## From codex to code: exploring divergences and intersections of text-driven and code-driven normativity

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In the ever-evolving digital world, the concept of "code as law" has emerged introducing the idea that technology could shape its users behaviour in a similar manner as a legal framework does within society. This research resumes an exploration of the role of code-driven normativity, where the architecture of code – both software and hardware – inherently regulates user behaviour and interactions. As code increasingly assumes functions traditionally reserved for law, a question arises: can we envision a future where code-driven normativity supplants or complements text-driven legal frameworks? The core inquiry of this research focuses on the distinctions between text-driven and code-driven normativities, while trying to discover whether either holds more authority, effectiveness or power. In the end, the discussion challenges the traditional binary debate of law versus technology, proposing that code-driven and textdriven normativity have similarities and intersections that could reshape our understanding of governance in the technological era. Code is becoming codex, but codex can also become code.

Keywords: code as law, law as code, code-driven normativity, text-driven normativity

### 1. Introduction

Technology is society made durable. But in making society durable, technology can also create new forms of power, transforming the way norms are enforced and altering the balance between freedom and control1.

The late 1990s marked an era of unprecedented technological advancement. The TCP/IP protocol enabled the Internet's rapid expansion due to the ability to support secure communications and e-commerce<sup>2</sup>, mobile phones became increasingly affordable to the general public<sup>3</sup> – as were desk computers. This development was so significant that many argued it signalled a new industrial revolution, one that introduced numerous novel economic paradigms<sup>4</sup>. It was also during this period that a provocative concept emerged in academia: the bold idea that technology could be embedded with normativity – or the power to shape human behaviour. Thus, the notion of "code as law" was born.

Although this idea initially faced substantial criticism, it has since evolved and gained prominence, attracting the attention of scholars who have explored its applications across various domains. These scholars have not only expanded upon the concept but also ensured its continued relevance in the context of contemporary technological developments. Today, code as law is perhaps more pertinent than ever before. While the traditional trajectory of Moore's Law has decelerated<sup>5</sup>, recent years have still seen exponential growth in technology, driven by innovations in processing architectures and software optimization, the development of big data and the integration of artificial intelligence and machine learning. More than ever, the unprecedented control that technology exerts over human behaviour<sup>6</sup> is a topic of intense debate.

Given the reality of code-driven normativity operating within society, it is essential to consider its implications for traditional text-driven normativity. If technologies possess the power to shape human behaviour in a normative manner<sup>7</sup>, what does this mean for the legal system? Can law and technology work together, or are they inherently at odds? Is text-driven normativity superior, more reliable, or more powerful than code-driven normativity?

<sup>&</sup>lt;sup>1</sup> Latour 1991, 103.

<sup>&</sup>lt;sup>2</sup> Landau 2013, 46.

<sup>&</sup>lt;sup>3</sup> Steinbock 2005, 43.

<sup>&</sup>lt;sup>4</sup> Freeman and Louçã 2001, 301.

<sup>&</sup>lt;sup>5</sup> Rotman 2020.

<sup>&</sup>lt;sup>6</sup> Zuboff 2019; Carr 2010. These are two of many works that explore how technology is increasingly shaping human behaviour.

<sup>7</sup> Lessig 2006a, 5.

These questions are central to this research, which begins by exploring the foundational concepts of code as law and the role of technological normativity. The initial chapter examines the pioneering ideas of Lawrence Lessig, who argues that code's architecture acts as a regulatory force in cyberspace, akin to how law governs physical spaces. This discussion is complemented by the work of Lawrence E. Diver, who advocates for a more ethical and user-centric approach to code design, examining how it can shape citizens' behaviour and how this power can be addressed in a legitimate manner<sup>8</sup>. In order to bring depth to the exploration, the discussion also analyses the main critiques to code as law, resorting to the work of Tim Wu<sup>9</sup>.

Building on this foundation, the research delves into the practical implications of technological normativity by examining Hildebrandt's notion of the "onlife world"<sup>10</sup> – a connectivity society deeply intertwined with digital technology – revealing the subtle yet profound ways in which code shapes human behaviour. This exploration is further enriched by a critical evaluation of the concept of normativity itself, addressing the idea that technological normativity is not foreign to legal theory, as exemplified by the recognition of customary international law and other sources of normativity, and contends that technology can indeed exert a normative influence.

As the research progresses, it investigates the differences and intersections between legal and technological normativity – text-driven and code-driven – drawing on the work of Mireille Hildebrandt, who compares the normative impact of technologies with that of the law<sup>11</sup>; and highlighting Diver's analysis of design theory and affordances in technological normativity<sup>12</sup>. Hildebrandt raises critical questions about the concept of normativity in both domains and whether modern law needs to reassess its principles to address the paradox of the "Rechtsstaat" or the State of Law<sup>13</sup>. In light of these considerations, we will argue whether discussions of normativity are, in fact, discussions of power. Are technological normativities dangerous because they concentrate a lot of power, or are they powerless in the face of traditional legal normativity? This exploration will engage with the work of Neil MacCormick<sup>14</sup> to evaluate the concepts of normativity and power across the domains of law and technology. Ultimately, we conclude that legal and

<sup>&</sup>lt;sup>8</sup> Diver 2022a, 1.

<sup>&</sup>lt;sup>9</sup> Wu 2003

<sup>&</sup>lt;sup>10</sup> Hildebrandt 2016a, 1.

<sup>&</sup>lt;sup>11</sup> Hildebrandt 2008, 169.

<sup>&</sup>lt;sup>12</sup> Diver 2022a, 1.

<sup>&</sup>lt;sup>13</sup> Hildebrandt 2008, 169.

<sup>&</sup>lt;sup>14</sup> MacCormick 1997, 229.

technological normativity are not opposing forces; on the contrary, they intersect in ways that blur the lines between them<sup>15</sup>.

In its final stages, the research turns to the broader implications of the convergence of legal and technological normativity. The work of Cornelia Vismann and Markus Krajewski is particularly instructive here, as they draw parallels between the structural similarities of law and technology, both of which operate as "symbolic machines"<sup>16</sup> competing for the power to "code reality"<sup>17</sup>. Emmie Nordell's work also brings a novel perspective to the discussion, inviting the reader to look upon the encounter of code and law as a movement, where code as law and law as code are interconnected<sup>18</sup>. This concluding analysis argues that the relationship between *codex* (law) and code is far more complex and interwoven than traditionally perceived, offering new insights into the future of governance in a digital age.

## 2. Defining terms

*Code as law.* It is believed that the first introduction of the idea of technological normativity was made by Joel Reidenberg, in what he called *"Lex Informatica"*<sup>19</sup>. Lawrence Lessig followed, creating the concept of code as law, diving into the idea that code was the law of cyberspace, with a regulatory strength in the same way as law regulates the "real space"<sup>20</sup>. Since the pioneers paved the way, the concept was explored in many different grounds, with scholars exploring a new theory of code as law by mirroring the concept of legisprudence<sup>21</sup> and even turning it around in a totally different perspective, conceiving "platforms as law"<sup>22</sup>. As stretchy in its application as the original concept may be, it is clear that it embodies one rule as its cornerstone: the idea that technologies are embedded with normative power of its own.

*Code.* To unravel the concept of code we will resort to the common definition in the respective literature, where code encompasses all the digital systems – software and hardware – that govern how technology functions and, by extension, how end users interact with that specific technology<sup>23</sup>. Code operates through affordances, embedding values and restrictions di-

<sup>&</sup>lt;sup>15</sup> Hildebrandt 2008, 169.

<sup>&</sup>lt;sup>16</sup> Vismann and Krajewski 2007, 91.

<sup>&</sup>lt;sup>17</sup> Vismann and Krajewski 2007, 91.

<sup>&</sup>lt;sup>18</sup> Nordell 2021, 2.

<sup>&</sup>lt;sup>19</sup> Reidenberg 1998.

<sup>&</sup>lt;sup>20</sup> Lessig 2006a, 5.

<sup>&</sup>lt;sup>21</sup> Diver 2022a, 2.

<sup>&</sup>lt;sup>22</sup> Magalhães 2023, 1.

<sup>&</sup>lt;sup>23</sup> Lessig 1999, 20; Diver 2022a, 9.

rectly into the technology<sup>24</sup>. By doing so, it exercises its normative power, becoming a regulatory force on its own.

*Law.* It is important to clarify for this research that we will talk about law as the equivalent in English of the legal system. This distinction is necessary because in English the word "law" encompasses legislation – statutory law – and the broader concept of legal rights and principles – the legal system or the Rule of Law. Hart touched upon this question in his work<sup>25</sup>, and comparing English to other languages we can see that different terms capture the different facets of the legal system: French refers at these two terms as "*loi*" and "*droit*"; in Italian we have "*legge*" and "*diritto*", and other languages follow this same structure, as in the Portuguese equivalent: "*lei*" and "*direito*".

*Normativity.* Considering that this research aims to develop an analysis about legal and technological normativity, it is imperative to make it clear that we are building upon a concept of normativity that is not restricted to the legal domain. Hildebrandt argues that "normativity is associated with social norms that have been either deliberately issued for or tacitly developed in the practices of a certain community/collective"<sup>26</sup>. She resorts to MacCormick, who posits:

Norms are fragments drawn from a presupposed ideal order in the sense indicated. They are exclusionary or mandatory prescriptions that posit some course of conduct as wrong, or as obligatory. To engage with a norm as an acting subject is to judge what must be done in a given context; to reflect in normative terms upon one's own or another's conduct in a given setting is to judge, against some envisaged norm, whether what was done ought to have been done or ought not have been done<sup>27</sup>.

The study of Turner and Wiber on Legal Pluralism also brings another perspective to this argument, where the idea of the state law being the only source of normativity is challenged<sup>28</sup>. Bringing an anthropological view to the discussion, they argue that legal pluralism is dedicated to the study of "pluri-normativity"<sup>29</sup>, understanding that the "networks in which humans and non-humans interact"<sup>30</sup> are far more complex and interconnected, es-

<sup>28</sup> Turner and Wiber 2023, 457.

<sup>&</sup>lt;sup>24</sup> Diver 2022b, 154.

<sup>&</sup>lt;sup>25</sup> Hart 2012, 4.

<sup>&</sup>lt;sup>26</sup> Hildebrandt 2008, 173.

<sup>&</sup>lt;sup>27</sup> MacCormick 1997, 229.

<sup>&</sup>lt;sup>29</sup> Turner and Wiber 2023, 460.

<sup>&</sup>lt;sup>30</sup> Turner and Wiber 2023, 460.

pecially in the globalised world we live in. Therefore, legal regimes should consider including the normativity inherent to materiality and technology<sup>31</sup>.

## 3. Code as law: how it started and where is it heading

The code is the architecture of cyberspace. It defines the space within which our behaviour is governed, just as laws define the space within which we act in the real world<sup>32.</sup>

## 3.1. Introducing "code as law" and its pioneers

Rolf Weber presents a detailed account of how the discourse surrounding law and technology has evolved, eventually leading to Lawrence Lessig's introduction of "code as law"<sup>33</sup>. Initially, the discussion revolved around the potential for integrating technology into legal professions. It then shifted towards improving informational access to law. However, a disruptive new concept emerged: code *is* law<sup>34</sup>. Lessig is regarded as the pioneer of the concept of code as law, having introduced the theme in his writings around 1999<sup>35</sup>, although Lessig himself acknowledges that the foundational idea was first laid out by Joel Reidenberg in his work on *"Lex Informatica"*. In his seminal work, Lessig identifies four key mechanisms that regulate human behaviour: law, social norms, the market, and architecture.

Lessig believes that the regulation of human behaviour can be seen as the sum of these four modalities. Changes in any one necessarily changes the whole. Changes in law, for example, necessarily affect architecture, and changes in architecture necessarily affects law. He suggests that architecture in cyberspace is the modality that becomes most important for understanding the regulation of cyberspace. Code becomes the architecture of cyberspace and regulates human behaviour by enabling certain behaviours and disabling other behaviours. *Code is law*<sup>37</sup>.

Lessig's concept of code as law is built upon the idea that "cyberspace was, by nature, unavoidably free"<sup>38</sup>, meaning that governmental attempts to regu-

<sup>&</sup>lt;sup>31</sup> Turner and Wiber 2023, 457.

<sup>32</sup> Lessig 2001, 59.

<sup>&</sup>lt;sup>33</sup> Weber 2018, 701.

<sup>&</sup>lt;sup>34</sup> Weber 2018, 701.

<sup>&</sup>lt;sup>35</sup> Weber 2018, 701.

<sup>&</sup>lt;sup>36</sup> Lessig 2006a, 5; Reidenberg 1998.

<sup>&</sup>lt;sup>37</sup> Nordell 2021, 3.

<sup>&</sup>lt;sup>38</sup> Lessig 2006a, 2.

late it would ultimately prove ineffective<sup>39</sup>. The reason why cyberspace could not be the object of regulation, according to Lessig, is because its environment at its core aspired to "perfect control"<sup>40</sup>. As a constitutionalist, Lessig recognised that cyberspace was building its own constitution: not through legal texts, but via "an architecture that will perfect control and make highly efficient regulation possible"<sup>41</sup>. According to this view, code acts as the architecture of cyberspace, inherently shaping behaviour through its design. This idea on itself had the power to raise questions about the perspective of traditional regulation. If technologies – in this case, cyberspace – are embedded with code-driven normativity, what is left for law to regulate?

Vismann and Krajewski argue that, while it initially seemed as though government legal systems were maintaining sovereignty in cyberspace, the outcome of this struggle was determined from the outset<sup>42</sup>: the "quasi-sovereign power of the computer engineer's code"<sup>43</sup> effectively challenged traditional legal systems. Efforts to regulate technologies only began in the 1980s, primarily in response to the economic potential of the Internet in the United States, and similarly in Europe, the focus was on commerce. This absence of regulation contributed for the dissemination of the idea of "un/self-regulation"<sup>44</sup> within the digital realm, and also the idea that "the absence of any manifest law does not amount to absolutely no legality whatsoever; it can mean, rather, that a legal structure has already somehow been internalised."<sup>45</sup>

Lessig asserts that "cyberspace demands a new understanding of how regulation works. It compels us to look beyond the traditional lawyer's scope – beyond laws, or even norms"<sup>46</sup>. In order to understand Lessig's affirmation that "cyberspace is regulated primarily through the code of cyberspace", one must consider that this regulation operates through affordances: code "defines the terms upon which cyberspace is offered"<sup>47</sup>, governing access and shaping behaviour. It either enables or constrains user interaction, effectively embedding a normative framework within its architecture. The power of code, therefore, lies not just in what it allows, but in what it forbids or restricts, creating a system of control that operates often invisibly to the end user.

- <sup>42</sup> Vismann and Krajewski 2007, 93.
- <sup>43</sup> Vismann and Krajewski 2007, 94.
- <sup>44</sup> Vismann and Krajewski 2007, 94.
- <sup>45</sup> Vismann and Krajewski 2007, 94.
- <sup>46</sup> Lessig 2006a, 5.

<sup>&</sup>lt;sup>39</sup> Lessig 2006a, 2.

<sup>&</sup>lt;sup>40</sup> Lessig 2006a, 3.

<sup>41</sup> Lessig 2006a, 4.

<sup>47</sup> Lessig 2006a, 84.

Building on Lessig's foundational work, other scholars have expanded the notion of code as law, most notably Lawrence Diver, who developed the concept of "digisprudence" mirroring the idea of legisprudence – the notion that the creation of legislative norms must undergo rigorous "jurisprudential analysis and tests of legitimacy"<sup>48</sup>. Diver wanted to explore a new theory of code as law, by understanding how code design has the power to shape the citizens' behaviour, and how to address this power in a legitimate way<sup>49</sup>. He also posits that the normative force of code arises from its inherent affordances, a concept that this research will explore in depth in later chapters. In a democratic society, Diver argues, code-based norms that lack legitimacy should not be implemented:

This means we must consider the processes and tools that make up the 'legislature' where code is 'enacted', including software development methodologies and the integrated development environments (IDES) where the text of code is actually written. (...) As with legislative norms, if code regulates behaviour then its behaviour-enabling and behaviour-constraining 'rules' ought also be subject to scrutiny<sup>50</sup>.

This is exactly the main point of divergence between Lessig's and Diver's approaches: the necessity of intervention in the normativity of code. While Lessig advocates for societal and governmental intervention to ensure that code aligns with public values and democratic principles<sup>51</sup> in an *ex post* regulation, Diver in his "rebooted" framework emphasises the need for proactive efforts to legitimise code in an *ex ante* stance, at the design stage, criticising the tendency to overlook abuses of design power in the name of innovation<sup>52</sup>.

#### 3.2. When Code is not Law?

It should not come as a surprise that a concept such as code as law would face criticism, especially when it came to the idea of a technological normativity that started to take form and spread, despite traditional legal normativity in place. One of the most prominent critiques comes from the positivist argument that anything not enacted by the state cannot claim to be a legitimate source of normativity. According to this view, the state remains the sole and true origin of law, and by extension, normativity<sup>53</sup>. Another argument claims that technologies do not display true normative power but

<sup>48</sup> Lessig 2006a, 122.

<sup>&</sup>lt;sup>49</sup> Diver 2022a, 1.

<sup>&</sup>lt;sup>50</sup> Diver 2022a, 2.

<sup>&</sup>lt;sup>51</sup> Lessig 2006b, 121.

<sup>&</sup>lt;sup>52</sup> Lessig 2006b, 121.

<sup>53</sup> Green 2012, 19.

rather function as tools that nudge behaviour<sup>54</sup> – this critique grounded in behavioural economics, contends that code influences but does not compel. Lastly, some argue that the discourse surrounding code as law is inherently libertarian, reflecting a preference for minimal state intervention and instead placing trust in private actors, akin to the critique of code as law as seen through the lens of Tim Wu.

While Wu critiques Lessig's idea as somewhat vague and speculative, he acknowledges that "the prominent effects of computer code have made it difficult to ignore the fact that code can be used to produce regulatory effects similar to laws"<sup>55</sup>. Wu's primary concern, however, lies with compliance<sup>56</sup>. In his work, he approaches the argument of how code can be used to avoid or circumvent legal frameworks rather than act as a regulatory tool in the same way laws do<sup>57</sup>:

At its greatest extent, the design of code may provide a new option for influencing specific laws. It will be of the greatest importance to individuals or large, disorganised groups poorly equipped to take advantage of existing means of political influence. And as such, the code option may mean some change in the relative power of interest groups, as it makes organisation slightly less important<sup>58</sup>.

While Wu's critique holds merit, it overlooks the broader regulatory potential of technological normativity. Rather than advocating for libertarian ideals, code as law presents an alternative regulatory modality that coexists with, rather than supplants, traditional legal norms. Lessig's theory does not seek to diminish the role of state regulation but rather introduces the idea that regulation can occur through different mediums, such as architecture – or code<sup>59</sup>. Diver builds on this argument, asserting that if code regulates behaviour, it should be subject to the same scrutiny as legislative norms. He advocates for code to be designed with legitimacy in mind, emphasising an ex ante approach to ensure that technological norms align with democratic values and legal frameworks<sup>60</sup>. Wu's assertion that code designers "redesign behaviour for legal advantage" oversimplifies the issue. It fails to account for the real power of code as law: to regulate the everyday interactions of individuals by enabling or constraining their behaviour.

<sup>54</sup> Yeung 2017, 120.

<sup>&</sup>lt;sup>55</sup> Wu 2003, 680.

<sup>&</sup>lt;sup>56</sup> Wu 2003, 681.

<sup>57</sup> Wu 2003, 682.

<sup>&</sup>lt;sup>58</sup> Wu 2003, 683.

<sup>&</sup>lt;sup>59</sup> Lessig 2006a, 5.

<sup>60</sup> Diver 2022c, 44.

Furthermore, Wu's concern about code design serving as a way of avoiding law - or legal compliance - is deeper explored in his word in the case of peer-to-peer (P2P) filesharing<sup>61</sup>, which he argues is "the most ambitious effort to undermine an existing legal system using computer code"<sup>62</sup>. He believes that the efficacy of the P2P mechanism relates to the "weakness of the copyright regime: the law's dependence on a gatekeeper enforcement mechanism and the severe lack of normative support among the regulated"63. While Wu sees this as a form of legal evasion, one could argue that it reflects a deeper issue of regulatory disconnection<sup>64</sup> between the legal system and the technological environment. The lack of alignment between copyright law and the practices of digital users points not to a failure of technological normativity, but to a gap in the legal system's ability to adapt to emerging digital realities, which becomes clear when Wu starts to assess copyright's loopholes<sup>65</sup>. We believe that, as argued by Diver, code can – and should – be designed to be open-source, auditable, and responsive to legal frameworks, thereby enabling a level of scrutiny that is seen in traditional legal processes<sup>66</sup>. Wu acknowledges the regulatory potential of code, but his critique of its normative character lacks depth, as it fails to fully engage with the ways in which technological norms can complement and extend the reach of legal frameworks.

While we could delve deeper into these critiques, this research will focus instead on a more pressing question: why is the notion of technological normativity so foreign to legal practitioners? Is it possible that this critique has its roots deep within a deterministic view of technology<sup>67</sup>? Could the reluctance to accept code as law be rooted in a deterministic view of technology or a deep-seated resistance to normative pluralism<sup>68</sup>? We ask these questions mainly because the concept of other sources of normativity rather than state enacted law is not strange to law theory. If we recognise other forms of non-

<sup>&</sup>lt;sup>61</sup> Wu 2003, 683.

<sup>62</sup> Wu 2003, 683.

<sup>&</sup>lt;sup>63</sup> Wu 2003, 683.

<sup>&</sup>lt;sup>64</sup> Brownsword and Goodwin 2012, 399.

<sup>&</sup>lt;sup>65</sup> Wu 2003, 709.

<sup>66</sup> Diver 2022c, 44.

<sup>&</sup>lt;sup>67</sup> Technological determinism is a theory which understands technology as driving social events and therefore the trajectories of history. It sees societal progress as driven by the technologies available at the time being: technology advances and society must adapt. This theory is often correlated with dystopian concerns, including the fear that unchecked technological progress could lead humanity towards catastrophe. An example can be seen in the work of Hans Jonas (1976, 77–97).

<sup>&</sup>lt;sup>68</sup> William Twining argues that "legal pluralists" are sometimes referred to as an exotic set, rather like "flat earthers." See Twining 2009, 28.

state normativity, why is it so difficult to accept code as a legitimate source of normative power?

## 4. The core issue of code as law: a matter of normativity

As law increasingly interacts with digital technologies, it must reconceptualize its normative foundations. Code-driven normativity challenges the traditional, text-driven normativity of law, calling for a deeper understanding of how information itself becomes a legal actor<sup>69</sup>.

Public international law acknowledges that customs are embedded with normative characteristics, which can elevate them to the status of law<sup>70</sup>. This recognition of non-textual legal sources is not limited to international law: Dworkin argued that law also incorporates moral principles that extend beyond the traditional norms found in legal texts<sup>71</sup>. Hart posited that only rules could not explain all legal phenomena arguing that they would be the centre of the legal system "but not the whole"<sup>72</sup>. MacCormick further recognizes the existence of normative orders "which are more or less detached from states"<sup>73</sup>. The challenge for many legal practitioners lies in the acceptance of legal and normative pluralism. As William Twining notes:

Discussions of legal pluralism have been bedevilled by a series of debilitating and, in my view, largely unnecessary controversies. [...] I suggest that some of the most philosophical and conceptual problems about legal pluralism are best treated as issues about normative pluralism: the nature of norms, institutionalisation, the idea of a normative 'order' or 'system' and the individuation of units such as rules, codes, systems for the purposes of study are issues that concern normative orders in general, not just legal orders<sup>74</sup>.

Hildebrandt contributes to this conversation by asserting that "normativity is associated with social norms that have been either deliberately issued for or tacitly developed in the practices of a certain community/collective"<sup>75</sup>. Anthropological studies further reinforce this notion, as Turner and Wiber explain that the postcolonial study of law revealed the plural nature of normativity<sup>76</sup>, and that law itself took its form from this "normativity generated

- <sup>72</sup> Green 2012, 26.
- <sup>73</sup> Twining 2009, 25.
- <sup>74</sup> Twining 2009, 29.
- <sup>75</sup> Hildebrandt 2008, 173.

<sup>69</sup> Hildebrandt 2016a, 24.

<sup>&</sup>lt;sup>70</sup> Twining 2009, 25.

<sup>&</sup>lt;sup>71</sup> Green 2012, 18.

<sup>&</sup>lt;sup>76</sup> Turner and Wiber 2023, 459.

by networks and wider assemblages"<sup>77</sup> in domains such as religion, economy and politics. Yet, one major domain remains underexplored in this pluralistic framework: technology. To further explore the issue of normativity embedded into the notion of code as law, we will delve into the interesting relationship between legal and technological normativity, first by explaining each one of them, and then examining how they interact, overlap, and differ in their influence on human behaviour and society.

#### 4.1. Legal normativity: the text-driven domain

What "makes" the legal system? How do we determine that something is embedded with legal power? Hildebrandt encourages us to examine the foundations upon which we base our attribution of legal effect<sup>78</sup>. She invites us to question: do we know when "law" is performed? In order to illustrate the thought, she invites us to think about a sales contract – where if a certain condition is met, a certain price will be paid. Could we point out the exact moment where this transaction becomes legal? When is the (legal) normativity performed, if this sales contract could be viewed as merely an economic transaction?

Hildebrandt posits that "the legal effect is neither the consideration nor the payment. The legal effect concerns the fact that two legal obligations come into existence: to perform what is required by the contract"<sup>79</sup>. At this level, she underscores the distinction between constitutive and regulative legal norms, drawing upon Searle's theory<sup>80</sup>: a marriage, for example, is constituted by law – if it is not performed in accordance with constitutive rules, it is not valid. Hence, those involved in the act of marriage are not legally married in the eyes of the State. By contrast, a rule that prohibits driving over 60 miles per hour is regulating a behaviour, but does not prevent a person from exceeding the limit, who would then face the consequences of their actions<sup>81</sup>.

Hildebrandt reminds us that for a norm to count as legal, it must be covered by state authority, yet its effectiveness depends on more than just its formal recognition<sup>82</sup>. She further argues that the legal system contain three types or norms, which are: state enacted legal norms that, due to ineffectiveness, do not regulate/constitute a particular practice; state enacted legal norms that successfully regulate or constitute a practice, because are wide-

<sup>&</sup>lt;sup>77</sup> Turner and Wiber 2023, 459.

<sup>&</sup>lt;sup>78</sup> Hildebrandt 2020a, 6.

<sup>&</sup>lt;sup>79</sup> Hildebrandt 2020a, 6.

<sup>80</sup> Hildebrandt 2008, 172.

<sup>&</sup>lt;sup>81</sup> Hildebrandt 2008, 172. See also Diver 2022c, 68.

<sup>82</sup> Hildebrandt 2008, 173.

ly accepted by the community/collective; and non-legal norms that, despite lacking legal endorsement, regulate or constitute practices<sup>83</sup>:

These legal norms are often framed in terms of essentially contested concepts, which have an open texture, such as reasonableness, equity (in common law jurisdictions), force majeure, foreseeability etc. The multi-interpretability of these concepts generates a normativity of contestability, due to the fact that the potential contestation is inherent in the nature of text<sup>84</sup>.

The inherent contestability of text-driven normativity is a well-established feature of legal domains. The law is constantly engaging with its foundational contradictions, logical and verbal. However, the legal system has learned to turn these contradictions into strengths, since "it does not collapse under the burden of paradoxes, it is not rendered hopelessly illegitimate, for example, by the exposure of contradictions. Instead, the law inexorably erects its admirably stable dogmatic edifice upon its founding aporias"<sup>85</sup>. Legal practitioners are well-versed in these "ironies of power"<sup>86</sup>. In fact, this inherent contradiction may be viewed as the source of the law's power. "Text-driven law is adaptive in a way that would be difficult to achieve in code-driven law (which relies on a kind of completeness that is neither attainable nor desirable)"<sup>87</sup>. What appears concrete, such as a contract, can be reconfigured or reinterpreted in the face of unforeseen circumstances. This is not a flaw but a defining characteristic of text-driven normativity.

Hildebrandt returns to the theme of adaptiveness in law, arguing that it is not only a strength but also a requirement of legal certainty, maintained through text-driven affordances such as understandability, transparency, and contestability<sup>88</sup>. The nature of text-driven normativity relates to its legitimacy, to describe how one's behaviour is legitimately expected to be<sup>89</sup>, "what matters is a sense of being bound to obey valid legal norms, based on the understanding that this also applies to other members of the same jurisdiction"<sup>90</sup>. People are expected to obey the law simply because it is the law<sup>91</sup>. As Pottage observes, law's existence is a "phenomenon whose existence is

<sup>88</sup> Hildebrandt 2020b, 15.

<sup>83</sup> Hildebrandt 2008, 173.

<sup>&</sup>lt;sup>84</sup> Hildebrandt 2020a, 6

<sup>&</sup>lt;sup>85</sup> Vismann 1999, 281

<sup>&</sup>lt;sup>86</sup> Vismann 1999, 279.

<sup>&</sup>lt;sup>87</sup> Vismann 1999, 8.

<sup>&</sup>lt;sup>89</sup> Hildebrandt 2020b, 8.

<sup>&</sup>lt;sup>90</sup> Hildebrandt 2020b, 8.

<sup>&</sup>lt;sup>91</sup> Hildebrandt 2020b, 8.

too evident to require justification"<sup>92</sup>. Law exists and draws its strength from the very same paradox it creates.

Modern law has centred its discourse around the information and communication technologies (ICT) of the printing press, a technology that enabled law to thrive on externalisation, fixation, unification, and proliferation<sup>93</sup>. Hildebrandt compares the normative impact of technologies with the normative impact of law, wondering whether modern law needs to reevaluate its principles to sustain the paradox of the State of Law – or "Rechtsstaat"<sup>94</sup>. Can contemporary law afford to remain untouched by the evolving information-processing infrastructure in the ever-changing modern society?

#### 4.2. Technological normativity: the code-driven universe

Once legal normativity was explained, the question that now arises is how normative effects can become embedded within the architecture of code. At this point we will resort to Diver's work, who chooses to look into code-driven normativity through the lenses of three theories: affordance, inscription and technological mediation <sup>95</sup>. The concept of affordance, originally from psychology, has migrated into design<sup>96</sup>, where it refers to any "facilitation by an artefact's design of a particular action or behaviour for a particular individual"<sup>97</sup>. It is important to notice that affordances are not embedded physical properties of a given artefact, but otherwise, they become what they are through the relationship or interaction of said artefact with an individual<sup>98</sup>. To illustrate the thought, consider a door – its design may afford different outcomes for a non-disabled person versus a disabled person. Naturally, a designer cannot fully predict how an artefact will interact with a vast array of different users, that is why a crucial part of the design process is to focus on classes of specific end users to whom the process will be oriented<sup>99</sup>.

Another essential characteristic of affordances is that they do not need to be perceived to be real<sup>100</sup>. This concept is particularly relevant in digital spaces, as Diver explains: "the potential discrepancy between real and perceived affordances is especially marked in code artefacts, such as the Internet of Things, that have no interface at all"<sup>101</sup>. This characteristic gives power to

- <sup>97</sup> Diver 2022c, 44.
- <sup>98</sup> Diver 2022c, 45.

<sup>100</sup>Diver 2022c, 46.

<sup>92</sup> Pottage 2012, 173.

<sup>93</sup> Hildebrandt 2020b, 7.

<sup>94</sup> Hildebrandt 2008, 169.

<sup>95</sup> Diver 2022c, 44.

<sup>&</sup>lt;sup>96</sup> Diver 2022c, 44.

<sup>&</sup>lt;sup>99</sup> Diver 2022c, 45.

<sup>&</sup>lt;sup>101</sup>Diver 2022c, 47.

the designer – or, the architect – of code, to shape user's behaviour with affordances that "can be hidden from sight"<sup>102</sup>. Each design choice made by the creator of code, which "actively constitute, constrain, or suggest particular courses of action"<sup>103</sup>, imbues the design with normative effects. Thus, the "quasi-sovereign power of the computer engineer's code"<sup>104</sup> represents a significant challenge to traditional regulatory frameworks.

Code also mediates reality and action through affordances, a point at which Diver turns to the concepts of inscription and technological mediation. An artefact "mediates the individual understanding of what she can do in the world as she perceives it"<sup>105</sup> through the medium of affordances – both real and perceived. Likewise, "to inscribe a particular programme of action in the artefact, its design must afford that course of action for a particular (class of) end users"<sup>106</sup>. Diver invokes Latour's discussion of "the Berlin Key"<sup>107</sup> to illustrate this point: the case discussed is about a house key programmed to trigger a certain action of its user: to open the door and enter the house, there are a set of commands the user needs to obey. The technological device (house key) is then constituting and regulating the interactions in this particular scenario.

Hildebrandt also draws on the example of "the Berlin key"<sup>108</sup> when discussing technological normativity. She highlights that many of the normative impacts technology has on daily behaviour were not planned and are often viewed as "side-effects, even in the case that these unplanned effects outweigh explicitly intended effects"<sup>109</sup>. However, Hildebrandt clarifies that her focus is not on the designer's intentions, but on "the way a particular technological device or infrastructure actually constraints human actions, inviting or enforcing, inhibiting or prohibiting types of behaviour"<sup>110</sup>. Smart devices, smart homes, and smart cities all present examples of technological normativity in our *onlife* world.

At this stage, it becomes clear that technological normativity exists along a spectrum. This spectrum ranges from a rigid, closed end – where norms are imposed with no room for contestation – to a softer, open end – where users retain a degree of choice but are "nudged" towards certain outcomes<sup>111</sup>.

<sup>108</sup>Hildebrandt 2008, 173.

<sup>&</sup>lt;sup>102</sup> Diver 2022c, 47.

<sup>&</sup>lt;sup>103</sup>Diver 2022c, 47.

<sup>&</sup>lt;sup>104</sup>Vismann and Krajewski 2007, 93.

<sup>&</sup>lt;sup>105</sup>Diver 2022c, 53.

<sup>&</sup>lt;sup>106</sup>Diver 2022c, 59.

<sup>&</sup>lt;sup>107</sup> Diver 2022c, 59. See also Latour 2000.

<sup>&</sup>lt;sup>109</sup> Hildebrandt 2008, 173.

<sup>&</sup>lt;sup>110</sup>Hildebrandt 2008, 173.

<sup>&</sup>lt;sup>111</sup>Diver2022c, 63.

Diver understands that "this spectrum of normativity connects with the theoretical distinction between constitutive and regulative rules"<sup>112</sup> we previously discussed. He also builds on Vismann and Krajewski's idea of the "programmer of the programmer" (PoP)<sup>113</sup> which reflects a form of technological constitutionalism. In a manner reminiscent of Kelsen's Pyramid, the PoP is "not a single individual but rather the complex of tools and practices that frame the work of the designer before it begins"<sup>114</sup>. Converging with Hildebrandt's thoughts, this framework underscores the notion that code-driven normativity extends well beyond the intentions of the designer. It is deeply embedded within the technological system itself, shaping and governing interactions through its architecture and design, often in ways that are imperceptible to the user.

# 5. "By the power of *codex*" or "By the power of code"? Where law and technology diverge and intersect

Legal normativity and technological normativity are not merely parallel forces but intersect in ways that redefine the boundaries of regulation. The challenge lies in understanding how code, as a form of technological normativity, complements and complicates the normative frameworks established by law<sup>115</sup>.

When discussing normativity, we inevitably enter the realm of power. "Normative power may, in a variety of worldviews, be seen rooted in morethan human assemblages of which a decentered human is just a part"<sup>116</sup>. MacCormick reminds us that although law, politics, and morality are intertwined, they are distinctly different from each other. Politics revolves around power, the actual sovereign power exercised within society. Law, on the other hand, holds no "power-in-fact to effect social change"<sup>117</sup>. Law determines the normative order, drawing upon the code of right and wrong. It has no coercitive power to make society comply with the normative order, which is not the case for politics<sup>118</sup>. Morality is also about the normative order, but, following Kant and Habermas, it can be seen as "autonomous and universal; it is discursive and controversial"<sup>119</sup>. It finds its strength on the shared rules

<sup>&</sup>lt;sup>112</sup>Diver 2022c, 63.

<sup>&</sup>lt;sup>113</sup>Diver 2022c, 66.

<sup>&</sup>lt;sup>114</sup>Diver 2022c, 66.

<sup>&</sup>lt;sup>115</sup>Hildebrandt 2008, 173.

<sup>&</sup>lt;sup>116</sup> Turner and Wiber 2023, 462.

<sup>&</sup>lt;sup>117</sup> MacCormick 1997, 222.

<sup>&</sup>lt;sup>118</sup> MacCormick 1997, 222.

<sup>&</sup>lt;sup>119</sup> MacCormick 1997, 223.

and principles determined by communities<sup>120</sup>, and these characteristics resemble law, though the two domains remain distinct.

Norms are fragments drawn from a presupposed ideal order in the sense indicated. They are exclusionary or mandatory prescriptions that posit some course of conduct as wrong, or as obligatory. To engage with a norm as an acting subject is to judge what must be done in a given context; to reflect in normative terms upon one's own or another's conduct in a given setting is to judge, against some envisaged norm, whether what was done ought to have been done or ought not have been done<sup>121</sup>.

As previously argued, technology – or code – is also about normative order. What comparisons, then, can be drawn between legal and technological normativity? How do their respective powers intersect? Hildebrandt suggests that legal norms consist of both vertical/imperative dimensions and horizontal/normative dimensions<sup>122</sup>. The former reflects the state's coercive authority, while the latter concerns the mutual obligation within a democracy to follow legal norms, it is a feeling of commitment of the citizens towards each other<sup>123</sup>. In contrast, technological normativity lacks state authority but still "regulate and/or constitute the relationship between citizens, devices and infrastructures"<sup>124</sup>. The absence of a formal state authority does not equate to an absence of power or normative effect; technology exhibits a normative dimension even without the imperatives associated with law:

Like legal normativity in non-state societies, technological normativity does not depend on coercive authority but on the socio-technical arrangements that constitute or regulate specific practices like consuming electricity, driving a car, etc. Arrangements that generate practices that are *constituted* by specific technological artefacts *enforce* compliance with the norms embodied by these artefacts, while arrangements that generate practices that are *regulated* by specific technological artefacts *invite* compliance with the norms they embody<sup>125</sup>.

When discussing the force of law versus the force of technology we face the idea that the printing press is something that restricts the access of law in the world we live in. Hildebrandt argues that "the socio-technical arrangements that generate technological normativity may have far reaching impli-

<sup>120</sup> MacCormick 1997, 223.

<sup>&</sup>lt;sup>121</sup>MacCormick 1997, 229.

<sup>&</sup>lt;sup>122</sup>Hildebrandt 2008, 174.

<sup>&</sup>lt;sup>123</sup>Hildebrandt 2008, 174.

<sup>&</sup>lt;sup>124</sup>Hildebrandt 2008, 174.

<sup>125</sup> Hildebrandt 2008, 175.

cations for the way we live together as a collective<sup>"126</sup>, inferring that just as legal normativity, technological normativity can have both constitutive and regulative effects. She uses the example of the car driver: the legal norms will constitute what is means to be a car driver, but will not incapacitate anyone that does not fit the criteria to drive, however, a smart car could be programmed to analyse the driver's features to detect fatigue, and depending on the threshold, it could bring the car to a total stop if needed, "enforcing compliance with rules to an extent previously unheard of"<sup>127</sup>. This form of technological enforcement is no longer a distant concept; it is becoming a reality, with more possibilities emerging each year<sup>128</sup>.

This outcome brings questions and troubles we should look upon. Hildebrandt identifies a key issue: "using technological means to attain what legal means cannot achieve, implies using them as neutral means of implementation, disregarding the normative impact of mechanical application of legal rules"<sup>129</sup>. This reflects a form of legal or technological instrumentalism, which can threaten free will and accountability. However, the answer also does not lie in understanding "compliance by means of technological devices as a negative development"<sup>130</sup>, because this would imply deterministic characteristics to technology, resulting in assuming a technological substantivism in spite of a "voluntarist understanding of law"<sup>131</sup>. We must argue then, what is the answer to this dilemma? Hildebrandt suggests tracing a "creative and realistic perspective on the relationship between law, technologies and human interactions"<sup>132</sup>, one that recognises the constraints imposed by technology while acknowledging the inherent underdeterminacy of human action.

This concept of underdeterminacy, as Hildebrandt explains, is what Don Ihde called "the multistability of technologies"<sup>133</sup>, which should not be confused with indeterminacy. Underdeterminacy refers to the notion that technology will never serve a single, fixed purpose, nor will it maintain a stable position within the socio-technical fabric. This fluidity, Hildebrandt argues, is what calls for developing a different mode of thinking when it comes to the integration of law and technology. Furthermore, another challenge arises: how do we bring "socio-technical devices and infrastructures under the

<sup>&</sup>lt;sup>126</sup>Hildebrandt 2008, 175.

<sup>&</sup>lt;sup>127</sup> Hildebrandt 2008, 175.

<sup>&</sup>lt;sup>128</sup> As Roger Brownsword posits: "for the next generation, driving a car might be comparable to writing in longhand". Brownsword 2015, 3.

<sup>&</sup>lt;sup>129</sup>Hildebrandt 2008, 176.

<sup>&</sup>lt;sup>130</sup>Hildebrandt 2008, 176.

<sup>&</sup>lt;sup>131</sup>Hildebrandt 2008, 176.

<sup>&</sup>lt;sup>132</sup>Hildebrandt 2008, 176.

<sup>&</sup>lt;sup>133</sup>Ihde 1990; cited in Hildebrandt 2008, 176.

rule of constitutional democracy<sup>"134</sup> – in the sense that, if we as a collective agree that in order for a legal normativity to exist, there is a need to exist a correlative democratic procedure, this should also be true in the case of technological normativity. Diver builds on this argument, proposing that technological normativity adopt principles of legisprudence, which means that the creation of legislative norms should face both "jurisprudential analysis and tests of legitimacy"<sup>135</sup>. As he posits, "code's characteristics exemplify a particularly strong form of 'legalism', and therein lies the problem of illegit-imate code-based regulation and the claim that it is 'less' than law"<sup>136</sup>. The nature of code necessarily implies a kind of temporal front-loading: code is designed and implemented before it is out in the world, its effects "out there" being predetermined, at least in broad structure if not always in every atomic detail.

Hildebrandt points to the rigidity of code-driven normativity as a fundamental inefficiency: it presents a series of inherent constraints that we do not have in text-driven normativity<sup>137</sup>. This happens because in code-driven normativity "the threshold is determined in advance"<sup>138</sup>, while text-driven normativity codes the past, code-driven normativity codes the future. By coding into the future, it "freezes the future"<sup>139</sup>. There is no other possibility than meeting the criteria written in the code. Although some may argue that machine learning could resolve this issue, Hildebrandt cautions that such systems might depend on "endlessly complex decision trees"<sup>140</sup>. This brings us back to the idea that text-driven normativity thrives on its inherent contestability.

Legal norms are adaptable, open to interpretation, and flexible in response to unforeseen circumstances – qualities that code-driven norms lack. Hildebrandt advocates for a co-regulatory approach, where law and technology work together to mitigate each other's regulatory weaknesses. In this vision, collaboration between computer scientists, lawyers, and legislators is essential to create something new – an integrated framework that draws on the strengths of both domains. This is precisely the direction we aim to explore in our final chapter: the idea that navigating the intersection of code and law requires a willingness to venture into deeper, more complex discussions. Only by embracing this complexity can we begin to address the challenges

<sup>&</sup>lt;sup>134</sup>Hildebrandt 2008, 176.

<sup>&</sup>lt;sup>135</sup>Diver 2022a, 8.

<sup>&</sup>lt;sup>136</sup>Diver 2022a, 2.

<sup>&</sup>lt;sup>137</sup> Hildebrandt 2020a, 7.

<sup>&</sup>lt;sup>138</sup>Hildebrandt 2020a, 7.

<sup>&</sup>lt;sup>139</sup>Hildebrandt 2020a, 9.

<sup>&</sup>lt;sup>140</sup>Hildebrandt 2020a, 9.

and opportunities that arise from the evolving relationship between legal and technological normativity.

## 6. Law and code: more similar than we think? The depths of a more complex discussion

Code is Law, but perhaps law can now also become code. The new order could be either code is law or law is code or  $both^{141}$ .

Throughout the previous chapters, we have explored the origins and evolution of code as law, examining the critiques it has faced, and coming to realise that the biggest concern regarding it is a matter of normativity. Then, we have delved into the concept of normativity in both law and code, also, investigating what it means to have normative power. At this juncture, the similarities and differences between law and code's normativity were highlighted and argued upon. In the introduction of this research we asked what should be considered more reliable or powerful: text-driven normativity (law) or code-driven normativity (code)? To answer this question, as the end of our exploration is near, rather than forcing a binary choice, we suggest a different approach: to consider the entanglements between law and code as something far more complex than simply choosing one over the other.

Emmie Nordell encourages us to view the "encounter between law and cyberspace as a movement"<sup>142</sup>. Drawing on Deleuze and Guattari's concepts of "rhizome, assemblage, becoming, territorialisation, deterritorialisation and reterritorialisation"<sup>143</sup>, she constructs her argument: to perceive the encounter of law and code as a movement, we should look at interconnections instead of fixed definitions<sup>144</sup>. Through this lens, law is no longer static but becomes "fluid, horizontal and open ended"<sup>145</sup>. There are no definite beginnings or endings – only a middle ground, nor black or white but a grey area. Law becomes an "assemblage, a whole consisting of heterogeneous dimensions in symbiosis"<sup>146</sup>, and what matters now are connections and interactions.

Nordell's framework can be applied to an example that scholars frequently use to illustrate code as law: smart contracts. In traditional legal systems, a contract is an agreement enforced by law, with obligations and conditions regulated through legal structures – this represents territorialisation. How-

<sup>&</sup>lt;sup>141</sup>Nordell 2021, 1.

<sup>142</sup> Nordell 2021, 1.

<sup>&</sup>lt;sup>143</sup>Nordell 2021, 1.

<sup>&</sup>lt;sup>144</sup>Nordell 2021, 1.

<sup>&</sup>lt;sup>145</sup>Nordell 2021, 1.

<sup>146</sup> Nordell 2021, 1.

ever, with the emergence of blockchain technology<sup>147</sup>, we now have smart contracts: self-executing agreements where the obligations and conditions are enforced by code. This creates a form of deterritorialisation, as the law's regulatory power is replaced by code, introducing a new normative structure in which code is the sole enforcer. In this sense, law meets reterritorialisation, where the legal territory is reshaped and redefined by the normative power of code:

Traditionally, the law has dominated the reality of word and image to a degree unequalled by any other performative system. Now, however, with the advent of the computer, legal fictions must compete with digital virtuality. The virtual is a mode of reality that evades the spacetime categories of the law<sup>148</sup>.

This new situation creates a new normative structure, where code is the sole entity enforcing an agreement, without legal oversight. That normative structure is code as law – therefore, the territory of law meets reterritorialisation. Nordell suggests that "the lines of territorialisation, deterritorialisation and reterritorialisation become movements between dimensions"<sup>149</sup>, and this movement where the dimension of law intersects with the territory of another dimension – code – is a "movement of becoming"<sup>150</sup>. Law is becoming code that is becoming law that is becoming code. In fact, law and code are not estranged dimensions, since they are very similar in structure, both being "symbolic machines"<sup>151</sup>, competing for the power of "coding reality"<sup>152</sup>, and both operating in a binary mode of decision making<sup>153</sup>. Law, whether consciously or not, already embodies the characteristics of code<sup>154</sup>:

Code regulates human behaviour. Law that regulates code is established. Law creates an image of code, is becoming code. Code enforces legal rules. Code is becoming a part of the legal system and is becom-

<sup>&</sup>lt;sup>147</sup>The simplest definition of blockchain is that it consists of a database that stores its information in different blocks. Since its most notable introduction – credited to Satoshi Nakamoto's white paper in 2008 that presented Bitcoin – the technology has been widely used and boasts a wide array of applications that continue to evolve and progress daily, one of them being smart contracts. For more information on the matter: Fink 2020; De Filippi and Wright 2019.

<sup>&</sup>lt;sup>148</sup>Vismann and Krajewski 2007, 92.

<sup>149</sup> Nordell 2021, 3.

<sup>&</sup>lt;sup>150</sup>Nordell 2021, 3.

<sup>&</sup>lt;sup>151</sup>Vismann and Krajewski 2007, 91.

<sup>&</sup>lt;sup>152</sup>Vismann and Krajewski 2007, 92.

<sup>&</sup>lt;sup>153</sup>Niklas Luhmann, in his conceptualisation of social systems, designates law as a crucial subsystem in modern society tasked with maintaining societal stability. In this framework, the legal system acquires its closed characteristics by 'coding social reality in a unique binary code of legal/illegal'. See Baraldi, Corsi, and Esposito 2021, 125.

<sup>&</sup>lt;sup>154</sup>Vismann and Krajewski 2007, 92.

ing law. At the same time new technologies such as blockchain and machine learning enable the possibility for code not only to maintain and enforce legal rules but also to draft and develop such rules. Code is law, but maybe law can now also become code. The new order could be either *code is law* or *law is code* or both<sup>155</sup>.

To shed light on this aspect of how reterritorialisation can take place, it is pertinent to bring to the discussion a real-world application, with our focus still at smart contracts as our example of a code-driven system, notably the projects Kleros and Mattereum<sup>156</sup>. The Kleros project started as a smart dispute resolution protocol which enables arbitration to take place within a blockchain. Arbitration is a common practice of alternative dispute resolution methods adopted worldwide, where parties involved in a dispute can solve it outside of a court of law, with every jurisdiction having its own rules about the procedure. The Kleros project allows the decision-making process to be decentralised, as community members referred as jurors<sup>157</sup> issue a verdict after collecting "further data from the 'real world'" in order to make a decision on the merits.

In its turn, the Mattereum project "provides a platform for the creation of smart contracts that can solve a wide range of legal issues, with an initial focus on the legal transfer of rights and physical assets on a blockchain"<sup>158</sup>. The platform uses an automated Ricardian contract, a unique document that exists at the same time as text-driven and code-driven: it is a legal agreement written in human-readable text that also includes machine-readable tags, cryptographically signed<sup>159</sup>. The contract "allows one to stake assets, ensure property rights, and transfer ownership"<sup>160</sup>. With the examples provided, it becomes evident that the interaction between law and code is far more profound than initially assumed. As Primavera Di Filippi and Samer Hassan argue, with the ongoing technological advancements, the lines between code and law are becoming more blurred:

The blockchain enables a whole new type of regulation by code, which – combined with smart contracts – also promotes a new way of thinking about the law. Indeed, as more and more contractual rules and legal provisions are incorporated into smart contract code, the traditional conception of the law (as a flexible and inherently ambiguous set of rules) might need to evolve into something that can better be

<sup>&</sup>lt;sup>155</sup>Nordell 2021, 5.

<sup>&</sup>lt;sup>156</sup> Palombo, Battaglini, and Cantisani 2021, 130.

<sup>&</sup>lt;sup>157</sup> Palombo, Battaglini, and Cantisani 2021, 130.

<sup>&</sup>lt;sup>158</sup> Palombo, Battaglini, and Cantisani 2021, 130.

<sup>&</sup>lt;sup>159</sup>Geroni 2021

<sup>&</sup>lt;sup>160</sup> Palombo, Battaglini, and Cantisani 2021, 130.

assimilated into code. As a result of this tendency, both lawyers and legislators could increasingly be tempted to deliberately draft legal or contractual rules in a way that is much closer to the way technical rules are drafted. *Code is Law might therefore lead to law progressively turning into code*<sup>161</sup>.

As we approach the conclusion of this paper it becomes evident that instead of seeing law and code as distinct, conflicting domains, we must acknowledge their entanglement and how they mutually shape one another. Law may historically have been viewed as rigid and hierarchical, while code has been framed as more fluid and adaptable. However, as this research has shown, both law and code exhibit normative power, both regulate human behaviour, and both are deeply embedded in societal structures. The complexity of this relationship lies in its rhizomatic nature – a continuous process of becoming, where law becomes code, and code becomes law. This does not imply the dissolution of one into the other, but rather a dynamic process of transformation and redefinition.

We hope, therefore, that the future may not rest in choosing between law or code, but in understanding how these forces work together. As Nordell, Vismann, and Krajewski suggest, law and code are more similar than we think. Both regulate reality, and both are capable of shaping the future. In this entangled reality, the challenge is to embrace the complexity of their relationship, allowing law and code to become a normative assemblage and adapt in our onlife world. As Latour once mentioned "we are not forever stuck in the boring alternation between two different substances, one made of objects and matter and the other of subjects and symbols"<sup>162</sup>.

## 7. Conclusion

In conclusion, this research has illustrated the intricate relationship between law and code, underscoring the complexity of treating them as distinct, separate entities. While code-driven normativity has often been criticised by legal practitioners, our exploration suggests that rather than drawing rigid binary distinctions, we should recognise the entangled nature of both forms of normativity. We began our exploration by examining how the concept of code as law emerged, evolved, and was challenged, ultimately revealing that the core issue lies in the normative powers it shares with text-driven normativity.

<sup>&</sup>lt;sup>161</sup>De Filippi and Hassan 2016, 10.

<sup>&</sup>lt;sup>162</sup>Latour 1994, 805.

Furthermore, we addressed the question of normativity, considering both text-driven legal normativity and code-driven technological normativity. In doing so, we delved into the nuances of regulatory power, drawing attention to how both law and code shape human behaviour in overlapping – yet distinct – ways. While the legal system derives its authority from the state, technological systems possess a normative dimension rooted in their design, affordances and architecture. As we explored these dynamics, it became apparent that these forms of normativity are not exclusionary but instead intersect and interact in ways that challenge traditional regulatory boundaries. Additionally, we investigated how law and code differ in their adaptability, with legal norms being inherently contestable, open to interpretation, and flexible in the face of change. In contrast, code-driven normativity often offers less room for interpretation once embedded.

On top of that, we invite the reader to consider both the strengths and weaknesses of legal and technological normativity, recognising that each form of regulation has its place and value. As this research has shown, instead of seeing law and code as distinct, conflicting domains, we must acknowledge their entanglement and how they mutually shape one another. As society continues to evolve towards an increasingly digital and interconnected world, the law must adapt alongside these technological developments. One might ask why it is essential to examine the convergence of law and code in such detail. As we reach the conclusion, the answer becomes clear: the entanglement of law and code is not merely a theoretical debate – it is already shaping the way societies are governed. This paper serves as a glimpse into the evolving relationship between law and technology, and as we move forward, it is this relationship that will define the future of regulation in the digital age.

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