

Preface

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Whether blockchain (and DLTs) is a disruptive innovation, a general-purpose technology, or an institution alongside the firm and the market, it is a transactional technology. The fact has become widely accepted, and regardless of the qualification that should be given to it (and the importance of semantic), a consensus is emerging on the necessity to study its impact.

That is fortunate. Indeed, blockchain modifies the quadriptych introduced by Lawrence Lessig in his book *Code* as regards the constraints exercised on all subjects when they engage with the rest of society: *architecture*, *social norms*, *the market* and *the law*. Many challenges arise from the new dynamism it creates.

Of course, blockchain central characteristics (such as immutability) is a primary reason why it is being used. It allows interactions in a given framework, making the *architectural* constraint more preeminent. In the meantime, *social norms* and *markets* are coming into greater conflict. On the one hand, blockchain interactions are guided by the values conveyed by each ecosystem, while on the other hand, all exchanges are strongly influenced by economic incentives. Giving a closer look at blockchain forks provides evidence of this. The *law*, at last, is finding a new balance. Blockchain makes specific enforcement mechanisms less efficient while also allowing for reinforcing the law in given situations.

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The present book deals precisely with blockchain impact on the legal constraint.

One will find different perspectives in it, making this book utterly valuable. They can be represented as follows:



On the left, the legal constraint and blockchain form alliances to achieve a given objective. On the right, they compete with each other, either to achieve the same objective or because blockchain seeks to reach a different one (sometimes opposite) from the law. Each contribution tends more or less to one side of the spectrum. There are two reasons for this.

The *first* is the subject matter.

Certain subjects lead by nature to discuss the means of a collaboration between the law and blockchain. It is the case, for example, in the literature explaining how blockchain could help to ensure the rights of refugees, where international law is not effective enough. It is also the case with writings dealing with alternative disruptive resolutions, as these are complementary systems.

Other topics deal *per se* with a confrontation between law and technology. One may find all discussions regarding blockchain applications designed to evade the rule of law on this side of the spectrum. Contributions addressing the substitution of current legal systems by technological solutions also fall on this side.

Finally, some other issues exhibit mixed analyzes. The issue of protecting personal data is, I believe, a great example of that. Blockchain can indeed preserve the real-life identity of participants in certain exchanges, but it also raises critical issues regarding the right to be forgotten.

The *second* reason is related to the author's very own perspective.

Some are naturally tempted to point out the existence of a dominant strategy resulting in a confrontation between law and technology. To be schematic, the tenants of "West Coast code" tend to consider that technology must always be developed outside the legal constraint because it is restrictive. The advocates of "East Coast law" tend to point to the absolute supremacy of the rule of law, liberating in nature.

Others highlight the necessity for law and technology to work together to achieve a given objective. It involves concessions. For the law, it means that one should not use the full enforcement arsenal in all circumstances. The legal constraints should also be adapted to technology, for example, by creating legal comfort zones with regulatory sandboxes and safe harbors. For technology, it implies that it must be law-oriented, differently put, that architectural choices must be made towards legal uses.

Each of these approaches is necessary to enrich the field of blockchain study. This book is a real tour de force as it brings many substantial contributions representing the entire spectrum in a single place.

If you wish, I invite you to reproduce the above graph on a sheet of paper (or in a digital format...) and have fun placing these contributions on one side or the other. If you do so, you will find out that in that some cases, all the writings dealing with one subject are on the same side of the spectrum, probably because the issue imposes it. For other topic matters, you will find the contributions on different sides of the spectrum.

This exercise is particularly insightful considering the breadth and precision of the topics covered. It allows us to create a clear map of academic research advancement on many important issues. They are distributed as follows.

The **first part** of the book relates to the internationalist discussion. **Benedetta Cappiello's** article argues that “no blockchain based organization can rid itself of neither the national provisions nor the principles of international law,” and that the interaction of the rules of law with on-chain and off-chain rules should be considered as a major issue. **Gherardo Carullo** follows up by pointing out that “DLTs could have some utility in complex procedures, that is, where multiple administrations have to interact to exercise a certain public power, especially in cases where this occurs supra-state level, for example in cases of European co-administration.”

For **Jean Lassègue**, there is “a conflict between two forms of legality in today’s rule of law: the first one is based on legal texts written in technical but natural languages that are the expression of political sovereignty; the second one is based on unreadable pieces of software the authority.” The interaction between the two must be carefully thought of as it would “be illusory to think that legal institutions could be replaced one day by decidable processes that can be written in advance.” Lastly, **Clemente Biondi Santi** and **Vincenzo Vespri** explore mining activity, which is essential to blockchain functioning, or in other words, to the new legal order described in the three previous contributions.

The **second part** of the book takes us to the land of governance and regulatory issues. **Andrej Zwitter** and **Jilles Hazenberg** turn their attention to blockchain governance principles. They defend the necessity “to see technologies as tools that have effects on our governance structures.” It implies understanding it, and keeping control over its functioning, “else, we will be living with laws comprised of code inaccessible to our legal understanding or influence.”

For **Gino Giambelluca**, financial authorities should deal with the digital innovation without further ado as it affects “the efficiency and the reliability of payment systems, the smooth functioning of financial market infrastructures, the soundness of the intermediaries, the consumer protection.” **Martina Tambucci** also offers to protect investors and consumers “against frauds through determining a correct use of technology and through the imposition of transparency targeted requirements.”

Michele Ferrari goes on to argue for creating a “new block” to the chain of the VAT Directive provisions, the goal being to provide legal certainty as to how blockchain operations will be submitted to VAT. Additionally, **Cristina Poncibò** suggests that regulatory flexibility is also essential to “converge towards forms of accountability to protect fundamental rights within these global private regimes of the digital environment.”

The **third part** of this book deals with smart contracts and dispute resolution. **Giesela Rühl** introduces the topic by explaining that smart contracts do not escape legal systems as “the applicable choice of law rules of the Rome I Regulation resort to connecting factors, namely party choice and habitual residence, which work reasonably well in a decentralized virtual environment.” **Paolo Bertoli** underlines that not only is the law applicable, but that it is also necessary to blockchain ecosystems. There is indeed “a fundamental methodological flaw in the assertion according to which the code is the law. This assertion, indeed, is based on a reversal of the proper legal methodology: an automated code or computer protocol can have legally binding effects only if and to the extent the applicable law so prescribes or allows. So, before one looks at the code, one needs to look at the law.”

Oliver R. Goodenough concludes that although “some proponents of digital contracting have argued that the automaticity of machine-execution will remove such agreements from legal review, the more realistic view is that interaction with the legacy legal system is likely to remain a feature of contracting.” However, it does not mean that the law should take precedence without adapting itself. “To make that interaction productive, law must integrate itself with the new formats and challenges of computational contracting.”

For **Amedeo Santosuoso**, the priority is first and foremost to improve blockchain. “The conclusion is that blockchain has gained a position among the technological innovation tools and that its real success will depend to a large extent on the ability of establishing efficient and reliable systems of dispute resolution.” Furthermore, **Pietro Ortolani** underlines that the blockchain may avoid specific conflicts, but that “a blockchain-based escrow system may not prevent the *de novo* re-hearing of the case, at a later stage.” **Michele Nastri** raises other limits. “Blockchain could indeed improve

the notarial activity,” but it would be “unrealistic to think about changing the land registry system into a system that doesn’t involve central authorities and doesn’t allow any judicial authority to modify the registers.”

The fourth and **last part** is dedicated to the subject of sustainable blockchain applications. For **Giulio Coppi**, “distributed technologies can be used together with other solutions to accomplish important and previously unattainable goals” in the humanitarian and development sectors. The author explains the path toward such accomplishment. **Anna Burzykowska** then focusses on “blockchain-based land registries and data value chains for natural resources management,” analyzing how Earth Observation technology and blockchain could be better integrated.

Alessandro Palombo and **Raffaele Battaglini** go on to explain that “new tool to solve disputes that otherwise may remain with no affordable dispute resolution mechanism” are becoming available. They take part in solving “the problem of inefficient and expensive management of micro-claims.” And according to **Marco Tullio Giordano**, “more and more blockchain-based solutions will be offered on the market thus raising new questions which will need to be answered. Instead of transposing to a decentralized environment concepts and rules specifically designed for a centralized framework, the intimate nature of this new technology should be understood so as to ensure the effective implementation of the GDPR principles.”

Tony Lai concludes by stressing that one of the main issues for “computational law (...) of which blockchain technologies are a subset,” is to “offer a path towards embedding considered, ethical oversight of these complex data-driven, human-machine systems and platforms, on which increasingly large portions of social and economic activity operate.”

These selected excerpts do not pay homage to the scope of each contribution. Here, I simply wanted to highlight the general dynamics of the book. By exploring the entire spectrum, any reader can approach the subject with maximum height despite the very topical nature of the matter. It is, for that very reason, a structuring book to put in all (curious) hands.