

## INTRODUCTION

### THE BLOCKCHAIN TECHNOLOGY BETWEEN THE LAW OF CONTEMPORANEITY AND THE NEW POWER STRUCTURE

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SUMMARY: 1. The aspirations of new technologies. – 2. Security, trust, shared consensus. – 3. An economic, political and legal instrument. – 4. Problems and prospects.

#### 1. *The aspirations of new technologies*

Today, in the era of globalization, where are law-making processes generated? Who rules over the new phenomena produced by technology? What form does the law of contemporaneity assume in respect of these phenomena? These are the questions that have been absorbing the attention of jurists, sociologists and philosophers for over two decades. Contemporary society – increasingly disorganic and atomized<sup>1</sup> – suffers a perennial conflict between antagonistic forces. With the aim of prevailing over and subjugating other forces, these leverage the most powerful force available to Man today, namely technology, which is driven by modern science: “an effective power”, intended as the “*form* of the actual production of specific and particular objectives”.<sup>2</sup> The great technological revolution, in the widest variety of sectors (economic, financial, medical, military, etc.), aims to make human capital superfluous and ends up by deeply modifying the physiognomy of the world in which we live. Suffice it to think that a large part of stock market transactions is entrusted to algorithmic trading, that ever-smarter artificial intelligence systems are also designed to diagnose disease, that technology is used in settling controversies, and that the use of “hi-tech forces made up of unmanned drones” and computer viruses are “replacing the mass armies of the 20<sup>th</sup> century”.<sup>3</sup> In this context, we wonder if law-making processes have moved from the law-making “centre”, consisting of State institutions, to the “periphery”, towards the confines between traditional law and other organized, autonomous and globalized social realms.<sup>4</sup> In this sense, the law ruling the new world manifests itself as a peripheral, spontaneous and social law.<sup>5</sup> On the one hand, free business initiatives defend themselves from public powers and, on the other, they build themselves as

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<sup>1</sup> Byun-Chul Han, *Nello sciame. Visioni del digitale* (tr. F. Buongiorno, Nottetempo 2015), 27, grasps the most dismal aspect of *homo digitalis*: “the *socius* yields way to the *solus*; so, not so much a multitude as much as *solitude* is what characterizes the modern-day social form, which is overwhelmed by a general disaggregation of what is common and collective”.

<sup>2</sup> E. Severino, ‘Le domande del giurista e le risposte del filosofo’ (2000) *Contratto e impresa* 665, 675.

<sup>3</sup> Y. N. Harari, *Homo Deus: Breve storia del futuro* (tr. M. Piani, Bompiani 2018), 376.

<sup>4</sup> G. Teubner, ‘Regimi privati globali. Nuovo diritto spontaneo e costituzione duale nelle sfere autonome della società globale’, in G. Teubner, *La cultura del diritto nell’epoca della globalizzazione. L’emergere delle costituzioni civili* (tr. R. Prandini, Armando 2005) 57 ff., 61.

<sup>5</sup> *Ibid.* In these pages, I will give preference to the term “power” – peripheral, spontaneous, and social – rather than surrendering to semantically dilating the “juridical” phenomenon.

powers or sources of power.<sup>6</sup>

New social spheres, autonomous practices,<sup>7</sup> private legal orders<sup>8</sup> take shape and are structured by exploiting technological resources which offer innumerable opportunities, meet the immediate need for certainty and are capable of sterilizing and settling conflicts. These powers are established with the consensus of those who acknowledge their reliability and who use them in different sectors to achieve specific and particular aims. The safety – and immediacy – of this instrument, trust and shared consensus are the principal features of a peripheral, spontaneous and social power. This power, by offering what the State is unwilling or incapable of offering, spreads throughout the community, coming into competition with the traditional forms of exercising political and legislative power, and invading the field of law-making processes. This gives rise to the dispute on the very concept of “legality” that appears to be contended between conflicting *powers* which, through their conditioning and prescriptive nature, *de facto* assume the authoritative force of a legislator.

## 2. Security, trust, shared consensus

*Security, trust, and shared consensus* are the soundest grounds on which a power – the power of technology – could lie as it manifests and concretizes without waiting to take the form, structure and apparatus of traditional law. It is in this setting that the Blockchain technology – by assuring security, calculability and reliability – offers unlimited potential in the widest variety of sectors.

Blockchain (literally “chain of blocks”) is a technology based on DLT (Distributed Ledger Technology) in which data is grouped in “blocks” that are interconnected in a time sequence through shared consensus mechanisms. It is comparable to a digital register or ledger in which every transaction is validated through a shared process in which participants receive a copy of each operation. As soon as the blocks are created and validated, they are closed and “linked together” sequentially and, in this sense, can be defined as crystallized in time, thus becoming unalterable. It is an instrument that enables the storage of the transactions closed, securing them against the risk of external manipulations or tampering. This technology was developed in two different phases. The first focused on the dealing and trading of *cryptocurrencies*; the second was aimed at pursuing other objectives by means of a distributed *software*, also known as *smart contracts*.<sup>9</sup> It might be useful to reflect on the fact that the monetary function of cryptocurrencies – that marked the first phase of Blockchain’s development – is ensured not by the trust placed in an issuer but by the trust placed in a sort of “acephalous” predefined technical issuance process.<sup>10</sup> It should be pointed out that in

<sup>6</sup> N. Irti, ‘Tramonto della sovranità e diffusione del potere’, in A. Febbrajo and F. Gambino (eds), *Il diritto frammentato* (Giuffrè 2013) 3 ff., 13.

<sup>7</sup> On the unlimited number of models of order that distinguish the typically post-modern vision of the world, see Z. Bauman, *La decadenza degli intellettuali. Da legislatori a interpreti* (tr. G. Franzinetti, Bollati Boringhieri 2007), 14.

<sup>8</sup> G. Teubner, ‘Ordinamenti frammentati e costituzioni sociali’, in A. Febbrajo and F. Gambino (eds), *Il diritto frammentato* (Giuffrè 2013), 381-382.

<sup>9</sup> G. Gitti, *Emissione e circolazione di criptoattività tra tipicità e atipicità nei nuovi mercati finanziari*, in *Banca, borsa e titoli di credito*, 2020, p. 13.

<sup>10</sup> M. Cian, *La criptovaluta - Alle radici dell’idea giuridica di denaro attraverso la tecnologia: spunti preliminari*, in *Banca, borsa e titoli di credito*, 2019, p. 318.

this case what creates trust in the community members is a technological tool – and not a superordinate power – testifying to its spontaneous, autonomous and self-organized creation.

It might be useful to briefly outline some of the aims and characteristics of Blockchain-based technologies: a) reduce the cost of transactions by eliminating intermediaries and intermediation costs; achieve organizational efficiency through a reliable decentralization process; b) feature encoding and control mechanisms capable of “democratizing” data and building confidence as they are assured by cryptographic algorithms through a secure transaction validation and storage mechanism; c) provide the immutability and inalterability of data storage; d) assure transparency, traceability, security; e) ensure the pseudonymization of users, timestamping, and asymmetric cryptography. By modifying trust-placing mechanisms, Blockchain applications have radically transformed value transfer methods. These applications, in a wide range of sectors, may involve public networks, energy markets, transport, the healthcare sector, supply chains, education, creative industries and copyright and the financial sector.

### 3. *An economic, political, and legal instrument.*

In the light of European Union legislation and national laws, legislators cannot remain indifferent to the sensational resources offered by the Blockchain technology. The European Parliament, with a view to building trust through disintermediation, passed a Resolution on 3 October 2018, in which it took a stand on distributed ledger and Blockchain technologies. The Resolution starts out by stating that Blockchain can be used in very a large number of sectors and does away with intermediation costs, thus constituting a useful tool “that promotes the empowerment of citizens by giving them the opportunity to control their own data and decide what data to share in the ledger, as well as the capacity to choose who else can see them”.<sup>11</sup> In this perspective, Blockchain not only sums up to an economical technological tool but to a tool that is also endowed with a political nature: both because it aims to “democratise data and improve trust and transparency, providing a secure and efficient route for the execution of transactions”<sup>12</sup> and also because it is intended to promote a “self-sovereign” digital identity through which DTL technology could generate “the emergence of new models to change the current concept and architecture of digital identities”.<sup>13</sup>

From the standpoint of Italian national legislation, Art. 8-ter of Decree Law No. 135 of 14 December 2018, converted into Law No. 12 of 11 February 2019, defines distributed ledger-based technologies and outlines the characteristics of *smart contracts*, laying down some of their legal effects and referring the regulation thereof to the Guidelines issued by the Agenzia per l'Italia digitale – Agency for Digital Italy (AgID). More specifically, *smart contracts* provide: a) an “automatic” contractual tie deriving from the execution of *smart contracts*;<sup>14</sup> b) the equivalence between the requirements of the written form and the “requirement-fulfilling process” laid down in

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<sup>11</sup> European Parliament resolution of 3 October 2018 on distributed ledger technologies and blockchains: building trust with disintermediation (2017/2772(RSP)), P8\_TA(2018)0373.

<sup>12</sup> Ibid.

<sup>13</sup> Ibid.

<sup>14</sup> Art. 8-ter, para. 2, Decree Law No. 135 of 14 December 2018.

the Guidelines of the Agency for Digital Italy;<sup>15</sup> c) the equivalence, in terms of legal effects, between the “storage of a digital document through the use of distributed register technologies” and “electronic time validation”.<sup>16</sup>

#### 4. *Problems and prospects*

The dialectics between the law of contemporaneity and the new decentralised powers, driven by widespread trust and shared consensus, turns more controversial and stringent in several phenomena that will be closely analysed in different realms of study in the different contributions to this section. First and foremost, there is the problem of *legal certainty*. The security – and infallibility – of technological automatisms per se does not and cannot express the certainty of law. In this respect, it is necessary to make a distinction between the investigative approaches and the points of view from which these phenomena – the technological and the legal – may be observed. Let us start with the force – at the same time entrusting and persuasive – of the Blockchain technology, which rests on its capacity to express calculability, regularity and stability. In this sense – namely the sense of security created by this instrument by generating trust among its users – Blockchain expresses much more than the continuous succession of two facts schematized into a law.<sup>17</sup> In other words, precisely by virtue of its sure and immediate functionality, this technology can be compared to causality in natural law by making almost *certain* the probability of the effects consequent to specific facts. However, as it is the legislator who decides the *legal* consequences of our behaviours – also in digital environments – in many points of the Resolution of 3 October 2018, the European Parliament urges the Commission’s attention thereto. With reference to smart contracts, the text “stresses that the Commission needs to undertake an in-depth assessment of the potential and legal implications”<sup>18</sup> and clarifies that “legal certainty surrounding the validity of a digital cryptographic signature is a critical step towards facilitating smart contracts”.<sup>19</sup> In this context, it is a call to the legislator’s sense of responsibility. Although the characteristics of the Blockchain technology represent the elements of a self-structuring power, they cannot stand without normative support. They need to be coordinated with legal orders, at national and supranational level, which only laws can assure. For automatisms, processes and technological devices to work in a legal system – and thus gain access to protection mechanisms and to the possibilities offered thereby – they need the nexus of causation or of legal imputation to reconnect the *effects* that typically express and distinguish the law to the events and the outcomes of the realm of technology.

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<sup>15</sup> Ibid.

<sup>16</sup> Art. 8-ter, para. 3, of Decree Law No. 135 of 14 December 2018). See also Art. 41 of Regulation (EU) No 910/2014 of the European Parliament and of the Council of 23 July 2014 on electronic identification and trust services for electronic transactions in the internal market and repealing Directive 1999/93/EC.

<sup>17</sup> With the consequence of comparing a fact with the first term of the Law (“if A”) knowing that another fact complying with the second term (“then B”) must occur. On the reasoning of Flavio Lopez de Oñate, see the considerations by F. Carnelutti, ‘La certezza del diritto (1943)’, in G. Astuti (ed.), *La certezza del diritto* (Giuffrè 1968), 200, which focus attention back on the contrast between the certainty of law and justice.

<sup>18</sup> European Parliament Resolution of 3 October 2018 (n 11).

<sup>19</sup> Ibid.

Thus, for example, even if the Blockchain information system is inalterable, transactions are secure and the data storage is effortless – elements undoubtedly useful to a notary public – within the framework of applicable laws, it is improper to compare the concept of notarization with the results achievable through the use of Blockchain technology. It suffices to reflect on the terms of this comparison.

While Blockchain boils down to a decentralized information system – that does not include intermediation – according to the law, the activity of a notary is the expression of the centralization of the State’s public function.<sup>20</sup>

Then there is the issue of *traceability*. If, on the one hand, the Blockchain technology can offer visibility and transparency as a *protective function*, solving the problems of food traceability by managing the entire life-cycle of food products;<sup>21</sup> on the other hand, it can generate forms of opacity and concealment with respect to identifying the subjects on the supply chain. The question of traceability raises relevant issues in operational terms and at political and legislative level. In this introduction, we can list two. At operational level, the resources of “DLT can provide a framework of transparency, reduce corruption, detect tax evasion, allow the tracking of unlawful payments, facilitate anti-money laundering policies, and detect misappropriation of assets”.<sup>22</sup> At political and legislative level, it is instead necessary to make an in-depth analysis of whether the use of DLTs complies with UU legislation on data protection and in particular with the General Data Protection Regulation (GDPR).<sup>23</sup>

Lastly, note should be taken of the phenomenon linked to the problem of legal certainty connected to *contract automation* in a digital single market. The European Parliament Resolution of 3 October 2018 highlights the relevance of DLT-enabled “smart contracts” that “can act as a key enabler of decentralised applications”, by hopefully monitoring the use-cases in order to explore the potential of these instruments, calling on the Commission to promote the development of technical standards and to conduct an in-depth analysis of the existing legal frameworks in the different member States.

This scenario opens the perspective of various and multifarious applications of the Blockchain technology. Suffice it to think of corporate law. In addition to the possibility of easily identifying shareholders and of introducing the automatic enforcement of corporate rules, it opens a path towards organizing decentralised autonomous infrastructures to use platforms capable of providing dispute resolution mechanisms and of making a broad use of *smart contracts*.<sup>24</sup>

These last research approaches have led to a conclusion that can offer even more food for thought. The key issue is the continuity that can be recorded between the new digitally-generated contractual “mechanisms” and supranational law.

As has been pointed out, with the Resolution of 3 October 2018, the European Parliament promotes the use and spread of “smart contracts” throughout the digital single market insofar as they are instrumental to spreading decentralized applications. Within this framework, the European Parliament notes, however, that “legal certainty can be enhanced by means of legal coordination or mutual recognition between

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<sup>20</sup> See, in this Section, the contribution by E. Damiani.

<sup>21</sup> See, in this Section, the contribution by P. Lattanzi and S. Mariani.

<sup>22</sup> European Parliament Resolution of 3 October 2018 (n 11).

<sup>23</sup> See, in this Section, the contribution by E. Pederzini.

<sup>24</sup> See, in this Section, the contribution by F. Möslein.

Member States regarding smart contracts”.<sup>25</sup> Here the law is once again pressured by questions on the sense of the philosophy of law. The network of the *lex mercatoria* – and, in this context, let us add the network of the *lex digitalis*<sup>26</sup> – “in addition to subsuming the regulation of civil society in the different Countries”, ends up extending to “the very international political relations”, thus turning the “deified” form of the contract<sup>27</sup> into a possible “*rootless law*”, as the “foundation of the only Order possible in the era of never-ending transformations”.<sup>28</sup>

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<sup>25</sup> European Parliament Resolution of 3 October 2018 (n 11).

<sup>26</sup> Teubner (n 4), 381.

<sup>27</sup> In this context, this form expresses itself and sums up in the coordination and mutual recognition between member States as hoped for by the European Parliament to develop a common regulation of “smart contracts”.

<sup>28</sup> M. Cacciari, *Il lavoro dello spirito* (Adelphi 2020), 18. A *rootless law* can exist “only in a ‘deified’ form of the contract whereby the very relations between political powers are conceived within its order and subordinated thereto” (Ibid., 17-18).