to wrongdoing (as corrective justice demands) but to reduce crime by adopting whatever measures of deterrence promise to work.[63] Similarly, in a safety-conscious community, the purpose of tort law is not simply to respond to wrongdoing but to deter practices and acts where agents could easily avoid creating risks of injury and damage. For regulatory-instrumentalists, the path of the law should be progressive: we should be getting better at regulating crime and improving levels of safety.[64]

Email?, 26 Journal of Contract Law 68 (2009) (concluding that such classificatory attempts should be abandoned).

[61] Compare, e.g., E. Weitzenboeck, *Electronic Agents and the Formation of Contracts*, 9 International Journal of Law and Information Technology 204 (2001).

[62] Compare e.g., C. Twigg-Flesner, *Conformity of 3D Prints—Can Current Sales Law Cope?* in Digital Revolution: Challenges for Contract Law in Practice 35 (R. Schulze and D. Staudenmayer eds., Baden-Baden: Nomos, 2016).

[63] Compare D. Garland, The Culture of Control: Crime and Social Order in Contemporary Society (Oxford: Oxford University Press, 2001); and A. Marks *et al*, *Automatic Justice? Technology, Crime, and Social Control* in The Oxford Handbook of Law, Regulation and Technology 705 (R. Brownsword, E. Scotford, and K. Yeung, eds., Oxford: Oxford University Press, 2016 [e-publication]; and 2017).

[64] The parallel development of a risk-management ideology in both criminal law and tort is noted by M. Feeley and J. Simon, *Actuarial Justice: The Emerging New Criminal Law* in The Futures of Criminology 173 (David Nelken ed., London: Sage, 1994). At 186, Feeley and Simon say:

> Although social utility analysis or actuarial thinking is commonplace enough in modern life, in recent years this mode of thinking has gained ascendancy in legal discourse, a system of reasoning that traditionally has employed the language of morality and focused on individuals. Thus, for instance, it is by now the conventional mode of

One of the striking features of the European Union has been the single market project, a project that the Commission has pursued in a spirit of conspicuous regulatory-instrumentalism. Here, the regulatory objectives are: (i) to remove obstacles to consumers shopping across historic borders; (ii) to remove obstacles to businesses (especially small businesses) trading across historic borders; and (iii) to achieve a high level of consumer protection. In order to realise this project, it has been essential to channel the increasing number of member states towards convergent legal positions. Initially, minimum harmonisation Directives were employed, leaving it to member states to express the spirit and intent of Directives in their own doctrinal way. To this extent, a degree of divergence was tolerated in the way that the regional inputs were translated into national outputs that, in turn, might become the relevant legal material for interpretation and application. However, where the Commission needed a stronger steer, it could (and did) resort to the use of maximum harmonisation measures (restricting the scope for local glosses on the law); and, where Directives did not work, then Regulations could be used (a case in point being the recent GDPR)[65], leaving member states with even less room for local divergence.

As the single market project evolves into the digital Europe project, the Commission's regulatory-instrumentalist mind-set is perfectly clear. As the Commission puts it:

> The pace of commercial and technological change due to digitalisation is very fast, not only in the EU, but worldwide. The EU needs to act now to ensure that business standards and consumer rights will be set according to common EU rules respecting a high-level of consumer protection and providing for a modern business friendly environment. It is of utmost necessity to create the framework allowing the benefits of digitalisation to materialise, so that EU businesses can become more competitive and consumers can have trust in high-level EU consumer protection standards. By acting now, the EU will set the policy trend and the standards according to which this important part of digitalisation will happen.[66]

---

reasoning in tort law. Traditional concerns with fault and negligence standards—which require a focus on the individual and concern with closely contextual causality—have given way to strict liability and no-fault. One sees this in both doctrines, and even more clearly in the social vision that constitutes the discourse about modern torts. The new doctrines ask, how do we 'manage' accidents and public safety. They employ the language of social utility and management, not individual responsibility.

[65] Regulation (EU) 2016/679.

[66] European Commission, Communication from the Commission to the European Parliament, the Council and the European Economic and Social Committee, *Digital contracts for*

In this context, coherentist thoughts about tidying up and standardising the lexicon of the consumer *acquis*, or pushing ahead with a proposed Common European Sales Law,[67] or codifying European contract law drop down the list of priorities. For regulatory-instrumentalists, when we question the fitness of the law, we are not asking whether legal doctrine is consistent, we are asking whether it is fit for delivering the regulatory purposes.

Lastly, I take it to be characteristic of the regulatory-instrumentalist mind-set that the thinking becomes much more risk-focused. In criminal law and in torts, the risks that need to be assessed and managed relate primarily to physical and psychological injury and to damage to property and reputation; in contract law, it is economic risks that are relevant. So, for example, we see in the development of product liability a scheme of acceptable risk management that responds to the circulation of products (such as cars or new drugs) that are beneficial but also potentially dangerous. However, this response is still in the form of a revised *rule* (it is not yet technocratic); and it is still in the nature of an *ex post* correction (it is not yet *ex ante* preventive). Nevertheless, it is only a short step from here to a greater investment in *ex ante* regulatory checks (for food and drugs, chemicals, and so on) and to the use of new technologies as preventive regulatory instruments. In other words, it is only a short step from risk-managing regulatory-instrumentalist thinking to a more technocratic mind-set.

C. Technocratic

As is well-known, there was a major debate in the United Kingdom at the time that seat belts were fitted in cars and it became a criminal offence to drive without engaging the belt. Tort law responded, too, by treating claimant drivers or passengers who failed to engage their seat belts as, in part, contributing to their injuries.[68] Critics saw this as a serious infringement of their liberty—namely, their option to drive with or without the seat belt engaged. Over time, though, motorists became encultured into compliance. So far, we might say, so regulatory-instrumentalist.

Suppose, though, that motorists had not become encultured into compliance. Given the difficulty of enforcing a rule requiring seat belts to be

---

Europe—Unleashing the potential of e-commerce COM(2015) 633 (Brussels, 9 December 2015), 7.

[67] Despite a considerable investment of legislative time, the proposal was quietly dropped at the end of 2014. This also, seemingly, signalled the end of the project on the Common Frame of Reference in which, for about a decade, there had been a huge investment of time and resource.

[68] Froom v. Butcher, 1976 QB 286: (1975) 3 WLR 379.

engaged, regulatory-instrumentalism might have taken a more technocratic turn. For example, there might have been a proposal to design vehicles so that cars were simply immobilised if seat belts were not worn. In the USA, where such a measure of technological management was indeed adopted before being rejected, the implications for liberty were acutely felt.[69] Although the (US) Department of Transportation estimated that the so-called interlock system would save 7,000 lives per annum and prevent 340,000 injuries, 'the rhetoric of prudent paternalism was no match for visions of technology and "big brotherism" gone mad'.[70] Taking stock of the legislative debates of the time, Jerry Mashaw and David Harfst remark:

> Safety was important, but it did not always trump liberty. [In the safety lobby's appeal to vaccines and guards on machines] the freedom fighters saw precisely the dangerous, progressive logic of regulation that they abhorred. The private passenger car was not a disease or a workplace, nor was it a common carrier. For Congress in 1974, it was a private space.[71]

Not only does technological management of this kind aspire to limit the practical options of motorists, including removing the real possibility of non-compliance with the law, there is a sense in which it supersedes the rules of law themselves.

Today, similar debates might be had about the use of mobile phones by motorists. There are clear and dramatic safety implications but many drivers persist in using their phones while they are in their cars. If we are to be technocratic in our approach, perhaps we might seek a design solution that disables phones within cars, or while the user is driving. However, once automated vehicles relieve 'drivers' of their safety responsibilities, it seems that the problem will drop away—rules that penalise humans who use their mobile phones while driving will become redundant; humans will simply be transported in vehicles and the one-time problem of driving while phoning will no longer be an issue.

So, unlike coherentists, technocrats are not concerned with doctrinal integrity and their focus is not on restoring the status quo prior to wrongdoing; and, unlike regulatory-instrumentalists who do view the law in a purposive way, technocrats—or, at any rate, those who are contemplating interventions at the hard end of the spectrum—are concerned with

---

[69] J.L. Mashaw and D.L. Harfst, The Struggle for Auto Safety Chapter 7 (Cambridge, Mass.: Harvard University Press, 1990).

[70] *Id.*, at 135.

[71] *Id.*, at 140.

preventing or precluding wrongdoing and employing technological measures or solutions, rather than rules or standards, to achieve their objectives.

D. Which Mind-Set to Engage

Given that regulators might frame their thinking in very different ways, does it matter which mind-set they adopt; and, if so, which mind-set should they adopt? When and why should we think like coherentists, when like regulatory-instrumentalists, and when like technocrats?

To illustrate the significance of the regulatory framing, consider the following hypothetical posed by John Frank Weaver:

> [S]uppose the Aeon babysitting robot at Fukuoka Lucle mall in Japan is responsibly watching a child, but the child still manages to run out of the child-care area and trip an elderly woman. Should the parent[s] be liable for that kid's intentional tort?[72]

If we respond to this question (of the parents' liability) with the mind-set of a coherentist, we are likely to be guided by traditional notions of fault, responsibility, causation, and corrective justice. On this view, liability would be assessed by reference to what communities judge to be fair, just and reasonable—and different communities might have different ideas about whether it would be fair, just and reasonable to hold the parents liable in the hypothetical circumstances. By contrast, if we respond like a regulatory-instrumentalist, the thinking is likely to be that before retailers, such as the shop at the mall, are to be licensed to introduce robot babysitters, and before parents are permitted to make use of robocarers, there needs to be a collectively agreed scheme of compensation should something 'go wrong'. On this view, the responsibilities and liabilities of the parents would be determined by the agreed terms of the risk management package. However, we might also imagine a third response, a response of a technocratic nature, seeking to design out the possibility of such an accident. Quite what measures of technological management might be suggested is anyone's guess—perhaps an invisible 'fence' at the edge of the care zone so that children (like supermarket trolleys or golf carts) simply could not stray beyond the limits. However, thinking about the puzzle in this way, the question would be entirely about designing the machines and the space in a way that (harmful) collisions between children and mall-goers simply could not happen.

Which of these responses is appropriate? On the face of it, coherentism belongs to relatively static and stable communities, not to the turbulent times

---

[72] J.F. Weaver, Robots Are People Too 89 (Santa Barbara, Ca: Praeger, 2014).

of the Twenty-First Century. To assume that traditional legal frameworks enable regulators to ask the right questions and answer them in a rational way seems over-optimistic. If we reject coherentism, we will see regulatory-instrumentalism as a plausible default with the option of a technocratic resolution always to be considered.[73] However, there is a concern that regulatory-instrumentalism 'flattens' decision-making, reducing all conflicts to a balance of interests and replacing respect for fundamental values such as respect for human rights and human dignity with an all-purpose utilitarianism. Moreover, concerns of this kind are amplified by the prospect of the use of technological management.

If we are to get some critical distance on these questions, we need a sketch of the bigger picture of the responsibilities of regulators, including a view of where the red lines are drawn and what the priorities are. We can now turn to such matters.

IV. Regulatory Responsibilities and Regulatory Red Lines

In this Part of the article, I will present a sketch of the bigger picture of regulatory responsibilities, these responsibilities being ranked in three tiers of importance. At the first and most important tier, regulators have a 'stewardship' responsibility for maintaining the pre-conditions for human social existence, for any kind of human social community. I will call these conditions 'the commons'.[74] At the second tier, regulators have a responsibility to respect the fundamental values of a particular human social community, that is to say, the values that give that community its particular identity. At the third tier, regulators have a responsibility to seek out an acceptable balance of legitimate interests. The responsibilities at the first tier are cosmopolitan and non-negotiable (the red lines here are hard); the responsibilities at the second and third tiers are contingent, depending on the fundamental values and the interests recognised in each particular community. Any conflicts between these responsibilities are to be resolved by reference to the tiers of importance: responsibilities in a higher tier always outrank those in a lower tier.

---

[73] For a discussion in point, *see* D.S. Wall, Cybercrime (Cambridge: Polity Press, 2007) where a number of strategies for dealing with 'spamming' are considered. As Wall says, if the choice is between ineffective legal rules and a technological fix (filters and the like), then most would go for the latter (at 201).

[74] Compare R. Brownsword, *Responsible Regulation: Prudence, Precaution and Stewardship*, 62 Northern Ireland Legal Quarterly 573 (2011).

In what follows, I speak briefly to each of these three tiers before returning to the question of which regulatory mind-set should be engaged.

A. The regulatory responsibility for the commons

The basic idea of the commons is that there is a set of conditions that sets the stage for any kind of human purposeful activity, whether individually or in groups or larger communities. These conditions do not privilege any particular individual, group or community and they do not privilege any particular activity, project or plan. These are conditions that are needed by each and every human agent irrespective of the particular way in which they want to operationalize their agency.

We might get to this idea by an *a priori* route that focuses on developing an understanding of what it is to view oneself as an agent (or human agent)[75]; or, we might simply tease out the presuppositions of the standard demands that are made on regulators as we debate the governance framework or the social licence for new technologies. Taking this latter approach, we will note, first, that we expect regulators to be mindful that we, as humans, have certain biological needs and that there should be no encouragement for technologies that are dangerous in that they compromise the conditions for our very existence; secondly, we will note that we have a (self-interested) sense of which technological developments we would regard as beneficial (on the basis of which we will press regulators to support and prioritise such developments; and, conversely, to reject developments that we judge to be contrary to our self-interest); and, thirdly, we will note that, even where proposed technological developments are neither dangerous nor lacking utility, some will argue that they should be prohibited (or, at least, not encouraged)[76] because their development would be immoral.[77]

If we build on this analysis, we will argue that the paramount responsibility for regulators (whether they otherwise think like coherentists, regulatory-instrumentalists, or technocrats) is to protect, preserve, and promote:

---

[75] Such a strategy, I suggest, can be found in the 'Gewirthian' tradition that originates in A. Gewirth, Reason and Morality (Chicago: University of Chicago Press, 1978). For detailed analysis and defence of this strategy, *see* D. Beyleveld, The Dialectical Necessity of Morality (Chicago: University of Chicago Press, 1991).

[76] Compare R. Brownsword, *Regulatory Coherence—A European Challenge* in Varieties of European Economic Law and Regulation: Essays in Honour of Hans Micklitz 235 (K. Purnhagen and P. Rott eds., Heidelberg: Springer, 2014) for discussion of the CJEU's decision and reasoning in Case C-34/10, Oliver Brüstle v. Greenpeace e.V. (Grand Chamber, 18 October 2011).

[77] Recall, e.g., F. Fukuyama, Our Posthuman Future (London: Profile Books, 2002) for the argument that the development and application of modern biotechnologies, especially concerning human genetics, should not be permitted to compromise human dignity.

- the essential conditions for human existence (given human biological needs);
- the generic conditions for human agency and self-development; and,
- the essential conditions for the development and practice of moral agency.

These, it bears repeating, are imperatives for regulators in all regulatory spaces, whether international or national, public or private. Of course, determining the nature of these conditions will not be a mechanical process and I do not assume that it will be without its points of controversy.[78] Nevertheless, let me give an indication of how I would understand the distinctive contribution of each segment of the commons.

In the first instance, regulators should take steps to protect, preserve and promote the natural ecosystem for human life.[79] At minimum, this entails that the physical well-being of humans must be secured; humans need oxygen, they need food and water, they need shelter, they need protection against contagious diseases, if they are sick they need whatever medical treatment is available, and they need to be protected against assaults by other humans or non-human beings. It follows that the intentional violation of such conditions is a crime against, not just the individual humans who are directly affected, but humanity itself.[80]

Secondly, the conditions for meaningful self-development and agency need to be constructed (largely in the form of positive support and negative restriction): there needs to be sufficient trust and confidence in one's fellow agents, together with sufficient predictability to plan, so as to operate in a way that is interactive and purposeful rather than merely defensive. Let me suggest that the distinctive capacities of prospective agents include being able:

- to freely choose one's own ends, goals, purposes and so on ('to do one's own thing');
- to understand instrumental reason;

---

[78] Moreover, even if it is agreed where the bottom lines are to be drawn, a community still has to decide how to handle proposals for uses of technologies that do not present a threat to any of the bottom line conditions.

[79] Compare, J. Rockström *et al*, *Planetary Boundaries: Exploring the Safe Operating Space for Humanity* 14 Ecology and Society 32 (2009), *available at* http://www.ecologyandsociety.org/vol14/iss2/art32/ (Last accessed 14 November 2016); and, K. Raworth, Doughnut Economics 43-53 (London: Random House Business Books, 2017).

[80] Compare R. Brownsword, *Crimes Against Humanity, Simple Crime, and Human Dignity* in B. van Beers, *et al* eds., Humanity across International Law and Biolaw 87 (Cambridge University Press, 2014).

- to prescribe rules (for oneself and for others) and to be guided by rules (set by oneself or by others);
- to form a sense of one's own identity ('to be one's own person').

Accordingly, the essential conditions are those that support the exercise of these capacities.[81] With existence secured, and under the right conditions, human life becomes an opportunity for agents to be who they want to be, to have the projects that they want to have, to form the relationships that they want, to pursue the interests that they choose to have and so on. In the twenty-first century, no other view of human potential and aspiration is plausible; in the twenty-first century, it is axiomatic that humans are prospective agents and that agents need to be free.

The gist of these agency conditions is nicely expressed in a recent paper from the Royal Society and British Academy where, in a discussion of data governance and privacy, we read that:

> Future concerns will likely relate to the freedom and capacity to create conditions in which we can flourish as individuals; governance will determine the social, political, legal and moral infrastructure that gives each person a sphere of protection through which they can explore who they are, with whom they want to relate and how they want to understand themselves, free from intrusion or limitation of choice.[82]

In this light, we can readily appreciate that—unlike, say, Margaret Atwood's post-apocalyptic dystopia, *Oryx and Crake*[83]—what is dystopian about George Orwell's *1984*[84] and Aldous Huxley's *Brave New World*[85] is not that human *existence* is compromised but that human *agency* is compromised.[86] We can appreciate too, that today's data-veillance practices, as much as 1984's surveillance, 'may be doing less to deter destructive acts than [slowly to narrow] the range of tolerable thought and behaviour.'[87]

---

[81] Compare the insightful analysis of the importance of such conditions in M. Brincker, *Privacy in Public and the Contextual Conditions of Agency* in Privacy in Public Space 64 (T. Timan *et al* eds., Cheltenham: Edward Elgar, 2017).

[82] The Royal Society and British Academy, Connecting Debates on the Governance of Data and its Uses 5 (London, December 2016).

[83] M. Atwood, Oryx and Crake (London: Bloomsbury, 2003).

[84] G. Orwell, 1984 (London: Penguin Books, 1954) (first published 1949).

[85] A. Huxley, Brave New World (London: Vintage Books, 2007) (first published 1932).

[86] To be sure, there might be some doubt about whether the regulation of particular acts should be treated as a matter of the existence conditions or the agency conditions. For present purposes, however, resolving such a doubt is not a high priority. The important question is whether we are dealing with a bottom-line condition.

[87] F. Pasquale, The Black Box Society 52 (Harvard University Press, 2015).

Thirdly, where human agents have moral aspirations, the commons must secure the conditions for a moral community. Agents who reason impartially will understand that each human agent is a stakeholder in the commons that protects the essential conditions for human existence together with the generic conditions of agency; and that these conditions must, therefore, be respected. Beyond these conditions, the moral aspiration is to do the right thing relative not simply to one's own interests but relative to the interests that other human agents might have. While respect for the commons' conditions is binding on all human agents, these conditions do not rule out the possibility of moral contestation and moral pluralism. Rather, these are pre-conditions for moral debate and discourse, giving each agent the opportunity to develop his or her own view of what is morally prohibited, permitted, or required in relation to those acts, activities and practices that are predicated on the existence of the commons.

B. The regulatory responsibility to respect the community's fundamental values

Beyond the fundamental stewardship responsibilities, regulators are also responsible for ensuring that the fundamental values of their particular community are respected. Just as each individual human agent has the capacity to develop their own distinctive identity, the same is true if we scale this up to communities of human agents. There are common needs but also distinctive identities.

From the middle of the Twentieth Century, many nation states have expressed their fundamental (constitutional) values in terms of respect for human rights and human dignity.[88] These values (most obviously the human right to life) clearly intersect with the commons conditions and there is much to debate about the nature of this relationship and the extent of any overlap—for example, if we understand the root idea of human dignity in terms of humans having the capacity freely to do the right thing for the right reason,[89] then human dignity reaches directly to the commons' conditions for moral agency.[90] However, those nation states that articulate their particular identities by the way in which they interpret their commitment to respect for

---

[88] *See* R. Brownsword, *Human Dignity from a Legal Perspective* in Cambridge Handbook of Human Dignity 1 (M. Duwell *et al*, eds., Cambridge: Cambridge University Press, 2014).

[89] For such a view, *see* Roger Brownsword, 'Human Dignity, Human Rights, and Simply Trying to Do the Right Thing' in Christopher McCrudden (ed), *Understanding Human Dignity* (Proceedings of the British Academy 192) (Oxford: The British Academy and Oxford University Press, 2013) 345.

[90] *See*, R. Brownsword, *From Erewhon to AlphaGo: For the Sake of Human Dignity Should We Destroy the Machines?*, 9 Law, Innovation and Technology 117 (2017).

human dignity are far from homogeneous. Whereas, in some communities, the emphasis of human dignity is on individual empowerment and autonomy, in others it is on constraints relating to the sanctity, non-commercialisation, non-commodification, and non-instrumentalisation of human life.[91] These differences in emphasis mean that communities articulate in very different ways on a range of beginning of life and end of life questions as well as questions of human enhancement, and so on.

With the second kind of disruption to the regulatory mind-set, one question that should now be addressed is whether, and if so how far, a community sees itself as distinguished by its commitment to regulation by rule. In some smaller scale communities or self-regulating groups, there might be resistance to a technocratic approach because compliance that is guaranteed by technological means compromises the context for trust—this might be the position, for example, in some business communities (where self-enforcing transactional technologies, such as blockchain, are rejected).[92] Or, again, a community might prefer to stick with regulation by rules because it values public participation in setting standards and is worried that this might be more difficult if the debate were to become technocratic.

If a community decides that it is generally happy with an approach that relies on technological features rather than rules, it then has to decide whether it is also happy for humans to be out of the loop. Where the technologies involve AI (as in anything from steering public buses to decisions made by the tax authorities), the 'computer loop' might be the only loop that there is. As Shawn Bayern and his co-authors note, this raises an urgent question, namely: 'do we need to define essential tasks of the state that must be fulfilled by human beings under all circumstances?'[93] Furthermore, once a community is asking itself such questions, it will need to clarify its understanding of the relationship between humans and robots—in particular, whether it treats robots as having moral status, or legal personality, and the like.[94]

---

[91] *See* D. Beyleveld and R. Brownsword, Human Dignity in Bioethics and Biolaw (Oxford: Oxford University Press, 2001); T. Caulfield and R. Brownsword, *Human Dignity: A Guide to Policy Making in the Biotechnology Era*, 7 Nature Reviews Genetics 72 (2006); and R. Brownsword, Rights, Regulation and the Technological Revolution (Oxford: Oxford University Press, 2008).

[92] *See*, the excellent discussion in K.E.C. Levy, *Book-Smart, Not Street-Smart: Blockchain-Based Smart Contracts and The Social Workings of Law*, 3 Engaging Science, Technology, and Society 1 (2017).

[93] S. Bayern *et al*, *Company Law and Autonomous Systems: A Blueprint for Lawyers, Entrepreneurs, and Regulators*, 9 Hastings Science and Technology Law Journal 156 (2017).

[94] *See*, e.g., Bert-Jaap Koops *et al*, *Bridging the Accountability Gap: Rights for New Entities in the Information Society?*, 11 Minnesota Journal of Law, Science and Technology

It is, of course, essential that the fundamental values to which a particular community commits itself are consistent with (or cohere with) the commons conditions; and, if we are to talk about a new form of coherentism—as I will suggest we might—it should be focused in the first instance on ensuring that regulatory operations are so consistent.

C. The regulatory responsibility to seek an acceptable balance of interests

This takes us to the third tier of regulatory responsibility. As we have said, with the development of a regulatory-instrumentalist mind-set, we find that much of traditional tort and contract law is overtaken by an approach that seems to promote general policy objectives (such as supporting and encouraging beneficial innovation) while balancing this with countervailing interests. Given that different balances will appeal to different interest groups, finding an acceptable balance is a major challenge for regulators.

Today, we have the perfect example of this challenge in the debate about the liability (both criminal and civil) of Internet intermediaries for the unlawful content that they carry or host.[95] Should intermediaries be required to monitor content or simply act after the event by taking down offending content? In principle, we might argue that such intermediaries should be held strictly liable for any or some classes of illegal content; or that they should be liable if they fail to take reasonable care; or that they should be immunised against liability even though the content is illegal. If we take a position at the strict liability end of the range, we might worry that the liability regime is too burdensome to intermediaries and that on-line services will not expand in the way that we hope; but, if we take a position at the immunity end of the range, we might worry that this treats the Internet as an exception to the Rule of Law and is an open invitation for the illegal activities of copyright infringers, paedophiles, terrorists and so on. In practice, most legal systems balance these interests by taking a position that confers an immunity but only so long as the intermediaries do not have knowledge or notice of the illegal content. Predictably, now that the leading intermediaries are large US corporations with deep pockets, and not fledgling start-ups, many think

497 (2010); and J.J. Bryson *et al*, *Of, for, and by the people: The legal lacuna of synthetic persons*, 25 Artificial Intelligence and Law 273 (2017).

[95] Almost by the day, the media carry pieces that further fuel and contribute to this debate: *see*, e.g., D. Aaronovitch, *Bringing law and order to digital Wild West* in The Times 25, (4 January 2018); and E. Munn, *YouTube severs (some of) its ties with Logan Paul*, *available at* http://www.alphr.com/life-culture/1008081/youtube-severs-some-of-its-ties-with-logan-paul (Last accessed 11 January 2018).

that the time is ripe for the balance to be reviewed.[96] However, finding a balance that is generally acceptable, in both principle and practice, is another matter.[97]

Where the content that is carried or hosted is perfectly lawful, we might think that there is no interest to set against its online presence. Indeed, we might think that, in a community that is fundamentally committed to freedom of expression, there are strong reasons for keeping such content available. However, there might be an interest, not in relation to the removal of the content, but in relation to the way in which search engines 'advertise' or 'signpost' or 'direct towards' the content at issue. In other words, there might be a 'right to be forgotten' of the kind upheld by the Court of Justice of the European Union (the CJEU) in the much-debated *Google Spain* case.[98]

Here, reasoning in a coherentist way, the CJEU accepted that a right to be forgotten is implicit in the conjunction of Articles 7 (respect for private life) and 8 (protection of personal data) of the EU Charter of Fundamental Rights[99] together with Articles 12(b) and 14(a) of the Data Protection Directive[100]—these provisions of the Directive concerning, respectively, the data subject's right to obtain rectification, erasure or blocking where the processing of the data is not compliant with the Directive and the data subject's right to object on 'compelling legitimate grounds' to the processing of the data which itself is ostensibly justified by reference to the legitimate interests of the controller or third parties. The significance of the newly recognised right to be forgotten is that a data subject who objects to certain personal data being flagged up where a search is made under that data subject's name may require the link to be erased—in the *Google Spain* case itself, the information in question was an announcement made some 16 years earlier in a Spanish newspaper that identified the data subject in connection with a real

---

[96] For a particularly compelling analysis, *see* M. Thompson, *Beyond Gatekeeping: the Normative Responsibility of Internet Intermediaries*, 18 Vanderbilt Journal of Entertainment and Technology Law 783 (2016).

[97] In the EU, there is also the question of whether national legislative initiatives—such as the recent German NetzDG, which is designed to encourage social networks to process complaints about hate speech and other criminal content more quickly and comprehensively—are compatible with the provisions of Directive 2000/31/EC on e-commerce: *see*, for discussion of this particular question, G. Spindler, *Internet Intermediary Liability Reloaded—The New German Act on Responsibility of Social Networks and its (In-) Compatibility With European Law*, *available at* https://www.jipitec.eu/issues/jipitec-8-2-2017/4567 (Last accessed 5 February 2018).

[98] Case C-131/12, Google Spain SL, Google Inc. v. Agencia Española de Protection de Datos (AEPD), Mario Costeja González [2014] *available at* http://curia.europa.eu/juris/document/document_print.jsf?doclang=EN&docid=152065 (Last accessed 5 February 2018).

[99] Charter of Fundamental Rights of the European Union (2000/C 364/01) (18 December 2000).

[100] Directive 95/46/EC.

estate auction that was related to attachment proceedings for the recovery of social security debts. Moreover, this right may be exercised even if the data to be forgotten is perfectly lawful and accurate and even if there is no evidence of prejudice to the data subject.

However, the judgment is riddled with references to the 'balancing of interests' leaving the precise basis of the right unclear. If the right is derived from Articles 7 and 8 of the Charter then, as the Court observes, it belongs to a privileged class of rights that 'override, as a rule, not only the economic interests of the operator of the search engine but also the interest of the general public in finding that information upon a search relating to the data subject's name'.[101] In other words, it would only be other, conflicting, fundamental rights (such as the fundamental right to freedom of expression that is recognised by Article 11 of the Charter) that could be pleaded against such an overriding effect. Immediately after saying this, though, the court muddies the waters by suggesting that the right to be forgotten would not have overriding effect if 'it appeared, *for particular reasons*, such as the role played by the data subject in public life, that the interference with his fundamental rights is justified by the preponderant interest of the general public in having, on account of inclusion in the list of results, access to the information in question'.[102] Clearly, care needs to be taken that the only reasons that qualify as 'particular reasons' here are that fundamental rights are implicated. If, on the other hand, the right to be forgotten rests on the rights in Articles 12(b) and 14(a) of the Directive, it would not be privileged in the way that fundamental rights are and a general balancing of interests (seeking an acceptable or reasonable accommodation of relevant interests) would be appropriate. On this analysis, the particular reasons relied on against the right to be forgotten could be much broader—or, at any rate, this would be so unless we read the more particular provisions of Article 8 of the Charter as elevating the specific rights of the Directive to the status of fundamental rights.

Applying its principles to the case at hand, the Court held as follows:

> As regards a situation such as that at issue in the main proceedings… it should be held that, having regard to the sensitivity for the data subject's private life of the information contained in those announcements and to the fact that its initial publication had taken place 16 years earlier, the data subject establishes a right that that information should

[101] Charter of Fundamental Rights of the European Union (2000/C 364/01) (18 December 2000) at para 97.

[102] Charter of Fundamental Rights of the European Union (2000/C 364/01) (18 December 2000) at para 97 (emphasis added).

> no longer be linked to his name by means of such a list. Accordingly, since in the case in point there do not appear to be particular reasons substantiating a preponderant interest of the public in having, in the context of such a search, access to that information, a matter which is, however, for the referring court to establish, the data subject may, by virtue of Article 12(b) and subparagraph (a) of the first paragraph of Article 14 of Directive 95/46, require those links to be removed from the list of results.[103]

From a coherentist perspective, what is puzzling here is that fundamental rights (to privacy) are being mixed with rights (in the Directive) that are subject to balancing and that belong to a different class of interests.[104] Whereas, from a fundamental rights perspective, it makes no sense to think that the passage of 16 years is a relevant consideration, from a balancing perspective, the privacy-sensitive nature of the data has no privileged status.[105] Arguably, the Court is trying to strike some intermediate position between fundamental rights and simple balancing. What might this be?

In principle, a community might treat a right to be forgotten as: (i) a fundamental right that is necessarily privileged and overriding in relation to all non-fundamental rights (as a right that is constitutive of this particular community); or (ii) as an interest that is not protected as a fundamental right but which, in the general balancing of interests, has more weight (although still susceptible to being outweighed by the preponderance of interests); or (iii) as a simple legitimate interest to be balanced against other such interests. Arguably, *Google Spain* is an example of a community that, being uncertain about its priority of informational rights and interests, needs to place the right to be forgotten in category (ii). While such an ad hoc approach might offend coherentists, it fits well enough with a regulatory-instrumental mindset where there is uncertainty about the most acceptable balancing point.

---

[103] Charter of Fundamental Rights of the European Union (2000/C 364/01) (18 December 2000) at para 98.

[104] Compare the insightful critique in E. Frantziou, *Further Developments in the Right to be Forgotten: The European Court of Justice's Judgment in Case C-131/12, Google Spain SL, Google Inc.* v. *Agencia Española de Proteccion de Datos*, 14 Human Rights Law Review 761, esp. at 768-769 (2014).

[105] Whether or not the elapse of time is a relevant consideration seems to depend on the particular facts of the case: *see* Article 29 Data Protection Working Party, *Guidelines on the Implementation of the Court of Justice of the European Union Judgment on "Google Spain and Inc* v. *Agencia Española de Protección de Datos (AEPD) and Mario Costeja González" C-131/32* (November 26, 2014) at 15-16 ('Depending on the facts of the case, information that was published a long time ago…might be less relevant [than] information that was published 1 year ago.).

That said, if this is the nature of the exercise, we might think that it is better undertaken by the legislative rather than the judicial branch.[106]

D. Which regulatory mind-set should be engaged?

To repeat our earlier question but now in the light of the bigger picture of regulatory responsibilities, which mind-set should regulators engage?

Given that the paramount responsibility is to protect the commons, we might be concerned that, if regulators think in a traditional coherentist way, they might fail to take the necessary protective steps—steps that might involve new rules, or the use of measures of technological management, or both. This suggests that a regulatory-instrumentalist approach is a better default but it is only so if regulators are focused on the relevant risks—namely, the risks presented by technological development to the commons' conditions. Moreover, we might want to add that regulatory-instrumentalism, with this particular risk focus, is only a better default if it is applied with a suitably precautionary mentality. Regulators need to understand that compromising the commons is always the worst-case scenario.[107] Alongside such a default, a technocratic approach might well be appropriate. For example, if we believe that a rule-based approach cannot protect the planetary boundaries, then a geo-engineering approach might be the answer.[108] However, it needs to be borne in mind that, with a resort to technological management, there is potentially more than one kind of risk to the commons: an ineffective attempt to manage risks to the existence conditions might actually make things worse; and an effective intervention for the sake of the existence conditions might compromise the conditions for self-development and moral agency (because both autonomy and virtue presuppose a context in which one acts freely). Arguably, this invites the articulation of a 'new coherentism', reminding regulators of two things: first, that their most urgent regulatory focus should be on the commons conditions; and, sec-

---

[106] In Europe, Article 17 of the GDPR, Regulation (EU) 2016/679, now provides for a right to erasure with 'a right to be forgotten' placed alongside this in the heading to the Article. Whether this provision helps to clarify the law after the *Google Spain* case remains to be seen.

[107] Compare D. Beyleveld and R. Brownsword, *Complex Technology, Complex Calculations: Uses and Abuses of Precautionary Reasoning in Law* in Evaluating New Technologies: Methodological Problems for the Ethical Assessment of Technological Developments 175 (M. Duwell and P. Sollie eds., Dordrecht: Springer, 2009); and *Emerging Technologies, Extreme Uncertainty, and the Principle of Rational Precautionary Reasoning*, 4 Law Innovation and Technology 35 (2012).

[108] For discussion, *see* J. Reynolds, *Solar Climate Engineering, Law, and Regulation* in The Oxford Handbook of Law, Regulation and Technology 799 (R. Brownsword, E. Scotford, and K. Yeung, eds., Oxford: Oxford University Press, 2016 [e-publication]; and 2017).

ondly, that, whatever their interventions, and particularly where they take a technocratic approach, their acts must always be compatible with the preservation of the commons.

If the default for regulators is a regulatory-instrumental mind-set, then the next priority for regulators is to be mindful that they should act in ways that are consistent with the fundamental values that make the community the particular community that it is. As I have suggested, communities experiencing the second technological disruption should try to agree on the relevant principles for the use of technological measures. These principles together with the community's particular constitutive values will represent a key dimension of the local articulation of the Rule of Law. This invites an extension of new coherentism such that regulators check their actions for compatibility with the Rule of Law as articulated in the community.

Finally, in relation to the third tier of regulatory responsibility, in particular cases, there might well be some contestation about whether regulators should be trying to balance interests or apply (in a traditional coherentist way) settled rules, concepts, and classifications. However, if it is agreed that the case is one that calls for a balancing exercise, then the regulatory-instrumentalist default seems to be appropriate.

That said, these remarks might seem to be somewhat divorced from the way in which organised societies allocate particular regulatory responsibilities. Indeed, is it not a feature of the Rule of Law and democratic political arrangements that the Courts will settle disputes in accordance with established legal principles and that it is for the Legislature and the Executive to formulate and agree on public policies, plans and priorities? In other words, is it not the case that, while we expect judges and advocates in the Courts to reason like coherentists, we expect policy-making members of the Legislature and Executive to reason in a regulatory-instrumentalist way? To the extent that this is so, where in the regulatory array do we find the ultimate responsibility for stewardship of the commons and for the community's distinctive values? It is to these questions of institutional design and competence that we now turn.

V. Institutional Roles and Responsibilities

In the late 1970s, when techniques for assisted conception were being developed and applied, but also being seriously questioned, the response of the UK government was to set up a Committee of Inquiry chaired by Mary Warnock. In 1984, the Committee's report (the Warnock Report)

was published.[109] However, it was not until 1990, and after much debate in Parliament, that the framework legislation, the Human Fertilisation and Embryology Act 1990, was enacted. This process, taking the best part of a decade, is regularly held up as an example of best practice when dealing with emerging technologies. Nevertheless, this methodology is not in any sense the standard operating procedure for engaging with new technologies—indeed, there is no such procedure.

The fact of the matter is that legal and regulatory responses to emerging technologies vary from one technology to another, from one legal system to another, and from one time to another. Sometimes, there is extensive public engagement, sometimes not. On occasion, special Commissions (such as the now defunct Human Genetics Commission in the UK) have been set up with a dedicated oversight remit; and there have been examples of standing technology foresight commissions (such as the US Office of Technology Assessment)[110]; but, often, there is nothing of this kind. Most importantly, questions about new technologies sometimes surface, first, in litigation (leaving it to the Courts to determine how to respond) and, at other times, they are presented to the legislature (as was the case with assisted conception).

With regard to the question of which regulatory body engages with new technologies and how, there can of course be some local agency features that shape the answers. Where, as in the United States, there is a particular regulatory array with each agency having its own remit, a new technology might be considered in just one lead agency or it might be assessed in several agencies.[111] Once again, there is a degree of happenstance about this. Nevertheless, in a preliminary way, we can make three general points.

First, if the question (such as that posed by a compensatory claim made by a claimant who alleges harm caused by a new technology) is put to the Courts, their responsibility for the integrity of the law will push them towards a coherentist assessment. Typically, courts are neither sufficiently resourced nor mandated to undertake a risk assessment let alone adopt a

---

[109] Report of the Committee of Inquiry into Human Fertilisation and Embryology (London: HMSO, Cm. 9314, 1984).

[110] On which, *see* B. Bimber, The Politics of Expertise in Congress (Albany: State University of New York Press, 1996) charting the rise and fall of the Office and drawing out some important tensions between 'neutrality' and 'politicisation' in the work of such agencies.

[111] Compare, A.C. Lin, *Size Matters: Regulating Nanotechnology*, 31 Harvard Environmental Law Review 349 (2007).

risk management strategy (unless the legislature has already put in place a scheme that delegates such a responsibility to the courts).[112]

Secondly, if the question finds its way into the legislative arena, it is much more likely that politicians will engage with it in a regulatory-instrumentalist way; and, once the possibility of technological measures gets onto the radar, it is much more likely that (as with institutions in the EU) we will see a more technocratic mind-set.

Thirdly, if leaving so much to chance seems unsatisfactory, then it is arguable that there needs to be a body that is charged with undertaking the preliminary engagement with new technologies. The remit and challenge for such a body would be to ensure that there is no harm to the commons; to try to channel such technologies to our most urgent needs (relative to the commons); and, to help each community to address the question of the kind of society that it distinctively wants to be—doing all that, moreover, in a context of rapid social and technological change. As Wendell Wallach rightly insists:

> Bowing to political and economic imperatives is not sufficient. Nor is it acceptable to defer to the mechanistic unfolding of technological possibilities. In a democratic society, we—the public—should give approval to the futures being created. At this critical juncture in history, an informed conversation must take place before we can properly give our assent or dissent.[113]

Granted, the notion that we can build agencies that are fit for such purposes might be an impossible dream. Nevertheless, I join those who argue that this is the right time to set up a suitably constituted body[114]—possibly along the lines of the Centre for Data Ethics and Innovation (to set standards for the ethical use of AI and data) as announced by the UK government in late 2017[115]—that would underline our responsibilities for the commons

---

[112] Perhaps we should view Patent Offices in this light. In the 1980s, there were major decisions to be made about the patentability of biotechnological products and processes, models of which could not be brought into the Office to demonstrate how they worked and which also raised complex moral issues. For extended discussion, *see* A. Pottage and B. Sherman, Figures of Invention: A History of Modern Patent Law (Oxford: Oxford University Press, 2010); and, on the moral dimension of these debates, *see* D. Beyleveld and R. Brownsword, Mice, Morality and Patents (London: Common Law Institute of Intellectual Property, 1993).

[113] *See*, W. Wallach, A Dangerous Master 10 (Basic Books, 2015).

[114] Amongst many matters in this paper that invite further discussion, the composition of such a Commission invites debate. *See*, too, W. Wallach, A Dangerous Master Chapters 14-15 (Basic Books, 2015).

[115] *See Autumn Budget 2017: 25 things you need to know* (H.M. Treasury, 22 November 2017) point 16: *available at* https://www.gov.uk/government/news/

as well as facilitating the development of each community's regulatory and social licence for these technologies.[116]

In the light of this, consider briefly the much-debated question of who should be liable for what if there are accidents that involve autonomous vehicles. It goes without saying that it makes little sense to try, in a coherentist way, to apply the principles for judging the negligence of human drivers to questions of liability concerning vehicles in which there is no human in control and where the nature of the technology militates against simple causal accounts when things 'go wrong'. Yet, if these questions are taken up in the courts, we must expect that judges (reasoning like coherentists) will try to apply notions of a reasonable standard of care, proximate cause, and so on, to responsibility for very complex technological failures.[117] Indeed, when Joshua Brown was killed while driving his Tesla S car in autopilot mode,[118] Tesla (presumably anticipating litigation or a discourse of fault and responsibility) were quick to highlight the safety record of their cars, to suggest that drivers of their cars needed to remain alert, and to deny that they themselves were careless in any way. By contrast, if regulators in a legislative setting approach the question of liability and compensation with a risk-management mind-set, they will not need to chase after questions of fault—or, at any rate, as in the draft UK legislation (the Automated and Electric Vehicles Bill), insurance and compensation will come first with insurers of automated vehicles then able to pursue existing (fault-based) common law claims. In this way, the challenge will be to articulate the most acceptable (and financially workable) compensatory arrangements that accommodate the interest in transport innovation with the interest in the safety of passengers and pedestrians. As Jonathan Morgan argues, the better way of determining the liability arrangements for autonomous vehicles is surely not by litigation but 'for regulators to make the relevant choices of public policy openly after suitable democratic discussion of which robotics applications to allow and which to stimulate, which applications to discourage and which to prohib-

---

autumn-budget-2017-25-things-you-need-to-know (Last accessed 25 November 2017).

[116] Compare G. Mulgan's proposal for the establishment of a Machine Intelligence Commission in *A machine intelligence commission for the UK* (22 February 2016) *available at* http://www.nesta.org.uk/blog/machine-intelligence-commission-uk (Last accessed 11 December 2016); O. Bustom et al, *An Intelligent Future? Maximising the Opportunities and Minimising the Risks of Artificial Intelligence in the UK* (Future Advocacy, London, October 2016) (proposing a Standing Commission on AI to examine the social, ethical, and legal implications of recent and potential developments in AI); HC Science and Technology Committee, *Robotics and Artificial Intelligence* HC 145 2016-17.

[117] I take it that, if autonomous vehicles have to be at least as safe as driven vehicles, there would be a difficulty in presenting them as 'dangerous' in a way that would get a product liability claim to first base.

[118] Reported at https://www.theguardian.com/technology/2016/jun/30/tesla-autopilot-death-self-driving-car-elon-musk (Last accessed 14 November 2017).

it'.[119] Even better, in my view, regulators should make these choices after an independent emerging technologies body (of the kind that we do not, but should, have) has informed and stimulated public debate.

VI. Conclusion

In this article, I have sketched two modes of technological disruption, impacting on both the substance of legal rules and the form of regulation, and generating, in turn, three mind-sets—coherentist, regulatory-instrumentalist, and technocratic—that may manifest themselves in regulatory discourse and debates. In order to gain some critical distance in relation to these mind-sets, I have also sketched a scheme of regulatory responsibilities that makes the protection of the commons the top priority and, at the same time, I have indicated some questions that arise from the standard division of regulatory labour between the different branches of government.

On the cusp of an era of technological management, the bearing of the regulatory mind-sets on the replacement, refinement, and revision of legal rules is significant, possibly critical. For example, to the extent that the technocratic mind-set dominates, we can expect rules to be replaced and rendered redundant; to the extent that regulatory-instrumentalism dominates coherentism, we can expect new rules to be adopted in place of older traditional rules; and, to the extent that coherentism persists, we can expect there to be some tweaking of traditional rules and concepts to accommodate new technologies as well as resistance to both regulatory-instrumentalism and technocracy.

The bearing of these mind-sets is critical, too, in relation to the discharge of regulatory responsibilities. Regulators, as stewards for the commons, need to be able to think through the regulatory noise to frame questions in the right way and to respond in ways that are rationally defensible. However, even if they are clear-headed, regulators might find that they are constrained by the role that they have been assigned in the institutional array. In an age of smart machines, our institutional design needs also to be intelligent and flexible.

That said, the reception of new technologies is likely to differ from one place to another. The interaction between global and local politics is

[119] J. Morgan, *Torts and Technology*, in The Oxford Handbook of Law, Regulation and Technology 539 (R. Brownsword, E. Scotford, and K. Yeung, eds., Oxford: Oxford University Press, 2016 [e-publication]; and 2017).

hard to predict. Technological management might not be the only game in town; there are likely to be several voices in the regulatory discourses; and, we should not assume that the technocratic approach will be universally acceptable.

Nevertheless, unless we follow the example of Samuel Butler's eponymous Erewhonians,[120] who thought it appropriate to punish those who fall ill while sympathising with those who commit crimes, and who destroyed their machines, human agents will co-exist and evolve with their technologies. In the regulatory sphere, the direction of travel, I have suggested, is towards technological management; but, so long as the regulatory mind-set is divided in the way that I have sketched, so long as regulators are unclear about their stewardship responsibilities, and so long as regulators are constrained by their institutional position, the future of legal rules is unpredictable. Some rules will be replaced; others will be revised; and others will be renewed; but when, where, and how precisely this will happen is impossible to predict.

Finally, should we judge that the disruption of legal and regulatory thought has been a good or a bad thing? No doubt, some have benefited and others have lost as a result of particular legal responses; but, I have no idea whether all things considered this has been a good or bad thing. Still, if the latest disruptions mean that regulators become more focused on the significance of the commons conditions, and if a new coherentism—elaborated by the courts as well as by independent stewards—crystallises to express this focus, then that surely would be no bad thing.

[120] S. Butler, Erewhon, first published 1872 *available at* www.planetebook.com (Last accessed 3 February 2017).