DISRUPTION, REGULATORY THEORY AND CHINA: WHAT SURVEILLANCE AND PROFILING CAN TEACH THE MODERN REGULATOR

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Abstract

Disruption poses a unique challenge for regulatory agencies, particularly those with a focus on criminal law. Yet regulatory scholarship focuses on and elevates the concepts of risk without addressing the actors and agents that populate the regulated environment. This article has three main aims. The first of these aims is to use disruption as a conceptual lens to critique the predominant regulatory theories and highlight some of their weaknesses. The second is, by reference to the principles set forth by Foucault and Deleuze, to identify some of the fundamental principles that could apply to a post-regulatory State to enable them to be more successful in the disrupted environment. The third is to examine the case of China as an empirical example of how some elements of that system have been employed in the real world. The article closes with some considerations of possible future areas of discussion.

Keywords: Criminal Law, Deleuze, Disruption, Foucault, Regulation

1. INTRODUCTION

The advent of big data and big analysis, computer-aided decision-making and algorithms has the potential to fundamentally alter the interactions between those regulators of (especially) the criminal law, and the subjects they monitor and engage with. As there has already been a great deal of literature on the concepts of what it means to be a regulator of the criminal law, it is not intended that this article engage further with definitional debate. Instead, we take as a starting point the observations of Brownsword (2005, p. 4) that the concepts of "regulation" and "regulator" should be defined widely in the case of the former and narrowly in the case of the latter. In doing so, we explicitly accept Brownsword's proposition that regulation is the result of the application of force by the State, directly or indirectly, in order to direct, steer or change behaviour towards that accepted or wanted by the society being governed.

It seems axiomatic that regulation should be easy. Deterrence theory suggests that the average moral citizen is unattracted to large monetary fines, imprisonment, and the associated social and moral stigma, and so strives to tailor his or her actions to meet the State's expectations (Pontell, 1978). Yet academia continues to spill a great deal of ink on the nature of regulation, its actors and methods. Numerous theories and variations of theories abound, proposing solutions for this problem or that problem, which has resulted in some scholars remarking that regulation is not "a set of technical ameliorations to a world where private accumulation is always prioritised over social protection, but…an object of struggle, power, and social forces" (Tombs, 2015).

Importantly, it is critical that regulators embrace this concept of criminality in their regulated environment. Disruption – in particular, regulatory disruption – has the ability to unbalance existing relationships between regulator and

regulated, which permits greater or lesser struggle, power imbalances and social asymmetry resulting in new, unique or modified opportunities for crime. This has resulted in particular what Knoll termed "regulatory arbitrage"; the creation of incentives to innovate around prohibited or disadvantaged transactions (Knoll, 2008). In turn, this creates regulatory headaches for how to fit the new round peg into the existing square holes.

In this article, we attempt to draw together some of the concepts in regulatory theory that until now appeared to have escaped wider academic scrutiny to provide regulators, particularly those enforcing the criminal law, with a more nuanced approach. In Section 2 of the article, we use disruptors (those new practices, systems, devices and "things" that emerge from technological development and cause a regulator to become disconnected from their statutory or policy objectives) as a conceptual lens to critique predominant existing regulatory theories. Doing so exposes that in their desire to conquer risk, regulators are instead becoming obsessed with the treatment of the disruptor and not the people who use it. In Section 3 we engage in a reference to the works of Michel Foucault and Gilles Deleuze to demonstrate, both logically and empirically, that regulators should focus their attention on the responses of the regulated to be more successful. In Sections 4 and 5 certain aspects of China's social credit system are analysed to demonstrate glimmers of how a new approach to compliance that focuses on the individual might be developed and better understood.

2. LITERATURE REVIEW

Regulators have globally grappled with the concepts of risk. Even absent a mandate from the State, defining risk (Moore, 1983; Douglas, 1990; Gabe, 1995) and then treating risk (Hutter, 2005; Rothstein et al., 2006) has been accepted as part of (especially criminal) regulators' core functions. Initially described as the adoption of a cost-benefit analysis culture that formalised standard setting in a given environment (Hood, Rothstein, & Baldwin, 2001), risk management in regulation has now expanded to include consideration of consequence and the satisfactory achievement of regulatory objectives, where regulators are effectively encouraged to "do more, with less" (Comino, 2011) whilst maintaining both relevance and legitimacy (Meyer & Rowan, 1977). Baldwin and Black (2010) explained these challenges collectively:

Firstly, they require a determination by the organization of its objectives – of the risks 'to what' that it is concerned to control. Secondly, they require a determination of the regulator's own risk appetite – what type of risks is it prepared to tolerate and at what level... Thirdly, risk-based frameworks involve an assessment of the hazard or adverse event and the likelihood of it occurring... Fourthly, regulators assign scores and/or ranks to firms or activities on the basis of these assessments... Fifthly, risk-based frameworks provide a means of linking the organization and supervisory, inspection, and often enforcement resources to the risk scores assigned to individual firms or system-wide issues... (p. 31).

Although a number of regulators claim to utilise risk-centric regulation in fields as diverse as tertiary education, drugs/poisons licensing and environmental protection (Australian Pesticides and Veterinary Medicines Authority, 2014; Australian Skills Quality Authority, 2017; Stoney, 2017) there is surprisingly little empirical assessment of its utility. A similar absence of rigorous testing can be seen with regulators in the UK, US, Canada, Netherlands, Portugal, and Ireland (Hutter, 2005). As Black and Baldwin put it these agencies have "embraced risk-based regulation, at least at the level of exhortation" (Baldwin & Black, 2010, p. 182). Yet the theories which these agencies employ to utilise their tools are all based on a series of assumptions, some of which stand on the shaky logical and empirical ground. The "regulatory orthodoxy" referred to in the literature (Tombs, 2015) ought to be scrutinised and challenged, especially in environments undergoing continual cycles of disruption by the emergence of new practices, systems, markets, and devices. By examining the regulatory disconnection forced by certain classes of disruption, it is possible to expose the underlying weaknesses in the existing body of scholarship – thus paving the way for new avenues of research.

2.1. Responsive regulation

The responsive regulation theory was birthed from the complicated morass of tax evasion cases that faced the ATO in the 1990s where, for much of the ATO's history, compliance was secured only through legal punishment (Job & Honaker, 2003). In response, Braithwaite's work put forward a new theory for regulators, promoting "a leading approach to describing and prescribing how regulatory enforcement action best promotes compliance" (Ayres & Braithwaite, 1992). Also known interchangeably as strategic regulation, Braithwaite suggested that agents of the system oscillate between persuasion and compulsion depending on the response of the regulatee. In effect "enforcement agents start with a persuasive style and escalate punishments only when a business consistently refuses to cooperate" (Mascini, 2013). The theory was fully adopted by the ATO following the 1998 report of the Australian Cash Economy Task Force and thereafter a substantial shakeup of the agency's compliance and enforcement strategy (Leviner, 2008).

The ATO compliance strategy operated "by offering taxpayers cooperation, positive and helpful service, and open dialogue as a first response to conflicts" by embracing the principle that "whatever steps the tax administration takes must not, as much as possible, adversely affect compliant taxpayers or escalate existing conflicts beyond what is necessary to gain compliance" (Leviner, 2008). This approach is often known as a "tit-for-tat" (TFT) methodology – the regulator only escalates in response to a direct challenge to its authority by a stance of non-compliance by the regulatee. In some quarters the theory has been extremely successful and is still touted to be "the most sustained and influential account of how and why to combine deterrent and cooperative regulatory enforcement strategies" (Nielsen & Parker, 2009). As recently as 2015 the Government was still promoting its

responsive regulation policy in tax discussion papers (Commonwealth of Australia, 2015).

But responsive regulation is not without its critics, and by importing concepts of regulatory disruption we can highlight these antithetical arguments. Responsive regulation appears to have resisted the empirical analysis it truly requires to further develop as a bedded regulatory theory (Rogers, 1993). Whether this is as a result of the "regulatory orthodoxy" is beyond the scope of this article, but empirically there are suggestions that even regulators that exhorted responsive regulation still managed to miss the mark (Cortez, 2014). Other scholars have suggested that the degree of constant interaction between the regulator and their target is inappropriate with disrupted industries such as newly emerging markets (Braithwaite & Hong, 2015), those subject to covert surveillance (Katyal, 2003; Moore, 2018), or where the regulated are not used to the forms of intervention (Murphy, 2004). The flexibility required by the approach also requires competence in exercising discretion, something that is difficult when dealing with disruptors, given that the interpretation, judgment, and application of an applicable ruleset are highly mobile parameters that likely fall outside the ambit of the relevant statute (Richardson et al., 2017). Certain punitive actions under the responsive regulation pyramid are also beyond the scope of any third-party actor and require the active participation of an agent of the State (Crawford, 2009).

In publishing their sister theory "really responsive regulation", Baldwin and Black also opined that responsive regulation theory did not deal appropriately with "resource constrains, conflicting institutional pressures, unclear objectives, changes in the regulatory environment, or indeed how particular enforcement strategies might impact on other aspects of regulatory activity" (Baldwin & Black, 2008). It is trite to observe that their proposed "really responsive regulation" did not do so either (Yeung, 2004; Freigang, 2002; Dorbeck-Jung, Vrielink, Gosselt, Van Hoof, & De Jong, 2010; Kingsford-Smith, 2011; England, 2016). Despite Baldwin and Black's efforts, there is empirical evidence showing that whether embracing responsive or really response regulation, agencies still retain substantial difficulty dealing with non-compliance (Mascini & Van Wijk, 2009; Ford, 2013).

More recently responsive regulation was reduced to a list of nine principles in a distillation of the "essence" of the theory (Braithwaite, 2011). Braithwaite's refinement also sought to deal with some of the criticism: he dismissed the "discretionary competence" required of regulators in that space as merely following a social process that "responsive regulation is just common sense" (p. 518). He also acknowledged the weakness of responsive regulation to ongoing and frequent encounters between regulated and regulator but confirmed that regulators should conceive "regulatory culture not as a rule book but as a storybook" (p. 520).

Yet Braithwaite's observations cut to the heart of what makes responsive regulation ineffective at the intersection of crime and disruption – its treatment of criminal behaviour as though it can be coached, educated and treated out of existence. Braithwaite's statement that such "richly complex"

and "fiendishly difficult" activities can be entrusted to entities in the same manner as parenting and gardening, is incredibly conflicting. Responsive regulation is thus "never about controlling pathological, calculating, profit-maximising entities as one element of a broader struggle for social justice" (Tombs, 2015). By downplaying the immorality in white-collar crime, responsive regulation has resulted in a framework in which the regulator can display their "benign big guns" but often lacks the political and social licence to actually deploy them (Parker, 2006). Crawford (2009) made this clear when he said:

…notions of responsive regulation raise crucial issues about the theories that inform compliance, the responsiveness of regimes of regulation to the capacities of the regulated, their ability to regulate future uncertainties and the legitimate relationship between different regulatory tools. These are challenges that criminal justice needs to confront, not avoid (p. 827).

By applying disruption as a conceptual lens, we identify that the fundamental assumptions on which responsive regulation (and its sister theory "really" responsive regulation) rests are fundamentally flawed, both from a logical as well as an empirical perspective.

2.2. Smart regulation

So-called "smart" regulation was hot on the heels of responsive regulation in the late 1990s. Smart regulation embraced the non-state actor (Gunningham, Grabosky, & Sinclair, 1998), seeking to foster co-regulation between these partners and incentivise compliant behaviour as well as undertaking proper actuarial analysis of the risks facing the regulated environment (Haines, Sutton, & Platania-Phung, 2008). Self-regulation is a key component of smart regulation by leveraging existing partners in a regulatory landscape to bring about compliance through a shared set of ethics or codes (Bartle & Vass, 2005). In such an environment, compliance is seen almost like a badge of honour with membership being associated with high ethical status, clean work history or outstanding moral fibre. Alternately, non-compliance with the self-regulatory requirements results in administrative sanctions and possible exclusion from "the club", and all the stigma that such an exclusion would garner. It is for this reason self-regulation earned the title of "club government" or "government by gentlemen" (Moran, 2003, p. 7).

Yet in the disruption space, each of the components of smart regulation is a double-edged sword. Self-regulation is already a questionable concept, as it is often undermined by the very principles of "club government" – such as informality, insider statuses and autonomy from external scrutiny – that makes any industry ripe for self-regulation in the first place (Zedner, 2007). This concept of transparency and accountability cannot be understated, particularly in terms of crime control and especially the regulation of the criminal law. Accountability can often in short supply in smart regulation, as Brownsword (2005) states:

If regulators declare openly and directly that African Americans are not permitted to use the beaches, the regulatory position and, concomitantly,

the regulatory objectives - however abhorrent - are perfectly transparent…Similarly, Lessig recounts that, after the decision of the US Supreme Court in Shelley v. Kraemer (striking down direct segregation effected by private restrictive covenants), the transparent racism of local communities was replaced by 'a thousand tiny inconveniences of architecture and zoning' designed indirectly to maintain segregation. If smart regulation leads to a reduction in transparency and a diminution in accountability, perhaps this is less smart than it seems (p. 15).

Smart regulation is also limited by the industries to which it can apply (Baldwin, 2005). Codes of ethics and standards of conduct utilised by a non-state actor are not legally binding. For the truly non-compliant, they have no place along an existing enforcement spectrum and therefore have no tangible effect on its adherents. Smart regulation is thus a weaker, less formal regulatory scheme that is better placed "associated with those in which the private interest matters are more dominant than the public interest" (Bartle & Vass, 2005, p. 26). It can hardly be said then that smart regulation is appropriate for the opportunities for a crime arising from disruptive technology.

Smart regulation also requires an in-depth, actuarial quantification of known risks about a given environment before enforcement tools can be chosen. In dealing with disruptors, which are often characterised by nascent, misunderstood or even invisible risks, the need for the regulatory model to entirely capture all dimensions of risk makes smart regulation quite "dumb" (Haines, Sutton, & Platania-Phung, 2008, p. 451). Coordinating enforcement approaches across multiple state and non-state actors also "gives rise to special difficulties of information management, resource and time constraints and political differences" (Baldwin & Black, 2008, p. 8). In turn, the need to accurately assess and quantify risks prior to selecting a regulatory response can lead to inaction and paralysis, or regulatory ossification where trivial infractions are punished because the initial reasoning for regulation has been lost or replaced (Zedner, 2007, p. 277). In industries where multiple non-State actors may have a controlling interest in securing compliance – such as private health facilities, insurance, and financial advisors – there may also be disparate interests, objectives and enforcement tools that alter the risk appetites between these actors (Nicholls, 2015; Beaussier, Demeritt, Griffiths, & Rothstein, 2015; Conko, Kershen, Miller, & Parrott, 2016).

Empirical evidence from the Royal Commissions into the Esso Longford disaster (Longford Royal Commission, 1999) and the collapse of HIH Insurance (Royal Commission, 2003) highlighted numerous shortfalls in company self-regulation. The highly volatile and consistently disrupted financial services industry fared little better. Whilst the Australian Securities and Investments Commission (ASIC) laid claim to provide regulatory "sandboxes" for new financial technologies (fintech) providers (ASIC, 2018), regulators in China who previously adopted a similarly laissez-faire approach had to scramble to implement trading restrictions following huge investment gains (Zhou, Arner, & Buckley, 2016).

ASIC's supposedly "smart" regulatory approach was also heavily criticised by a Royal Commission for being hopelessly disconnected from its statutory and policy objectives (Price, 2019). This is hardly the kind of theory that should hold attraction to a regulator tasked with dealing with crime or criminal control.

2.3. Management-based regulation

The concept of management-based regulation suggests that regulators should, rather than measuring compliance with strict rules, audit whether the internal controls enacted by a regulatee are sufficient to produce the outcomes the regulator wishes. Also called systems-based or process-based regulation (Coglianese & Lazer, 2003), this theory suggests that failures to achieve a regulatory outcome can be attributed to planning defects (May, 2007). On the surface, there is much to commend management-based regulation: industrial actors can devise systems most aligned with their business interests, and a commercial imperative is created that drives competition to achieve regulatory compliance with minimal cost (and hence cost savings to eventual consumers). Companies with substantial market presence can go beyond their legislated requirements to foster greater consumer confidence (Gunningham & Sinclair, 2009). Examples globally abound in environmental protection, rail regulation, and trade practices law, and in the Australian environment in legal services regulation and building and construction (Coglianese & Nash, 2007; Fortney & Gordon, 2012).

Logically, there are other substantial drawbacks to this approach. Perhaps a fundamental criticism for management-based regulation is its failure in the face of serious criminal offending such as fraud, theft or drug trafficking. Even in modern Western society, it would be farcical to suggest that state agents would be willing to adopt an "auditing" role to determine whether banks have sufficient controls to prevent robbery, or members of the public have sufficient self-defence training to protect against physical or sexual assault. Taking a management-based regulatory approach generates considerable subsidiary risk, as it promotes a "race for the bottom" – companies constantly looking for a way to game the system in such a way as to barely scrape by on compliance, or do so just to possess enough legitimacy to continue trading (Black, 2008). Pearce and Tombs referred to companies that behave this way as "amoral calculators" who seek to balance the risk of detection and punishment with the expense of complying with all their legal requirements, and only doing so when the cost exceeds the benefits (Pearce & Tombs, 1990; Pearce & Tombs, 1991; Pearce & Tombs, 1997). Therefore, this form of regulation is simply not suited to social wrongs involving elements of malfeasance; in other words, principles-based regulation "is not possible for people who have no principles" (Sants, 2009). This, in turn, permits what Black called "politics of accountability" where a regulator, in choosing what failures to accept, also chooses the parameters of blame when something goes wrong (Black, 2012).

There is also an empirical evidence base to question the application of management-based regulation. When a management-based regulatory

approach fails it is often due to repeated systemic breakdowns (May, 2007, p. 14), so approaches such as this are automatically destined to fail where the regulator lacks political or social licence for taking tough enforcement action such as those newly disrupted markets in which regulation has been nascent or non-existent (Black, 2008). The principles of management-based regulation are also only likely to succeed in industries that possess certain key characteristics such as easily quantifiable risks, measurable "failure" or non-compliance thresholds and appropriate exchanges of information between regulator and regulatee (Bennear, 2007). Where these do not exist, or uncertainty arises around what is considered risky and what is not (such as in the case of a deployment of a disruptor), then both quantitative and qualitative standards can become disconnected from their regulatory objectives or rendered meaningless (Coglianese, Nash, & Olmstead, 2003). The pragmatics of management-based regulation face difficulties not just in the disrupted environment, but the crime environment.

2.4. Performance-based regulation

Although directly contrasted to management-based regulation, performance-based regulation has evolved alongside it, and has been adopted in similar fields including health care, fire safety, cigarettes, alcohol, junk food and firearms (Brannigan & Smidts, 1999; Karkkainen, Fung, & Sabel, 2000; Sugarman & Sandman, 2008; Sugarman, 2009; Meacham, 2010). Adherents of the theory suggest that all regulation should be based on performance measurements (Coglianese, 2016). The regime has been particularly embraced in the United States, in the most part because of the standing specification in Presidential Executive Orders.[4] Rather than focusing on the mechanisms by which a particular regulatory outcome can be achieved, performance-based regulation sets a particular outcome or standard and leaves the regulatee free to choose its own methods of arriving there (Coglianese, Nash, & Olmstead, 2003). Quantification of performance, specification of outcome and mechanisms for monitoring are key drivers for the success of such a regime.

These seem like simple concepts but in truth the simplicity of performance-based regulation masks a whole host of issues in operationalizing difficult concepts (May, 2003). Some scholars take umbrage with performance-based regulation being labelled a true regulatory theory, arguing it is a subset of existing theories. This encourages their suppositions that performance-based regulation should be used in conjunction with, rather than in isolation from, other methods of securing and promoting compliance (May, 2010). Like management-based regulation, performance-based regulation fails when a regulatee systemically fails to meet the required outcomes. Inability to provide precision around standards, failure to inspect against these precise standards and weaknesses in regulatory intervention have all been identified as failures in performance-based frameworks (May, 2007, p. 18). This imprecision can result in measures that are vague or impossible to feasibly achieve, but these are relatively small matters when

regulators rely on a poorly built system of accountability to determine if these measures are being complied with in the first place, instead of relying on the market to "self-correct" (Behn, 2001). Empirically, indiscriminate use of performance-based theories in industries ill-suited to their adoption has previously been blamed for failures in fields such as food and radiation safety (Carroll, Walker, Deighton-Smith, & Silver, 2008). These are hardly the kinds of industries in which one wishes to entertain much by way of failure.

In summarising the findings from the above analysis of the prevailing regulatory theories, several key observations emerge that help to inform the remainder of this article. Firstly, existing regulatory theories do not "grasp the nettle" on the concept of crime. They normalise corporate and individual offenders as entities that simply need to be educated, cajoled or persuaded into compliance. The prosecution is seen as a tool of last resort. The scholars promoting the "regulatory orthodoxy" reject the concept that crime is a rational calculation, or perhaps more correctly treat crime as an irrational response to opportunity.

Second, the very target of these pervading theories of regulation appears to be a risk of a disruptor itself, leading to a "cult of risk" which is more obstructive than instructive. Regulators strive (or perhaps more accurately struggle) to reduce or remove risk in their respective environments, resulting in "our autonomy, intelligence and capacity for change and enlightenment stand in danger of being compromised and diminished" (Burgess, 2004, p. 281). The quantitative analysis of risks also encourages slavish attention to the existing framework, discouraging innovation and adaptation to unseen or unpredicted events (Black, 2014). The great regulatory theorist, Professor Malcolm Sparrow, accounts for this perfectly when he describes the theoretical criminal law regulator and tasked with washing a dirty frying pan would "launch into the task by aggressively attacking the burnt and blackest spots, followed progressively by the lesser evils, until all the dirt had been properly dealt with" (Sparrow, 2008, p. 2).

Third, whilst these regulatory theories seek to avoid the so-called "deterrence trap" (where fines do not dissuade illegality because the regulated actor has no capacity to pay them anyway (Green & Bodapati, 1999)) by linking regulatory intervention to moral or ethical messaging, they nonetheless fall into a "compliance trap" (where the regulator signals the "benign big gun" but lacks the social or political imperative to use it (Parker, 2006)). Disruption enhances the effect of the compliance trap by further distancing the regulator from its social and political licence to operate (Gunningham, Kagan, & Thornton, 2004; Lynch-Wood & Williamson, 2007; Brownsword, 2012).

Fourth, by focusing almost entirely on the risks posed by the regulated environment, the regulator loses sight of the actors that make it up. These actors, the actual human beings who make decisions around whether they will or will not comply with the regulatory framework being imposed, are the root cause of regulatory disruption, i.e. new actors employing new techniques or new systems/devices, to take advantages offered by the gaps in the regulatory framework. Increased specificity of

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[4] Presidential Executive Order 13563 of January 18, 2011 (Federal Register, Volume 76, Number 14, 21 January 2011), section 1(b)(4).

regulation in the disrupted environment simply means that the more effort that is put into a precise description of the regulatory target, the greater the chance that the arrow will miss it.

Whilst an examination of all extant regulatory theories is beyond the scope of this article, we consider that some or all of these observations are likely to be consistent across the current landscape. It is a focus on the responses of the regulated which many theories fail to consider, and result in failures both logical and empirical. Regulation is seen as a simple mechanism – the regulator chooses a tool or tools, implements them without issue and observes the requisite behaviour being adopted by the relevant part of society. But the responses of the regulated population, whether to disruption or to the resulting regulatory intervention – remains a vital and (some might say neglected) domain of regulatory scholarship (Tyler & Darley, 2000). Existing practice highlights one of the critical assumptions in concepts of regulation which frequently misses a critical point, specifically that "between a norm and the behaviour sought is a human being, mediating whether to conform or not. Lots of times, for lots of laws, the choice is not to conform. Regardless of what the law says, it is an individual who decides whether to conform…" (Lessig, 1996, p. 1408).

These theories all rely upon treating organisations as sane, level-headed and rational entities – even when this might not be the case – and applying a linear, sequential problem-solving method that is neither reflexive nor responsive, and the word crime or criminal is neither present nor adequately addressed (Checkland, 1994). Human nature and global society are fundamentally more complicated, open-ended systems that are products of inter alia our intellect, diversity and past experiences, so these are hardly the approaches to be used in circumstances where not only are the risks of disruption unknown and unquantifiable, but the disruptor itself may be subject to active and direct criminal co-optation or abuse (Shrader-Frechette, 1991; Parliamentary Joint Committee on Corporations and Financial Service, 2012). So what might we do about this problem?

3. REGULATED RESPONSE: FOUCAULT AND DELEUZE

Though "disruption" might be the contemporary regulatory scholar's nom du jour, the effect it has on regulation is not. The emergence of disruptive technologies essentially follow the same waves or cycles of social control previously observed by others (Van Valen, 1973; Ekblom, 1997; Haines, Sutton, & Platania-Phung, 2008), which are a restatement of Durkheim when he said "specific features of industrial society…produce a chronic state of normative deregulation" (Bernburg, 2002, p. 729). Therefore disruption (even by any other name) is not only an ongoing product of human achievement but a cyclical one, and has been brought to our attention not only because the rate of disruption is occurring at a faster rate but the greater linkages between the humans on this planet and information we all share (Fukuyama, 2000). Therefore, regulatory disconnection must be seen as simply an inevitable symptom of this cyclical

Durkheimian deregulation when the State fails to provide adequately normative limits on social and economic behaviour (Guattari, 2005):

So, wherever we turn, there is the same nagging paradox: on the one hand, the continuous development of new techno-scientific means to potentially resolve the dominant ecological issues and reinstate socially useful activities on the surface of the planet, and, on the other hand, the inability of organized social forces and constituted subjective formations to take hold of these resources in order to make them work (p. 31).

So then how ought the state provide these normative limits in a manner that avoids or circumvents – or even better, moves with – this paradox? Much of the literature around state-exercised control comes courtesy of the concepts of "discipline" (Foucault, 1977) and "control" (Deleuze, 1992). Foucault established that society was divided into various enclosures, and he charted the changing shape of power from the sovereign to disciplinary societies as institutions took over the punishment role of the King following the Industrial Revolution. Foucault also opined that society was organised into docile bodies, enclosures and partitions, each a smaller delineation or subdivision of that within which it was placed. These bodies produce a disciplinary effect by shaping and channelling behaviour (by threatening incarceration) towards that of institutionalised norms. Crimes against the sovereign – previously punishable by execution – became crimes against the body politic, punishable by imprisonment. Ironically, the cause for this paradigmatic shift was because the execution was seen as too harsh and was resulting in the exaltation of the criminal classes (Whait, 2014); a classic "deterrence trap" in action.

Deleuze built on an extended Foucault's paradigm, suggesting State control operated to "modulate" various forms of behaviour. His reflections on Foucault gave rise to observations that humanity had passed beyond Foucault's concept of disciplinary societies. Instead, Deleuze considered that society had now embraced continuous systems of control, that substituted for previous penalties which were the classic deterrents for non-compliant behaviour. Under Deleuze's systems of control, what is important is not the individual's signature nor their administrative rank in society, but their "code", as these codes delineate access to information, places, and markets within society (Lessig, 2004; Craig, 2010). Like Foucault, Deleuze's observations still have contemporary application. Speaking of digital locks in IP enforcement, Ian Kerr (2010) spoke of the "automation of virtue" as a fundamental attack on human rights because it forecloses non-compliant behaviour and eliminates moral deliberation: "…technology can be used to shift social defaults from inclusion to the exclusion by disabling human action across a wide range of activities for all those who do not have prior permission from those controlling the system" (p. 253).

Both Foucault's concept of discipline and Deleuze's concept of control have been the subject of lively theoretical debate, in particular, the extent that their observations about society have or have not been realised (Haggerty & Ericson, 2000; Hardt & Negri, 2004; MacMillan, 2008; Bogard, 2012). Most

scholars in criminology have observed that strict or pure Foucauldian disciplinary societies have retreated into the past, replaced instead with the advent of "risk societies" (Giddens, 1991; Beck, 2002; Beck, 2015; Curran, 2015). This is somewhat analogous to the "cult of risk" identified in conjunction with the regulatory theories analysed in Section 2 of this article. Likewise, Deleuzian views of the control society are in the flux of change, in part because of technological advancements and in part because of empirical evidence shifting away from the unfettered deployment of Foucault's disciplinary techniques (Jones, 2000). Foucault and Deleuze's vision of criminal law regulation with the prison at its apex also loses its footing in the digitality of today's disrupted world, where imprisonment may not be the ideal compliance outcome – a tool that punishes one offender sends a different message to another, as does a tool that educates, or rehabilitates (Parker, 2012). In Foucauldian terms "the same punishment does not necessarily have the same effect on everyone" (Whait, 2014, p. 138). In any event, both Foucault and Deleuze wrote well before the development of the Internet, advanced data analytics and mobile telephone technology, so the unmodified application of their views to existing disruption is questionable.

Yet both Foucault and Deleuze have lessons to teach in regulating the world of disruption. The first of the key lessons they teach addresses Tombs' criticisms about the paucity of regulatory focus on crime as a function of power, struggle and social forces (Tombs, 2015, p. 57), as well as my own observations on the limitations of the prevailing regulatory theories above. Any developed theory must consider what role crime plays in the regulatory landscape, taking place amongst contests and struggles for knowledge and truth between the regulator and regulated (Sharp & Richardson, 2001). In doing so, we cannot underestimate the importance of the regulated population, such that our work on regulatory theory should focus on the "human being, mediating whether to conform or not…regardless of what the law says" (Lessig, 1996). By focusing on the regulated population directly – rather than focusing on the appearance or size of risk they pose, which may be correctly or incorrectly assessed, larger or smaller than it first appears, hidden or visible – we acknowledge that crime and criminal behaviour is always valid (but not always rational) choice set for the regulated population.

Another important lesson from both Foucault and Deleuze is the importance of surveillance of the behaviour of the regulated population. Foucault (1977) was quite clear on this point when he wrote: "…in order to be exercised, this power had to be given the instrument of permanent, exhaustive, omnipresent surveillance, capable of making all visible, as long as it could itself remain invisible" (p. 214). Nor should surveillance be conceptually limited to physical or electronic forms of observation, but rather "systematic attention as to whether rules are obeyed, to who obeys and who does not, and to how those who deviate can be located and sanctioned" (Rule, 1973, p. 40). Surveillance alone (i.e. without enforcement) is a powerful tool as it exerts a coercive effect on the behaviour of the watched through creating "a state of conscious and permanent visibility that assures

the automatic functioning of power" (Elmer, 2012, p. 25). The mere act of watching (and thereby knowing they are watched) therefore incentivizes compliant behaviour in a regulated population (Gane, 2012). However, the true power of surveillance in a disrupted environment beyond a mere Foucaldian or Deleuzian sense lies in the analysis of the data gathered by that surveillance. In such an environment, we move from the concept of "big data" to the concept of "big analysis": "…Big Data is knowing that you're sitting on a gold mine, Big Analysis is actually getting it out of the ground and turned into bullion" (Fertik & Thompson, 2015, pp. 3-4). Thus, a regulator must not only observe its regulated population but be capable of rapidly and accurately assessing, categorizing, ranking and profiling its various constituents (Irwin, 2015). Where surveillance and analysis are married, regulators have a far more substantial ability to detect non-compliance, even if such non-compliance is not ultimately targeted for correction (Black, 2005).

Foucault and Deleuze also recognize the inherent utility of multi-modality regulation, heralding the efficiencies in distributing power through both spatial and geographic arrangements involving both market influence and community norms (Foucault, 1977, pp. 219-221; Deleuze, 1992, p. 6; Irwin, 2015, p. 33). One of the principal methods in which these regulators might achieve this is by deploying a mixture of the regulatory methodologies – not just tools – as identified by both Lessig (1999) and Murray and Scott (2002). It is also important that such a regulator use technology (in the same way as Bentham's panopticon achieved "for a small number, or even for a single individual, the instantaneous view of a great multitude" (Foucault, 1977, p. 217)) to limit the regulated environment's choice set for behaviour, achieving what Brownsword (2005, p. 4) describes as "techno-regulation" or "West Coast" regulation, where "regulators by-pass practical reason to design-in a solution to a problem of which regulatees might not even be aware" (p. 4). Some examples of the options available to this type of regulator include:

– "Delegating" the marketplace to choose which firms succeed and which ones fail according to their compliance with not just law but also social expectations (Spulber, 2008; Sandefur, 2016);

– Implementation of technological countermeasures in addition to law reform and market incentives to protect copyright designs (Macq, Alface, & Montanola, 2015);

– The imposition of social stigma with certain kinds of unwanted conduct;[5]

– Licensing or taxing products or services rather outright banning them (Law & Kim, 2005; Lancaster, Seear, & Ritter, 2017);

– Certification as a mark of honour or distinction amongst consumers, who then tend to prefer that product over a competitor (Busch & Bain, 2004; Bartley, 2011);

– Physical or "hard coded" barriers that address underlying non-compliance (Sparrow, 2008, p. 158).

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[5] Bankruptcy for example, whilst not an offence, carries with it a substantial history of stigma that can be traced back to Elizabethan concepts of debtors' prison; see generally Ali, P., O'Brien, L., Ramsay, I. (2015). "Short a Few Quid": Bankruptcy Stigma in Contemporary Australia. University of New South Wales Law Journal 38(4), 1575.

Devolution of power to the market and community, especially when supported by surveillance, is not to be underestimated. Where third party actors can access select portions of a surveillance network to obtain information or data relevant to their lawful financial interests, they can achieve a distributed network of control where "the emphasis is on the state devolving power to the market, or commercial agencies that are well equipped to track mobilities of different sorts" (Gane, 2012, p. 631). Distribution of this power is consistent with other scholars logical and empirical views on the pluralization of regulatory efforts across non-state actors (Black, 2005; Zedner, 2006; Grabosky, 2012), and the power inherent in the proper use of these non-state tools (Brownsword, 2005):

Even smarter regulators know that they can sometimes achieve the desired regulatory effect by relying vicariously on non-governmental pressure (whether in the form of self-regulation or co-regulation by or with business or the professions, pressure exerted by consumers, the activities of pressure groups, and so on) or by relying on market mechanisms; in addition, they know that careful consideration needs to be given to selecting the optimal mix of various regulatory instruments (p. 4).

The fourth and final lesson from Foucault and Deleuze is the importance of a paradigmatic shift from concepts of the disciplinary or control system to the actuarial system, constituent with a shift from a post-crime to a pre-crime society (van Brakel & de Hert, 2011). In the actuarial, pre-crime society, systems of analysis are critical in acting as systems of control by identifying, assessing and (where appropriate) determining the compliance tool for a given situation, seeking to prevent or interrupt a crime before it is committed. In perfecting the exercise of power, "…constant pressure acts even before the offences, mistakes or crimes have been committed…its strength is that it never intervenes, it is exercised spontaneously and without noise" (Foucault, 1977, p. 206). In addressing crime before it starts, happens or occurs, we see the paradigmatic shift required is not only temporal but categorical in nature (van Brakel & de Hert, 2011, p. 173). In effect we are attempting not only to address crimes before they happen but suspects before they become criminals – in effect, we give primacy to the importance of prediction. This is because of the process flow enabled by the adoption of the previous three lessons: by undertaking surveillance, we can make observations. With enough observations, can come correlations. With correlations in hand, we can start to make inferences of behaviour. Inferences then lead to the development of profiles, a key product for the modern regulator to assess the behaviour of its regulated population.

In summary, by refocusing on some of the important lessons from Foucault and Deleuze, we must reframe our regulatees as the subject of our regulation, and in doing so address both some of the shortfalls of existing regulatory theory whilst ensuring we keep pace with the disrupted environment. We ought to ensure that we address Brownsword's four specific challenges for regulators in the disrupted environment: prudence, legitimacy, effectiveness, and connection (Brownsword &

Goodwin, 2012). By embracing the concepts of crime and not risk, surveillance and profiling but avoiding the pitfalls of trying to moralize the immoral, we stand a better chance of developing a regulatory approach that keeps pace with technological development.

4. CHINA, SOCIAL CREDIT AND THE PROMISE OF "AUTOMATION INTELLIGENCE"

We now proceed to demonstrate the fundamental benefits (and some of the potential pitfalls) associated with embracing a regulatory approach we have outlined above. If we recall the body of scholarship around pre-crime and post-control regulatory societies, we identify in the works of Zedner their fundamental hallmarks: "calculation, risk and uncertainty, surveillance, precaution, prudentialism, moral hazard, prevention and, arching over all these, there is the pursuit of security" (Zedner, 2007, p. 262). Thus we come to the fourth part of this article, to consider a real-life example of the above approach at work: the Democratic People's Republic of China.

China has, for the last several years at least, been trialing a system it refers to as "social credit" offered by state-controlled companies or those with strong recognised links to the Party (Carney, 2018). The social credit system involves interlinking of:

– High-tech digital surveillance with facial recognition, body scanning, and geo-tracking;
– "Big data" from government records including education and medical records, security assessments and financial credit histories;
– Artificial intelligence and/or machine learning algorithms designed to manipulate large datasets and eventually produce a final "national citizen score".

Such updates are offered in real-time and can even take into account purchases made in a supermarket. High social credit scores give rise to a higher standard of treatment for the purchase or acquisition of goods or services; for example, the ability to rent a hotel, car or house without a security deposit because that individual can be "trusted". Low social credit scores result in being denied access to public transport, social media, banking, and education.

In echoing the observations of Zedner, China appears to have justified its approach to surveilling, calculating and scoring the lives of its citizens on the basis of pursuing greater security. In effect, it has raised domestic crime and petty issues between individuals to matters of national security, where it can safely deploy the language and rhetoric of the military (Bewley-Taylor & Woodiwiss, 2005). In effect, social credit also operates as a system for the "automation of virtue", because it places restrictions on the freedom of action of a low-scoring citizen. Architecture or code in the development of the system is such that the low-scoring citizen is physically prevented from the ability to purchase a train ticket, or buy a house, or obtain a loan. Interestingly this brings us back to Deleuze's consideration of the "dividual", but where in Chinese society "what is important is no longer either a signature or a number, but a code… codes that mark access to information, or reject it" (Foucault, 1977).

The development of "reputation" as a compliance and enforcement dynamic, particularly

in China, can hardly be seen as surprising for two reasons. The first is that reputation has a long social and legal history in predominantly Asian countries, where the concept of "saving face" has resulted in unique cultural misunderstandings (Hwang, 1987; Kim K.-o., 1993; Kim & Nam, 1998). These have become somewhat unique legal challenges since China's enactment in 1986 that recognised the concept of reputation as a fundamental individual right extended to all classes of legal persons (including corporations).[6] This enactment enabled a right to sue for any person whose reputation had been defamed, reduced or "shamed" according to the prevailing views of Chinese society. Whilst an in-depth examination of the legal system of reputation in China is beyond the scope of this article, it is nonetheless interesting to note Dai's (2018) observances on the divergent legal standings for reputation afforded to different cultural classes in contemporary China:

What may explain the different fates the three Ms. Yangs (unrelated to each other), all public figures, met in the Chinese courts? They sued in different times, of course, and throughout the years China's civil law of privacy had undergone important changes…what's also notable is that the three Yangs are of different social status: Yang Mo is not only a famed intellectual but also a senior and high-ranking party-state official; Yang Lijuan is a nobody who dares to thrust herself into the media sensation, and Yang Jikang is a dignitary with halo and regarded somehow as the modern day relic of China's exalted traditional literati class…the divergent protections different public figures receive under Chinese law may be understood through the lens of an overarching approach to public figure privacy problems that, in a rather characteristic fashion, assign institutional resources of privacy protection according to the particular public figure class to which an individual is deemed to belong (pp.11-12).

The second reason why reputation has attained a deeper dynamic of legal protection is rooted in the traditional history of state control exercised in China, where the "…citizenry is accustomed to the government taking a determining role in personal affairs" (Carney, 2018) and society places a lower premium on individual privacy where it comes at the cost of community safety. Citizens of China have been under some form of State-sponsored surveillance for decades, even centuries. The experiences of ABC journalist Bang Xiao in using the WeChat application (produced by tech company Tencent, whose CEO is also a member of Chinese parliament (Tse, 2015)) are a stark reminder of Chinese control over material that is not only technical or criminal in nature, but ideological as well (Xiao, 2018).

Whilst we do not propose that Australia (or any other Western society for that matter) fully adopt an exact reproduction of the Chinese social credit system and attempt to regulate their citizens' ideological persuasion, we do propose that the field of regulatory scholarship take note of the lessons to be learned from China's deployment of the social credit system. China's adoption of the social credit model clearly demonstrates the inherent power and promise in what we consider to be the four most important principles identified in Section 3 of this article:

1. A focus on individuals or classes of individuals (or Deleuze's "dividuals") as the central focus of regulatory strategy;

2. A greater focus on, and ultimate striving for, a system of flawless and contiguous automated surveillance of the regulated population – not just to detect non-compliant behaviour, but to disincentivise by the threat of detection;

3. Use of multiple regulatory methodologies across the spectrum of hierarchy, design, community, and competition to effect changes in behaviour from the non-compliant to the compliant;

4. As much as possible, a system of automated response to address risks as they arise, or are predicted to arise, using predictive profiling.

Whilst focusing on and ultimately predicting the behaviours of a regulated population is not novel in some sectors (such as tax administration; Wurth & Braithwaite, 2016; Houser & Sanders, 2017), it is sure to raise in the majority a host of questions regarding the adverse privacy and human rights impacts of such an approach. A strong and pervasive surveillance presence, paired with non-law responses to criminal threats that emerge in real-time and are identified, collated, categorised and assessed by a growing range of artificial intelligence tools, sounds very much like George Orwell's 1984, or the abortive attempts of Federal Parliament to introduce the "Australia Card" (Greenleaf, 1987). Gutwirth and Hildebrandt raise three broad concerns with this kind of approach, namely privacy, fairness and due process (Gutwirth & Hildebrandt, 2010). We, therefore, intend to approach each in greater detail below, whilst acknowledging that a deep dive of these concepts is beyond the scope of this article and warrants further research in the field.

4.1. Privacy

Profiling and ongoing surveillance of the kind suggested here affords opportunities for a realization of Foucault's panopticism, for real-time surveillance across a variety of locations, so it is unsurprising that interferences with the privacy of regulated individuals are likely to be infringed. The interferences with privacy through a more expanded role for surveillance and profiling of the behaviour of the regulated can be articulated in two broad ways: an outwards-facing dynamic (in which the regulated actor believes the aspects of their behaviour being surveilled are none of the regulator's business) and an inwards-facing dynamic (in which the regulated actor does not believe in the correlation between their behaviour and the risk being regulated, what Zarsky (2003) called the "autonomy trap"). Brownsword (2008) terms these dynamics as "demands": one for others to keep their distance, and the other to mind their own business. Privacy as a broad legal concept borrows much of its existence from international law and the obligations flowing from the human rights declarations of the United Nations and (in Australia) our legislative contributions to that framework; effectively it protects the human rights of an individual to agency, choice, and self-determination. It can also protect certain interests in either the public or

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[6] See 中华人民共和国民法通则 [General Principles of the Civil Law of the People's Republic of China] (People's Republic of China) National People's Congress, 12 April 1986, §101.

private domain, such as trade secrets or communications of State officials.[7]

Yet privacy is protean and is afforded the context of the society in which it is generated. For example, profiling is achieving a certain degree of primacy in Australian pre-employment practices (McDonald, Thompson, & O'Connor, 2016) – yet there has been no mad rush or social outcry for laws to regulate the use of such information. Instead, there is almost a level of expectancy around your future employer knowing the kinds of information you like or share on social media, as recent studies in the US (Driver, 2018), UK (Jeske & Shultz, 2016) and Australia (Oboler, Welsh, & Cruz, 2012) show. In addition, privacy is not an inviolate right immune to the scrutiny of the state. There are numerous exemptions to the Australian Privacy Principles, including actions taken by certain security and investigative agencies, exemption by the requirement of law and proactive disclosure on grounds of "unlawful activity or serious misconduct".[8] Therefore, we instead identify that privacy is more about defence against arbitrary interferences with an individual's reasonable expectation to privacy. Existing protections around privacy of personal data can instead be supplemented with technological innovations that translate the profiling and regulatory response into real-world examples for the regulated community to understand why the regulatory process has been applied to them, rather than how they were selected for it (Gutwirth & Hildebrandt, 2010, p. 39).

Nor should the profile itself (or the regulatory responses to the things it contains) be considered some nebulous concept. For example, under the Consumer Data Rights (CDR) project being overseen by the Australian Competition and Consumer Commission (ACCC), an individual's data held by banks and energy providers becomes a portable "bundle" of information that can be transferred from one to the other (Australian Competition and Consumer Commission, 2019). This information is rarely authored by a single individual – indeed, it can include data that is electronically generated and therefore has no author – but offers significant freedoms for the data used to transfer their business to other providers. Similarly, there is nothing preventing a similar degree of "ownership" of profiles generated by regulators, and making that profile available to an individual on request. Indeed, assuming none of the exemptions applied, a profile would be attainable under Australia's existing freedom of information laws.

Privacy is also not infringed where the person's personal information is not being accessed by a person (Schreurs, Hildebrandt, Kindt, & Vanfleteren, 2008). Under the proposed regulatory framework outlined herein, the regulator can set a particular threshold at which surveillance of non-compliant behaviour is automatically met with a certain mix of regulatory methodologies from the design, community and competition space – the surveillance can then provide focus on how the regulated population reacts to that intervention. Certain elements of compliance will thus be engendered by automated responses, and privacy is not a concern where personal information is received, assessed

and decided upon by a machine or algorithm without human intervention. Nor should this concept be seen as particularly groundbreaking, given that despite computers, their algorithms, and even machine learning programs not being considered persons at law (Chopra & White, 2004), at the time of writing there are 29 pieces of Commonwealth legislation permitting the use of a computer in the making of a Ministerial or similar decision.[9] Additionally, we would take up the distinction offered by Brownsword (2008, pp. 357-360) in his work on profiling in the European Union and stipulate that the approach here is consistent with his "panopticon profiling" rather than "exclusionary profiling", thus leaving room for debate about the proper standards for regulatory standard-setting.

For the reasons outlined above, the privacy concerns with the regulatory framework we have outlined are not as insurmountable as they may seem. What perhaps might have been envisaged as a legal problem with interferences to privacy might now better be framed as a policy problem (Mann, 2018), and one that might be easily overcome by adopting new or novel approaches in treating the right in accordance with the digitized, contemporary society which it seeks to protect.
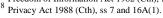
4.2. Fairness

The predominant concern raised by the moniker of "fairness" is informed by the concept that dependence on surveillance-led profiling involves drawing conclusions and implementing compliance responses where there exists a measurable potential for false positives or false negatives (similar to epidemiology; Custers, 2004). It is absolutely possible for profiling decisions to be discriminatory, particularly in regulatory environments involving elements of racial bias towards illicit activity (Gandy, 2006). In the example of China, the social credit system permits the Chinese government to release or publish what it terms "serious discrediting behaviours" in the pursuit of "social discipline" (Chen & Cheung, 2017). In such a system, threats to fairness can result from two possibilities: incorrect data entering the algorithm or decision-making engine (which in turn results in erroneous conclusions about the individual's behaviour) or incorrect association between the observations and the conclusions (such that the observed behaviour has little or nothing to do with the profiled result; Vedder, 1999).

As we have already suggested, it is not recommended that Australia adopt a system analogous to Chinese social credit. Australia lacks the historical, legal and cultural frameworks to support a regulatory system based on ideological principle (as opposed to legal or regulatory principle). Nor would we countenance discrimination as a legitimate tool of social control, not least of which because the regulator would lose their social and political licence to operate. Instead, we observe

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[7] Freedom of Information Act 1982 (Cth), Division 2 of Part IV.
[8] Privacy Act 1988 (Cth), ss 7 and 16A(1).

[9] Including for example Customs Act 1901 (Cth), s 126H; Migration Act 1958 (Cth), s 495A; Child Support (Assessment) Act 1989 (Cth), s 12A; Aged Care Act 1997 (Cth), s 23B-4; Social Security (Administration) Act 1999 (Cth), s 6A; Australian Citizenship Act 2007 (Cth), s 48; National Consumer Credit Protection Act 2009 (Cth), s 242; Business Names Registration Act 2011 (Cth), s 66; My Health Records Act 2012 (Cth), s 13A; Australian Education Act 2013 (Cth), s 124; Biosecurity Act 2015 (Cth), s 280(6).

that consistent with other regulatory theories, it is not enough to simply implement an intervention and then blindly apply the same approach to each instance of non-compliance. From both a logical and empirical viewpoint, Ferguson (2017) details how the approach outlined in this article was used to solve the criminal problems of "puffering" in Philadelphia.[10]

Yet the bright data insight was not that there needs to be more police in the parking lot. Nor is it that there needs to be more citation enforcement around the risky area. Instead, the technology concerns a pattern of human action…in a place with certain environmental vulnerabilities… Many other nonpolice measures could be taken to remedy the environmental vulnerability…Everything from physical changes to the parking lot (installing gates, locks, security passes) to educational outreach to the neighbours (explaining the dangers of leaving your car running unattended) to civilian community watches in the morning to technological fixes (quicker heaters in cars) to structural fixes (rebuilding the parking lot underground) could all address the specific risk identified without burdening police (p. 168).

None of the applications suggested by Ferguson would cross the lines blurred by the Chinese social credit system. Fairness in a regulated system thus becomes an issue of the regulator ensuring its methodologies are constantly being reviewed and tweaked, not only to avoid challenges to fairness but also to avoid the kinds of ossification of regulators that often inflame the scholarly debate about their future.

4.3. Due process

The involvement of computers in decision making, especially those decisions made by statutory authorities and organs of Government, have been contemplated since at least the late 1950s (Mehl, 1959). In the 1970s, Professor McCarty built a program known as TAXMAN that was capable of interpreting the US Internal Revenue Code in the same fashion as the US Supreme Court (McCarty, 1976). However, once the technology caught up with the theory in around the 1990s, legal scholars instead stopped asking "can a computer a replace a human judge?" and started asking "should a computer replace a human judge?" (Popple, 1990; Jefferson, 1991; Greinke, 1994). In effect, the concerns with automation and due process arrive from the contestability of decision-making. In our example, not how an individual can challenge the regulatory intervention, but the precursor decision, i.e. how they came to be identified for regulation in the first place (Steinbock, 2005; Citron, 2007).

Data science thereby has developed an adage of "garbage in, garbage out" which reflects the concept that poor information fed into the system will result in poor outcomes being generated. Data matching gets things wrong – as occurred when the Department of Human Services (DHS) tried to implement the last example with its Online Compliance Intervention (OCI) system (Glenn, 2017).

Yet the challenges faced by computers are not new. As early as 2002, the Administrative Review Council (ARC) commenced an inquiry into the use of automated decision making in Government. Their Issues Paper, released in 2003, noted that thirteen of the larger Commonwealth and State departments (including Centrelink, Department of Veteran Affairs and the ATO) were already utilising computer-aided decision-making programs in their interactions with customers and clients. These programs, collectively known as "expert systems", were "…computing systems that, when provided with basic information and a general set of rules for reasoning and drawing conclusions, can mimic the thought processes of a human expert" (Administrative Review Council, 2003, p. 2). These decisions can be (and indeed are) subject to existing avenues of appeal and judicial review.[11] Although writing in the minority, His Honour Kerr J (2018, paragraphs 46-49) of the Federal Court said:[12]

The hitherto expectation that a "decision" will usually involve human mental processes of reaching a conclusion prior to an outcome being expressed by an overt act is being challenged by automated "intelligent" decision making systems that rely on algorithms to process applications and make decisions. What was once inconceivable, that a complex decision might be made without any requirement of human mental processes is, for better or worse, rapidly becoming unexceptional. Automated systems are already routinely relied upon by a number of Australian government departments for bulk decision making. Only on administrative (internal or external) and judicial review are humans involved… This trend is not restricted to the government. Automated share trading is at the heart of international commerce. Machines make contracts with machines. The legal conception of what constitutes a decision cannot be static; it must comprehend that technology has altered how decisions are in fact made and that aspects of, or the entirety of, decision making, can occur independently of human mental input. (emphasis added).

Empirically there is one regulator whose approach to surveillance and control has embraced the principles set out in Section 3 of this article. The Australian Prudential Regulation Authority (APRA) was criticised in the late 1990s and early 2000s for not being able to demonstrate sufficient regulatory responsiveness – a fact that would lead its Chairman in 2002 to quip "unlike a conduct regulator, which can at least count "heads on pikes", there is no ready metric for APRA's performance" (Cooper, 2006). This led to APRA's development of two systems, PAIRS, and SOARS. PAIRS is a computer-aided decision tool designed to assess the capital liquidity and financial viability of certain financial institutions based on a wealth of market and regulatory data, which is then benchmarked against industry norms. The PAIRS score then dictates a SOARS regulatory response entirely independent of staff intervention. These decisions are subject to review not only by APRA but

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[10] "Puffering" was the practice of owners leaving cars running on snowy or icy days to warm up the interior, which resulted in profiled spikes in car theft in certain geographic areas.

[11] See for example Administrative Appeals Tribunal Act 1975 (Cth); Administrative Decisions (Judicial Review) Act 1977 (Cth).
[12] Pintarich v Deputy Commissioner of Taxation [2018] FCAFC 79, 46-49 (special leave refused Pintarich v Deputy Commissioner of Taxation [2018] HCASL 322); see also Hemmett v Market Direct Group Pty Ltd [No 2] [2018] WASC 310.

also by the Administrative Appeals Tribunal and the Federal Court (Black, 2004, pp. 31-37).

There is no reason why the surveillance and profiling system detailed herein might not be subject to applications for appeal and review in relation to decisions made by that system (as opposed to any human decision-maker), including decisions that are based on the criminal law. In many respects, the judicial officers of Australia have already demonstrated that they can move faster than the law they interpret.

5. CONCLUSION AND SOME SUGGESTIONS FOR THE FUTURE

The regulatory environment is changing, and the scholarship around regulation needs to change with it. Rather than adopting the social credit model recently developed in China, we suggest that the scholars of regulation take a closer look at the machinery of that regulation for clues on future lines of research in the regulatory milieu. Perhaps one of the lesser explored areas is the danger of detection bias – where we consider that a machine looking at the data will find more than the human eye would: "the more we are able to extend the frontier of (formalised) knowledge thanks to technology, the more dangerous could be the events emerging out of the regions of our ignorance" (Ciborra, 2004). Perhaps another is the danger of biases resulting from "designed-in" regulatory systems that, at the end of the day, are built and programmed by a human. Another might be the fuzzy legal or policy delineation between which decisions might be made solely by a computer without human intervention, and at what point we might expect a human to respond.

Yet for all the risks, there are substantial benefits to be had by regulators able to "grasp the nettle". As a scholarly group, we have focused too much of our attention on "pyramids" and "being smarter" without really questioning the role of the human beings who are subject to the interventions being employed. Reducing regulation back to its fundamental principles in the disciplinary and control societies of Foucault and Deleuze, we can see that at least some element of our theory (we argue the predominant part) must focus on regulatees as the subject of our regulation. We must never forget that crime is a rational and valid choice for many subjects of a regulatory system, and that these agents are not the kind to be "educated" or "nudged" into compliance. We must remember that cohesive and omniscient surveillance is not something to be feared, but a valuable tool that can co-exist harmoniously in a community that enshrines privacy. Regulators must also remember that profiling is not a panacea – it draws the links that the human eye cannot see, but nonetheless, these links ought to be tested by inspection, audit, and review, then fed back to the system to make it better. An approach that acknowledges risk (without embracing it as a core rationalisation for existence), maintains a social and political licence to operate, is fit-for-purpose, and maintains a connection with a disrupted environment is one well placed to regulate the criminal law through whatever tools it chooses.

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