

# Tech-Augmented Legal Environment (TALE) – A Paradigm Shift in Legal Research and Practice

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**Abstract—** The paper focuses on the emerging paradigm shift in the legal system, which emerges from the radical and society-wide changes arising from the universal use of digital technologies and artificial intelligence. It has been previously established in academic literature that digital technologies became part of the everyday reality, interacting with and constantly forming the environment of humans. The fundamental modification of the usage and intervention of tech-based tools in humans daily practice must be transformed to a modified view on the regulatory role, as well as academic research. The paper defines the term “tech-augmented legal environment” (TALE), which describes this new reality the legal system and legal professionals have to operate in. The paper highlights the research fields of TALE by drawing line between tech-augmented and tech-affiliated legal research, from which the previous one is in the center of interest.

**Keywords:** law of technology, technology of law, AI, robotics, blockchain, smart contract, autonomous devices, decision making, regulation, Tech Augmented Legal Environment

## I. INTRODUCTION

In 1932 Huxley described a society where human life was limited to a certain goal, the physical and mental abilities were designed in laboratories. In the world we are living in today, the new technologies, including artificial intelligence, data mining (Big Data), and biotechnology are becoming more and more widespread, and they form a crucial part of the new, data-driven economy and its society. As Baranyi and others outlined, the foundations of our virtual and augmented, future-

oriented reality shall have an emerging and growing impact on the whole contemporary society but especially in science and technology[1]. As people are using online services more often, they generate an ever-increasing data footprint about themselves. Another trend clearly visible is the convergence and merging of digital service providers, resulting in a very few big technology companies in control of the vast majority of data about the population. Since these services also include data from many third-party applications and are also cross-referencing each other (e.g. you log in to your Facebook account with your Gmail address), they access almost every tiny detail of a person’s online and offline activity. This, combined with the abilities of Artificial Intelligence, leads to the creation of a very accurate and detailed profile of the person, which we can call a *digital persona* [2]. It includes sensitive details of health, relationships, habits, political and religious views, as well as financial status. Despite the many efforts made by legislative bodies to provide the “right to be forgotten”, this digital footprint seems to be indelible. Furthermore, *homo digitalis* [3] has evolved from *homo oeconomicus* [4] during the 4<sup>th</sup> industrial revolution, where this human being is not able to be part of a certain society without several digital connections. Government service providers, private service providers and even employers force the citizens to use communication methods, interfaces and applications that provide the only way of getting in touch and fulfil necessary tasks. Finally, we postulate that the *minor annoyances* occurring in people’s everyday lives, that chip away from their rights and privacy bit by bit, add up to a major deterioration of their legal protection in the long run on a society level.

The emergence of this digital alter ego (the *digital persona*) has resulted in many aspects of a person's life - are now conducted or supported in the digital space. We can observe the human status as a complex phenomenon of three different, concentric layers. The outside layer is the person as an economic actor, consumer of goods and services. The next layer is the person as workforce, and finally in the core we find the person as a human being, subject of human rights, entitled to privacy and protection of the law. We organize our research around these strata, exploring the legal, sociological, psychological impact of technical development on each of them.

*i) the outer layer* of the human status is the person as an economical actor, being a consumer. The aim of this research aspect is to present the 21st century consumer from the legal perspective. One hypothesis of the research is that despite of the efforts of both national and international legislators, consumer protection is not effective in case of the online presence of persons or in cases of being a contacting party of disruptive technologies [5]. A vast majority of disruptive technologies target people as consumers. In this matter, we focus on the shifting boundaries of trust between human persons, governments and technology companies. First, we have to establish the fact that human supervision over the functioning of Artificial Intelligence is not feasible for various technical, biological and psychological reasons [6]. If this proves true, then we have to acknowledge that it is only trust that lets these technologies function in our society. We will examine this trust on many levels: trust of people in technology itself, the trust in developers and tech companies, and finally people's trust in governments as regulators and supervisors. From a regulatory point of view the trust of governments in tech firms form the basis of the legislative steps in the future [7, 8]. We seek to establish that the current regulatory approach, insisting on real-time human oversight or intervention is flawed [9].

*ii) the second layer* and the research based on it is analyzing the human beings partaking in the changing world of the labor market. Human beings, as factors of production face several fundamental changes during their active years on the labor market: the volatility of the value of the previously acquired skills and knowledge, conflicts of the growing generation gap and the most feared beast of all: the robotics and automatization that eliminates complete branch of businesses within a couple of years. Taking into consideration Maslow's pyramid of needs, the changes in the industrial world are challenging many employee's basic needs: safety and security, and with the possibility of losing their jobs, even the everyday physiological needs are in danger. The pandemic has given new momentum to the digitalization process: the spreading of home office work is likely to remain even after the crisis.

*iii) the core layer* is the personal one, where the human being is the subject of human rights. We will examine the various consequences of technical development, including automated decision-making based on aggregate personal data by law enforcement [10], as well as targeted advertising, opinion bubbles, and implications on free speech [11]. We will not be

examining in detail the so-called "surveillance state" - as present in China for example - because there is very little actually reliable information available. In this part of the research we will reach back to the theory we established earlier about building human-machine coexistence on the notion of trust. We examine what can the common denominator for establishing trust and social order within the era of tech companies and artificial intelligence be. We postulate the gatekeeper at these trust boundaries to be human rights and basic constitutional values, as they are universally recognized by the nations. Agreeing to this premise, it needs to be determined how our views on human rights have to change in order for big international technology firms, AI developers and users to become obligated by them. We can rely on the recently emerging theoretical movement initiated ten years ago by the UN Guiding Principles on Business and Human Rights, which implies that the obligation to respect and enforce human rights has to shift from governments and states toward including big businesses as well [12].

As we can see, disruptive digital technologies found their way into people's lives, interweaving almost every aspect of their personal lives and presence in society. These digital technologies - as Floridi points out in the Onlife manifesto [13] - are not mere tools anymore, but rather environmental forces that are increasingly affecting people's self-conception, their mutual interactions, their conception of reality, and their interactions with reality. In onlife, one does not have to ask another person anymore whether he or she is online, it has become so much embedded in our lives. We can say that the usual environments where humans exist, as well as their personal and professional interactions, are augmented by these digital technologies, blurring the line between reality and virtuality, and blurring the distinction between human, machine and nature [13]. Therefore the ethical and legal significance of such technologies are huge, and legal scholars and lawmakers have yet to come to terms with it. We postulate that the above described shift in reality caused by digital technologies must have an impact on the legal system as well. The field in which lawmakers and legal professionals operate is also greatly determined by digital technologies: the new phenomena in society need to be governed, and in the same time several digital technologies are at the disposal to aid the various legal professionals. This article will lead the reader through the process of how the digital tech revolution brought to life a new scholarly approach and created a new playing field for legal professionals and legislators, which we call a *tech-augmented legal environment*.

In this landscape the state has to assume a new role in overseeing and enforcing democratic principles and human rights in business -to-human relationships. In this research phase we will have to widen the research to the basic understanding of the mechanics and mathematics underlying Artificial Intelligence, in order to be able to tell whether the respect for constitutional values and human rights can be built in these systems at all.

## II. CHANGE OF PARADIGM IN LEGAL RESEARCH

### A. *Paradigm shift*

Without a doubt, a new industrial, particularly digital scientific “revolution” is still underway in our contemporary era. New ideas, concepts, methods have become certain, proven and acknowledged by science. The spectacular paradigm changes in science lead to paradigm changes in the interconnected social sciences, so to say, law as well. According to Thomas S. Kuhn, “paradigms’ are “universally recognized scientific achievements that for a time provide model problems and solutions to a community of practitioners.” [14]

Kuhn stated that paradigm shifts in science have to undergo four phases, such as i) normal science, ii) extraordinary research and science; iii) adoption of a new paradigm, and finally iv) the scientific revolution aftermath. AI-related scientific researches took shape in the fourth, so-called post-scientific revolution period, therefore regulation shall follow, analyse and comment on the newly established paradigms with great attention. The concept has only been adopted to natural sciences at first, but the paradigm shift approach has been enlarged into a wider field, e.g. social sciences as well. [15]

Thus, research in the field of law (and social sciences, too [16]) shall reflect the existing new paradigms by means of future law-making and implementation of legal regulation to the new paradigms. And beyond, legal researchers shall use their existing and also evolving research skills and tools to analyse these trends and new phenomena.

A major factor in this paradigm shift in regulating or legally addressing Artificial Intelligence has been brought upon the unique characteristics of AI research and development. As Scherer [17] points out, progress in the field of AI is fundamentally different from any previous industrial breakthrough, because research and development processes are characterised with the concepts of Discreet, Discrete, Diffuse and Opaque. He points out that AI development can be conducted with almost no visible infrastructure, and developers may be located far away from each other. The end product can be assembled from components designed in different parts of the world, and the inner workings of the end product may be kept secret and may not be reverse engineered easily. Development of AI applications therefore is far less tied to a specific geographical location, so lawmakers may face the fact that the addressee of their regulation slips through their fingers over and over again. This aspect leads to the acknowledgement that issues relating to new, disruptive technologies cannot be successfully regulated on a national level, and sometimes novel regulatory approaches - such as regulatory sandboxes and ethical guidelines - are called for.

Lawyers shall either find their traditional ways to use their tools to the new paradigms (by means of classical law-making, law enforcement frames with the existing legal categories) or find new legal institutions to be adaptable for the future innovations and new solutions. Law is and always will be the social science phenomenon by permitting or prohibiting

innovations or innovative mechanisms, but the technological solutions and their social perceptions and attitude towards these trends can easily accelerate the changes in the legal rules as well. The term ‘tech-augmented legal environment’ (TALE) is focusing on the legal aspects of that quickly shaping and reshaping but continuously and significantly developing field of technological (notedly digital) innovations.

### B. *Empirical evidence on paradigm shift in legal research*

The paradigm shift in legal research is deeply rooted in globalization. Within this very complex concept, we can identify four criteria that are the driving forces of new legal theory:

- (1) internationalization – when a phenomenon cannot be effectively regulated in national manner, as most of the subjects of regulation are borderless or easy to move abroad;
- (2) liberalization – in the means of open and interdependent economies and the spreading of self-regulated fields;
- (3) universalization – meaning global consciousness and responsibility, and also global humanism, international connections and cosmopolitan style of living;
- (4) westernization – the undeniable and direct effect of western principles and business methods [18].

The above mentioned criteria make it almost impossible to create national legal frameworks for tech-augmented legal environment because of the regulatory arbitrage [19]. We can observe that even in private law issues the global perspective is adequate. In the field of public international law, this approach is natural, but was it always a self-understanding in competition law, financial law, labor law, tax law? Can we imagine that in the early 20th century a German MP was taking into consideration a recent French regulatory change while modifying the Bürgerliches Gesetzbuch? Now, when we observe the possibilities of central bank digital currency (CBDC) a whole world is analyzing the example of Singapore, Malta and Germany and apprehensively waiting for the European Central Bank to issue a statement on the subject.

In the last 40 years the whole world became a small village where national legislators have only two options: lead or follow in understanding and dominating (if even possible) tech-augmented reality. Hereby we set some examples of regulatory issues to be dealt with in the near future and are influenced by the above mentioned criteria.

(1) *central bank digital currency (CBDC)*: in this topic the leaders are already on the floor as many countries issued at least a statement on supporting CBDC [20], and we can also observe the necessity of international cooperation in practice [21]

(2) *tech-supported decision making*: what are the boundaries of “proper help” given by machines to humans? Should we be worried that humans are already handled as disabled persons when it comes to the point of supported decision making processes? If we examine the example of Facebook-ads and Netflix-suggestions based on our presumed

preferences, is it consensual help in the decision making process? [22]

(3) *blockchain-based governmental functions*: the possibilities arouse from data-based innovation are also affecting the governmental actions: based on the blockchain technology, public administration can be far more easier in means of filing, testifying and interoperable, also environmentally sustainable. The technology is able to set absolutely new standards for information policy of the state. [23]

### C. European regulatory level

Europe is striving to achieve the global leading role (along with USA, China, Russia) in digital AI-related issues, therefore EU policies and EU secondary laws will certainly be following these policy initiatives.

The European Commission adopted the Digital Strategy in 2018 in order to set out “*a vision (...) evolving towards a digitally transformed, user-focused and data-driven administration. It formulates the principles to underpin the development of digital solutions to support the effective and coherent use of data by the Commission in compliance with data-protection regulations.*” [24]

Besides, the European Commission published a White Paper on AI [25], hence “Europe can combine its technological and industrial strengths with a high-quality digital infrastructure and a regulatory framework based on its fundamental values to become a global leader in innovation in the data economy and its applications”. The main perspectives and aims of the strategy are the development of citizen benefits of AI (e.g. health care, cleaner transport, etc.), business development and development of public interest (e.g. sustainability, better services, waste management, etc.).

Both the digital strategy and the AI strategy of the EU as a regional integration will demand a thorough overview of EU norms (thus, modification of Hungarian laws implementing EU directives, as well), emphasizing the in-depth and new-focused regulation methods by means of law and other legal regulation techniques. Therefore, at least a fresh view but rather new concepts and institutions can be necessary for the legal environment in order to complete these objectives. As the AI strategy confirms, “*developers and deployers of AI are already subject to European legislation on fundamental rights (e.g. data protection, privacy, non-discrimination), consumer protection, and product safety and liability rules. Consumers expect the same level of safety and respect of their rights whether or not a product or a system relies on AI.*” So, the legal analysis of these institutions shall be redefined and reconsidered through the lenses of the AI specifics as well as technological capacities and features. The EU knows this kind of challenge, by stating that “*given how fast AI is evolving, the regulatory framework must leave room to cater for further developments.*” Within these developments, the legal measures will be the driving force and enforcing method, too, which will define the frames of the development.

As of right now, the General Data Protection Regulation (GDPR) is the single source of law that can be called upon

when addressing issues arising from digital technologies interacting with humans - especially when it involves automatic decision making. And since everything in the material world can be considered information, and GDPR’s definition for personal data is intentionally very broad, it is sometimes referred to as the “Law of everything” [26]. This approach may bear some criticism, because extending the strict protection of the GDPR to any activity involving data can lead to an unintended chilling effect on all technological progress.

### III. FRAMEWORK OF THE NEW PARADIGM

One of the most controversial topics in contemporary academic debate is whether recent advancements in technology call for new regulatory approach or the existing framework of legal systems is fully capable of handling any issues arising thereof. In this debate we consider it paramount to establish a clear distinction between issues involving technology as a tool from issues where technology functions as an “elementary force” in society, human psychology and everyday reality, as discussed above in relation with Floridi’s Onlife concept. We argue that the former case can be dealt with in the current legal framework, but the latter requires a conceptual change of approach. That is why we introduce the term of Tech-augmented Legal Environment.

We define tech-augmented legal environment (TALE) as the *aggregation of issues related to legislative policy, regulation, legal practice or any human relationship with legal relevance, where a technological process, method or attribute is a condition sine qua non of the examined subject.*

With this definition we can clearly distinguish issues where digital technologies are involved, but definitive, from phenomena which could not have happened without a certain digital technology. Let us assume that a set of malicious e-mail messages is sent to a victim in order to deceive him, and as a result the perpetrator gets hold of a large amount of his money. This act certainly involves a digital technology, but from a legal point of view it is no different from fraud committed via phone calls, or even an in-person visit. In this case, the existing legal framework can provide appropriate definitions for the legal professional to deal with the issue. On the other hand, phenomena such as self-executing smart contract with blockchain technology, or the decisions and action of a fully automated, AI-based decision-making agent are issues where the existing legal framework needs to be seriously twisted and bent in order to provide any traction for handling the case. These latter phenomena fall into the TALE category, requiring unique and novel solutions.

We should also establish some core attributes of TALE related issues.

- (1) Most of these cases have a strong human focus, strongly affecting the rights and liberties of persons.

- (2) The long-term effect, and sometimes the immediate consequences of such issues are unknown and unforeseeable, because of their novelty.
- (3) The safety, acceptability and consequences of the use of some digital technologies cannot be determined by focusing on the functions of technology alone. A multidisciplinary approach involving psychology, sociology, economic science and legal scholarship is required.
- (4) These technologies cannot and should not be regulated and adjudicated without a thorough technological knowledge on the part of the legal professional involved. Therefore, lawyers of the future need to be trained in information technology in order for them to understand the technology and be able to make informed decisions about them.

#### IV. CONCLUSION

In conclusion, we have established that the recent technological revolution has brought about changes for the human being, the perception of reality and the functioning of society, which need to be addressed by the law. When a technology is so new, widespread and influential that it can be considered a “natural force”, a new regulatory and academic approach is required. We named this new framework a Tech-augmented Legal Environment (TALE). We argue that TALE brings a paradigm change in legislation, adjudication and academic discussions as well.

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