



# Decentralising the Digital Economy: The Blockchain and Competition Remedy

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**Abstract.** The global economy is in a precarious situation. The digital ecosystem has been a major contributor in sustaining the global economy and mitigating both the financial and social crises that are plaguing the world. The merit and reliability of technology have been reinforced in light of recent events. The digital economy is not perfect, to say the least, with major concerns regarding rampant anti-competitive conduct by the few enterprises that dominate the market. Competition law around the world has proven to be inefficient in dealing with these technological giants and before a remedy could be found, blockchain technology has started gaining traction which has the potential to change the face of not just the digital economy, but society as we know it.

The virtue of decentralisation has long been considered a desirable state for the digital economy and blockchain offers the means to achieve this, and much more. This paper explores how competition law and blockchain both seek decentralisation and aims to ascertain how they can help each other achieve this in a way that builds a sustainable digital economy. The paper makes an exploratory analysis of the various interactions between competition laws and blockchain, based on which we conclude that regulating blockchain through competition laws can address the pressing needs of the global digital economy.

**Keywords:** Decentralisation · Competition Law · Blockchain

## 1 Introduction

The outbreak of the COVID19 pandemic and several other geopolitical factors have sent economies all over the world in a devastating downtrend. The world is witnessing an economic recession of unforeseen magnitude and the future appears bleak for the time being. The recent years have also increased our reliance on digital platforms, and one would be hard-pressed to find any avenue of human society which has not been augmented by the touch of digitalisation. A much-discussed but lesser understood aspect of the recent technological advancements is blockchain. Blockchain has provided us with a new method of storing and exchanging data, addressing many of the issues that plague the current digital ecosystem. Simply put, blockchain is a distributed ledger with no single point of centralisation where data can be stored, accessed, and transferred securely. Blockchain offers many competitive advantages to the traditional institutional

models and also poses some daunting challenges to policymakers and regulators. The sentiment regarding blockchain differs heavily. Some claim it to be the torchbearer of the 4<sup>th</sup> Industrial Revolution (along with other technologies such as artificial intelligence, machine learning, augmented reality etc.) [1] while others believe that it is just a fad that wouldn't amount to much.

There is no acrimony in the fact that technology is beneficial for the economy and society. That is part of the reason why technology progresses at such an exponential pace. The relationship between financial technology and financial performance has also been ascertained to be a positive one [2]. The COVID19 pandemic has increased the volatility in the global stock markets [3]. The only (slim) silver lining to the pandemic can be said to be that it has propelled the digital transformation and reiterated the importance of digital platforms in our society [4].

The increased dependence on digital platforms has also highlighted the flaws existing in the current structure of the digital ecosystem. The digital ecosystem is heavily monopolised, dominated by a handful of technology companies that have essentially become too big to fail. But the problem lies in the fact that these companies have reached their current proportions after due compliance with the existing competition laws. This has led to much scholarly discourse regarding the efficiency of competition laws. Statutory legislation, court precedent, and prosecutorial discretion determine the scope of competition laws. The limitations of competitiveness are now being questioned. Many competition law scholars believe that the present restrictions are excessive. Even if the data supporting their allegations is debatable, they argue that competition law should do more. Modern opponents, particularly in the digital industry, make sweeping statements about expanding economic and political power. They point to supposedly low enforcement activity to imply that the law's strictures deter competition regulators and plaintiffs from filing lawsuits [5].

The criticisms regarding the scope of competition laws need to be revisited considering the advancements of blockchain. Blockchain offers many solutions to the existing problems that are faced by competition authorities, but at the same time, it also poses several new challenges too. The remedies which arise from prolonged litigation against the tech giants are rarely beneficial and have too many issues with compliance. The nature of remedies ordered in an antitrust proceeding involving technology companies necessitates the existence of a committee of members who have the technical expertise and monitor the entire process of remedy implementation in real-time [6].

Blockchain has the potential to transform the nature in which the technology companies operate and also facilitate a model which is compliant with competition law and enables swift implementation of competition law remedies.

## 1.1 Research Gap

The interface of blockchain and competition laws is not extensively explored. On the other hand, the fact that competition laws prove inefficient in enforcing competition in the digital markets is widely recorded [7]. The scholarship exploring the viability of using blockchain for enforcing better competition in the digital markets is scarce. This research aims to fill this gap and stimulate further study in this area.

## 1.2 Research Objective

This research aims to evaluate the competitive advantages of using blockchain in the digital economy. This research also attempts to illustrate that a blockchain-based digital ecosystem would be competition compliant and necessary for a sustainable digital economy.

## 1.3 Research Methodology

This research conducts qualitative analyses of the recent studies exploring competition law application in the digital economy and blockchain technology. This is a doctrinal research paper that conceptualises the problems faced by competition laws in the digital economy and the role of blockchain in alleviating them.

This research paper begins by briefly introducing blockchain and the importance of the digital economy for our society. The introductory portion also outlines the structure of this research paper. The second section of the paper deals with the importance of competition in the markets and the role of the law in enforcing it. The section also deals with the virtues of decentralisation and how competition and blockchain both pursue this goal. The third section explains the need for decentralisation in the current digital ecosystem. This part also explores the opportunities offered by blockchain in achieving this decentralisation. The paper concludes by alluding to some practical use cases of blockchain and their competitive advantage over the traditional systems. The concluding section also explores the future research potential and limitations in this area of study.

## 2 Competition and Blockchain-Same Target but Different Arrows

The issue of decentralisation has been widely debated across time. The debate has taken place in the context of political ideology, economic prosperity, and social structuring [8]. Blockchain has brought this debate to the realm of technology as well and effectively won it. But the decentralisation offered by blockchain is incomplete as the mechanism for running the blockchain network has a natural tendency to form cartels in some models [9]. This is the reason that blockchain needs the law to achieve its intended goals.

### 2.1 Competition for Survival

Competition is a very decisive element in determining and shaping evolution. This fact is perhaps most widely known by Darwin's quote 'survival of the fittest' [10]. In the realm of economy, Nobel Laureate Hayek is perhaps the most ardent believer in the power of competitive forces which is why he believed that the competitive process is the only system designed to minimise the exercise of power by man over man [11]. Blockchain has raised competition to the existing centralised systems and provides a better alternative to exercise power in society.

Competition simply means the force which leads individuals (and organisations) to work for their benefit and fight for superiority or control over others. The meaning

changes based on context, but the principle remains the same. In the context of the economy, competition is simply the work of the ‘invisible hands’ shaping the market as explained by Adam Smith [12]. The goals of competition law are frequently debated, but the bottom-line remains the same, maximising consumer welfare [13]. The financial crisis of 2008–2009 led to a global re-regulation of the markets [14] and the current economic condition also begs for a similar, if not more radical reform. Economics and law cannot claim the immutability, universality, precision, and exactitude that other sciences can. To some extent, the latest financial crisis was also predicted. It’s not as if no one noticed the escalating strains. Many credible economists warned of the dangers of global imbalances, claiming that they were simply unsustainable and anticipating a currency crash [15]. The reforms are necessitated because the digital platforms are a steadfast contributor to the global economy and already need some restructuring to make them competitive again.

Competition laws aim to regulate the behaviour between enterprises to promote competition and establish a free market where everyone can trade on an equal footing and consumer welfare is maximised [16]. Cartelisation, abuse of dominance, collusive practices, are all offences against the competitive forces in the markets and manipulates it to favour the offenders at the expense of the consumers. The EU competition jurisprudence has evolved to safeguard the markets, ensure stable supply in the markets, identify optimal conditions for growth and expansion, maintain competition to benefit consumers concerning both price and quality, ensure that pricing conditions are non-discriminatory to buyers, ensure that export prices remain within equitable limits for both buyers and producers, protect consumers from the unfair or artificial competition, ensure that the normal competitive factors remain undistorted, and consider a policy of rational and sustainable exploitation of the natural resources of the markets [17]. The competition laws also seek to make competition enforcement through law and policy to maintain market equilibrium and stability [18]. It can be said satisfactorily that competition law aims to attack any form of concentration of power in the market, i.e., decentralise the markets and let competition roam free.

## 2.2 Blockchain for Competition

Blockchain is a digital ledger that runs on a decentralised peer-to-peer network of computers that allows for a wide range of online transactions. Blockchain has one quality that sets it apart from other disruptive innovations: it is a global, transnational technology by nature and design. It was created to bypass national borders and established institutions. The blockchain network allows for the transmission of data and economic value regardless of the participants’ geographical location [19]. Blockchain is simply a tool to do what we already do, but in a decentralised manner, removing the need for intermediaries in everyday transactions.

Blockchain is so-called because it essentially contains *blocks* of data that are linked to each other via cryptographically encrypted *chains*. Competition in the field of blockchain technology itself has given rise to a few other variants of the technology which do not use blocks or chains to connect or communicate with each other. Hence, the better classification for such technologies, including blockchain, is Distributed Ledger Technology

(DLT). Distributed ledgers would only be of interest to cryptographers and philosophers if they didn't solve real-world problems. Some adoption is motivated by a wish to avoid government oversight. Entrepreneurs, established organisations, big financial institutions, and governments researching the blockchain today are, for the most part, looking for tangible benefits. The two main value propositions of the blockchain are the avoidance of reliance on central actors and the creation of universal truth among untrusting parties [20].

It is abundantly clear that both competition law and blockchain pursue the same goals, i.e., decentralisation or breaking the concentration of power in a small or central area. Competition law seeks this goal in the economic markets and blockchain seeks this goal in governance, administration, and institutions. A harmonious approach between these two would be beneficial for them and the market at large.

### 3 The Need for Decentralisation

The idea of decentralisation is not a new one. Several philosophical discussions regarding the structure of social, political, and economic institutions have claimed that decentralisation is the key factor that would revitalise society. The digital economy is dominated by a few technological companies who act as market intermediaries and provide services that essentially run the digital ecosystem. But these companies are not merely dominant market players anymore, they serve as gatekeepers and control the digital ecosystem according to their own needs. They monopolise the digital space and exclude competition from the market while charging exorbitant fees and blatantly engaging in anti-competitive conduct. The current competition laws enforce sanctions, bans, and mandated neutrality standards, but these measures do not achieve the desired outcomes [21]. The digital ecosystem is still in much the same shape and these dominant market players keep entrenching themselves deeper. The problem if put simply, is that too few players have too much power and they shape the market according to their own best interests, not the consumers'.

Decentralisation refers to the process of reallocating resources and powers from a higher and centralised authority to lower and decentralised ones. Administrative decentralisation, political decentralisation, and economic decentralisation have been widely debated and considered but haven't been effectively implemented so far. The arguments against decentralisation typically state that the distribution of power and autonomy does not increase efficiency as the people or institutions inheriting the redistributed power may not be sufficiently capable of exercising it and using it effectively [22]. The people favouring decentralisation typically assert that centralised authorities make for a single point of failure and breed corruption. Both these views have historical evidence to support their claims. Blockchain provides a way to achieve a working decentralisation model. The problems with new developmentalism need better scrutiny to have any changing and lasting effects on society [23].

### 4 The Blockchain Remedy for Digital Platforms

Digital platforms have entrenched their way into our lives by a very simple business model. They provide their services to their users for free, showing them advertisements

in return and collecting user data which they use and sell to other market players. Over time, this simple business strategy has enabled them to dominate virtually every aspect of the digital ecosystem. The existence of network effects further reinforces their hold on the markets.

The digital platforms use, regulate, and moderate the content they display on their terms and in their way. There have been cases where people harassing other users on a platform even went as far as sending bombs to them, platforms encouraging discriminatory advertising, and platforms encouraging radicalisation to keep users visiting their website [24]. They cannot be blamed entirely for that either. They are after all corporations, and they act in a way that would maximise their profits [25]. It is just that their maximum profits come at an expense of stifling competition and adopting unfair trade practices. This is precisely where the law steps in and aims to regulate the behaviour of corporations and protect the interests of people because if they are allowed to maximise their profit on one hand the interests of the consumers should be protected on the other hand.

The growth of digital platforms and their regulation has been a dynamic and ongoing process. Technology evolves according to the needs of society, and law evolves to maintain harmony in society. Both of them develops to fit or react to a range of pressures, technological, institutional, social, political, ideological, yet their evolution is far from linear or rational and requires constant normative reassessment [26]. The most preferred solutions to the current state of the digital platform economy are, to either break them down into smaller firms or to require them to be interoperable and let other market players compete with them on equal footing [27]. Both these solutions have some hurdles in their practical application. Migrating the digital platforms on blockchain-based networks seems like a lucrative option, but such migration would only be possible if mandated and regulated by law.

The blockchain-based digital ecosystem appears to be an advantageous option for both the competition authorities and consumers of digital services, but it also has some flaws. The most notable flaw is that blockchain-based networks can also be used by the platforms to engage in anti-competitive practices which might go undetected. Permissioned and closed-blockchain networks provide the perfect conditions for engaging in cartels which might make it almost impossible for detection and even if they are detected, the entities engaging in the cartelisation may go unidentified due to the anonymity and pseudo-anonymity offered by the blockchain itself [28]. Smart contracts, another novel offering of the blockchain also have some far-reaching consequences for lawmakers and policymakers. Smart contracts are algorithms that are coded on a blockchain network that enables them to execute and operate automatically without any human intervention or participation. In essence, the code that builds a blockchain, and the code that runs smart contracts on the blockchain, are made by humans (programmers), and in that sense, the code is the rule made by the rule-maker (programmer), embodying the concept of code as law, *lex cryptographia* [19]. The emergence of Decentralised Autonomous Organisations (DAO) has also been made possible due to blockchain. This development involves automation, decentralisation, and the perpetual operation of an enterprise without any human intervention whatsoever. These have potentially unprecedented ramifications for business, the economy, and society. The legality of these developments is still in the

grey. Smart contract languages for making legally binding contracts on a blockchain and defining the rules for administration and operation of DAO are also ambiguous [29].

The possibilities offered by blockchain to restructure the institutional structure of our society or at least the structure of the digital economy, cannot be exaggerated. Policymakers, lawmakers, and regulators should consider a positive, constructive, and inclusive outlook to rebuild, restrengthen, and recover the global economy from the ongoing crisis and combat the future ones [14]. In terms of institutional competition and influence, the most effective strategy is to promote the democratic, free-market model in the digital economy [30]. Economic competition can be governed by a variety of institutions. Markets in decentralised, capitalist economies often provide the incentives and discipline needed to keep prices low, output high, and innovation moving forward. Concentrated markets or even monopolies can also form for legitimate reasons such as efficiency, innovation, or customer desire, competition governance frequently entails monitoring rather than accountability or injunctions [31]. The use of blockchain can ameliorate all these ailments and increase the efficiency of competition laws in the digital economy. Blockchain is already being considered for better environmental compliance [32], public procurement [33], securities markets [34], and even in the arts and creative industry [35]. Such use cases and possible applications increase the urgency of providing proper legal recognition and regulation of blockchain.

Blockchain's practical applications are already being examined extensively, particularly by developing countries. Blockchain technology has the potential to help poor countries modernise and digitise government services. Because it was designed to work in an environment where members cannot always trust one another, blockchain is extremely safe. External parties cannot tamper with records recorded in a blockchain database, making them authoritative. Smart contracts may provide automated and predictable execution, limiting the potential of third parties manipulating previously agreed-upon procedures [36]. The benefits to a developing economy are obvious: fraud and corruption are minimised, trade becomes more efficient and cost-effective, government becomes more effective, and local technology centres can expand to construct infrastructure and export knowledge.

## 5 Conclusion

Decentralisation is appealing. Both competition laws and blockchain aim to provide decentralisation. The digital markets are dominated by a few technological giants and inhospitable for any new entrants to the market. But free-market ideology and crony capitalism have not been without criticism [37]. Considering blockchain as a panacea for all the problems associated with centralisation is unhealthy and impractical. We should look at blockchain as a tool that enables us to achieve a high level of decentralisation, and conduct our institutional operations in a more secure, efficient, reliable, and safer manner.

The idea of perfect competition does not work and is harmful to the consumers as well [38]. Technological enterprises have always been a magnet for anti-competitive conduct [39]. The concept of precautionary antitrust although considered modern is also imperfect and paves the way for innovation-based antitrust [40]. Formulating a multi-national



course of action for combatting the global technological companies' anti-competitive conduct seems ideal [41]. The limits, goals, and approaches taken by competition law keep evolving according to the needs of the economy [42].

Blockchain-related cases have been cropping up since the last decade [43]. The lack of legal clarity, policing, regulation, and recognition cannot continue for long. So far, blockchain has prospered without any assistance from the law and its lack thereof has indubitably stunted its growth.

Summarising the findings of our research, we argue that the astounding potential of blockchain technology for building a sustainable digital economy is grossly underestimated currently. This is rather astonishing considering the extent of anti-competitive behaviour on today's digital platforms. The current state of digital platforms does not favour law and policymakers [26]. There are a few competition authorities who are monitoring the growth of blockchain and its interaction with competition laws, but even their approach towards blockchain is cautious. Understandably so, no regulator, lawmaker, or policymaking authority should hastily make any decisions. But the lack of blockchain value proposition in competition authorities is alarming. The ability of competition authorities to succinctly adjudicate the resourcefulness of blockchain for competition law will largely depend on the data gathered from reliable research into this field. As a starting point, some simple policy or discussion papers by the various competition authorities around the world, exploring the possibility of using blockchain for the future of competition law enforcement would go a long way in stimulating further research in this area. The authorities can also undertake such endeavours with the existing organs of government that are dealing with blockchain or the digital economy.

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