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Digital Economy and the Response of the Law

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I. ABSTRACT

Innovation through emerging technologies leads modern world to an unprecedented digital revolution and the subsequent radical transformation of modern societal and economic life. The newly evolved Digital Economy, which refers to a broad range of economic activities that use digitized information and knowledge as key factors of production, by means of electronic platforms, cloud computing, the Internet and other new digital technologies, and which is based on the interconnectedness of people, organization, and machines, emerged and flourished over the last decades. However, as the Data Driven Economy is emerging at a point of inflection, disruption of conventional societal and economic systems constitutes the predominant route in the progress of globalization, introducing not only a plethora of new opportunities of economic relations and growth but also an array of novel legal questions, regulatory implications and ethical intricacies. The enhanced speed and pervasiveness of information flows, the automation of digital economic tools, the establishment of new decentralized systems or self-executed economic transactions, as well as the respective risks of cybersecurity, digital privacy, trust and liability, pose questions to modern legislators and regulators. The establishment and dominance of technological tools and algorithms in modern life, challenge the traditional notion of Law and call for a review and understanding of cyberspace and further of digital economy. Within this framework, the notion of Law is thrown into question, constituting a point of controversy with regard to its adequacy and promptitude to address digital economy and its unprecedented disruptive features. The need for a comprehensive and harmonized legal response to the Digital Economy, constitutes crucial precondition that would contribute to the flourishing engagement of the law with the new promising digital era and its innovative opportunities. The vision and realization of such legal and regulatory framework would require an extensive and diffusive coordination and cooperation of the Law with the emerging technologies. The creation and development of the appropriate technological tools to support regulation and its enforcement as well as the better understanding by regulators of the emerging technological environment, constitute primary considerations, necessary conditions and unceasing challenges in order for the digital world and Digital Economy to be fully integrated and utilized in modern economic life. The quest, however, for an appropriate legal and regulatory reform and transformation, remains.

Keywords: Digital Economy, Algorithmic Governance, Automation, Regulatory Challenges, Transparency, Liability, Digital Trust, Adequacy of Law

II. CONTENTS

I. Abstract	3
II. Contents	4
III. Introduction	6

Chapter 1: The New Digital Era – What is the New Digital Economy?

<i>Digital Economy Core Aspects</i>	9
<i>The Platform Economy</i>	10
<i>New Opportunities of Digital Transactions–Paradigms</i>	11
<i>Legal Aspects of Digital Transformation – Outlining the Problem</i>	12

Chapter 2: “Move fast and break things”

<i>Increasing implications of Digital Economy in terms of</i>	13
<i>Cybersecurity</i>	14
<i>Interoperability</i>	16
<i>Privacy</i>	16
<i>Trust</i>	17
<i>Automation of systems, Speed & Algorithmic trading</i>	19
<i>The regulatory question remains</i>	22

Chapter 3: Current legislative and regulatory positions towards Digital Economy and relevant problematics.

A. The Response of the WTO Law **24**

Adequacy Assessments **25**

B. The Response of the EU Law **29**

The legislative attempts towards Digital Economy **30**

The promises of the New Digital Services Act **34**

Adequacy Assessment of the European legislative choices **35**

Directions towards a Europe 'fit for the digital age' **36**

Chapter 4: Is Technology the new legislator?

Dethronement of Law by the emerging technologies? **37**

The Self-regulation potential of digital economy tools **38**

No easy task of modern regulators **41**

Future Readiness of the Law **43**

Chapter 5: Conclusions **44**

IV. Bibliography **49**

III. INTRODUCTION

Technological revolution, virtual transformation and rapid developments have profoundly invaded modern world and they are continuously impacting modern societies, economies and market structures, changing the means of interaction between all participants involved in digital world, creating new opportunities of economic relations and, thus, of economic growth.

Hence, in the process of globalization and the advent of technology, a new type of economy, a digital economy, was formed, based on the digitization of information and the respective information communication infrastructure.¹ This New Digital Economy, which refers to a broad range of economic activities that use digitized information and knowledge as key factors of production, by means of electronic platforms, cloud computing, the Internet and other new digital technologies, and which is based on the interconnectedness of people, organization, and machines - emerged and flourished over the last decades, leading thus, not only to technological but also to structural and process-related challenges and new opportunities as well as to the alteration of traditional and fundamental economic values.

Engaging, nowadays, in digitalized economic relations and transactions is inevitable. Under these circumstances, the development of a highly digitalized economy marks the beginning of an extremely promising yet challenging era in international trade law and policy.² The unprecedented features of a 24hour Digital Economy characterized by increasing speed, and of absence of borders, and the dominance of virtual communications and electronic interactions are posing questions, challenges or even difficulties not only for individual actors but also for regulators and legislators. The scope, speed, and pervasiveness of digital technological transformation across

¹ Hans-Dieter Zimmermann, "Understanding the Digital Economy: Challenges for new Business Models", *SSRN Electronic Journal* (2000): 729.

² Andrew D. Mitchell and Neha Mishra, "Data at the Docks: Modernizing International Trade Law for the Digital Economy", *Vanderbilt Journal of Entertainment & Technology Law* 20:4 (2018): 1073.

every aspect of human endeavor, generate not only a plethora of benefits but also an enormous array of possible implications and regulatory challenges. In particular, the effacement of distance, the speed in which information and data can flow, the broadened access to information for all participants of the digitalized environment, and the automation of electronic systems raise legal, jurisdictional challenges and practical obstacles to the regulation of information technology in the context of a globalized and digitalized world, and moreover, to the compliance of the Digital Economy and electronic actors' behavior with the fundamental principles of the Law.

A significant argument has also been the fact that electronic systems have changed not only the culture but also the nature of the market, which due to its features and peculiar nature, as well as the increased possibilities of disruption or manipulation of the digitalized market, make the formation of a protective regulatory framework capable and efficient to overcome difficulties, posed by the aforementioned rapid developments, an imperative need.

Also, the creation and development of the appropriate technological tools to support regulation and its enforcement as well as the better understanding by regulators of the emerging technological environment, constitute primary considerations, necessary conditions and unceasing challenges in order for the digital world and digital economy to be fully integrated and utilized in modern economic life. The adjustment of the existing legal systems and tools in the digital environment, the establishment of a strong and harmonized legal and regulatory regime capable of corresponding to the modern requirements of a digitalized economy and the confrontation of current issues related to the digital world are crucial preconditions for modern economic systems.

Accordingly, this Dissertation aims at the examination of the extraordinary relationship occurred between Digital Economy and the Law, which leads the latter towards uncharted waters. In the first chapter, this paper refers to and introduces the New Digital Economy's core characteristics and new opportunities of transactions, concluding to the delineation of the legal and regulatory challenges that have emerged within the newly established digital framework as well as the demarcation of the legal questions posed to legislators worldwide by digital transformation and the unavoidable technological evolution of modern economies. The second chapter examines the specific risks provoked by the unprecedented features of Digital Economy, in relation with the disruption of existing economic processes and systems and the respective legal questions that arise. Further, the third chapter develops the existing legal and regulatory positions towards Digital Economy, in particular, within the context of the WTO and of the European Union, simultaneously attempting an adequacy assessment of existing legal and regulatory positions and propositions resulting, subsequently, in the fourth chapter, that focuses on a critical approach of the relationship created between Digital Economy and the Law, assessing the position of Law within the new digital framework as well as its promptitude and readiness to address technological developments and digital evolution.

THE NEW DIGITAL ERA – WHAT IS THE NEW DIGITAL ECONOMY?

The technological transformation and innovation of global society and economy, marked the entrance of the modern world in a new digitalized era, characterized as the dawn of the fourth industrial revolution, in which emerging technologies integrate different scientific and technical disciplines and the fusion of these technologies and their interaction across the physical, biological and digital domains as well as the extraordinary speed and broad innovation, lead to the creation of new markets and new economic growth opportunities for the participants in the innovation. According to Klaus Schwab: *“We are at the beginning of a revolution that is fundamentally changing the way we live, work and relate to one another. In its scale, scope, and complexity, what I consider to be the fourth industrial revolution is unlike anything humankind has experienced before”*. The emerging Digital Economy has led to an economic revolution, which is evidenced by an unprecedented economic growth and the longest period of uninterrupted economic expansion in history.³

Today’s societies and economies transformed themselves into modern information societies and a New Digital Economy, which is characterized by the rapid development of new digitized products and services. The notion of Digital Economy refers to the convergence of computing and communication technologies through the Internet and the resulting flow of information and technology⁴ that forwards numerous organizational reformations, new forms and rules of economy and consumer behavior, utterly transforming the role of economic actors and the traditional functions of the Economy. The extensive application of algorithmic systems and cloud computing has led to the creation of new digital frameworks for economic actors that

³ Klaus Schwab, *The fourth Industrial Revolution* (Geneva: World Economic Forum, 2016), 12.

⁴ Jacek Unold, “Basic Aspects of the Digital Economy”, *Acta Universitatis Lodzianis Folia Oeconomica* 167 (2003): 42.

entail a plethora of new digital economic tools, including innovative ways to obtain access to finance, labor, production and consumer service, sale channels and marketing, and imply unlimited further consequences in terms of reorganization and growth of the new digitized economy that remain unknown and to a great extent unfathomed.

This digitalized new economy has been given a variety of names - Creative Economy or Sharing Economy – among which, the term “Platform Economy” or “Digital Platform Economy” constitutes the most preferable and neutral term that encompasses an increasing number of digitally enabled activities in business, politics, and social interaction.⁵ The platform-based ecosystem, is rapidly developing through a combination of widespread and continuous measurement and data collection by the Internet of Things, data flowing from users’ data, as well as from sensor-laden factory automation systems and ubiquitous internet-connected user devices.⁶ New dynamics and possibilities are continuously developing, changing the route and the balances of the economic world, that were established through the past decades. The wide outspread and utilization of the Internet and of cloud computing and storage tools has resulted in the dramatic reduction of costs, accelerating thus, as well as facilitating the entrance of new economic participants. In this context, technology users have access to a broad range of digital tools, combined and sophisticated mixtures of software, hardware, as well as networks and operations, and have the ability to create and to expand their economic operations on a stable basis. Hence, in the amid of this unprecedented global economic reorganization, platform owners

⁵ Martin Kenney and John Zysman, “The Rise of the Platform Economy”, *Issues in Science and Technology* 32:3 (2016): 61-2.

⁶ UNCTAD, *The value and role of data in electronic commerce and the digital economy and its implications for inclusive trade and development*, Note by the UNCTAD Secretariat (23 January 2019), TD/B/EDE/3/2.

and operators are seemingly developing power that may be even more redoubtable than was that of the factory owners in the early industrial revolution.⁷

Having regard to this framework, the Digital Economy has been established and has introduced modern digital, algorithmic and decentralized systems and tools for the realization and the provision of new opportunities for digital transactions, with the most predominant being the phenomena and paradigms of Big Data⁸ and Blockchain Technology.

Big Data have been characterized as a technological, scholarly and cultural phenomenon related to massive scale of data sets, that require advanced and unique data storage, management, analysis and visualization technologies, and which, in accordance with additional theoretical approaches, results from and presupposes the interplay among technology - in terms of algorithmic accuracy to gather, analyze, link and compare the large amounts of data collected, - analysis - in order to make economic, social, technical and legal claims, - as well as the belief that Big Data enable the derivation of unprecedented insights, characterized by accuracy and objectivity.⁹

The subsequent establishment of the revolutionary Blockchain Technology in the modern transactions digitized environment, enabled the realization of valuable transactions without the need for a third-party authorization and the verification of a centralized system. This decentralized and distributed system of assisting and recording of valuable transactions, made transactions publicly accessible, contributing to the transaction operation and processing cost

⁷ Kenney and Zysman, "The Rise of the Platform Economy", 62.

⁸ Yong Shi in Big Data: History, current status, and challenges going forward (2014) has provided a definition of Big Data for regulators and policymakers according to which: "*Big Data is a collection of data, is a new type of strategic resource in the digital era and the key factor to drive innovation, which is changing the way of humans current production and living*".

⁹ Hossein Hassani, Xu Huang and Emmanuel Silva, *Fusing Big Data, Blockchain and Cryptocurrency: Their Individual and Combined Importance in the Digital Economy* (Switzerland: Palgrave Macmillan, 2019), 11-2.

reduction, establishing thus, a new advantageous digital advancement and option,¹⁰ and introducing new types of contractual relations between economic actors, by means of self-executed, autonomous smart contracts facilitated by computer programs, that result in trustless transactions via integrated enforcement mechanisms.¹¹

However, the continuously evolving regulatory, policy and legal challenges and the relevant questions that arise therefore, constitute common concern and reflection with regard to the technological advancements that compose the Digital Economy. Whilst the new technological developments and the consequent provision of modern virtual tools for more sophisticated, accelerated, and automated transactions and the creation of new forms of economic development and creation of wealth, have manifestly invaded the advanced societies and economies of today's world, facilitating and reinforcing access and familiarization to the new virtual environments and economic growth, the establishment of this 24hour Digital Economy, has unavoidably posed unprecedented and novel questions and doubts among regulators and legislators as rules designed for the 20th century society are called to deal with the radical changing practices of the 21st century.¹² In the newly established context of cyberspace and digitized environment, the existing legal and regulatory frameworks are usually deemed outdated and incompatible with the digital era and economy. Given the Fourth Industrial Revolution's rapid pace of change and broad impacts, legislators and regulators are being challenged to an unprecedented degree and for the most part are proving unable to cope.¹³ Undoubtedly, regulators are called to continuously adapt to a new fast-evolving environment, reinventing themselves so they can truly understand and

¹⁰ Hossein Hassani et al., *Fusing Big Data, Blockchain and Cryptocurrency*, 24.

¹¹ Primavera De Filippi and Samer Hassan, "Blockchain Technology as a Regulatory Technology: From Code is Law to Law is Code", *First Monday* 21:12 (2016): 11.

¹² Simon Chesterman, "Move Fast and Break Things: Law, Technology and the problem of Speed", *NUS Law Working Paper* 001 (2020).

¹³ Klaus Schwab, "The Fourth Industrial Revolution: What It means and How to Respond", *Foreign Affairs*, December 12, 2015, <https://www.foreignaffairs.com/articles/2015-12-12/fourth-industrial-revolution>.

properly perceive the objectives and content of what they are regulating. Hence, it is deemed necessary to, first, delve into the emerging risks and threats arising from the extended development and utilization of technological tools, the digitized economic systems and virtual space, as well as the consequent emerging legal, regulatory and ethical challenges.

“MOVE FAST AND BREAK THINGS”

Within the framework of the emerging digital space and evolution of virtual societies, economics, and relations, the challenges posed regarding online safety and transparency, the needs of reinforced trust, and assurance of legal certainty need urgent attention. The Digital Economy has, undisputedly, broadened the existing conventional transactional means and opportunities. Nevertheless, the rapidly and fundamentally evolving environment - in terms of infrastructure and knowledge, digital processes and relationships - has enhanced the riskiness of modern economic world.¹⁴ The widespread establishment of virtual environments and of the Digital Economy, its unprecedented features of growing pervasiveness, speed and automation, has led to the increase of multiple implications and respective risks related to the electronically conducted transactions, perpetuating also challenges pertinent to cybersecurity - or even the threat of financing terrorism - privacy and trust, in the context of digital space. In spite of the numerous benefits of digital economic relations, the newly evolving opportunities of Digital Economy are interwoven with cyber risks and threats.¹⁵

¹⁴ Mahesh S. Raisinghani, *Business Intelligence in the Digital Economy: Opportunities, Limitations and Risks* (Hershey, PA: Idea Group Inc, 2004), 2.

¹⁵ Chooi Shi Teoh and Ahmad Kamil Mahmood, “National Cyber Security Strategies for Digital Economy”, *Journal of Theoretical and Applied Information Technology* 95:23 (2017): 6514.

Within the framework of digital space and economy, cybersecurity tends to be implementing rules and norms into systems to ensure the integrity of the communication and the stable functioning of the infrastructure. Thus, the notion of security is an essential component for digital economy to thrive.¹⁶ However, numerous issues have occurred, in the last two decades, that affect the shift from information security to cyber security. The increasing interconnectivity and unceasing interaction between devices and digital technologies, has revealed an array of new vulnerabilities and implications. The technological advancements and rapid developments have resulted in advanced and more sophisticated and intentional cyber-attacks and malicious digital behaviors that are able to cause huge, massive financial damages and costs. Cyber security risks are primarily associated with internet-based threats to the digitized components of modern societies, economic and financial activities.¹⁷ Cyber security incidents can have a negative impact at an institutional, organizational and corporate level; they can not only affect a corporation's competitive position and strategic goals, but they can also indirectly influence privacy, result in regulatory and legal penalties, or breaches of legal obligations.¹⁸

The interconnectivity and constant interaction between digital economic tools and platforms and critical infrastructure systems have introduced new implications and vulnerabilities. For instance, the extensive usage of Blockchain Technology has raised respective issues of security and vulnerability. Even though the initial architecture of Blockchain Technology was characterized as secure and trustworthy, it is not fully immune against malleable threats and attacks. Also, the

¹⁶ Bibi van den Berg and Esther Keymolen, "Regulating Security on the Internet: Control versus Trust", *Computers & Technology, International Review of Law* 31:2 (2017): 188-205.

¹⁷ Mikhail Chernyakov and Maria Chernyakova, "Technological Risks of the Digital Economy", *Journal of Corporate Finance Research* 12 (2018): 106.

¹⁸ Mario Spremic and Alen Simunic, "Cyber Security Challenges in Digital Economy", *Proceedings of the World Congress on Engineerings I* (2018): 1-2.

plethora of cryptocurrency wallet ¹⁹ and exchange apps available today, that are generated by different digital platforms, and integrated with different forms of smart devices, raise concerns of vulnerability of the Blockchain decentralized system against potential frauds.

In the context of the digitalized world, where free flows of unprecedented amounts of data constitute the cornerstone and substance of modern virtual economic relations, composing the new currency of digital transactions and business models, global ransomware attacks, may hit and affect both the public and private sector and companies, by holding their data encrypted in exchange for a ransom. Crypto jacking exploits vulnerabilities in Internet of Things devices, to make the devices mine cryptocurrencies for the attackers, with the unawareness and ignorance of the owner, and most importantly, the detection of such cyberattacks may take 146 days, by which time a company's customers' personal data or their business sensitive data may be irreversibly compromised.²⁰ The emerging security risks in virtual space are raised and apparent, in particular, due to the concentration of applications and free flows of data used by an unspecified number of Digital Economy participants and users, and the subsequent significant possibility of unauthorized people of aggregating all these data. The possibility of intrusion within the provider's information system in order to collect all its customers' addresses or to manipulate certain data, impose the necessity of taking not only technical security measures but also organizational and regulatory measures and obligations to ensure compliance and safety in digital space.²¹

¹⁹ Cryptocurrency is defined in academic literature as a means of payment that provides anonymity, privacy and complete transactional freedom.

²⁰ International Telecommunication Union, "Powering the Digital Economy: Regulatory approaches to securing consumer privacy, trust and security" (2018): 4-6.

²¹ Serge Gutwirth, Yves Poullet, Paul De Hert and Ronald Leenes, *Computers, Privacy and Data Protection: An Element of Choice* (Dordrecht: Springer, 2011), 393-5.

Also, within the interconnected world of digital systems and platforms, where extended communication and interaction between networks, devices and services constitute fundamental prerequisite for the growth of Digital Economy, issues of interoperability arise. Although interoperability allows openness in the provision of products, thus, enhancing competition and innovation, it may also lead to broader risks in terms of monitoring quality and safety of provided products of competing firms, raising higher risks with regard to the reliability, privacy and security within the digital economic framework.²²

Moreover, the constant proliferation of data flows in digital world and economy, raises privacy concerns and relevant regulatory challenges and questions to legislators. In the context of the digital economic growth, the rise in the value of data - now constituting substantive intangible asset of the emerging economy - and advances in data mining and analytics, as well as a massive increase in computing power and data storage analytics capacity, poses additional concerns with regard to the privacy of all economic participants of the digital world. The inescapable involvement of different digitized companies and services, operating on a multisided platform or business model, and the subsequent communication and access in data and information of individuals, implies growing risks.

Despite the familiarization of consumers and end-users with technological developments and numerous digital services, the majority remain unaware of the intrusiveness into their digital activity, information about which may be converted into a revenue by digital service providers.²³

Whereas the collection and distribution of such information may be beneficiary to consumers in

²² Wolfgang Kerber and Heike Schweitzer, "Interoperability in the Digital Economy", *Journal of Intellectual Property, Information Technology and Electronic Commerce Law* 8:1 (2017): 40-2.

²³ European Data Protection Supervisor, A Preliminary Opinion on *Privacy and competitiveness in the age of Big Data: The interplay between data protection, competition law and consumer protection in the Digital Economy* (March 26, 2014): 8-11.

order to be provided better-matching products and services by firms, it also poses concerns of arbitrary pursue of unfair and harmful for consumers strategies by firms. Moreover, complete lack, ambiguous privacy policies or inadequate transparency about the collection and use of private information and data, cannot allow users to make well-informed rational decisions regarding their privacy behavior in digital services leading to market failures due to information asymmetry and behavioral biases.²⁴ The vast amounts of personal information being processed in virtual space for identification purposes and behavioral pattern extraction in the context of most of the digital services have created an ease in privacy infringements. Unauthorized disclosures of individual's information to interested third parties for commercial purposes, gains, the evaluation of their creditworthiness, and consequently, extended access of third parties to personal, economic and financial information of individuals and participants of the virtual environment, constitute unceasing privacy concerns.²⁵ A prominent example is Sony which was fined by the UK Commissioner for data breach in 2011 resulting in the access of millions of customer datasets by a group of hackers.²⁶

Further, despite their differences, the notions of privacy, security, data protection and trust, are interconnected and interacting components, which must be taken into consideration as regards the regulatory and legislative challenges inherent to the Digital Economy environment, the promotion of a safe and secured transactional virtual space. In accordance with the National Cyber Security Research Agenda: *"Trust is a conditio sine qua non for normal economic transactions and inter-human communication. It is at the core of social order and economic*

²⁴ Wolfgang Kerber, "Digital Markets, Data and Privacy: Competition Law, Consumer Law, and Data Protection", *MAGKS Joint Discussion Paper Series in Economics* 14 (2016): 4, 8, 11.

²⁵ Rolf H. Weber, "The Digital Future - A challenges for Privacy", *Computer Law & Security Review* 31:2 (2015): 236, 239.

²⁶ Liana B. Baker and Jim Finkle, "Sony PlayStation suffers massive data breach", *Reuters*, April 27, 2011, <https://www.reuters.com/article/us-sony-stoldendata-idUSTRE73P6WB20110427>.

*prosperity and in an increasingly Information and Communications Technology - dependent world, the security of ICT plays an ever more important role here”.*²⁷ However, the security and privacy questions and risks in the emerging Digital Economy, subsequently, raise trust concerns in digital relations. It is apparent that trust not only forms an essential element in the context of conventional social and economic relations, but its existence is also imperative within online economic relations and the environment of a digital platform.

Nevertheless, the Sharing Economy struggles to find the optimal balance between security, trust and ease of use, as safety and trust-related solutions may complicate the use of the assets, whilst, at the same time, facilitation and easiness of the use of digital economic services and platforms is essential and a key characteristic of the newly established Digital Economy.²⁸ As the sharing commerce marketplaces offerings and the services provided within Digital Economy are not standardized but unique, it is crucial yet challenging to build and enhance trust and reliance on digitized services.²⁹ Further, the higher degree of uncertainty of economic transactions within the virtual environment and lack of trust in the context of electronic economic relations and evolving digital platforms, due to the several emerging risks caused either by the implicit uncertainty of using open technological infrastructures for the exchange of information – that are primarily related to potential technological sources of errors and security gaps – or the challenges arising out of the conduct of digital participants, involved in the online transaction and are affiliated to the uncertainty resulting from decisions of economic actors and caused by an asymmetric

²⁷See: https://www.thehaguesecuritydelta.com/media/com_hsd/report/18/document/National-Cyber-Security-Research-Agenda-II--1-.pdf

²⁸ Jaana Räisänen, Arto Ojala and Tero Tuovinen, “Building trust in the sharing economy: Current approaches and future considerations”, *Journal of Cleaner Production* 279 (2020): 9.

²⁹ Yan Kong, Yichuan Wang, Sam Hajli and Mauricio Featherman, “In Sharing Economy We Trust: Examining the Effect of Social and Technical Enablers on Millennials’ Trust in Sharing Commerce”, *Computers in Human Behavior* 108 (2020): 1.

distribution of information between the transaction parties, give rise to further policy considerations and questioning.³⁰

Within the extraordinary and unrivaled digitalized economic environment, another disruptive technological development and unprecedented feature, that of the automation of digital economic systems and algorithmic governance, poses questions and novel practical challenges to legislators and regulation. The growth of the Digital Economy depends heavily on the governance of data and algorithms, which enable the efficient generation, interaction and development of digital economic relations between digital operators and users. The extensive use of algorithms within the Digital Economy, has resulted in more consistent and efficient processes in cases of automatically executed contracts and transactions. Data-driven decision making and automation in modern Digital Economy is created by accumulating and analyzing massive amounts of data, which are collected through the use of digitized means and tools and used to formulate strategic decisions.

Despite, however, the efficiency, consistency and predictability resulting from algorithmic management and automated digital procedures, ethical concerns and legal implications are raised, with regard to the presence of human judgement in Sharing Economy and the necessity of legal regulation and provision of legal certainty, within the newly created automated algorithmic era.³¹ The extensive use of algorithms - that constitute a process or a set of rules to be followed in calculations or other forms of problem-solving operations - and further of algorithmic

³⁰ Sonja Grabner-Kräuter and Ewald A. Kaluscha, "Consumer trust in electronic commerce: conceptualization and classification of trust building measures", in *Trust and New Technologies: Marketing and Management on the Internet and Mobile Media*, edited by Teemu Kautonen and Heikki Karjaluoto (Northampton, MA: Edward Elgar Publishing, 2008), 7.

³¹ Jessica Basukie, Yichuan Wang and Shuyang Li, "Big Data governance and algorithmic management in sharing economy platforms: A case of ridesharing in emerging markets", *Technological Forecasting & Social Change* 161 (2020): 1-3, 9.

contracts, in which an algorithm determines the obligations of the contracting parties, and the consequent limitation and or the elimination of human presence in decision-making processes and implementation of certain rules and regulations, raise substantive moral and practical implications.³²

Algorithmic trading depends on market infrastructure, and exchanges have evolved to accommodate systems that are equipped to facilitate information flows, order submission, routing, matching and executions in microseconds or less. However, these structural foundations, while exhibiting great leaps in technology and forwarding digital transformation of economic systems, also make markets more vulnerable to the risks presented by algorithmic trading.

Moreover, algorithmic trading systems pose challenges for conventional theories of the notion of liability. The absence of a guiding framework to sanction issues of misbehavior, increased risks of errors and force majeure in digital trading, may undermine digital economic participants' appetite and willingness to engage in new digital markets. Despite the fact that algorithms leave an obvious paper trail of transactions that should facilitate the detection and identification of market manipulation efforts and manipulative traders, current legal rules and regulations may be unready to repress more novel forms of deliberate algorithmic mischief, or to confront the potential accomplishment of legitimate strategies, that is yet performed in disruptive ways. As the law itself is notoriously complex, the possibility of preprogramming its intricacies into automated processes constitutes a bewildering and perplexing proposition.³³ Also, the use of tools to make inferences based on pre-existing historical data, increases the matter of opacity, due the difficulty of understanding and explaining the reasons behind such machine-made

³² Lauren Henry Scholz, "Algorithmic Contracts", *Stanford Law Review* 20:2 (2017): 133-5.

³³ Yesha Yadav, "The failure of liability in modern markets", *Forthcoming, Vanderbilt Law and Economics Research Paper No. 15-21, Virginia Law Review Association* 102 (2016): 1071-5.

decisions. The fact that online commercial transactions through automated means and the reliance on algorithmic trading software are incrementing, while human intervention is diminishing, has also given rise to the phenomenon of computer programs concluding deals with one another that may move beyond their initial parameters, of which the practical implications to implementation are increasing through high-frequency trading.

High-frequency trading underlines the threat that the speed of decision-making can frustrate human attempts to avoid or interfere in cases of digital “misbehavior”. For instance, tacit collusion by algorithms presents the real perspective that activity that would violate legal rules if perpetrated by humans, may be impossible to detect if done by machines.³⁴ To this context, a growing number of companies use automated dispute resolution systems, with eBay said to resolve more than 60 million such disputes annually, hence, posing challenges with regard to the impact of automated processes.³⁵

A noticeable paradigm of the unprecedented problem posed by the use of automation in commercial transactions, arose in a 2019 case before the Singapore International Commercial Court, where the parties, Quoine Pte. Ltd. and B2C2 Ltd., used software programs that executed trades involving the cryptocurrencies Bitcoin and the Ethereum, with prices set in accordance with external market information.³⁶ The case focused on seven trades that were made when a defect in Quoine’s software saw it execute trades worth approximately \$12 million at 250 times the prevailing exchange rate. Quoine claimed that this was a mistake and attempted to reverse the trades, reclaiming its losses. B2C2 argued that the reversal of the orders was a breach of contract, while Quoine argued that the contract was void or voidable, relying on the doctrine of unilateral

³⁴ Simon Chesterman, “Move Fast and Break Things”, 16-7.

³⁵ Simon Chesterman, “Artificial Intelligence and the Problem of Autonomy”, *NUS Law Working Paper* 016 (2019), *Notre Dame Journal on Emerging Technologies* 1 (2020): 241-3.

³⁶ B2C2 Ltd. v. Quoine Pte. Ltd., [2019] SGHC (1) 3.

mistake. However, the vital matter that occurred in this case was the judge's finding that: "*The algorithmic programs in the present case are deterministic, they do and only do what they have been programmed to do. They have no mind of their own. They operate when called upon to do so in the pre-ordained manner. They do not know why they are doing something or what the external events are that cause them to operate in the way they do,*"³⁷ noting further, that the law, unavoidably, will develop in terms of technology and computer involvement in particular, if a future computer system creating artificial intelligence could be said to have a mind of its own.³⁸

The role of algorithms and automation, in the form of digitally self-executed contracts, although characterized by an important level of certainty according to technologists, challenges and frustrates traditional legal practice and regulation and may result in the inability of the parties to exercise efficient remedies, thus leading them to remain contractually bound by an economically inefficient agreement. Further, the globalization of information and instant access of an innumerable multitude of actors to data, resulting from the unprecedented speed of Digital Economy, provokes practical legal challenges. It enhances the difficulty of containing problematic activities in an interconnected world, where speed has annihilated time and distance.

Contrary to early suggestions proposing that digital world was a potentially "*lawless*" space incapable of being governed by conventional legal means,³⁹ it is apparent that technological advancements should not in themselves be a justification or a cause for deregulation or absence of a relevant renewed comprehensive regulatory and legal framework, appropriate to respond to

³⁷ B2C2 Ltd. v. Quoine Pte. Ltd., at ¶ 208.

³⁸ B2C2 Ltd. v. Quoine Pte. Ltd., at ¶ 206.

³⁹ David R. Johnson and David Post, "Law and Borders: The rise of law in cyberspace", *Stanford Law Review* 48 (1996), quoted in Geraint Howells, "Protecting Consumers Protection Values in the Fourth Industrial Revolution", *Journal of Consumer Policy* 43 (2020): 150.

the emerging digital formations and structures of modern economy.⁴⁰ Within this rapidly evolving digitalized economic environment and its related problematics and threats, characterized by a plethora of emerging challenges, the importance and need of regulation and of consistent and revised laws and policies are indisputable. The question, however, among scholars, institutions and legislators, with regard to an appropriate legal and regulatory framework or a potential legislative transformation, remains.

CURRENT LEGISLATIVE AND REGULATORY POSITIONS TOWARDS DIGITAL ECONOMY AND RELEVANT PROBLEMATICS

It is an unquestioned fact that since the formation and invasion of the Digital Economy – as construed and utilized in two aspects; the delivery and trade of products and services through the Internet and the enabling of the free flow of information in the digital networked environment - in modern economic life, and the subsequent questioning of the traditional economic values, it constituted a controversial and vital regulatory and policy issue and challenge for modern regulators and the aggregate legislative framework, at both an international and European level. The disruptive characteristics of the Digital Economy, and especially its inherent global nature, complicates the provision of a comprehensive international legal framework, capable to respond to the new digital structural changes and address the relevant emerging challenges. Therefore, it is of utmost importance to, firstly, approach and assess the existing regulatory and legal framework formed and proposed at an international level and in particular under the auspices of the law of the World Trade Organization [WTO], its relevant Agreements and multilateral rules,

⁴⁰ Geraint Howells, “Protecting Consumers Protection Values in the Fourth Industrial Revolution”, *Journal of Consumer Policy* 43 (2020): 149-50.

and secondly, examine the relative provisions and regulations set forth - at a regional level - by the European Union with regard to the digital technologies and its congenital risks.

A. THE RESPONSE OF THE WTO LAW

It is noticeable that the multi-faceted nature of the digital challenges combined with the inherent fluidity of emerging technologies render the regulatory design that could adequately accommodate them, complex and hard to elaborate.⁴¹ In the context of the law of the WTO, principles of great significance have been established with regard to the international commercial and economic relations, such as the most-favored nation [MFN] obligation and the national treatment obligation [NT], applicable equally to all WTO Members, that operate under the General Agreements on Tariffs and Trade [GATT]⁴², the General Agreement on Trade in Services [GATS]⁴³, as well as the Agreement on Trade-Related aspects of Intellectual Property Rights [TRIPS].⁴⁴ The GATT along with the adoption of the Information Technology Agreement [ITA] after the completion of the Uruguay Round at the Singapore Ministerial Conference in 1996, which represents a 97% of the world trade in information technology products, securing elimination of duties, provide a comprehensive framework for trade of digital products and one of the deepest modes of liberalization.⁴⁵ In accordance with its proclaimed objectives, ITA aims at “*achieving maximum freedom of world trade in information technology products, at encouraging the continued technological developments of the information technology industry on*

⁴¹ Mira Burri, “The international economic law framework for digital trade”, *Zeitschrift für schweizerisches Recht* 135 (2015): 10-2, 18-9.

⁴² General Agreement on Tariffs and Trade (GATT, 1994), Marrakesh Agreement Establishing the World Trade Organization, Annex 1A, 1867 U.N.T.S. 187 [hereinafter GATT].

⁴³ General Agreement on Trade in Services (GATS, 1994), Marrakesh Agreement Establishing the World Trade Organization, Annex 1B, 1869 U.N.T.S. 183 [hereinafter GATS].

⁴⁴ Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS, 1994), Marrakesh Agreement Establishing the World Trade Organization, Annex 1C, 1869 U.N.T.S. 299.

⁴⁵ Mira Burri, “Designing future-oriented multilateral rules for digital trade”, in *Research Handbook on Trade in Services*, edited by Pierre Sauve and Martin Roy (Cheltenham, UK: Edward Elgar Publishing, 2016), 3-5.

*a worldwide basis and enhancing market access opportunities for information technology products.*⁴⁶ The presence of ITA within the Digital Economy has been crucial, over the past two decades, in increasing global trade and investment in ICT by cutting costs of ICT products, creating thus, new opportunities of technology innovation, impacting access to the online environment, productivity and growth. Participation in the ITA and its expansion could lead to the removal of barriers to internet access, the reinforcement of digital markets and the integration of technological developments.⁴⁷

Despite the current lack of response, the law of the WTO secures a facilitative, beneficial and resilient regime, both in substance and in the procedural mechanisms, for the free trade and in terms of the trade of digital goods and products, which could potentially address challenges posed by the emerging technologies more efficiently, contrary to new impulsive measures and regulatory efforts. Also, the proper implementation of the GATS provisions with regard to transparency⁴⁸ or the application of principles regarding the government procurement or trade facilitation as well as the technologically neutral position of the Appellate Body, as outlined in the WTO case law⁴⁹, constitute major prerequisites for the development of an appropriate and prompt regulatory response to the new emerging Digital Economy.⁵⁰

⁴⁶ WTO, *Ministerial Declaration on Trade in Information Technology Products*, WT/MIN (96)/16 (1996).

⁴⁷ WTO, *20 Years of the Information Technology Agreement: Boosting Trade, Innovation and Digital Connectivity* (2017): 78-85.

⁴⁸ See: GATS art. III ¶ 1.

⁴⁹ See: Panel Report, *China-Measures Affecting Trading Rights and Distribution Services for Certain Publications and Audiovisual Entertainment Products*, WTO Doc. WT/DS363/R (2009), in which the Appellate Body clarified that distribution could cover both physical delivery and online delivery, ultimately strengthening the technological neutrality stance under the GATS; See also: Appellate Body Report, *United States-Measures Affecting the Cross-Border Supply of Gambling and Betting Services*, WTO Doc. WT/DS285/AB/R (2005), where the Panel and the Appellate Body applied the rules of the GATS to electronic cross-border delivery of services, therewith casting aside some existing uncertainties of WTO law's applicability to situations online.

⁵⁰ Mira Burri, "The Governance of Data and Data Flows in Trade Agreements: The Pitfalls of Legal Adaptation", *University of California, Davis* 51 (2017): 93-9.

Further, the adoption of the Work Program in Electronic Commerce in 1998, by the World Trade Organization - core objective of which would be the establishment of a comprehensive program to examine all trade-related issues with regard to the global electronic commerce, including the examination and report on the treatment of electronic commerce in the GATS legal framework⁵¹ - was a timely and promising initiative, nevertheless, the political and ideological discrepancies between the WTO Members deferred the development and progress of the Work Program.⁵² The lurking political ideologies and economy of the several WTO participants and governments that perceive differently the benefits and costs resulting from the digital trade constitutes a hindrance and plays determinative role that provoke the differentiation on critical issues related to the confrontation of the technological development, the sensitivity for matters of trust, privacy, cybersecurity and consumer protection in the Digital Economy edifice.

Moreover, the insufficiency of the existing GATS to promote progress and regulatory evolution with regard to the Digital Economy and trade is manifest; the wide discretion of the WTO Members as to the extent to which they are prepared to accept foreign companies and services and their autonomy to impose limitations and licensing prerequisites to specific sectors. National governments are unlikely to accept the unbounded risks to national sovereignty from the level of intrusion into the national infrastructure system that free flows of data across borders in the new Internet of Things environment would potentially allow.⁵³

Also, the continuous evolution of digital services and products in modern digital world, impedes their sheer distinction and classification into specific sectors under the confined or outdated

⁵¹ See: WTO General Council, *Work Program on Electronic Commerce*, WT/L/274 (1998), ¶ 1.1. ¶ 2.1.

⁵² Jia-Xiang Hu, "When Trade Encounters Technology: The Role of the Technological Neutrality Principle in the Development of WTO Rules", in *Science and Technology in International Economic Law: Balancing Competing Interests*, edited by Bryan Mercurio & Kuei-Jung Ni (Routledge, 2014), 79-80.

⁵³ Dan Ciuriak, "Digital Trade: The WTO in the Digital Age", in *Modernizing the World Trade Organization, Centre for International Governance Innovation Essay Series* (2020): 73.

content of the GATS, as current digital products and services often belong to and combine more sectors, such as the financial, banking or telecommunications services, or even further, constitute new sectors altogether, posing, thus, further inconsistencies and legal uncertainty regarding the appropriate legal and regulatory framework.⁵⁴

Although free flows of data across border compose the cornerstone of today's Digital Economy, the WTO legal framework remotely refers to their significance, only for specific sectors, without, however, encompassing more categories of data flows in other digital sectors. For instance, in accordance with the GATS Annex on Telecommunications, the global compatibility and interoperability of networks and services is underlined.⁵⁵ Having regard to the aforementioned ambiguity of the classification of the digital products and services, as well as the lack of horizontal commitment on cross-border data flows under the GATS, the framework of the respective legal commitments, obligations or restrictions on data flows remain unclear, furthering the legal uncertainty and consequently inhibiting the establishment of a global efficient regulatory framework towards Digital Economy.

Disagreement and controversy also exist among scholars, with regard to the sufficiency of the language available in the general exceptions of the GATS to carve out limitations for data flows on security, privacy and data protection rationales. In this context, it is argued that the potential application of the GATS exception in order to justify measures restricting data flows, makes a sophisticated and extensive legal analysis, that would require WTO tribunals to consider issues related to the unprecedented nature of Digital Economy and with regard to the technical feasibility

⁵⁴ Rolf H. Weber & Mira Burri, *Classification of services in the Digital Economy* (Berlin, Heidelberg: Springer, 2013), quoted in Andrew D. Mitchell & Neha Mishra, "Data at the Docks: Modernizing International Trade Law for the Digital Economy", *Vanderbilt Journal of Entertainment and Technology Law* 20:4 (2018): 1090.

⁵⁵ See: General Agreement on Trade in Services (GATS), Annex on Telecommunications, *WTO Analytical Index*, ¶ 1.1.7.

of such measures, an imperative need. Moreover, taking into consideration that the measures in GATS are formed under the terms of the international trade law and the scope of the GATS articles is undoubtedly limited, their context could not facilitate their application for digital privacy, cybersecurity, consumer protection or building trust in the digital environment.⁵⁶

Accordingly, within this unexampled context of an economy built on a capital asset with the characteristics of data, with absence of transparent structured markets or recognizable ownership rights⁵⁷, and for which there is no historical analogue⁵⁸ the provision of an internationally adopted divergent legal framework, pertinent for the new Digital Economy, which penetrates and restructures patterns of production and of trade, requires a thorough review of the WTO rules, as, currently, there is a Moratorium exempting goods and services traded digitally from duties.⁵⁹ To this purpose, it would be also vital for the WTO to constructively engage with the broader network of institutions dealing with digital commerce and the internet governance, in order to keep up with the evolving technological world and the inherent challenges, to contribute towards the formation of a coherent framework for digital trade.⁶⁰

⁵⁶ L. Lee Tuthill, "Cross-Border Data Flows: What Role for Trade Rules?", in *Research Handbook on Trade in Services*, edited by Pierre Sauve and Martin Roy (Cheltenham, UK: Edward Elgar Publishing, 2016), 371-2, 380, quoted in Andrew D. Mitchell and Neha Mishra, "Data at the Docks: Modernizing International Trade Law for the Digital Economy": 1093-6.

⁵⁷ Ottoline Leyser and Genevra Richardson, "Data Ownership, rights and controls: Reaching a common understanding", *Discussions at a British Academy, Royal Society and TechUK Seminar* (2018): 7-8.

⁵⁸ Dan Ciuriak, "Digital Trade: The WTO in the Digital Age", 74.

⁵⁹ Merit E. Janow and Petros C. Mavroidis, "Digital Trade, E-commerce, the WTO and Regional Frameworks", *World Trade Review* 18 (2019): 2.

⁶⁰ Mitchell and Mishra, "Data at the Docks", 1074.

New technologies raise potential issues in terms of privacy and security, transparency, disclosure, interoperability, and accountability,⁶¹ which must be addressed not only through technical measures but also through the law.

B. THE RESPONSE OF THE EU LAW

Since the dawn of the Digital Economy and the establishment of its disruptive characteristics that led to the redefining of powers, the change of governmental behavior as well as to the subversion of national sovereignty, the European Union has played an important role and supported efforts of adjustment to and capitalization on the new economic and technological opportunities providing a regulatory framework for the emerging Information and Communication Technology, electronic commerce and services, despite the number of legal obstacles and challenges also raised by the divergences, heterogeneity and variability of legislation within the European context.⁶² The adoption and implementation of the E-Commerce Directive⁶³, in 2000, constituted an important initial step towards these directions and aims and marked the primary legal framework for the regulation of digital services.⁶⁴ Recognizing the significance of information society services, main objectives of the E-Commerce Directive is the provision of “*a clear and general framework that would cover certain aspects of electronic commerce in the internal market, which would ensure the free movement of information society services between Member States*”, underlining the necessity of the effective protection of public interest

⁶¹ See: Background Report, Organization for Economic Cooperation and Development (OECD), “Challenges to Consumer Policy in the Digital Age”, *G20 International Conference on Consumer Policy* (Japan, 2019): 8.

⁶²Raphael L’ Hoest, “The European Dimension of the Digital Economy”, *INTERECONOMICS* (2001): 47-50.

⁶³ Directive 2000/31/EC of the European Parliament and of the Council on certain aspects of information society services, in particular electronic commerce, in the Internal Market (E-Commerce Directive), *Official Journal of the European Communities*, L 178, 17.07.2000.

⁶⁴ “EU Parliament backs plan for regulation on digital platforms”, *Engineering and Technology* (October 22, 2020), <https://eandt.theiet.org/content/articles/2020/10/eu-parliament-backs-plans-for-regulation-of-digital-platforms/>.

objectives, ensuring particularly the notions of transparency, the protection of consumer interests and the promotion of fair trading.⁶⁵

However, the rapid growth of the Digital Economy, and the subsequent dominance of online platforms in the virtual environment, proved these primary efforts of the EU inadequate, raising questions and controversy with regard not only to the emerging benefits of the Digital Economy but also to the development of an appropriate legal framework, competent to strike a proper balance between digital economic growth and the legal requirements hereinto, set forth by the law.

In this context, the European Commission adopted a quite reserved approach towards the regulation of the platform economy, announcing, in 2010, the “Europe 2020 Strategy”, for the revival of the European Economy and the provision of guidance on the applicable EU legislation and of recommendations for Member States, aiming at the support of a balanced development of the collaborative economy.⁶⁶ In May 2015, the European Commission issued its Digital Single Market Strategy (DSMS), declaring steps to be taken “*towards a connected digital single market, bringing down barriers in order to unlock online opportunities*”. The EU DSM Strategy aimed at the better access for consumers and businesses to digital goods and services across Europe, the creation of the right conditions and a level playing field for digital networks and innovative services to flourish and the maximization of the growth potential of the Digital Economy.⁶⁷ Also,

⁶⁵ See: The Preamble of the Directive 2000/31/EC of the European Parliament and of the Council on certain aspects of information society services, in particular electronic commerce, in the Internal Market, *Official Journal of the European Communities*, L 178, 17.07.2000, ¶¶ 5, 7, 8, 22, 29.

⁶⁶ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, *A Digital Agenda for Europe*, COM (2010) 245 final (Brussels, 2010).

⁶⁷ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, *A Digital Single Market Strategy for Europe*, SWD (2015) 100 final, COM (2015) 192 final (Brussels, 2015) [hereinafter DSMS]: 3-4.

quite important was the Communication on Building a European Data Economy, adopted in 2017 and addressed issues concerning big data, cloud services and the Internet of Things.⁶⁸

The measures that the EU has adopted encompass legislation that forms the digital platform environment, such as the Directives 2019/770⁶⁹ and 2019/771⁷⁰ on certain aspects of contracts for the sale of goods and the sale of digital content, the Regulation 2018/302 on the prohibition of geo-blocking⁷¹, the Directive 2019/2161⁷² on the better enforcement and modernization of Union consumer protection and the Regulation 2019/1150⁷³ on promoting algorithmic fairness and transparency for business users of online intermediation services, such as Amazon, Google, eBay. It constitutes the first regulatory attempt in the world, to establish a fair, trusted and innovation-driven ecosystem in the online platform economy.⁷⁴ The Regulation streamlines transparency rules applicable to contractual terms and condition, ranking of goods and services and access to data, also establishing redress mechanisms. However, the Regulation does not cover all types and circumscriptions of the notion of platforms, as it specifically applies only between Platforms and Businesses (P2B). The Regulation focuses on Internet Service Providers

⁶⁸ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, *Building A European Data Economy*, SWD (2017) 2 final, COM (2017) 9 final (Brussels, 2017).

⁶⁹ Directive 2019/770 of the European Parliament and of the Council on certain aspects concerning contracts for the supply of digital content and digital services, *Official Journal of the European Union*, L 136/1, 22.5.2019.

⁷⁰ Directive 2019/771 of the European Parliament and of the Council on certain aspects concerning contracts for the sale of goods, amending Regulation (EU) 2017/2394 and Directive 2009/22/EC, and repealing Directive 1999/44/EC, *Official Journal of the European Union*, L 136/28, 22.5.2019.

⁷¹ Regulation (EU) 2018/302 of the European Parliament and of the Council of 28th February 2018 on addressing unjustified geo-blocking and other forms of discrimination based on customers' nationality, place of residence or place of establishment within the internal market and amending Regulations (EC) No 2006/2004 and (EU) 2017/2394 and Directive 2009/22/EC, *Official Journal of the European Union*, L 60 I/1, 2.3.2018.

⁷² Directive 2019/2161 of the European Parliament and of the Council amending Council Directive 93/13/EEC and Directives 98/6/EC, 2005/29/EC and 2011/83/EU of the European Parliament and of the Council as regards the better enforcement and modernization of Union consumer protection rules, *Official Journal of the European Union*, L 328/7, 18.12.2019.

⁷³ Regulation (EU) 2019/1150 of the European Parliament and of the Council of 20th June 2019 on promoting fairness and transparency for business users of online intermediation services, *Official Journal of the European Union*, L 186/57, 11.7.2019.

⁷⁴ Tambiama Madiega, "Fairness and transparency for business users for online services", *European Parliamentary Research Service*, PE 625.134, European Union (Brussels, 2019): 1.

acting as intermediaries in transaction platforms and search engines, yet not addressing within its scope the sharing economy platforms, payment systems and advertising platforms.⁷⁵

Further, the adoption and the implementation by the European Union of a strong comprehensive legal framework regarding data protection and privacy, through the adoption of the General Data Protection Regulation⁷⁶ constituted an important step towards the same direction, within the European framework. Nevertheless, it is argued that the continuously evolving virtual space of digitized economies and free flows of data, makes the EU General Data Protection Regulation, insufficient to comprehensively address current challenges posed by the Digital Economy, as it does not take into account the extensive use of the Internet of Things and smart devices and, hence, the literal application of which may result in the imposition of unreasonable high liability on devices designers or operators in certain cases, or may create cyber security risks in other.

Another critical aspect of the European regulation and legislative approach towards Digital Economy, constitutes the issue of the intermediary liability regime, as in the context of virtual space, digital platforms hold a prominent role with regard to the conduct of transactions leading thus to multiple questions. The principles enshrined by the E-Commerce Directive with regard to the liability regime and its respective provisions aimed at addressing the differentiations observed in court rulings and national legislation that led to legal uncertainty for online service providers in the EU and to the hindrance of the implementation of the internal market. The Directive takes a horizontal approach regarding the liability of information society service

⁷⁵ Despoina Anagnostopoulou, “The EU Digital Single Market and the Platform Economy”, in *Economic Growth in the European Union: Analyzing SME and Investment Policies*, edited by Christos Nikas (Switzerland: Springer, 2020), 43-6.

⁷⁶ Regulation (EU) 2016/679 of the European Parliament and of the Council of 27th April 2016, on the Protection of natural persons with regard to the processing of personal data and on the free movement of such data and repealing Directive 95/46/EC (General Data Protection Regulation), *Official Journal of the European Union*, L 119/1, 4-5-2016.

providers, according to which, when the conditions set forth by the provisions of the Directive are fulfilled, the EU legislation exempts online intermediaries from a wide array of liabilities, such as contractual liability, administrative liability, penal and civil liability, for a plethora of activities initiated by third parties, including defamation, misleading advertisement, unfair commercial practices, unfair competition, copyright and trademark infringements, publications of illegal content. However, a number of questions and deficiencies are marked within the content of the Directive regarding the liability regime as the Directive provides an ambiguous definition of information society services, and further, a “safe harbor” regime, the legal notions of which must be immediately clarified taking into consideration the plethora of new emerging online platforms and intermediaries occurred since the adoption of the Directive. A wide range of problems are also related to the notice-and-take-down obligations, the monitoring of online content, public safety, competition law issues as well as the implementation of fundamental rights.⁷⁷ Moreover, queries arise as to whether platform operators are genuinely intermediaries, for the rules of the Directive to apply, leading to the ascertainment that not all aspects of platforms are covered.⁷⁸

The diversification of the CJEU ruling on the question of whether the service provided by Google and Airbnb must be classified as an information society service and thus subject to the liability rules of the Directive, constitute typical paradigms of the legal uncertainty provoked, at an EU level and by extension at a national level and the respective legislative response.⁷⁹ A number of questions has arisen about the intermediary liability framework in the EU and its

⁷⁷ Niombo Lomba and Tatjana Evas, “Digital services act: European added value assessment”, *European Parliamentary Research Service (EPRS)*, PE 654.180, European Union (Brussels, 2020): 7.

⁷⁸ Tereza Rodriguez-de-las-Heras Ballell, “Rules for Electronic Platforms: the role of platforms and intermediaries in digital economy A case for Harmonization” (2017): 3.

⁷⁹ Tambiama Madiaga, “Reform of the EU liability regime for online intermediaries: Background on the forthcoming digital services act”, *European Parliamentary Research Service*, PE 649.404, European Union (Brussels, 2020): 1-7, 14.

potential reforms, which underline the necessity of clarification of the role of digital platforms and their involvement within the Digital Economy, their obligations and subsequent liability regime towards consumers and other online stakeholders. It is essential for the legislator to decide on the extent to which a platform operator or intermediary is involved or determines the realization of transactions between consumers and suppliers or other online operators.⁸⁰

The European Commission, published a Communication on Online Platforms and the Digital Single Market, which concluded that the current liability regime is, in general, adequate, proposing *a sectoral problem-driven approach* regarding the platform liability, and in particular with regard to issues related to illegal and harmful content and online activities.⁸¹ Nevertheless, this sectoral approach may be proved problematic, as it aims not at the amendment of the existing liability framework of the E-commerce Directive, but rather at the fragmentary reconsideration of liability principles through sectorial reforms, that would lead to policy conflicts.⁸²

Within this abovementioned European regulatory framework, a new promising Digital Services Act and a Digital Markets Act have been unveiled by the Commission, towards the integration of the Digital Economy in the internal market, according to the objectives of which, they seek to *contribute to online safety and the protection of fundamental rights, to set a robust and durable governance structure for the effective supervision of providers of intermediary services and*

⁸⁰ Christoph Busch, Hans Schulte-Nölke, Aneta Wiewiorowska-Domagalska and Fryderyk Zoll, “The Rise of the Platform Economy: A Challenge for EU Consumer Law”, *Journal of European Consumer and Market Law* 1 (2016): 4-10.

⁸¹ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, *Online Platforms and the Digital Single Market Opportunities and Challenges for Europe*, SWD (2016) 177 final, COM (2016) 288 final (Brussels, 2016): 7-9.

⁸² Giancarlo F. Frosio, “Reforming Intermediary Liability in the Platform Economy: A European Digital Single Market Strategy”, *Northwestern University Law Review* 112:251 (2017): 21, 24-5, 45-6.

*ensure for the provision of innovative digital services in the internal market*⁸³ as well as for *online platforms to unlock their full potential by addressing the most salient incidents of unfair practices and weak contestability so as to allow end users and businesses alike to reap the full benefits of the Platform Economy and the Digital Economy at large, in a contestable and fair environment.*⁸⁴ The Commission would therefore propose definite rules framing the obligations and responsibilities of digital services to address the risks faced by their users, to protect their rights and ensure a modern system of cooperation for the supervision of platforms and guarantee effective enforcement. It would also establish *ex ante* rules to ensure fair online conduct, covering large online platforms acting as gatekeepers, that currently designate the market competition conditions.⁸⁵

The European Union has endeavored to establish an integrated digital space for the new Digital Economy tools and potential to thrive and prosper. Despite this promising steps and efforts made by the European Commission, towards the reformation of the existing legal framework in terms of the digitized economy, and the composition of new effective regulatory framework for the platform economy, they have been criticized and characterized as fragmentary and deficient with regard to the creation of a comprehensive regulatory framework and policy. Current regulatory approaches under the auspices of the European Commission are characterized by a discontinuous or abrupt compilation of regulation and a plethora of categories of soft law instruments,

⁸³ European Commission, *Proposal for a Regulation of the European Parliament and of the Council on a Single Market for Digital Services (Digital Services Act) and amending Directive 2000/31/EC*, SWD (2020) 348-9 final, SEC (2020) 432 final, COM (2020) 825 final (Brussels, 15.12.2020): 2.

⁸⁴ European Commission, *Proposal for a Regulation of the European Parliament and of the Council on contestable and fair markets in the digital sector (Digital Markets Act)*, SWD (2020) 363-4 final, SEC (2020) 437 final, COM (2020) 842 final (Brussels, 15.12.2020): 2-3.

⁸⁵ See: “Shaping Europe’s digital future: The Digital Services Act package”, *European Commission Policies*, <https://ec.europa.eu/digital-single-market/en/digital-services-act-package>.

addressing only certain individual aspects of the Digital Economy.⁸⁶ The current efforts of harmonization of the regulatory framework across Europe, pursued by the institutions, mostly implicate the use of regulations, as an instrument to implement digital policies. Nevertheless, the prioritization of digitization and the Digital Single Market, need to be reinforced by an official European dimension given to the digital policies within the competences, jurisdiction and common policies of the Union. Hence, the inclusion of a Treaty within the EU edifice would contribute to the streamlining of the aggregate digital policies.⁸⁷

It is of utmost importance to direct potential solutions of confrontation of the unprecedented legal questions posed by the new emerging technologies and the Digital Economy towards a more comprehensive regulatory formations capable to aggregate, delimit and unambiguously classify the plethora of digital stakeholders, that would streamline digital processes and behavior, unify and upgrade existing promising regulations and highlight and enhance the integrated potential of digital economic growth, without, however, disposing the so far *acquis* of crucial notions such as that of trust, privacy, security, transparency and liability in digital space. The European Single Market therefore requires a modern legal framework to ensure the safety of all stakeholders in the newly evolved Digital Economy, in order to allow economic growth of new business models and economic systems, and to make Europe “*fit for the Digital Age*”⁸⁸ while respecting the basic intertemporal principles underpinning the current legal framework of the E-Commerce Directive.

⁸⁶ Christoph Busch, “Self-Regulation and Regulatory Intermediation in the Platform Economy”, forthcoming in *The Role of the EU in Transnational Legal Ordering: Standards, Contracts and Codes*, edited by Marta Gamito and Hans-Wolfgang Micklitz (Edward Elgar, 2019), 17.

⁸⁷ Mirela Mărcuț, “Future Perspectives on EU Digital Policy”, in *Crystalizing the EU Digital Policy: An Exploration into the Digital Single Market* (Switzerland: Springer International Publishing AG, 2017), 19.

⁸⁸ Ursula von der Leyen, “A Europe that strives for more. My agenda for Europe”, *Political Guidelines for the next European Commission 2019-2024* (2019), https://ec.europa.eu/commission/sites/beta-political/files/political-guidelines-next-commission_en.pdf.

IS TECHNOLOGY THE NEW LEGISLATOR?

Since the commencement of the new digital world and of Digital Economy that are utterly modifying and transforming modern economies, the position and traditional role of Law and Regulation have been widely challenged. The establishment and dominance of technological tools and algorithms in modern life, that once constituted a study object of limited scientific branches and scholars, call the traditional notion of Law to a review and understanding of cyberspace and further of Digital Economy.

According to Lessig, the new digital space and economy require a broader perception, redefinition and account of regulation and most importantly, the recognition of a newly salient regulator. Cyberspace and subsequently the digital opportunities, offered services and digital tools and products provided within its framework, that are regulated through the use of algorithms and codes, necessitate their comprehension by modern regulators and legislators, making, thus, apparent that the variety of existing software and hardware establishing a regulatory framework in digital world, constitute de facto lawmakers, setting constraints or creating specific prerequisites of access or standards of online stakeholders' behavior,⁸⁹ consequently promoting the creation of values in respect with digital interaction and online transactions. In the newly formed regulatory environment of the Digital Economy, under conditions of algorithmic governance, a significant ratio of material power reposes in the stakeholder that authors the algorithm. Unavoidably, the code writers become lawmakers, that determine the default settings and features of the online world, the modes of ensuring privacy, cybersecurity and enhancing digital trust. The law can only provide a framework, while the actual regulatory power rests in the hands of online operators or platform economy designers,

⁸⁹ Lawrence Lessig, *Code Version 2.0* (New York: Basic Books, 2006), 5, 124-5.

transforming the digital architecture, that is constructed through the code, into the most potent regulator.

While legal regulation is typically enacted with the explicit aim of ordering a particular sphere of human activity by public institutions under a public and predefined procedure - permitting thus, scrutiny - algorithmic regulation can be the mere enshrinement of private businesses' and digital platform operators' interests, that would imply or result in a conclusion that favors the 'regulator' and not efficiently address the object of regulation.⁹⁰

In accordance with the consequent self-regulatory framework, that Digital Economy and platforms induct, an array of such platforms that chart modern economy, not only determine the terms and conditions of their own intermediary function but also exercise remote control over the terms under which, platforms users transact and enter into contracts with each other, providing therefore, more or less sophisticated multilateral governance frameworks. Hence, the regulatory potency of technology, and its conceptualization as a modality of regulation, is capable of serving as a complementary or even substitute to legal regulation, as it can adequately address the high degree of sophistication, complexity and granularity of online economy systems.⁹¹

The self-regulation of online actors is seen by many as a broader innovation-enhancing solution, that would provide guidelines for the Sharing Economy regulation, as the nature of the market has irreversibly been modified, and a new institution that drives economic growth is, consequently, created, reallocating the regulatory responsibility to other - than the government -

⁹⁰ Ignas Kalpokas, *Algorithmic Governance: Politics and Law in the Post-Human Era* (Switzerland: Springer Nature AG, Palgrave Pivot, 2019), 39-44.

⁹¹ Busch, "Self-Regulation and Regulatory Intermediation in the Platform Economy", 3, 11-2.

newly established digital stakeholders.⁹² The existence of self-regulation is quite prevalent and common in modern world. Self-regulatory regimes have been developed and classified, in modern scientific literature, in accordance with the respective levels of voluntariness, accountability, enforcement and governmental intervention, that might lead to efficient self-regulatory approaches for the Sharing Economy.

The provision by digital platforms of their own redress mechanisms, as well as of mechanisms of reputation and monitoring systems in order to facilitate self-policing, are widely established self-regulatory efforts and mechanisms. Nevertheless, in the context of a Sharing Economy that promises tremendous, decentralized innovation, and which allows the realization of individual abilities and aspirations, self-regulatory measures need to be not only credible but also comprehensive, policing misconduct, without stifling innovation and emerging new business models.

It is also proposed that digital platforms should be utilized as co-regulators, capable of establishing credibility - through decentralized regulation - and gaining legitimacy, and not as adversaries or entities that require governmental regulation.⁹³ Self-regulatory measures within an online platform – and further within Digital Economy - capable of monitoring the compliance with the respective rules and legislative framework, would contribute to reinforcing a regulated digital framework, characterized by enhanced security, privacy and digital trust to the available innovative Digital Economy ecosystem, without however superseding the legislative power and regulation of modern legislators.

⁹² Molly Cohen and Arun Sundararajan, “Self-Regulation and Innovation in the Peer-to-Peer Sharing Economy”, *University of Chicago Law Review Online* 82:1 (2015): 116-8.

⁹³ Cohen and Sundararajan, “Self-Regulation and Innovation”, 128-9, 132.

Again, however, in the context of self-regulation mechanisms the need for the existence of transparency, disclosure obligations, scrutiny and governmental – legislative oversight, remains and is imperative, as the complexity and sophistication of digital systems is continuously increasing, and new unprecedented digital tools are introduced.

Also, an increased demand for clarity in the rules which apply to the economic actors and their transactions composes an imperative need. Uncertainty still exists on such matters as whether agreements entered into digitally are enforceable, how the operative terms of online contracts will be determined by courts, what rights parties have to online information, as well as what electronic self-executed remedies they may exercise.⁹⁴ Nevertheless, this algorithmic driven economy and new virtual reality, could not prosper or increase its potential in modern economy life through a mechanic and sterile interpretation of law, and mere computation of legal and policy requirements of online behavior, or an a priori set of terms of contracts execution that may have, occasionally, been proposed. Understanding the law in terms of information, should help to address the data-driven nature of digital world, which is grounded on a particular concept, theory and utilization of information, and which also provides new building blocks for law's articulation.⁹⁵

It is argued that modern algorithmic systems of Digital Economy, that operate at a temporal scale and degree of complexity inaccessible to the human perceptual system, are essentially detached from material-physical reality, enjoying thus a mode of an alien existence and logic, of which

⁹⁴ Amelia H. Boss and Jane Kaufman Winn, "The emerging Law of Electronic Commerce", *The Business Lawyer* 52 (1997): 1470.

⁹⁵ Mireille Hildebrandt, "Law as Information in the Era of Data-Driven Agency", *The Modern Law Review* 79:1 (2016): 6-7.

modern regulators lack sufficient understanding.⁹⁶ In the context of this increasing complexity of the digital world, where technology and law interact through a bewildering system of dependencies and interdependencies, policy makers are called to respond to the technological innovation and opportunities of the Digital Economy and address its risks and regulatory challenges.⁹⁷ Having regard to the rapid and innovative technological developments and the installation of a platform economy, the task of modern legislative power is not facile. Legal rules that aim at establishing new policies and regulation for Digital Economy, need to be flexible enough to be adjusted to the consecutive technological changes and should be principles-based and not considerably detailed, in order to cover a plethora of emerging digital business models and challenges and thus adapt to their evolving regulatory requirements and challenges with ease.⁹⁸

Following the advent of technology and the governance of code that currently regulates digital environment, the tendency towards the transposition of the law into code and technical rules and hence its translation to the digital framework, constitutes a generalized prospect and concern among legislators and scholars. As interactions within the digital environment are increasing, algorithms have become an efficient and competent regulator, with regard to its capacity to enforce rules. But, as the law by definition is devised and implemented in order to accommodate the complexity and unpredictability of human societies, providing also for limitations and exemptions whereas code is strict, formalized and intrusive in its enforcement mechanisms, transposing the law into code and technical rules would be a difficult attainment.

⁹⁶ Robert Hassan, “The Economy of Digitality: Limitless Virtual Space and Network Time”, in *The Condition of Digitality: A Post-Modern Marxism for the Practice of Digital Life* (London, UK: University of Westminster Press, 2020), 103-4.

⁹⁷ Primavera De Filippi and Samer Hassan, “Blockchain Technology as a Regulatory Technology: From Code is Law to Law is Code”, *First Monday* 21:12 (2016): 1.

⁹⁸ Busch, “Self-Regulation and Regulatory Intermediation in the Platform Economy”, 12.

Also, the fact that regulation by code is elaborated mostly by private online operators, who may incorporate arbitrary rules into technical artefacts, without any democratic dialogue and co-decision, highlights the peril of undermining legal safeguards or respective judicial review, within the automated technical online procedures. Accordingly, as modern economy relies on technological means in order to enforce legal rules and policies, the risk of depriving law of its unique characteristics, its transparency and teleology is arisen, through its mere translation to strict and inflexible codes.⁹⁹ Therefore, despite the increased necessity for the implementation and participation of the law in the technical, automated processes of the Digital Economy, the law cannot completely or exclusively be integrated in technical rules, replacing thus, the legislative procedures and policies, the weighting of multiple stakeholders' interests and their conciliation.

In the same direction of concern, lies also the matter of the ethical intricacies of modern Digital Economy regulation. Moreover, having regard to the general lack of a comprehensive definition and thus the absence of a thorough understanding of the very nature and impact of Digital Economy mechanisms and of platforms, enhances legal and regulatory uncertainty, that could potentially lead to the impetuous and uncontrolled expansion of Digital Economy power, making thus, troublous the legislative efforts.¹⁰⁰ Notably, ethical challenges of proprietary algorithmic governance and decision-making of today's economy, is not only based to the increased complexity of respective digital processes, but also to the opacity of such computations and programming and unfamiliarity with their specific impact on economic relations, as well as the utmost level of confidentiality of the functionality of algorithms for the digital actors for

⁹⁹ De Filippi and Hassan, "Blockchain Technology", 14-7.

¹⁰⁰ Michele Finck, "Digital Regulation: Designing a Supranational Legal Framework for the Platform Economy", *LSE Law, Society and Economy Working Papers* 15 (2017): 4-5.

competitive purposes. Further, the unawareness of the exact importance of algorithmic decision-making, give rise to ethical dilemmas, as it incommodes regulatory responses with regard to matters of accountability and responsibility in cases of algorithmic failures that may occur, and in which multiple stakeholders are involved, as well as the possibility of traceability of the respective failure, and the imposition of analogous liability.¹⁰¹

Having regard to these designated legal and ethical dilemmas, and the unfathomed potential of regulation and legislative confrontation of the emerging Digital Economy, it becomes undisputable the requisition of an appropriate, sufficient, digital legislative context, that would still be aligned and consistent with the core principles of law, that take into consideration, a plethora of precarious factors arising when regulating human activities, even in such cases of digital transformation, as still issues and reflections of human misconduct may be transposed into code and automated practices.

Subsequently, as globalization and digital transformation proceeds in an unexampled rapid pace, the urgency of a harmonized, comprehensive legal framework, that would infuse more predictability in the Digital Economy edifice, and sufficient preparation of the law for further digital evolution and the emergence of new disruptive business models¹⁰², is incrementing, without, however, the relevant questioning that arise with regard to the readiness and promptitude of the law towards further developments of Digital Economy, to have a unanimous affirmative answer. The future implementation of legal rules and principles in Digital Economy should consider the multiplicity of the roles of Digital Economy tools and especially that of platforms, and their disruptive, and agile infiltrating nature.

¹⁰¹ Brent Daniel Mittelstadt, Patrick Allo, Mariarosaria Taddeo, Sandra Wachter and Luciano Floridi, “The ethics of algorithms: Mapping the debate”, *Big Data & Society* (2016): 3-6.

¹⁰² Tereza Rodriguez de las Heras Ballell, “The Legal Anatomy of Electronic Platforms: A Prior Study to Assess the Need of a Law of Platforms”, *The Italian Law Journal* 3:1 (2017): 155.

CONCLUSIONS

As the Data Driven Economy is emerging at a point of inflection, disruption of conventional societal and economic systems coincides with the predominant route in the progress of globalization. In this context, the regulation challenges of the newly established digital era of modern economy and of information relations as the basis of the information society and as a consequence of the widespread and utilization of technological means and digitized environments for economic transactions, seem to remain a pivotal reflection among modern legislators and scholars.¹⁰³ In particular, the spontaneity of the information flows formation, the practical absence of regulation of these novel processes until recent years, or the inelasticity of conventional rules, tools of governance, and of the notions of accountability and liability that are thrown into question¹⁰⁴; the constant increase of automation, speed and pervasiveness of information exchange, the complexity, opacity and increased sophistication of digital means and transactional systems as well as the arising matters and requirements of digital trust, privacy and security reinforcement in virtual space, call for a radical adjustment of legislative and regulative frameworks, not only at a regional but most importantly, at an international level, in an enhanced and comprehensive manner, that would adequately respond to the penetrative character of the new digital economic relations and digitized edifice.

The manifest omission and lack of synchronous international regulatory framework for the multifaceted nature of the digital challenges under the auspices of international institutions and in particular of the WTO law and agreements, combined with the inherent fluidity and rapid

¹⁰³ Vasily V. Tarakanov, Agnessa O. Inshakov and Vladimira V. Dolinskaya, “Information Society, Digital Economy and Law”, in *Ubiquitous Computing and the Internet of Things: Prerequisites for the Development of ICT*, edited by E.G. Popkova, Studies in Computational Intelligence 826 (Switzerland: Springer Nature AG, 2019): 13-4.

¹⁰⁴ Peter Gluckman, “The Digital Economy and Society: A preliminary commentary”, *Policy Quarterly* 14:1 (2018): 8.

variation and alteration of the features and abilities of emerging technologies, intensify the multiple questions with regard to an appropriate response of the law to new digital challenges. Hence, the modernization and renegotiation of international trade agreements, and their adjustment to technological developments, in order to adequately address digital risks and excessive digital restrictions or unlawful discrimination through the exploitation of algorithmic opaqueness, would be a step of utmost significance towards a robust Digital Economy and a forceful regulatory context.

Despite, also, the efforts of the Commission of the EU to structure a legal framework, capable to respond to an array of unique digital challenges, the sectoral problem-driven approach that the EU implemented and the adoption of - in a way - scattered policies and regulations through the use of soft law instruments to address individual aspects of Digital Economy, such as the controversial issue of the liability of platform intermediaries, the existence of indistinct definitions of Digital Economy tools, as well as the ambiguous classification of digital platform operators, avoiding, however, to conclude to a more comprehensive legal construction, makes the European regulatory response towards new technologies and Digital Economy deficient.

Further, the lack of habituation of policy makers and legislators with the digital era and the newly available technological infrastructure and their insufficient knowledge about the technical perspectives of digital space, that proposes a plethora of mechanisms for the conduct of transactions and of economic processes, may restrain the development of relevant and fitted for the Digital Economy rules.

The need for the composition of a comprehensive legal framework for the infrastructure of Digital Economy, and in particular, for digital platforms that currently constitute fundamental

business model of modern economy, is imperative, as the encompassment of a uniform application and harmonization of regulatory policies would contribute to the reduction of divergences, inconsistencies and ambiguities between domestic regulations of rules, jurisdictional issues and judicial precedent.¹⁰⁵

The vision and realization of such legal and regulatory framework would require an extensive and diffusive coordination and cooperation of the Law with the emerging technologies. In the context of the symbiosis between changing production and new business processes and models and Information and Communication Technologies that constitute the driving force toward the new Digital Economy and in order to diminish the congenital and by definition discrepancies of law and emerging technologies, the establishment of a framework for the authentication of computer-based information requires a familiarity with concepts and professional skills from both the legal and computer security fields.¹⁰⁶ Thus, the familiarity of legislators and regulators with the emerging technologies as well as the initiation of a public dialogue and cooperation among these differing communities, would constitute a fruitful interplay towards the optimization of regulatory choices for the Digital Economy. Enduring discussion and exchange of knowledge on both technical computational matters and relevant legislative concerns, would compose the cornerstones for a thriving utilization of the features of the Digital Economy and the restraining of the impetuous influence of its inherent risks.

Nevertheless, the new developments in digital space and the subsequent transition to a platform economy and reorganization of global economy should not contribute to the amplification of the chasm created between emerging technologies and the notion of the Law. The notions of the

¹⁰⁵ Ballell, “The Legal Anatomy of Electronic Platforms”, 155.

¹⁰⁶ Harbhajan Kehal and Varinder P. Singh, *Digital Economy: Impacts, Influences and Challenges* (Hershey and London: Idea Group Publishing Inc, 2005), 3-4.

Rule of Law and of the specific will of the legislator and teleological interpretation of legislature should not be circumvented or abrogated as a consequence of the rapid and continuously evolving digital world. But the new innovative and digital means should be utilized to interpret, or comprise not only legal rules, but also the will of the legislature and the statutory interpretation into the newly established environment of Digital Economy.

Also, as self-regulatory mechanisms have the ability of addressing the high complexity of algorithmic governance and digital decision-making, should efficiently be utilized, in a manner that would not substitute or supersede the law, but effectively, complement and facilitate the implementation and enforcement of legal rules in digital space. The vague nature of digitality and digital openness, should be viewed as aspirational tools rather than binding benchmarks, which would facilitate achieving further openness, stability, interoperability and trust.¹⁰⁷

Primary consideration, prior to the development and implementation of a comprehensive regulatory and legal framework appropriate to bridge current partial regulation, fragmentation and to strike a balance between the multitude of Digital Economy stakeholders, digital growth, and the impact of the digitization on modern economic, societal and governance structures, should be the realization of economic and societal changes, the understanding of the manner, with which it reshapes current political, cultural and human environments, conducting consecutive comparative studies of the legislative contents and frameworks, in order to conclude to a well-founded and effective legislative reform. Such an achievement and progress would require the close collaboration of governments and regulatory agencies with business and the technology society.

¹⁰⁷ Neha Mishra, "International trade, Internet governance and the shaping of the digital economy", *Asia-Pacific Research and Training Network on Trade Working Paper Series* 168 (2017): 11.

Finally, despite the fact that current legal response lacks an enhanced comprehensive regulatory framework and harmonization, capable of responding to the continuously increasing digital challenges and to the crucial and decisive for modern economy novel questions that have not yet been addressed, rethinking the law and its position in the digital era, should not aim at the creation of a utopian utterly novel legal framework, but should be aligned with the need for the generation and reinforcement of digital trust, whereas legislative choices should adapt and be characterized by targeted responds to the unique specificities of Digital Economy, therefore contributing to the flourishing engagement of the law with the new promising digital era and its unprecedented opportunities, towards the securing of the crucial preconditions for further development and the integration of digitality in modern economic life.

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