

What if technologies shaped the law?

Exploring the relationship between law, technological innovation and regulatory governance has always been a challenging task for policy-makers. Technologies are often seen as ordinary objects of formal law that can fit into traditional doctrinal classification. But what if technologies questioned and challenged the traditional boundaries of legal thought? Some scholars even argue that technology is law, given that the employment of technology for control purposes in regulation provides opportunities to directly or indirectly shape human behaviour in legal terms. However, it is difficult to determine whether it is technology that challenges the law or the law that shapes, or even predefines, the development paths of new and emerging technologies.

Technology and regulation are often portrayed [as adversaries](#). In a traditional legal setting, their relationship is limited to the grounding of legal reasoning in expert knowledge and scientific evidence. This is frequently the case in the domains of criminal, patent, consumer safety and environmental law. However, as law becomes more and more involved in regulating technological processes and products, it may inhibit or stimulate technological change as such.

In fact, on various occasions the normative influence of regulation upon the shaping of entire technological trajectories [depends on the technology of regulation, namely the design and choice of regulatory policy instrument](#). That has been the case with the contentious [development of crop biotechnology in Europe](#), attributed, among other things, to the centralised and expert-driven regulatory framework adopted for the release of genetically modified organisms (GMOs) into the environment and the European market.

Besides being an object of regulatory action, technology can also have an influential impact not only on the nature, content and type of regulation chosen to control technological developments, but also on the fulfilment of traditional legal objectives. For instance, science-based risk assessments have become the cornerstone of all EU legal rules that regulate the commercial authorisation of [medicinal, plant protection and food](#) products. Profiling technologies exert an influential role upon the shaping and interpretation of criminal rules, while internet content filters can protect minors from accessing harmful media content.

The employment of technology as a regulatory actor (appearing in the form of techno-regulation) indicates a shift from a ['traditional legal order to a technologically managed order'](#). The development of regulatory technology, commonly known as RegTech, which refers to the use of technology to provide improved financial regulatory solutions, [will be crucial to enable more efficient and effective regulation and compliance](#). In his famous book, *Code and other laws of cyberspace*, Lawrence Lessig argues that computer code (or 'West Coast Code', referring to Silicon Valley) regulates conduct in much the same way as legal code (or 'East Coast Code', referring to Washington, DC).

More specifically, code can determine behavioural options and the limits of interaction in virtual spaces, and the level of privacy protection required, as well as defining the terms of access to information in cyberspace. The normative influence of technology is mostly evident in those domains where algorithms are used. Algorithms, as currently understood, are formal rules, usually expressed in computer code as a set of instructions for a computer to follow, that make predictions on future events based on historical patterns.



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They are a self-contained step-by-step set of operations that computers and other 'smart' devices carry out to perform calculations, data processing and automated reasoning tasks.

Algorithms are widely employed to make decisions that have increasingly far-reaching impacts on individuals and society, not least in their applications for access to credit, healthcare, human welfare and employment. They are regulating more and more aspects of our lives by implementing institutional decision-making based on analytics, which involves the discovery, interpretation and communication of meaningful patterns in data, illustrating an increasing tendency to rely on technology as a substitute for other forms of regulation. In fact, self-running and self-enforcing technological applications could challenge traditional notions of legal personality, individual agency and responsibility.

The advent of blockchain technology and the transposition of contractual relationships into smart contract code that simulates the function of legal contracts through technology, or the adjustment of the software codes for autonomous vehicles to traffic regulations may also signal a shift from the traditional notion of 'code is law' (i.e. code having the effect of law) to the new conception of [law is code](#). According to this narrative, the law is progressively starting to assume the characteristics of code, given the inclination to replace current laws and regulations with technical regulation – which can be enforced *ex ante* through code. This can be clearly seen in the case of smart cars that could simply refuse to start the engine if the sensors indicated that the driver had not fastened their seat belt properly, or of the programming of 'no fly zones' in drones.

What does the legal conceptualisation of technology mean for European policy-making?

The clear-cut division between law and technology has faded away, on account of the fact that scientific notions and technological concepts such as gene editing and autonomous machines have penetrated legal categories, and triggered the reconsideration of traditional legal terms such as autonomy and privacy. Some scholars have argued that mutual acknowledgment of the boundaries between law and technology has been replaced by a 'co-production' regime, where technology and policy are inter-related. The prospect of automated legal governance through the development of digital technologies may also lead to the weakening of centralised structures of law at EU level, in terms of their ability to control and supervise multiple aspects of citizens' public and private lives.

Examination of the multiple facets of the interface between law and technology and of the increasingly influential role of technology in the shaping of legal rules and reasoning triggers a series of questions. Does EU law have the capacity to strike the right balance between technology as a regulatory object or category and technology as a regulatory agenda-setter? Can law, regulation and technology engage in meaningful conversations that cross doctrinal and technological categories? [Should the technical code approached through Lessig's lens be the most significant form of law?](#) Will EU legislators acknowledge that codes codify values and cannot be treated as a mere question of engineering? A public debate on the aforementioned issues is urgently required given the intrusive potential of code as an enforcement mechanism and/or source of legal obligations that could lead to a [Foucauldian networked governmentality](#) and a self-regulated [panopticon](#), whereby the decline of state powers is reinforced, and responsibilities and liabilities are increasingly passed down from the state to the individual technology user.